5th National Business And Management Conference

Conference Proceedings
ISSN: 2345-8720

Theme: “Grassroots: Towards responsible management and sustainable business practices”
November 17 and 18, 2017
Avenue Plaza Hotel
Magsaysay Ave, Naga, 4400 Camarines Sur

Co-organized by Central Bicol State University of Agriculture, De La Salle University and Philippine Academy of Management
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**Venue: Avenue Plaza Hotel**  
**Master of Ceremonies: Ms. Francia Belarmino**

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<th>Time</th>
<th>Session</th>
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<td>8:00 – 9:00 AM</td>
<td>Registration, Morning snacks</td>
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| 9:00 – 9:30 AM | **Opening ceremony**  
Venue: La Piazza, Ground floor  
Invocation and National Anthem  
Welcome Remarks  
Dr. Georgina J. Bordado  
President, Central Bicol State University of Agriculture  
Acknowledgement of participating schools  
Rationale of the conference  
Dr. Raymund B. Habaradas  
Co-Chair, 5\textsuperscript{th} National Business and Management Conference  
Director, Center for Business Research and Development  
Ramon V. Del Rosario College of Business, De La Salle University  
Video message  
Hon. Gabriel H. Bordado Jr. (to be confirmed)  
District Representative  
Camarines Sur, 3\textsuperscript{rd} District | La Piazza, Ground floor |
| 9:30 – 10:15 AM | **Keynote address**  
Venue: La Piazza, Ground floor  
Introduction of keynote speaker  
Prof. Josephine F. Cruz  
Vice President for Research and Development  
Central Bicol State University of Agriculture  
“Sustainable Development Goals (SDGs): The Role of Philippine Business and Academia”  
Br. Armin A. Luistro, FSC  
President, De La Salle Philippines  
President, Philippine Business for Social Progress  
Open Forum | La Piazza, Ground floor |
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<tr>
<td>10:15 – 10:30 AM</td>
<td>Token for speaker</td>
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<td>10:30 AM – 12:00 PM</td>
<td>Group photo documentation</td>
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<td>10:30 – 12:00 PM</td>
<td>Parallel sessions for research presenters across different rooms</td>
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**Parallel Session A – Managing at the grassroots**  
**Room A**  
**Session Chair: Dr. Cleofe Arib**

- **10:30 – 10:50 AM**  
  **Paper 1**  
  *Integration of Ecosystem-based Climate Change Adaptation and Mitigation Into Local Policies and Programs in Selected Municipalities of Camarines Sur*  
  Flordeliza Valenzuela  
  Central Bicol State University of Agriculture

- **10:50 – 11:10 AM**  
  **Paper 2**  
  *Benchmark survey on food and nutrition security status of Aeta-Tabangon families in Sorsogon*  
  Amelia Nicolas  
  Central Bicol State University of Agriculture

- **11:10 – 11:30 AM**  
  **Paper 3**  
  *Remodeling Livelihood Vulnerability Indicators for the Informal Food Microentrepreneurs*  
  Hanilyn Hidalgo and Michael Cuesta  
  Central Bicol State University of Agriculture

- **11:30 – 11:50 AM**  
  **Paper 4**  
  *The Symbolic Value of the Historical Sites in Pasacao according to the Oral Narratives of the Elders: A Lived Experience*  
  Divina Gracia Galang  
  Central Bicol State University of Agriculture
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<td>Student-based School Reputation, Stakeholder’s Satisfaction and Stakeholder’s Loyalty in Higher Education Institution: Partido State University Students’ Perspectives Rhesty Biares De La Salle University</td>
<td>Social Commerce Continuance Participation Intention among Business Administration Students of Jose Rizal University Eric Jayson Asuncion Far Eastern University</td>
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| 11:30 – 11:50 AM | Predicting the Net Income Performance of the Life Insurance Industry Using Economic and Insurance Development Indicators Through Multiple Linear Regression
Dennis Berino
De La Salle University | Forecasting consumer price index: a comparison between Vector Autoregressive (VAR) and Ordinary Least Squares (OLS) Models
Reynaldo Bautista Jr, Dioscoro Baylon Jr and Zorayda Ang
De La Salle University | Exploring the Role of Natural Disaster Entrepreneurship in Community Resilience, A Research Proposal
Shieradel Jimenez
De La Salle University | How Philippine Businesses Care for God’s Creation
Ma. C. P. Assumpta Marasigan, Bianca Angela C. Casal, Monique Marie P. Kahn, Maria Bettina R. Mangubat, and Tiffany R. Occeño
De La Salle University |
| 11:50 – 12:10 AM | Parallel Session D – Spirituality and resilience
Room D
Session Chair: Ms. Pia Manalastas | Building resilient and sustainable farms through organic agriculture
Carmelita Cervantes
Central Bicol State University of Agriculture | | |
## Day One (November 17, 2017) – Afternoon

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<tr>
<th>Time</th>
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<tr>
<td>12:10 – 2:30 PM</td>
<td><strong>DIALOGUE OF BUSINESS DEANS/ADMINISTRATORS and PRME (Principles for Responsible Management Education) BRIEFING</strong> – by invitation only</td>
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<tr>
<td>12:10 – 1:30 PM</td>
<td><strong>LUNCH and NETWORKING</strong>&lt;br&gt;Research and networking opportunities</td>
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<td>1:30 – 4:00 PM</td>
<td><strong>Capability-building Session 1</strong>&lt;br&gt;Venue: La Piazza, Ground Floor&lt;br&gt;“Writing Teaching Cases”&lt;br&gt;&lt;strong&gt;Dr. Emilina R. Sarreal&lt;/strong&gt;&lt;br&gt;Associate Dean for Research and Graduate Studies&lt;br&gt;Ramon V. del Rosario College of Business&lt;br&gt;De La Salle University</td>
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<td>4:00 – 4:30 PM</td>
<td>Afternoon snacks</td>
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<td>4:00 – 5:30 PM</td>
<td><strong>Meeting of the Philippine Academy of Management (PAOM)</strong></td>
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Day Two (November 18, 2017) – Morning

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<th>Time</th>
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<tr>
<td>8:30 – 9:00 AM</td>
<td>Registration for second-day participants</td>
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<td>9:00 – 10:15 AM</td>
<td><strong>Plenary session</strong>&lt;br&gt;<strong>Venue: La Piazza, Ground Floor</strong>&lt;br&gt;Introduction of plenary speaker&lt;br&gt;<strong>Prof. Cresilda M. Caning</strong>&lt;br&gt;Dean, College of Economics and Management&lt;br&gt;Central Bicol State University of Agriculture&lt;br&gt;“Building a Research Culture in Philippine HEIs: Opportunities and challenges”&lt;br&gt;<strong>Dr. Feorillo Petronilo A. Demeterio III</strong>&lt;br&gt;Director, University Research Coordination Office (URCO)&lt;br&gt;De La Salle University&lt;br&gt;Open Forum&lt;br&gt;Token for speaker and picture-taking</td>
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<td>10:15 – 10:30 AM</td>
<td>Morning break</td>
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<td>Parallel sessions for research presenters across different rooms</td>
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<td>10:30 – 10:50 AM</td>
<td><strong>Parallel Session E – Human resource management</strong>&lt;br&gt;<strong>Room E</strong>&lt;br&gt;<strong>Session Chair: c/o CBSUA</strong>&lt;br&gt;<strong>Paper 1</strong>&lt;br&gt;Leadership Competence and Organizational Culture in Banking Institutions: Towards a Synthesized Leadership and Organizational Culture Framework&lt;br&gt;Harrison Villanueva&lt;br&gt;Saint Mary's University</td>
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| 10:50 – 11:10 AM | Paper 2  
*Entrepreneurial Competencies and Management Practices of Nueva Vizcaya and Benguet Microentrepreneurs: Towards the Development of a Competency-based Training Plan*  
Harrison Villanueva and Catalina Acpal  
Saint Mary's University   |
| 11:10 – 11:30 AM | Paper 3  
*Assessing the Competency Level of Seafarers through Maritime Training and the Relevance of these Training Programs to them*  
Rayan Dui  
De La Salle University   |
| 11:30 – 11:50 AM | Paper 4  
*Building from Within: An Exploratory Study of Expatriate Roles and Talent Development*  
Maricris Sim and Armando Ricardo Aguado  
De La Salle University   |
| 11:50 – 12:10 PM | Paper 5  
*Sustaining Talent in the BPO*  
Alvin Neil Gutierrez  
De La Salle University   |

**Parallel Session F – Marketing, hospitality, and tourism**  
**Room F**  
**Session Chair: c/o CBSUA**

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*Psychographic Segmentation and Profiling of Millennials In Davao City*  
Rodilina Marte and Danilo Te  
Ateneo De Davao University   |
| 10:50 – 11:10 AM | Paper 2  
*Performance Analysis of Selected Condominium-Hotels (Condotels) in Metro Manila*  
Ma. Fluellen Bautista  
De La Salle University   |
| 11:10 – 11:30 AM | Paper 3  
*Marketing of Commodities in Adverse Environments in the Upland Ecosystem of Camarines Sur*  
Gladys Rosales  
Central Bicol State University of Agriculture   |
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| 11:30 – 11:50 AM | Paper 4  
*A Study on the Assessment of Hotel Management and Staff’s Perception towards Design Thinking process*  
Anne Marie F. Bagadion  
Ateneo De Naga University |  
| 10:30 – 10:50 AM |  
**Parallel Session G – Sustainability, innovation, and governance**  
**Room G**  
**Session Chair: c/o CBSUA** |  
| 10:50 – 11:10 AM |  
Paper 2  
*A Landfill’s Goldmine: How E-Waste Management Firms Address the Triple Bottom Line*  
Jeanifer Bilango, Aira Kimberly Chua, Aaron Lao, Enrico Paulo Robles and Pia Manalastas  
De La Salle University |  
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Paper 3  
*Research on Collective Corporate Governance for Private Middle Market*  
Van Japheth Ancla  
De La Salle University |  
| 11:30 – 11:50 AM |  
Paper 4  
*The Ayala Family and Corporation: Towards Responsible Management and Sustainable Practices*  
Patrick Caoile  
De La Salle University |  
| 10:30 – 10:50 AM |  
**Parallel Session H – Technology and business**  
**Room H**  
**Session Chair: c/o CBSUA** |  
| 10:50 – 11:10 AM |  
Paper 1  
*Crowdfunding and the Venture Creation Process*  
Raymond Allan Vergara  
De La Salle University |
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**Parallel Session I – Women and business**

**Room I**

**Session Chair:** c/o CBSUA

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Day Two (November 18, 2017) – Afternoon

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<tr>
<td>12:30 – 1:30 PM</td>
<td><strong>LUNCH and NETWORKING</strong></td>
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<td>1:30 – 4:30 PM</td>
<td>Capability-building Session 2&lt;br&gt;Venue: La Piazza, Ground Floor&lt;br&gt;“Statistics for Aspiring Researchers: The Role of Frameworks”&lt;br&gt;<strong>Dr. Reynaldo Bautista Jr.</strong>&lt;br&gt;Assistant Dean, External Affairs and Lasallian Mission&lt;br&gt;Ramon V. del Rosario College of Business&lt;br&gt;De La Salle University</td>
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<tr>
<td>4:30 – 5:30 PM</td>
<td>Closing Plenary and Afternoon Snacks&lt;br&gt;Venue: La Piazza, Ground Floor&lt;br&gt;Distribution of certificates&lt;br&gt;Closing Remarks</td>
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Session A – Managing at the Grassroots
Integration of Ecosystem-based Climate Change Adaptation and Mitigation Into Local Policies and Programs in Selected Municipalities of Camarines Sur

Flordeliza B. Valenzuela
Central Bicol State University of Agriculture

Abstract

The study focused into the ecosystem based climate change adaptation and mitigation practices in the uplands of City of Naga and Pili and in the coastal ecosystems of Cabusao and Calabanga Camarines Sur. Its specific objectives were (1) describe the characteristics of ecosystem based climate change adaptation and mitigation according to the EbA protocol that are currently practiced in the municipality of Pili and Naga city for upland ecosystem and Calabanga and Cabusao for coastal ecosystem in the province of Camarines Sur; (2) document ecosystem based climate change adaptation and mitigation that are currently practiced in the upland ecosystems of Naga and Pili and coastal ecosystem of Cabusao and Calabanga Camarines Sur; (3) identify specific indicators in the upland and coastal ecosystem on climate change adaptation mitigation; and, (4) develop a community toolkit for an ecosystem based climate change adaptation and mitigation strategies that can be integrated into local level policies and programs in Naga, Pili, Calabanga and Cabusao Camarines Sur.

The study was conducted in the province of Camarines Sur from January 2014 December 2014. A total of 360 population composed of local folk, men, women and the elderly were the respondents of the study. The Ecosystem based Adaptation guidance was used to describe ecosystem based climate change adaptation and mitigation practices and the Economics of Ecosystem and Biodiversity Guidance by Travers et al.

Twelve (12) ecosystem based climate change adaptation and eleven (11) mitigation practices are relevant in the upland ecosystems of Naga City and Pili while six (6) adaptation practices and seven (7) mitigation practices are relevant in the coastal ecosystems in the municipalities Cabusao and Calabanga, Camarines Sur.

Specific ecosystem based adaptation indicator qualified in the (EbA) Ecosystem-based Climate Change Adaptations for each of the upland and coastal practices documented and characterized Relevant climate change adaptation and mitigation strategies can be integrated into the local development policies and programs in the selected municipalities in Camarines Sur.

Keywords: Ecosystem-based Climate Change Adaptation, Climate Change Adaptation, Climate Change Mitigation
Benchmark Survey on Food and Nutrition Security Status of Aeta-Tabangnon Families in Sorsogon

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Abstract

The present study was conducted to generate baseline data on food and nutrition status of the economically- and environmentally-vulnerable Aeta-Tabangnon community in Sorsogon, Bicol, Philippines. It was done prior to the introduction of meliponiculture, a climate-resilient and sustainable technology that provides additional income and nutritious products for the family. Most of the members of the said indigenous tribe are hunting native bees in the wild for livelihood, living in a typhoon-prone area, and experiencing high malnutrition cases, especially among women and children. The level and causes of food insecurity were determined and the extent of malnutrition was assessed using simple descriptive analysis of data on household socio-economic characteristics, child feeding, dietary diversity, and intra-household food distribution. Farming was the main occupation of the household heads. Most of the household heads have lower levels of educational attainment and earning meager income. Food insecure households tended to have more children. Disparities in the prevalence of food insecurity among male- and female-headed households were noted. Significant proportion of mothers had introduced complementary foods to their youngest children before the age of six months. Most household diets comprised of staples with considerable consumption of vegetables. Using the dietary diversity score, results showed low dietary diversity among households. Data generated will serve as bases for the conduct of impact assessment studies in the future to determine the direct and indirect effects of the intervention.
Remodeling Livelihood Vulnerability Indicators For The Informal Food Microentrepreneurs

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Abstract

The informal sector consists of business enterprises that operate outside legal business frameworks. With the huge contribution of the informal sector in economic development, local authorities regard the sector as partners in local development initiatives. Among the industries in the informal sector, the role of the informal food sector in the food value chain is vital in addressing food security issues in the urban community. However, the absence of social protection in the informal sector makes their livelihood more vulnerable to economic losses. The Livelihood Vulnerability Index (LVI) approach is a practical tool in assessing how vulnerable the sector is and which livelihood component contributes to its vulnerability. Inopportunely, studies on LVI are only centered to farming communities. This paper explores the development of livelihood vulnerability indicators that can be utilized to off-farm enterprises predominantly to the informal food microenterprises. The indicators were sourced from LVI and entrepreneurship studies using the major vulnerability factors such as adaptive capacity, sensitivity and exposure. The developed livelihood vulnerability indicators quantifies the seven livelihood components of the informal food microenterprises such as the demographic profile, social network, livelihood strategies, health security, food security, access to utilities and disaster experience.

Introduction

The informal economy consists of economic activities that occur outside of formal institutional boundaries but which remain within informal institutional boundaries for large segments of society. (Webb, Bruton, Tihanyi, and Ireland, 2013) The International Conference of Labor Statisticians characterizes the informal sector as units engaged with at least some market production under the operation of low levels of organizational technology, containing no books of accounts to allow separation of production operations from household activities and distinction between labor and capital and with employment size below a certain level threshold.

However, informal sector workers are not protected by labor laws, policies, or programs of the state (Batangan, 2007). This sector is often characterized with low income per capita and high poverty incidence (ILO, 2012). The low-earning capacity of this sector may be attributed to poor educational background and low-skilled workforce (World Bank Document, 2016).

The Food and Agriculture Organization (FAO) described the informal food sector as those enterprises relating to food production in the urban and peri-urban areas; services such as catering and transport; and the retail sale of fresh or processed products. The informal food sector is regarded as a business sector with low capital investment but highly diversified. The informal food sector covers the activities in the entire food value chain, thus, it becomes a source of income and food security (Promises and Challenges, 2007).
Climate extremes impinge on people’s stream of livelihood. In the event of drought, flood and typhoon, agriculture and food production industries are severely affected. Since informal food sector directly get their agricultural supplies and raw materials from the local markets, they become more susceptible to such events. (Jamil, 2013). Their occurrences become an obstacle in continuing people’s livelihood. Further, the absence of social protection in the informal sector makes their livelihood more vulnerable to economic losses. Thus, this necessitates for the development of livelihood vulnerability indicators to assess means of reducing their vulnerabilities and eventually develop resilient informal food microentrepreneurs in the context of climate extremes.

While most studies on livelihood vulnerability are focussed to farming communities, this paper explores on the nature of informality in the business sector and shows how the vulnerability factors can be integrated into the livelihood components of the food microentrepreneurs. This study aims to add to the literatures of livelihood vulnerability by modifying the use of existing Livelihood Vulnerability Indices (LVI) that would cater to off-farm entrepreneurs. This further aims to provide quantifiable indicators of the level of vulnerability and identify the weak and strong points of the informal food microentrepreneurs.

**Drivers of the Informal Sector**

Vo and Ly (2014) conveyed that over the last two decades from 1995 to 2014, the size of the shadow economy in ASEAN countries have increased. The existing policies on tax rate, labor and businesses have provided significant effect to the growth of the shadow economy. The proliferation of the informal sector led to explorations of its continuous existence. According to Anderson et al. (2013), the opportunity and circumstances that created an informal business is in itself within the context of entrepreneurship. However, in most cases, the informal business sector is mistakenly perceived as a marginal sector with no entrepreneurial angle.

Generally, informal entrepreneurs are necessity-driven rather than opportunity-driven. Williams (2007) asserted that not all who engaged in off-the-book transactions are driven by necessity though necessity is a primary motive of informal business sector. Williams (2011) further claimed that in economically depressed communities, informal entrepreneurship is motivated out of necessity. However, in prosperous areas, informal sector is motivated by opportunity. Meyer et al. (2016) support his claims that informal sector is prevalent in developing countries where formal employment is insufficient. Because of their status, they find it difficult to purchase service delivery and rent spaces/premises.

In similar studies, Franck (2012) argued that entrepreneurship exists out of necessity or choice. Specifically for some women, the driving forces include: earning an income, satisfying an interest in doing business, enforcing flexibility and autonomy, and performing family obligations. Hence, the contention that informal micro-entrepreneurship is borne out of poverty is fallacious (Franck, 2012).

Informal business sector exist in all types of economies but Williams (2011) revealed that early stage entrepreneurs and the established self-employed are more likely to trade in the informal system and are more likely prevalent in economically depressed than the prosperous
rural communities. While their numbers are difficult to measure, the informal entrepreneurs are to some extent greater than the formal businesses in the depressed communities. However, even in rich countries, the informal business sector is likely to exist. In a study of 600 entrepreneurs in Ukraine, about 90 percent operates in an informal business sector and 40 percent claimed that their main and secondary livelihood depends on the informal business sector (Williams and Round, 2007).

Mottaleb and Sonobe (2013) further explored that in developing countries, family-based traditional microenterprises are generally the source of livelihood in the urban and rural communities. However, they rarely transform to small and medium enterprises because of the inability to improve the business capacity and product quality. The formal education of the entrepreneurs may affect on the performance of the enterprise as value addition is generated along the business process. A more in-depth study was conducted by Webb et al. (2013) wherein barriers, motivations and capabilities of the informal entrepreneurs was made through the lens of three separate theories: institutional theory, motivation-related theories from a sociological perspective, and resource allocation theory.

Informal Food Sector: Issues and Concerns

Boels (2014) claimed that the livelihood of the street vendors is characterized by a high level of insecurity. According to his study, the informality has brought them to work in long hours with uncertain market and susceptible to controls. Conscious of their status in the business community, they still chose to stay as informal since their activities are somewhat similar to legal trading. Besides, very little competency is needed with a favorable accessibility to market. While it is the responsibility of the government to protect all sectors, very little attention is given to street selling whose participants are disorganized, hence, less influential. This, then, paved the way to finding a room to execute their opportunistic or entrepreneurial activities between the enforcement of regulations and implementation of policies.

The study of Hackenbroch, Baumgart, and Kreibich (2009) noted that the presence of street vendors has become a widespread scenario in communal places. Public space in the urban areas has become an important resource for the informal business sector due to its conduciveness to the market. In fact, in India, the government recognizes the role of the street-food vendor in providing food security as mentioned by Patel et al. (2014). The study further claimed that the state can capitalize on the potential of the informal food sector in the delivery and consumption of healthy food by capacitating the informal micro-entrepreneurs in recuperating urban food security.

Aside from income level, source of livelihood and household size, one factor that affects food security is the residential condition of the household. According to Kimani-Murage et al. (2014) there is a high level of household food insecurity for people residing in slum areas. In order to effectively address food insecurity, government policy must focus on the vulnerabilities of the households of the urban poor.

Economic Role of the Informal Sector

Verick (2006) proved that in Africa, the informal business sector has expanded that it has accounted a significant share in the economy from its total output and employment as a result of increasing globalization. The challenge for policy makers is to address the obstacles of the
informal sector notwithstanding the economic benefits derived from the sector such as generation of jobs. In Thailand, the growing trend of the informal business sector is an indication that the government has not been focusing on this sector as mentioned by Warunsiri (2011). He further claimed that policies that deal with labor welfare protection and productivity are important entry points to manage the sector in the future.

Boels (2014) stated that informal economic activities exist due to poor implementation of state policies and regulations. They are not accounted for in the Gross Domestic Product but they are, nevertheless, recognized by the government as hidden contributor in economic development. This was supported by Li and Rama (2015) that in developing countries, the presence of informal sector is normal. The role of micro and small enterprises where informality is common has been recognized to foster growth. In fact, William and Nadin (2011) revealed that informal entrepreneurs comprise a large portion of the economy than the formal entrepreneurs. But in actual practice, entrepreneurship does not adhere to the rules all the time. Many informal economic activities were seen as more enterprising and entrepreneurial than the formal ones. In Ukraine, the informal sector serves as the breeding ground for enterprise development. Hence, the hidden enterprise culture in this sector should be given recognition in public policy and be treated separately with the formal enterprise (Williams and Round, 2007).

Studies on growth barriers in the informal sector have been noted in various studies. Chandrakumara (2012) disclosed that people who engage in microenterprises are those with poor educational background and low demand in the labor market. This claim was backed up by Akter and Rahman (2016) that in Bangladesh, education is an important facet of livelihood security. Hence, supplemental training on business skills and management are considered an important aspect of intervention programs to strengthen economic security of the household. In this context, the intensification of urbanization has forced people to adopt diversification of both farm and non-farm livelihood strategies. As a survival strategy, members of the households keep different occupations (Abass et al., 2013).

Williams and Nadin (2012) affirmed that the prevalence of informal sector has brought some policy implications to facilitate formalization of the hidden enterprise sector. Hence, their study suggested policy measures such as simplification of regulatory compliance, introduction of incentives and amnesties and campaigns for tax morality in response to the growing population of informal entrepreneurship.

Formal education particularly in the tertiary level increases the chance of getting into formal entrepreneurship than those without college degrees. The decision to formalize the business is attributable to higher self-confidence, lower business risks and enhanced competencies of the entrepreneur. Tertiary education poses disapproving implications to the informal sector as it reveals the consequences of the activities. (Jiménez, Palmero-Cámara, González-Santos, González-Bernal, and Jiménez-Eguizábal, 2015)

The study of Thai and Turkina (2014) expressed four means to address the barriers of the informal entrepreneurship: nurturing a performance-based culture; creating favorable conditions for economic advancement; increasing quality of governance; and enhancing people’s resources and abilities. However, Williams and Nadin (2012) stressed that for developing countries, social capital must be strengthened at the outset before any type of reforms or policies are
implemented. Accordingly, wiping out the informal business sector may only destroy the enterprise culture while de-regulating them would mean bringing down the level of enterprise. Hence, the most appropriate option is to smooth the progress of formalization process.

Economic liberalization is favorable to both the formal and informal business sectors while governance level discourages the informal sector and may hinder the growth of entrepreneurial activity in the area. (Dauand Cuervo-Cazurra, 2014) In order to encourage formality, business regulatory policies must be engaging and does not favor any sector. (Chen, 2006) Though, a certain policy approach may not necessarily be applicable to all types of informal entrepreneurship (Williams, Nadinand Rodgers, 2012).

**Sustainable Livelihood**

Kabir et al (2012) contends that vulnerability restraints the pursuit towards long-term sustainability. The Sustainable Livelihood Approach (SLA), which was developed by Chambers and Conway (1992) has integrated the factors affecting vulnerability to climate change but to a limited extent. The SLA assesses five kinds of capitals: natural, social, financial, physical and human to determine the household capacity to absorb and withstand shocks and stresses.

The SLA concept was supported by Krantz (2001) asserting that the SLA was able to cover other aspects of poverty in an economically, ecologically, and socially sustainable manner. This was further strengthened by Erenstein (2011) when the SLA was used as a substitute measure for poverty. Singh and Nair (2014) also used the SLA by combining the fuzzy cognitive mapping approach to capture household perception climate change impacts.

Livelihood resiliency studies came along with the SLA concept. Ifejika et al (2014) adopted the concept of resilience in the context of structural framework which resulted to three dimensions of resilience: buffer capacity, self-organization and capacity for learning. Meanwhile, Matahara et al (2016) developed the livelihood security model using five components: food, income, life and health, house and property, and water security. The five components have similarities to the Livelihood Vulnerability Index developed by Hahn (2009) but lacks climate change variability component. A recent study by Lin and Polsky (2016) attempted to formulate a livelihood vulnerability analytical framework incorporating climate change vulnerability factors such as sensitivity and adaptation capacity. The study revealed that the most vulnerable communities are those who are poor and within the vulnerability loops.

**Livelihood Vulnerability**

Looking through the lens of a sustainable livelihood approach, a Livelihood Vulnerability Index (LVI) was developed by Hahn et al. (2009) to determine a detailed analysis of forces affecting household livelihood vulnerability in a particular community. The LVI is a combination of Sustainable Livelihood Analysis (Chambers) and IPCC’s three major contributing factors to vulnerability – exposure, sensitivity and adaptive capacity. The LVI with seven major indicators aggregated into IPCC’s vulnerability factors was piloted in Mozambique. The utility of LVI has been tested and applied in different socio-ecological settings such as the case of two wetland communities in Trinidad and Tobago. Results of the application provided new variables in minimizing vulnerability to environmental change. (K.U. Shah et al., 2013).

In another LVI application in Mekong Delta of Vietnam, the livelihood vulnerability was analyzed in the context of gender. Other confounding variables were seen as an important point in data interpretation (Can et al., 2013). Simane, et al (2014) further proved the applicability of
LVI at agro-ecological system scale at the communities of Choke Mountain in Blue Nile Highlands of Ethiopia. In the agricultural context, LVI was tested in Nepal which is considered as the world’s fourth most vulnerable country to climate change. The findings provided site-specific development entry points to minimize vulnerability of small farmers to climate change. In the Philippines, LVI has not been used in assessing the household livelihood vulnerability particularly in the sub-community and community levels. A coastal community vulnerability index used by Orencio and Fuji (2012) was tested in Baler, Aurora. However, some variables were not accounted for which could further substantiate the vulnerability factors of the households. Climate change vulnerability was also assessed in disaster-prone provinces like Infanta, Quezon but Acosta et al. (2014) used only three factors of vulnerability – sources of livelihood, loss and damage, and knowledge and perceptions of people.

In order to fully understand the socioeconomic conditions that contribute to the vulnerability of the poor communities, a detailed vulnerability and adaptive studies at the local level must be conducted as suggested by Cuesta and Rañola (2008). While studies in the Philippines which are related to climate change focused on vulnerability and adaptive measures, no study has concentrated on livelihood vulnerability that would quantify the strength of livelihood systems that would include socio-economic conditions and adaptive capacities. More so, no livelihood vulnerability study has been conducted for the informal food sector that seeks to address in building their resiliency amidst natural disaster exposure.

**Proposed LVI Indicators for Informal Food Microentrepreneurs**

The LVI developed for the informal food microentrepreneurs was anchored from the study of Hahn (2009) where the major livelihood components were drawn. The study modified the indicators used by Hahn in each livelihood component that would suit the nature of the food microentrepreneurs. The components used were socio-demographic profile, livelihood strategies, social networks, health security, food security, access to water, access to utilities and disaster experience.

The vulnerability of the informal food sector to climate extremes is presumed to be determined by three major factors: exposure, adaptive capacity, and sensitivity (IPCC, 2007). Exposure or the degree to which a household experience stress caused by the onset of a climate extreme is deemed positively related to vulnerability in that households that are more exposed to climate extremes are more likely to be vulnerable to its effects (IPCC, 2007). In this study, the entrepreneurs’ level of exposure will be indicated by their direct experience of climate extremes and cost incurred by enterprises as a result of these hazards in terms of the number injuries, deaths and value of property and business losses.

Adaptive capacity, in turn, pertains to the ability of the entrepreneur to withstand, adjust to, cope with, and recover from the negative effects of climate extremes such that businesses with higher adaptive capacity are less likely to be vulnerable to the negative effects of climate extremes (IPCC, 2007). In this study, adaptive capacity will be measured in terms of the characteristics of the business head, livelihood strategies, and social support networks.

Sensitivity, on the other hand, refers to the degree to which a household could be negatively affected by stresses caused by climate extremes, thus, households with high levels of sensitivity to climate extremes are mostly likely to be vulnerable to its negative effects (IPCC, 2007). The current study will measure sensitivity to climate extremes in terms of the entrepreneurs’ health, food security conditions and access to utilities.
## Livelihood Vulnerability Indicators for Informal Food Microentrepreneurs

<table>
<thead>
<tr>
<th>Vulnerability factor</th>
<th>Component</th>
<th>Indicators</th>
<th>Assumed functional relationship</th>
<th>Basis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adaptive Capacity</td>
<td>Socio-demographic profile</td>
<td>Percentage of dependent people (&lt;15 years and &gt;60 years; and with disability)</td>
<td>Higher percentage reflects less capacity to adapt</td>
<td>Hahn, 2009</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Percent of female-headed food businesses</td>
<td>Women have less adaptive capacity</td>
<td>Hahn, 2009</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Percentage of owners earning below the subsistence level</td>
<td>The poor have lower means to adapt</td>
<td>Can, 2013</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Percent of owners who have not attended college</td>
<td>Education contributes to increased awareness and adaptive capacity</td>
<td>Zafar, 2013</td>
</tr>
<tr>
<td>Livelihood strategies</td>
<td></td>
<td>Average commodity diversification index</td>
<td>Diverse products reduces risks</td>
<td>Hahn, 2009</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Average livelihood diversification index</td>
<td>Diverse sources of income increases adaptive capacity</td>
<td>Marschke, 2006</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Average skills diversification index</td>
<td>More skills increases adaptive factor</td>
<td>Marschke, 2006</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Percent of owners with 3 or more years in same business</td>
<td>Years of experience reduces risks</td>
<td>Makhbul, 2010</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Percent of owners with sufficient and more than sufficient savings</td>
<td>Financial literacy reflect more adaptive capacity</td>
<td>Marschke, 2006</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Percentage of owners with multiple suppliers of inputs</td>
<td>Variability of suppliers reduces risk</td>
<td>Crawford, 2013</td>
</tr>
<tr>
<td>Social networks</td>
<td></td>
<td>Percentage of owners with access to credit</td>
<td>Financial access reinforces adaptive capacity</td>
<td>Can, 2013</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Percentage of owners who are confident they can borrow after typhoon</td>
<td></td>
<td>Can, 2013</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Percent of owners who availed of any livelihood assistance (past 12 months)</td>
<td>Access to livelihood assistance strengthens adaptive capacity</td>
<td>Hahn, 2009</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Percent of owners who are members of industry-related organization</td>
<td>Information sharing and group support increases adaptive capacity</td>
<td>Can, 2013</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Average percentage of sales comes from regular market or 'suki'</td>
<td>External relationships supports capacity to adapt</td>
<td>Asgary, 2013</td>
</tr>
<tr>
<td>Sensitivity</td>
<td>Health security</td>
<td>Percent of owners with chronic illness</td>
<td>Illness increases sensitivity</td>
<td>Hahn, 2009</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Percent of food businesses where the owner had to stop food business operation due to illness</td>
<td>Illness impacting the livelihood implying more sensitivity</td>
<td>Hahn, 2009</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Percentage of business owners without health insurance</td>
<td>Absence of insurance implies higher sensitivity to disaster</td>
<td>Hahn, 2009</td>
</tr>
<tr>
<td></td>
<td>Food security</td>
<td>Percentage of owners who are food insecure</td>
<td>Food insecurity reflects higher sensitivity</td>
<td>Cornell–Radimer</td>
</tr>
<tr>
<td></td>
<td>Access to utilities</td>
<td>Percent of business owners without access to pipe line water supply</td>
<td>Utilities contribute to a person’s welfare.</td>
<td>Shah, 2013</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Percentage of owners without own electricity</td>
<td>Water is vital to a person’s wellbeing while power and phones are essential means of communication. Higher percentage means more sensitive.</td>
<td>Hahn, 2009; Crawford, 2013</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Percentage of owners without modern fuels or stove</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Percentage of owners without mobile phones (active numbers)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Exposure</td>
<td>Disaster experience</td>
<td>Average number of days of electricity disruption during typhoon Nina</td>
<td>More reflects higher sensitivity.</td>
<td>Hahn, 2009</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Percent of owners that did not receive early warning</td>
<td>Access to info leads to less exposure.</td>
<td>Hahn, 2009</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Average cost of casualty (sickness/injury) due to typhoon Nina</td>
<td>Poor health status means more exposure.</td>
<td>Crawford, 2013</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Average number of days of irregular supply inputs due to typhoon Nina</td>
<td>Higher losses mean more exposure</td>
<td>Shah, 2013</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Average percentage of loss on productive assets</td>
<td></td>
<td>Shah, 2013</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Average percentage of loss on household assets</td>
<td></td>
<td>Can, 2013</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Average percentage of loss on income</td>
<td></td>
<td>Shah, 2013</td>
</tr>
</tbody>
</table>
At the onset of climate extremes, literatures suggest that sustainable livelihood models be adopted to build resiliency of vulnerable communities and sectors. Chambers and Conway’s (1992) SLA framework has been used several times in livelihood studies adopting the five asset pentagon which include natural, physical, financial, social and environmental livelihood capitals (Krantz, 2001; Erenstein, 2011; Singh and Noir, 2014; Ifejika et.al., 2014; Matahara et.al., 2016). The integration of climate change impacts in the SLA framework has led to the development of livelihood vulnerability index. Hahn’s LVI has been used, modified and tested in various types of farming communities such as those in Mozambique, Trinidad and Tobago, Vietnam, Ethiopia and Nepal (Shah et.al., 2013; Can et.al., 2013; Simane et.al., 2013; Panthi et.al., 2015). The indicators above is a modified version of LVI (Hahn et al) integrating the off-farm enterprise concepts and conditions. It used the resiliency concepts of enterprises that are assumed to affect the vulnerability of their businesses amidst climate change and natural disasters.

Conclusion

In the event of extreme weather events, the informal food sector is not spared from business risks. The utilization of the remodeled LVI for informal food sector measures the vulnerabilities of the microenterprises. In assessing the livelihood vulnerability of the informal food sector to climate extremes, the LVI will only look at the sector’s socio-demographic profile, livelihood, social networks, health condition, food security situation, access to utilities, and exposure to natural hazards. These parameters are not exhaustive such that the resulting estimates or indices will only be indicative of the level of vulnerability of the informal food microentrepreneurs to climate extremes.

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The Symbolic Value of the Historical Sites in Pasacao according to the Oral Narratives of the Elders: A Lived Experience

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Abstract

Unknown and forgotten, the municipality of Pasacao played a significant role in the Philippine history as it was first discovered approximately in the years of 1570-1573. The place is considered a gateway to Bicolandia due to its strategic location as a coastal area. It is also a travel hub to the different colonizers who taught the people lessons in life the hard way. The historical stances that are unwritten on books but inculcated deep in the hearts and minds of the elders proved of their concern in the diminishing origin ignored now by the younger generation. However, the elders who had been long raised in the place are eager to put the memories back together. They want to teach the young of the lessons of the past to institute in themselves the appreciation of freedom and responsibility. The intent of this paper is to explore on the lived experiences of the elders in the symbolic value of their identified historical sites in Pasacao. Recalling their stories brought the elders tears, happiness, fear and even anger. Using the oral narratives, this study included ten noteworthy elders that provided statements to strengthen the coding process (Saldana, 2015) under phenomenology. The emergent themes are: (a) Respect to mankind showed that life should be our priority to cultivate; (b) Inspiration to live is the creation of beauty and sensibility amidst difficulties; and Sense of pride is a positive emotion that symbolizes the need to exist in a unique pattern. The findings included the identification and symbolic value of the different historical sites, socio-cultural implications, lesson learned and restoration initiatives of the people.

Keywords: symbolic value, lived experience, oral narratives, historical sites
Session B - Business, feasibility, and the academe
Explaining academic entrepreneurship: A critical realist analysis of intellectual property commercialization in a university

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Abstract

The purpose of the research was to investigate academic entrepreneurship and the possible causal mechanisms which enable the commercialization of a university-based intellectual property such as a manufacturing process. The paper employed a critical realist case study methodology on the creation of a joint-venture manufacturing company between a Catholic university in the Central Visayas region of the Philippines in partnership with external business entrepreneurs. Findings reveal the importance of a conducive environment produced by the top university administration combined with the inventiveness and zeal of a faculty researcher in actualizing invention commercialization to exploit entrepreneurial opportunity. It is recommended that future research look in greater comparative detail at identified mechanisms and social mission aspects supportive of academic entrepreneurship.

Key Words

academic entrepreneurship; critical realism

Background of the study

Higher educational institutions have traditionally been called upon to fulfill a three-pronged mission: teaching, research and community extension. In the past few decades, however, an emerging role for universities, which may be considered an evolution of its community extension role, is the production and commercialization of intellectual products and innovations for the public interest. In the US, this development was partly fueled by the enactment of the Patent and Trademark Law Amendments Act, P.L. 96-517, more commonly known as the Bayh-Dole Act, in 1980 which encouraged the licensing of federally-funded university research to industry for socially beneficial purposes (Friedman & Silberman, 2003).

Pilegaard, Moroz, & Neergaard (2010) defined academic entrepreneurship as:

the involvement of academic scientists and organizations in commercially relevant activities in different forms, including industry-university collaborations, university-based venture funds, university-based incubator firms, startups by academics, and double appointments of faculty members in firms and academic departments. (p. 46)
There is scant literature on academic entrepreneurship in the Philippines. The Philippine Technology Transfer Act (RA 10055) was only passed in 2009. In one of the rare local investigations into this area, Javier (2011) analyzed the role of academic entrepreneurship in the University of the Philippines-Los Baños. Based on a review of the literature, he recommended four strategies for the university to be more entrepreneurial. First, the university needs to rethink its basic intersection with society so that knowledge creation, generation and application can be collectively implemented to answer societal needs. Secondly, the university needs to enhance the marketing functions of its various entrepreneurial offices so that these can pro-actively engage in the marketing of university technical expertise. Thirdly, the university needs to pursue innovative administrative process in support of entrepreneurship by simplifying and communicating processes to faculty and staff in order to motivate them to generate and create knowledge. Finally, the university needs to open new academic markets for its knowledge, products and services. This needs to be done within a geographical distance where the university has no presence but where its expertise is needed.

Habaradas (2008), reflecting on the experiences of Malaysia and Thailand in implementing their national innovation systems, provided some recommendations for the Philippine case which may have some relevance for academic entrepreneurship. He argued that visionary leadership is critical in developing a national innovation system. He cited the example of Malaysia's Prime Minister Mahathir bin Mohamad in galvanizing the country by driving a number of cutting edge and high profile projects such as its modern airport, national car and the Multimedia Super Corridor. He likewise cited the Thai practice of focusing its accelerated innovation strategy on a few priority areas, namely, bio-business, energy and environment. He contrasted this with the Philippines' 12 priority areas. By implication, a strong message from Malacañang on selected core areas for innovation can inspire higher education institutions to focus academic entrepreneurship efforts high-impact areas given the country's limited resources.

Much more needs to be understood if academic entrepreneurship is to be understood and to flourish. Pilegaard, Moroz, and Neergaard (2010) argued for a more fine-grained analysis of what actually happens within universities and among key actors during the process of academic entrepreneurship:

… we must refocus our research efforts on how academic entrepreneurship takes place by understanding the relationship between process and the heterogeneous socio-spatial environments where entrepreneurship happens. In other words, we need to understand the persons involved in academic entrepreneurship, their interaction with their environment, and how both persons and environment change over time. (p. 46)

This is supported by Rasmussen (2011) who argued that more process-oriented theories can lead to a more holistic understanding of academic entrepreneurship. He observed that theories of university spinoffs often used deterministic stage models which assume that the environment is predetermined. Such positivist studies often employed statistical techniques to identify causal drivers of academic entrepreneurship (Yusof, 2009). Rasmussen recommended the adoption of a critical realist perspective in order to move beyond the limitations of deterministic, positivist stage models. This approach simultaneously considers the influences of both actors’ actions and the structures in which they are embedded.
This study aimed to investigate the case of a joint venture spinoff of a mango waste processing enterprise, Green Enviro Management Systems, Inc. (GEMS), by the University of San Carlos in Cebu using a critical realist approach. The university’s share in the venture is a patented process technology developed by one of its faculty members, Dr. Evelyn Taboada, with university support. Using a critical realist approach, the study aimed to explore and understand the underlying causal mechanisms that enabled the formation of GEMS.

The research inquired into the following questions:

1. How was the technology developed? What was the chronology of events and who were involved?
2. What support from the university made the technology development possible? Other support?
3. What were the challenges in developing the technology? How were these overcome?
4. How did the joint-venture business develop? What was the chronology of events? What support from the university led to the organization of the venture?
5. What were the challenges in organizing the venture? How were these overcome?
6. What systems and processes within the university made the venture possible?
7. Who were the key actors in the organizing of the venture? What were their roles?

Review of literature

**Academic entrepreneurship**

Rothaermel, Agung and Lin (2007) classified the literature on academic entrepreneurship from 1981 to 2005 into four major research streams: entrepreneurial research university, productivity of technology transfer offices, new firm creation, and environmental context including networks of innovation (p. 691).

Academic entrepreneurship is a challenge for administrators and faculty in higher education because institutional values and university arrangements are not typically aligned with the risks and profit-seeking that are inherent in commercial ventures. For this reason, there has been increasing research interest in the phenomenon of academic entrepreneurship in the last few decades, especially evidenced by special journal issues of Management Science, Journal of Technology Transfer, Research Policy and Journal of Business Venturing (Yusof & Jain, 2010). Shane, one of the leading scholars in entrepreneurship (Shane & Venkataraman, 2010) has particularly called attention to the role of university spinoffs which is “a new company founded to exploit a piece of intellectual property created in an academic institution” (Shane, 2004, p. 4).

Louis, Blumenthal, Gluck, & Stoto (1989) investigated academic entrepreneurs in the life sciences and categorized them into five types: (1) engaging in large-scale science (externally funded research), (2) earning supplemental income, (3) gaining industry support for university research, (4) obtaining patents or generating trade secrets, and (5) commercialization (forming or holding equity in private companies based on a faculty member's own research). Local norms were found to be a strong predictor of academic entrepreneurship. Interestingly, they found little
influence by individual characteristics and supportive university policies and structures on academic entrepreneurship. They did speculate that the latter finding may have been overwhelmed by the impact of local norms which may have been themselves the result of structures and policies not covered in their study. In any case, they suggested that institutions cannot easily engineer entrepreneurship. Based on their findings, they hypothesized that the influence of individual characteristics on academic entrepreneurship is moderated by institutional location, particularly at the level of department or division.

Hayter (2015) similarly studied the motivations of academic entrepreneurs and found that they are motivated by different but related reasons and that spinoffs are viewed as a way to pursue awards and consulting opportunities that can academic teaching and research responsibilities.

In analyzing a successful case of an academic spinoff, Pilegaard, Moroz, and Neergaard (2010) showed “the importance of bridging innovation … to balance research and commercial goals, and the need for codifying knowledge capacities and creating new or changing existing institutional structures to legitimize and facilitate entrepreneurial activity” (p. 46).

In Asia, the role of academic entrepreneurship has been linked to national innovation and development systems as a whole. Wong, Ho & Singh (2011) studied several higher education institutions across several Asian countries at various stages of development, namely Japan, Korea, Singapore, Taiwan, China, India, Malaysia and Thailand. They observed that a key driver of technology commercialization was the greater push of governments for academic institutions to engage with industry especially in the area of technology. Secondly, they noted that Asian universities have initially tended to copy parallel practices in leading North American universities although some have begun to adopt more refined localized practices.

Despite the above broad insights on drivers of academic entrepreneurship (Friedman & Silberman, 2003; Wong, 2011), it has not flourished as widely as expected. Some researchers have looked deeper into specific leadership dynamics within the institutions themselves. Among Malaysian public research universities, for example, Yusof (2009) found that entrepreneurial behavior among academic leaders can be an enabler of academic entrepreneurship, especially when these leaders apply their entrepreneurial mindset in supporting commercialization opportunities. This is consistent with findings on institutional entrepreneurship where leaders create new social arrangements in order to cause a shift in practices (Leca & Naccache, 2006).

Critical realism

This study adopts critical realism (CR) as research paradigm and philosophical position. Critical realism adopts a realist ontology which posits that a “world exists independently of our knowledge of it” (Sayer, as cited in Easton, 2010, p. 119; Miller & Tsang, 2010, p. 144). Unlike positivism which rejects metaphysical and constructivist as well as value-laden ideas, critical realism embraces a fallibilist epistemology wherein the researcher’s knowledge of the world is socially constructed (Miller & Tsang, 2010; Krauss, 2005) as in interpretivist research.
As noted in Easton’s (2010) study, this research also adopts the assumptions of critical realism based on Sayer (1992). CR is a relatively new approach in the study of management and organizations (Edwards, O'Mahoney, & Vincent, 2014; Fleetwood & Ackroyd, 2004; Ackroyd & Fleetwood, 2000). The study of Easton (2010) showed that only 2 of the 334 papers he reviewed employed the case study research method and critical realism as a philosophical stance. Although CR is a new philosophical paradigm, this orientation had been adopted in economics, religious studies, history, environmental studies, information studies, sociology, psychiatry, criminology, geography, linguistics, social work, media studies, interdisciplinary studies, and marketing (Easton, 2010).

In critical realism, the basic theoretical building block is the entity which can be the organization, people, relationships, attitudes, resources, inventions, human, ideas, and technology among others. The use of entities implies causal language. According to Sayer “to ask for the cause of something is to ask ‘what makes it happen’, what ‘produces’, ‘generates’, ‘creates’, or determines’ it, or more weakly, what ‘enables’ or ‘leads to’ it” (as cited in Easton, 2010, p. 120). Research methods that are apt to use such paradigm include case study research with the use of qualitative data.

The external or visible behaviors of people, systems, and things as they occur, or as they have happened, are what critical realists investigate. These are called events or outcomes which call for close attention to accounts of processes that “produce and reproduce the ordering of events and social institutions” (Easton, 2010). The focus of the non-occurrence of events when one is expected would be in the explanations offered as well as the resulting useful insights.

Structure is an important element in critical realism research as it clarifies the “set of internally related objects or practices” (Easton, 2010). Structures may be nested or embedded within structures.

Blundel (2007) advocated for CR as an appropriate mode for conducting entrepreneurship research. He argued that:

1. CR can promote much-needed contextualization of entrepreneurial phenomena in research studies;
2. CR can facilitate greater theoretical integration between disciplines and across multiple levels of analysis;
3. CR can enhance the explanatory potential of existing qualitative research techniques, including the case study approaches; and
4. as a consequence, CR has the potential to contribute more ‘useful’ knowledge than rival paradigms. (p. 58)

Ramoğlou and Tsang (2016) applied a CR-based actualization approach to develop a propensity theory of entrepreneurship. Their theory departs from the dominant “discovery approach” which defined entrepreneurial opportunities as “those situations in which new goods, services, raw materials, and organizing methods can be introduced and sold at greater than their cost of production” (Casson as cited in Shane & Venkataraman, 2000, p. 220). They also differ
with the recently emerging "creation view" which argues that entrepreneurial opportunities “are not separate from the individuals that form them” (Alvarez, Barney, McBride, & Wuebker, 2014, p. 229) and “do not exist objectively but are actively created through subjective process of social construction” (Ramoglou & Tsang, 2016, p. 410). In contrast, Ramoglou & Tsang (2016) define entrepreneurial opportunity as “the propensity of market demand to be actualized into profits through the introduction of novel products or services” (p. 416).

Vincent and Wapshott (2014) explained the important role of the case study in implementing a critical realist research methodology, especially in explaining organizational institutional mechanisms. Exploratory case studies, in particular, aim to discover the consequences of a specific organization development on a specific level of organizational reality.

Sayer (as cited in Blundel, 2007) depicted the critical realist view of causation in Figure 1. Structured entities generate causal mechanisms which in turn bring about events. This causal relationship is not deterministic, however, as their actualization depends on other conditions or mechanisms which may happen to be active in the situation.

*Figure 1: The critical realist view of causation*
Source: Sayer, as cited in Blundel (2007, p. 52)

**Methodology**

**Research design**

This study adopted an explanatory case study design using a critical realist philosophy science to identify causal mechanisms related to the formation of the GEMS joint venture enterprise emanating from academic research conducted in the University of San Carlos. It is a study of a single case (i.e., GEMS) that investigated the academic entrepreneurial process. The study aimed to identify causal mechanisms that encouraged or constrained the formation of GEMS.
A case study research method is one that involves the in-depth study of one or more cases to understand the nature of a phenomenon (Yin, 2009; Easton, 2010; Eisenhardt, 1989). The method may involve mostly qualitative data but may also include quantitative data. The critical realist perspective supports case study research (Easton, 2010) as it unearths and tries to explain a phenomenon through the study of a single case in depth and comprehensively. Yin (2009) proposed the use of how and why questions in case study research which demonstrates the nature of its explanatory goal.

Academic entrepreneurship is extremely rare in the Philippine setting, making a case study approach all but necessary. Fortunately, a CR approach enables the derivation of meaningful causal findings using a case study approach.

**Data gathering procedure**

The principal source of data is a semi-structured interview with Evelyn Taboada as the academic entrepreneur and inventor of the patented manufacturing process licensed to GEMS by the university. The interview was held in May 2016. A site visit of the GEMS manufacturing facility enabled the researchers to observe the manufacturing process first hand.

**Analytic procedure**

The study implemented a critical realist methodology which employed retroduction as the core analytic activity as part of its explanatory research process.

The explanatory research process described by Danermark et al. (as cited by Blundel, 2007) in Table 1 served as a guide. As Blundel (2007) explained, the process is not prescriptive nor strictly linear. This study mainly employed Activities 1 to 4.

*Table 1: An explanatory research process involving retroduction*  
Source: Danermark et al. (as cited in Blundel, 2007, p. 8)

<table>
<thead>
<tr>
<th>Activity</th>
<th>Nature of activity</th>
</tr>
</thead>
<tbody>
<tr>
<td>1: Description</td>
<td>Prepare a description of the phenomenon, making use of actors’ accounts and a variety of other sources</td>
</tr>
<tr>
<td>2: Analytical resolution</td>
<td>Distinguish various components, aspects or dimensions of the phenomenon and establish (tentative) boundaries to the components studied.</td>
</tr>
<tr>
<td>3: Theoretical redescription</td>
<td>Interpret and redescribe the different components, applying contrasting theoretical frameworks and interpretations in order to provide new insights (n.b. this activity is sometimes referred to as ‘abduction’).</td>
</tr>
<tr>
<td>4: Retroduction</td>
<td>For each component, seek to identify basic, or ‘transfactual’ conditions, including structures, causal powers and mechanisms, that make the phenomenon possible.</td>
</tr>
<tr>
<td>5: Abstract comparison</td>
<td>Elaborate and estimate the explanatory power of the structures, causal powers and mechanisms that have been identified during</td>
</tr>
</tbody>
</table>
The diagramming method for representing the structure of causal explanation developed by Sayer (2010) was used to summarize the result of retroduction (Figure 1). The diagram depicts components, structures, causal powers and mechanisms in relation to the phenomenon under study; in this case, academic entrepreneurship.

The main causal object for the study will be the academic entrepreneur. Necessary relations refer to effects which are deemed naturally emanating from the causal object due to its nature and structure. Contingent relations refer to effects that are only actualized depending on the triggering of specific conditions in the situation under study. When such contingent effects are triggered, the event comes about.

Limitations
This study is based mainly on the account of Evelyn Taboada. The explanatory emphasis was limited to Activities 1 to 4 in the process described by Blundel (2007), with the other activities being recommended for future research.

Findings and discussion

Profile of the university

The University of San Carlos (USC) is a private research and Catholic university in Cebu City which has been administered by the Society of the Divine Word since 1935. It provides basic education, undergraduate and graduate studies higher education for more than an estimated 27,000 students. It is the biggest university in Cebu City with five campuses distributed around the city.

Profile of the academic entrepreneur

Evelyn B. Taboada is Dean of the College of Engineering and a professor of chemical engineering at the University of San Carlos in Cebu City. She was twice conferred the World Intellectual Property Organization (WIPO) gold medal for investors and Outstanding Engineering Achievement Award from the ASEAN Green Award (Rodrigo, 2017). She obtained her BS in chemical engineering from USC, her MS in chemical engineering from the University of the Philippines and PhD in biochemical engineering from Delft University of Technology (Netherlands). She has a Master of Laws in Intellectual Property degree from the University of Torino (Italy) and is a registered and practicing patent attorney.

Taboada holds patents for technologies related to the treatment of fruit wastes. The process which she invented with USC support and commercialized through GEMS is depicted in Figure 1.

Figure 2: The Taboada-USC zero-waste process turns mango waste to valuable products
Source: Hlaing, Taboada, Bendik-Keymer, & Lacks (2015, p. 48)
Profile of the business

GEMS is a partnership between USC and a group of 3 investors. There is a board which is composed of USC representatives and the other partners. The management team is composed of a plant manager and Taboada as Chief Operating Officer (COO) and Chief Technical Officer (CTO). In the 5-member board, there are two representatives from USC: Taboada and USC administration representative, Fr. Rebayla. The other 3 seats are held by the 2 private partners but 1 is non-voting.

For the partnership, USC did not shell out cash but contributed the IP, technology, and Taboada’s and her team’s technical expertise and time. The private partners provided the funds.

Production facility and Marketing Of the 7 product types, only 4 were produced. Special pieces of equipment are needed for the production of the other 3 products. The initial products created in 2012 underwent modifications and enhancements. The products coming out of the plant now has improved efficacy and overall product quality.

Plant capacity is 100 tons but utilization at the moment is only at 30%. There are 80 fulltime employees. Production is influenced by the availability of raw materials. As soon as the materials arrive at the plant, they are processed immediately. Taboada said, “we want to do it stage by stage based on the collection of materials, which should be fresh. We have a window of 3 days maximum within which to process the raw materials or else the materials deteriorate. They have to be fresh”. ‘Process quickly while the raw materials are fresh’ is their production mantra. After processing, the semi-processed product can be stored for 2 years at normal room temperature (shelf life).

At this stage, the business focus is marketing which is “the most difficult part for me because it is a new product”, according to Taboada. “We need to raise the level of awareness of the people and go into advocacy.”
Plant Operations  Power consumption is relatively high with the plant operating 7 days a week, 24 hours (i.e., 24/7). Since the plant relies also on power generated from the solar panels and direct solar heat from the panels, monthly power bill is reduced dramatically to 10-20% of original costs. Solar power generation was also increased by adding solar panels, module by module.

The long processing time requires operating the facility for 24 hours. There are three shifts. The night shift has a ‘skeletal’ force to perform only the most crucial processes.

There is a viewing deck where visitors can observe the operation. GEMS is strictly implementing good manufacturing practice (GMP). There is open-viewing of the drying facilities (See Appendix).

The process of establishing GEMS

The following narrative description is based on the interview with Taboada.

How did GEMS start?  The journey toward the establishment of GEMS started with the problem on waste. Taboada saw truckloads of mango waste dumped daily at dumpsites in Omapad, Mandaue, Consolacion, and Inayawan in Cebu City. There were 10-20 truckloads of waste dumped in these dumpsites every day. These obviously came from existing processing plants. She recalled that even scavengers eat some portions of the waste. The waste materials because of their very nature attract flies, pests, and other micro-organisms. Some mango processors approached her if she could handle this problem.

Initially, Taboada’s motivation was how to do render the waste less “hazardous”. As a chemical engineer, this kind of problem posed a challenge. In 2007-2008, the investigation on the mango waste became part of her research de-loading project. The research proposal came under the scrutiny of the university Research Director for institutional funding approval. It came as an opportunity as the priority research project.

One of the first experiments in the USC laboratory reduced 1 kilo of waste mango peel and seed to zero. This meant that all the wastes were converted to some products.

Within the same year, Taboada attended a basic patent course by the Intellectual Property Office of the Philippines (IPO PHL) held at USC. After the course, it dawned on her that the outcomes of the research project were patentable.

A follow through of the patent course was an invitation to apply for a Master of Law course in intellectual property at the University of Turin in Italy sponsored by the World Intellectual Property Organization (WIPO), a UN agency. This stirred a strong interest in her as it was designed for professionals (engineers, scientist, doctors, and lawyers). She applied in February 2010 for fellowship. She was accepted in May and immediately left for Italy. The program which could be completed in a year involved a mixture of learning platforms: distance
learning, online, meet up, then thesis, and a possible internship (for top students). There were 40 participants from all over the world: half were lawyers and half were professionals. The youngest was 28 up to 48 years old, mostly practitioners. The professors were experts on IP and interactions between and among participants were very intense. Problems, issues, and challenges involving IP the world over were tackled.

As one of the top students, she was offered an internship at WIPO in Geneva in 2011. The 2-month internship included a study tour and some courses and the chance to stay at the WIPO headquarters in Geneva. This extension of her study was granted under the auspices of USC (with approval from Fr. President Dionisio Miranda). She was assigned at the patent and technology transfer section. The internship exposed her to topics on negotiations, licensing, and raising capital for a startup. This internship exposure cemented in her the resolve to patent earlier works which she did while doing her PhD because most of them were patentable. She recalls that the topic she worked on for her first PhD could have been patented. Her thesis counsellor however advised her not to pursue the patenting route because aside from it being expensive to maintain in Europe, her research output was a seminal one from which further studies to advance science can be drawn.

She went back to USC in 2011 after finishing her internship at WIPO and completing her degree in Master of Laws in IP. In March 2012, the USC team filed for the first 2 patents on integrated mango products. In June of the same year, the GEMS executive team (Fr. Generoso “Jun” Rebayla and Dr. Taboada) found 3 groups of investors. Their personal networks came in handy in the process. The main driving force behind the selection of the investors was WIPO’s tenet that “patent should benefit humankind. The business venture is just a vehicle”.

How was the technology developed? The technology was developed and the prototype was created in the USC laboratory. As part of the agreement with the investors, a demonstration facility was built. This facility was housed in a leased warehouse in Mandaue. It was in June 2012 that the facility was built and made operational. The purpose of the demonstration facility was to show that the technology works as well as to show off to groups of investors the viability of the venture for commercial scale operations.

In November 2012, the second batch of investments intended for a large scale facility came in. The 1st round of investments was for the seed fund. By February planning for a bigger facility (100-ton capacity) in Bangkal, Lapu-Lapu City proceeded in earnest. The construction of the building facility was started in May 2013, module by module. This approach to construction expedited the construction process. Due to the strong typhoon that hit the country in 2013, construction was delayed. Construction was finally completed in 2015.

The plant occupies initially a total area of 2,500 square meters. Expansion of the work area by another 2,500 square meters was necessary for the drying process. This expansion was not a problem since the land in which the plant stands is 1 hectare. This land is owned by one of the partners. The partner’s contribution to the partnership was limited to the building, equipment, and working capital. Aside from Taboada’s new-found knowledge on intellectual property, her background (PhD in Bio-Chemical Engineering) in chemical engineering particularly in designing a plant was put to practice.
What was the support contributed by USC and others? The biggest support from USC came in the form of materials, equipment, and paid time off from teaching to do research (i.e., research deloading), and scholarship. There was heavy reliance on USC’s support in the early phase of development of GEMS as there was no external funding then.

USC provided the materials and use of the laboratory to develop the products. This expanded laboratory was the result of the 8-year development project funded by the Dutch government beginning in 1996. This included the improvement of facilities and equipment, development of curriculum, and training of faculty among others. It was a complete, state-of-the-art laboratory located at the Bunzel Building in USC Talamban Campus. The whole USC community benefited from it.

There was a deliberate effort on the part of the USC Team to seek funders who do not meddle with the project as long as the funds are used according to set guidelines of the funding agency. Taboada said, “this is part of our strategy and we had to be careful in seeking external grant”. The affiliation with USC facilitated the availing of grants from funding institutions. The first funding opportunity came in 2013 when USC got a total research grant of P10 million from the Philippine Higher Education Research Network (PHERNet) under the Commission on Higher Education (CHED). Another opportunity came through the United States Agency for International Development (USAID) grant assistance for the development of special products and technology. The fund from various sources was used in the development of the product and plant prototypes which happened during the demonstration stage in the small warehouse in Mandaue City. Further works including the monitoring of environmental conditions in the solar drying facility were funded by the Newton fund of the British Council, USAID, and CHED’s PHERNet.

USC’s biggest contribution to the formation of GEMS was encouragement. In Taboada’s words, the GEMS team received “200% support especially from the USC cabinet and the Board of Trustees (BOT)”. Her supervisor in research, Dr. Largo, and Fr. President Miranda, her supervisor for special projects, as well as Fr. Salas for academics gave their unwavering support. According to Taboada, “there were birthing pains but only the bed of roses is seen now”. Referring to her superior, Taboada said, “I don’t feel like I am getting special treatment. They were very professional in our dealings”.

Startup Phase and Challenges In June 2012, the partnership was formed. No machineries were developed yet before 2012. The concept of frugal innovation came into play as product and technology (i.e., process) development were developed at laboratory scale at the initial stage of the project. Products were new and scaling up happened in stages from the laboratory to bench to pilot then to commercial scale.

There were challenges in developing the technology. Taboada said, “ours is slow compared to other countries”. The acquisition of supplies, chemicals, and other materials was through USC’s procurement system which was quite slow in the earlier years (mid-2000). Now, it is faster. According to Taboada, although USC has a state of the art facility, there are
limitations. The need for the use of “high tech” and powerful equipment as well as the conduct of some chemical analyses had to be done in Singapore and/or in the US.

Because of government bureaucracy, there were delays in securing building and occupancy permits. The building permit alone requires 20 signatures. The occupancy permit was finally granted in May 2016, one year after the plant was built. The processing of permits from the Food and Drug Administration (FDA) was still ongoing at the time of the interview in the middle of 2016. The company is exempted from getting the environmental compliance certificate (ECC) but had to file anyway for formality to comply with regulations on sanitation. The export and import permits are being processed because these are needed for importing equipment and exporting products. Prior importations were done through USC. The imported equipment took some time to arrive because of the existing control process put in place in the university.

Ownership Structure and Challenges in the Formation of the Partnership Taboada pitched the business proposal to several investors and in investment fora before finally settling to discuss with the first batch of investors. It took 2-3 meetings within a month to seal the deal with the first four partners. The fifth partner, who contributed the seed fund, was ushered in by the four. Before the commercialization stage, the first four partners left the company. Another partner came in and put up the remainder of the fund needed for commercial operations.

Government incentives for pioneering projects. GEMS filed with the Board of Investments (BOI) for income tax holiday (TH). This entitles the company deferment in the payment of income tax until the 8th year (6 + 2) from start of commercial operations. The commercial operations should have started in 2014 but there were events like typhoon which delayed construction. GEMS asked that the reckoning year be moved to 2015 which was granted by BOI.

Retroducing causal mechanisms which enabled the creation of GEMS

Following Blundel (2007) and Sayer (2010), the narrative account of Taboada was analyzed to identify the components and causal mechanisms which potentially explain academic entrepreneurship in USC as manifested through the formation of GEMS (Figure 3). In the process of retroducing, Sayer (2010) advised that "we try to get beyond the recognition that something produces some change to an understanding of what it is about the object that enables it to do this" (p. 72).
Based on retroduction, the main components of the emerging causal explanation for GEMS as an academic entrepreneurship event are Taboada as the academic entrepreneur, the structural and resource support capabilities of USC, the encouraging structures and leadership in USC, government support and incentives, and family support for Taboada.

Following Pilegaard, Moroz, and Neergaard (2010), we looked at Taboada's enablements and limitations (powers and liabilities). The attributes of Taboada as a person, family woman, academic and IP advocate combined to build her nature as an academic entrepreneur with specific personality traits and skill sets. She is technically knowledgeable of both chemical engineering and patent processes. She is socially driven which spurred her to address the mango waste problem and the employment of youth from the dumpsites. She is entrepreneurial and willing to take the risk of investing her time on the venture. She also has spousal support.

These attributes enabled her to work on the needed process patent and seek the training and institutional support she needed from the university, despite her heavy administrative load and personal lack of capital.

Key conditions enabled Taboada's efforts to achieve fruition. In contrast to the findings of Louis et al. (1989), the substantial support Taboada obtained from the university, including work load reduction for research (deloading), intellectual property training, actual patenting support, encouraging administrative supervision and adequate laboratory facilities were critical in supporting her efforts to commercialize. Outside of the university, family support and government incentives were likewise important supporting conditions which facilitated the creating of GEMS as a joint venture and made the commercialization of her process invention an
actuality. The market demand for mango-derived products enabled the venture to achieve sales (Ramoglou & Tsang, 2016) although the venture has yet to become profitable.

Conclusions and future research

The actualization of the GEMS joint-venture spinoff can be explained through a number of causal mechanisms involving the nature of Taboada as an academic-inventor-entrepreneur-family person supported by university arrangements, government policies and market conditions.

Following a CR perspective, the study reveals transfactual causal dynamics and conditions which can account for actualized university spinoffs. The findings suggest that if universities have faculty with the qualities of Taboada, then a system of university support and favorable market and government conditions may enable the creation of intellectual property which can be spunoff into a commercial venture.

Future research can look deeper at the particular conditions identified in the study in order to assess their relative contributions to the actualization of joint ventures. Moreover, while this study focused on the perspective of the faculty entrepreneur, the role of institutional entrepreneurship on the part of administrators in support of academic entrepreneurship (Leca & Naccache (2006) needs to be better understood. Finally, the importance of social purpose in university spinoff creation can be further investigated since this was only minimally touched in the current study.
References


Appendix: GEMS factory photographs
Source: E. Taboada
Student-based School Reputation, Stakeholder’s Satisfaction and Stakeholder’s Loyalty in Higher Education Institution: Partido State University Students’ Perspectives

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Abstract

Tertiary education sector is becoming more competitive due to the proliferation of educational institutions. Through the literatures reviewed, researcher recognized the importance of building satisfaction and loyalty in attracting and maintaining students as well as communicating quality higher education programs, making reputation a key concern of HEI management. This study determined the student-based school reputation that drives satisfaction leading to better stakeholders’ loyalty in Higher Education Institutions. This study employed descriptive and causal explanatory research design to analyse the data generated through survey questionnaires administered to 278 3rd and 4th Year College of Business and Management students for Term 1, A/Y 2017-2018 from Partido State University. Results revealed that all cognitive quality dimensions and affective dimension are significant predictors of stakeholder’s loyalty when measured independently. However, when the confluence of independent variables were tested, only three dimensions were found to have significant relationship with stakeholder satisfaction. These are performance, innovation and emotional appeal. Hence, it can be concluded that the confluence of cognitive quality dimensions and affective quality dimensions are better predictors compared when student-based school reputation were taken independently. Consequently, results further established that stakeholder’s satisfaction have positive and significant impact on stakeholder’s loyalty. From the results, student-based school reputation should not be undermined due to its significant impact on stakeholder’s satisfaction which could be translated to better stakeholder’s loyalty.

Key Words  
Student-based school reputation; stakeholder’s satisfaction; stakeholder’s loyalty
Background of the study

Stakeholder loyalty is one of the current concerns of Higher education nowadays. It has been an important strategic theme for HEIs (Helgesen & Nesset, 2007b). With the proliferation of educational institutions, tertiary education sector is becoming more competitive. Another external force is the Globalization and ASEAN integration which really bring challenges and heightened the competition among Higher Education Institutions. Hence, HEI’s now operate in a highly competitive landscape (Bagley & Portnoi, 2014), fueled by globalization and the deregulation of higher education across many countries (Hemsley-Brown & Oplatka, 2006). More than 4.5 million students studied outside of their country of citizenship in 2012 (OECD, 2014) with that figure expected to nearly double by 2025. Moreover, with the number and quality of HEIs growing in Asia and South America, for instance, the competition for talent and fee-paying students among established institutions will further increase (Gibney, 2013).

In the Philippines alone, there are already 1,923 (excluding 451 SUC satellite campuses) private (88%) and public (12%) Higher Education Institutions competing to attract and retain 3.56 million students. With this number of HEIs in the Philippines, 57% of students are enrolled in private HEIs and 43% enrolled in SUCs/LUCs. Among these 3.56 million enrolled students, only 605, 375 students were able to graduate (CHED, 2014). So far, Philippines is trying to respond to these challenges postured by this so-called internationalization. It tried to do so by reforming the Philippine Education Institution through the K-12 Program and implementing policies that will make tertiary education sector move for a higher quality education. This is being done through imposing a performance-based resource allocation scheme. Performance-based resource allocation accounts for the quantity and quality of outputs of HEIs. This include number of enrolled students, percentage of graduates and professional degrees offered anchored to STEAM which are priority courses/programs of the government among other performance indicators. Due to this, funding from the government have been limited and complex especially for SUCs/LUCs like Partido State University which gets a big chunk of its fund from government’s allocation. Moreover, with the approval free tuition among SUC/LUCs, competitive environment among SUCs/LUCs is heightened, given that students will have more opportunities to choose the education institution to enrol without thinking of the tuition fees to pay. Thus, these HEIs need to be strategic in their programs and in allocating their limited resources to provide the best services to its students leading to more satisfied and loyal stakeholders.

According to (Azmi et al., 2015) HEIs need to put an effort to build loyalty among students by satisfying their needs and preferences. Student loyalty has both short term and long term impact on educational institution (Hennig-Thurau, Langer, & Hansen, 2001; Marzo-Navarro, Pedraja-Iglesias, & Pilar Rivera-Torres, 2005). It increases the stability and competitive advantage of the educational institution. However, tertiary educational institutions provide an education which is classified as a service (Weise, 2008). Due to the intangible nature of services, this makes it difficult for prospective students to evaluate and make judgments about the university (Weise, 2008). This is why it is important for tertiary institutions to manage their communication programs effectively and ensure that they communicate to the right audience in the most effective manner (Botha, Elsamari; Sanders, Ali; Viljoen, 2009), with which satisfaction and loyalty of students itself will play a vital role. Furthermore, this incites HEIs to
develop, communicate, and strengthen their brand (Hemsley-Brown & Goonawardana, 2007), making reputation a key concern of HEI management to attract students. According to (Plewa, Ho, Conduit, & Karpen, 2016) reputation is critical for institutions wishing to attract and retain students in today's competitive higher education setting.

Hence, the researcher deemed it necessary to determine the student-based school reputation that drives satisfaction leading to better stakeholders’ loyalty in Higher Education Institutions.

Statement of the Problem

Generally, this study aimed to answer the following question:

What student-based school reputation dimensions drive stakeholder’s satisfaction leading to better loyalty of the College of Business and Management students of Partido State University?

Specifically, it sought to answer the following:

1. Which among the cognitive quality dimensions of student-based school reputation such as performance, products, services, leadership, governance, citizenship, and innovation have significant effect on stakeholder’s satisfaction leading to a better stakeholder’s loyalty?
2. What is the extent of influence of affective dimension of student-based school reputation in terms of emotional appeal have on stakeholder’s satisfaction leading to a better stakeholders’ loyalty?
3. What is the extent of impact of cognitive quality dimensions and affective dimensions of student-based school reputation and stakeholders’ satisfaction leading to better stakeholders’ loyalty?
4. What is the extent of effect of Stakeholders’ satisfaction to Stakeholders’ loyalty?
5. What recommendations can be derived from the results to improve stakeholders’ satisfaction and loyalty?

Significance of the Study

This undertaking will be beneficial to the following:

1. Students- Results of this study may help students assess PSU’s reputation based on quality dimensions that will serve as basis for PSU to improve the quality of service the students are receiving.
2. Partido State University Administration and Quality Management Unit. Findings of this research may serve as basis for their strategic and operational planning, resource allocation and in identifying areas of operation that need improvement.
3. Higher Education Institutions. Results of this undertaking may give insights to Higher Education Institutions, especially Philippine HEI’s, on other ways of assessing their performance to better satisfy and build loyalty among their stakeholders.
4. Future Researchers. This study may serve as their basis for conducting further studies related to reputation, satisfaction and loyalty.

**Scope and Limitation**

This researcher focused on examining the cognitive quality dimensions of student-based school reputation (e.g. performance, products, services, leadership, governance, citizenship and innovation) and affective dimensions (trust, admiration and respect, good feeling and public esteem) of reputation and its extent of impact on stakeholder’ satisfaction and loyalty. However, predictor variables mentioned in the study are not the only variables influencing satisfaction and loyalty. This study is also a cross-section data where data were given in a specific period of time. Respondents were the 3rd and 4th Year College of Business and Management students of Partido State University since they have already experienced at least 2 full cycles of PSU’s operation. Questionnaire also considered the lag effect of time since the paper will be dealing with behaviour which cannot be attained in a short span of time. On the other hand, this research did not included workplace climate and competition which are also part of the reputations quality dimensions since students have limited knowledge on those aspects.

**Review of Related Literatures**

**Student Loyalty**

According to the literature reviewed, Athiyaman, 1997; Helgesen & Nesset, 2007a; Thomas (2011), student loyalty refers to the loyalty of a student after his or her time at educational institution. Student loyalty has both short term and long term impact on educational institution. Student loyalty is the combination between student willingness to provide positive words of mouth about the institution and recommendation concerning educational institution to family, friends, employers, and organizations whenever opportunities are. However, student loyalty also contains an attitudinal component and behavioral component (Hennig-Thurau et al., 2001; Marzo-Navarro et al., 2005) The loyal students are influencing teaching quality positively through active participation and committed behavior (Risch-Rodie & Schultz Kleine, 2000). Hence, stability of educational institutional can be increased by building and strengthening student satisfaction and loyalty.

Prior studies have examined the antecedent and consequences of loyalty in HEIs in varying context, the relationships between student loyalty and constructs such as institutional reputation and image (Eryilmaz, 2016); reputation assessment (trust, admiration, good feeling and public esteem), student satisfaction in teaching quality (Wong, Woo, & Tong, 2016); institutional image/reputation, perceived value and the moderating effect of trust (Azmi et al., 2015); reputation as a marker of quality education and a means of attracting international students (Schofield, Cotton, Gresty, Kneale, & Winter, 2013); intent to enroll and university reputation (Beliefs: Products & services, vision & Leadership, Workplace environment, Social & environmental Responsibility, Performance.; Attitude: Emotional Appeal) (Ressler, 2010); satisfaction, perceptions of reputation (Nesset, 2009); satisfaction, service quality, information, social support, and facilities (Helgesen & Nesset, 2007b); service quality, facilities, student

On another note, several measures have been adopted by previous authors in assessing student’s loyalty in their HEI’s. In the study of (Nguyen & LeBlanc, 2001) retention decisions was measured using a customer loyalty scale. This scale was based on intentions of students about their educations (e.g. student’s intention to continue his/her university) rather than intentions of students about collaboration with university in future. Some authors also looked at loyalty as terms of behaviours, there were manifest variables about commitment as repurchase, patronize, recommendation of the university to others, returning to repeat in higher education and returning to join activity with educational institution. While (Brown & Mazzarol, 2009) used a scale which included measures of the student’s willingness to recommend the course or institution to others, maintain contact with the faculty, select the institution again for future study or join the alumni. In this study, loyalty is a composite measure of loyalty based on the paper of (Wong et al., 2016). The item scales basically consisted of the students’ willingness to recommend the university to friends, relatives and acquaintances to prepare for a career, to maintain a relationship with the university after they graduate, to enrol in the same university for further study.

**Student Satisfaction**

According to (Anusorn & Puttawong, 2015), satisfaction is the attitude associated towards the provider of service after assessing what customers anticipate and what they receive. Sometimes it is regarded as the fulfilment of some needs, goals or desire. Satisfying student to ensure their continuous patronage of educational services for profit-making institutions is as important as satisfying admitted students for retention. It has been argued that students who are dissatisfied may drop out of college or transfer to other educational institutions. Hence, satisfaction or dissatisfaction leads to intention to stay or quit which in turn leads to student retention or attrition (Kara & DeShields, 2004). This means that student satisfaction has an important antecedence and is a major driver of student loyalty (Thomas, 2011).

Moreover, according to Nesset (2009) students’ satisfaction positively influences both student loyalty and their perception of the reputation of the university college. Affects seem to be important mediators of quality drivers on satisfaction, and thus indirectly on student loyalty. Positive and negative affects have significant effects on satisfaction, but the positive affect has a much stronger influence than the negative affect. Satisfaction further mediates the relationships between affective responses and loyalty both directly and via reputation. It was also true in the study of (Helgesen & Nesset, 2007a, 2007b) where student satisfaction is positively related to student loyalty.
In addition, a study of students enrolled in Australian universities suggests that student loyalty is predicted by student satisfaction, which is also affected by the host university’s perceived image (Brown & Mazzarol, 2009). Likewise, Babić-Hodović, Arslanagić, & Mehić (2013) studied customer-based corporate reputation in relation to satisfaction. And the result showed that CBCR have positive and significant influence on customer satisfaction.

**Student-based School Reputation**

Academics and practitioners have recognized reputation as a valuable intangible asset of the firm. Although some definitional issues continue to be debated in the literature, scholars agree that rather than existing as an inherent property of organizations, reputation is a perceptual phenomenon – emerging from observers’ collective judgments about an organization based on assessment of the organization’s performance over time in areas observers deem important (Barnett, Jermier, & Lafferty, 2006). And, despite the varied views of reputation, literatures reviewed acknowledged the importance of reputation in achieving organizations’ competitive advantage (Bălan, 2015; Chun, 2005; Davies, Chun, Vinhas da Silva, & Roper, 2003; Charles; Fombrun & Shanley, 1990; CJ Fombrun & van Riel, 1997).

Vidaver-Cohen (2007) states that a good reputation is considered to be one of the most valuable intangible assets an organization can possess. It reduces stakeholder uncertainty about future organizational performances, strengthens competitive advantage, contributes to public confidence and creates value by maximizing an organisation’s ability to receive a premium for products or service. Consequently, the corporate reputation of universities should be focused on to ensure the sustainability and competitiveness of the university. Few studies, however, have applied typical corporate reputation measurement instruments to universities as service organisations. (Botha, Elsamari; Sanders, Ali; Viljoen, 2009).

Corporate reputation of higher education institution can be defined as subjective and collective recognition, perception, attitude and evaluation of higher education institution established between all stakeholder groups (internal and external) of higher education institution during a specific time that is based on quality indicators, past behaviour, communication, symbolism, and possibility as well as potential to satisfy future expectations comparing to competitors (Sontaite, Migle; Bakanaukas, 2011).

Moreover, extant research has identified that corporate reputation is associated with loyalty (CJ Fombrun & van Riel, 1997; Nguyen & LeBlanc, 2001). Furthermore, according to (Helgesen & Nesset, 2007b) reputation management is one major factor that accounts for students’ loyalty. In his consequent study, Helgesen (2007a) also explore the drivers of student loyalty. Student satisfaction and reputation are identified in the model. Reputation is measured via two items: the students” perception of the general reputation of the university; and the students” perception of the reputation of their chosen study program at the university. Their solution model identifies student satisfaction as the driver of reputation and loyalty. Consequently, Nguyen and LeBlanc (2001) established that within a higher education context when perception of institutional image/reputation are favourable there is higher tendency of existence of student loyalty.
On another note, literatures reviewed show that corporate reputation of higher education institutions is very important to its customers. Commonly, corporate reputation is measured either having a composite construct of reputation or by assessing the products, services, innovation, workplace, governance, citizenship, leadership, performance and emotional appeal (C. Fombrun, Gardberg, & Sever, 2009; Miglė Šontaite-Petkeviciene, 2015; Mohamad, Bakar, Adzrieman, & Rahman, 2005; Prof & Pitpreecha, 2014; Ressler, 2010; Sontaite, Migle: Bakanaukas, 2011; Sontaite-PetKeviciene, 2013; Vidaver-Cohen, 2007). Moreover, reputation was also classified into either, belief and attitude or cognitive and affective (Azoury et al., 2014; Nesset, 2009; Ressler, 2010).

**Research Gap**

According to (Tarus & Rabach, 2013), “the determinants of one industry cannot be generalized in other industries.” The intensity of implementation and measures used varies with organizations (Sarkindaji et al., 2015). And even though studies have examined drivers of customer loyalty such as satisfaction and reputation among others, researches have not identified which of the dimensions of reputation will be significant (Arpan et al., 2003; Money & Hillenbrand, 2006). Also few studies have measured effects of cognitive quality dimensions and affective factors of reputation to student satisfaction leading to better student loyalty.

**Operational Framework**

After careful and extensive review of literatures, the operational framework shown in Figure 1. Based on the framework, this study only focused on the dimensions of reputation which the students, as primary stakeholder of the university, have prior knowledge based on their personal experience and observation such as products, services, leadership, performance, governance, citizenship and innovation, and emotional appeal which consists of trust, admiration, good feeling and public esteem. It did not included workplace climate and competition since students will be the respondents which is assumed to have limited knowledge on employees concerns and growth opportunities of the institution.
Figure 1 Operational Framework

Methodology

Descriptive and causal explanatory were used as research designs of the study. Descriptive research design was used to present the basic information of the respondents and the summary of data collected. In addition, causal explanatory was employed to measure the extent of relationship among the school-based school reputation and satisfaction as well as the impact of satisfaction on loyalty.

Students of the College of Business and Management in Partido State University who belong to 3rd and 4th year level were selected through stratified random sampling. Out of 714 students, 278 were computed to be the sample size using Slovin’s formula but only 253 were due to incomplete data of other 25 questionnaires.

Data were gathered using survey questionnaire. It consisted of three parts. Part 1 is the profile of the respondents, Part II is for student-based school reputation and Part III is the level of satisfaction and loyalty of the students.

Profile of the students pertain to gender, age, gender, year level and academic program. Constructs for student-based school reputation were adapted from the paper of (Vidaver-Cohen, 2007). In addition, satisfaction and loyalty constructs were adopted from the paper of (Wong et al., 2016).

Prior to the full implementation of data gathering, the questionnaire was pre-tested to 50 students. Cronbach’s alpha showed that reliability of indicators (n=32, N of indicators=34) is very high and equal to 0.972. After assessment of separate reputation, satisfaction and loyalty indicators, it was determined that Cronbach’s alpha values range from 0.6047 to 0.9453.

Descriptive analysis such as absolute and percentage frequencies, average weights (M) and standard deviation (SD) were employed. Simple linear regression and multiple regression analyses were utilized to test the extent of relationship of the student-based school reputation, satisfaction and loyalty. Data were also subjected to test of multicollinearity and heteroskedasticity using Variance Inflation Factor and Breusch-Pagan Test respectively.

Results and discussion

Results show that the average age of 3rd and 4th year students is 19.5 ranging from 17 to 35 years old, 75% are female, having Bachelor of Science in Office Administration as the highest populated course in the college and BS Accountancy as least populated with 44% and 11% share, respectively, of the total enrollees in the College of Business and Management,
Partido State University. Average Monthly income of the students’ household is Php 15,032.14 which range from as low as Php 1,000 to Php 80,000 as shown in Table 1.

Table 1. *Students’ Profile*

<table>
<thead>
<tr>
<th>Academic and Demographic Profile</th>
<th>F</th>
<th>%</th>
<th>Mean</th>
<th>Std. Dev.</th>
<th>Min</th>
<th>Max</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Academic Program</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Accountancy</td>
<td>30</td>
<td>11.86%</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Entrepreneurship</td>
<td>61</td>
<td>24.11%</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Financial Management</td>
<td>51</td>
<td>20.16%</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Office Administration</td>
<td>111</td>
<td>43.87%</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2 Year Level</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Third Year</td>
<td>159</td>
<td>62.85%</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fourth Year</td>
<td>94</td>
<td>37.15%</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3 Gender</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>62</td>
<td>24.51%</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>191</td>
<td>75.49%</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4 Age</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1-20 years old</td>
<td>210</td>
<td>83%</td>
<td>19.50988</td>
<td>2.086641</td>
<td>17</td>
<td>35</td>
</tr>
<tr>
<td>21-40 years old</td>
<td>43</td>
<td>17%</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5 Average Household Monthly Income (in peso)</td>
<td>15032.14</td>
<td>13202.46</td>
<td>1000</td>
<td>80000</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Notes: 1-4, n=253; 5, n=112

Emotional appeal which pertains to trust, admiration, good felling and public esteem, got the highest mean rating (M= 6.386364) followed by leadership (M= 5.998682) then citizenship (5.968379) while performance got the lowest rating (M= 4.749671).

Table 2. Descriptive Analysis result

<table>
<thead>
<tr>
<th>Student-based School Reputation Dimensions</th>
<th>Mean</th>
<th>Std. Dev.</th>
<th>Min</th>
<th>Max</th>
</tr>
</thead>
<tbody>
<tr>
<td>Performance</td>
<td>4.749671</td>
<td>0.5236102</td>
<td>2.833333</td>
<td>5.833333</td>
</tr>
<tr>
<td>Services</td>
<td>5.767787</td>
<td>0.7357643</td>
<td>2.5</td>
<td>7</td>
</tr>
<tr>
<td>Product</td>
<td>5.839921</td>
<td>0.7513659</td>
<td>3</td>
<td>7</td>
</tr>
<tr>
<td>Leadership</td>
<td>5.998682</td>
<td>0.762606</td>
<td>3.666667</td>
<td>7</td>
</tr>
<tr>
<td>Governance</td>
<td>5.73913</td>
<td>0.7683796</td>
<td>2.333333</td>
<td>7</td>
</tr>
<tr>
<td>Citizenship</td>
<td>5.968379</td>
<td>0.680972</td>
<td>3.333333</td>
<td>7</td>
</tr>
<tr>
<td>Emotional Appeal</td>
<td>6.386364</td>
<td>0.7040711</td>
<td>2.75</td>
<td>7</td>
</tr>
</tbody>
</table>

Result of simple linear regression which answered hypotheses 1 to 8 is shown in Table 3. Hypothesis 1 is accepted, which means that performance have positive significant influence on
stakeholder satisfaction ($\beta = 0.7693363, p<0.000$). It can also be noted that Adj R-squared is 0.2692, which means that performance explains only 26.92% of stakeholder’s satisfaction.

Products and stakeholder satisfaction regression result shows ($\beta = 0.4397475$) and ($p<0.000$). These values reveal that PSU’s products has a positive and significant influence on stakeholder’s satisfaction. The Adj R-squared equal to 0.1806 means that student’s perception of PSU’s product explains 18.06% of stakeholder’s satisfaction.

Influence of service on stakeholder satisfaction result shows ($\beta = 0.5260802$) and ($p<0.000$), which supports $H_3$. This implies that the presence of high quality service affects stakeholder satisfaction. In addition, Adj R-squared equivalent to 0.2485 says that service explains 24.85% of stakeholder satisfaction.

Results for the influence of leadership on stakeholder satisfaction revealed that ($\beta = 0.4990082$) and ($p<0.000$). Therefore, $H_4$ is accepted. Also, with the Adj R-squared equal to 0.2412 means that leadership explains 24.12% of stakeholder’s loyalty.

Given the result of the influence of governance to stakeholder satisfaction which is ($\beta = 0.4668416$) and ($p<0.000$), thus, supports $H_5$. The Adj R-squared equals to 0.2112 also implies that governance explains 21.12% of stakeholder satisfaction.

Hypothesis 6 is also accepted given the result, ($\beta = 0.5436684$) and ($p<0.000$). The Adj R-squared equivalent to 0.2228, also attests that citizenship dimension explains 22.28% of the stakeholder satisfaction.

Positive and significant influence of innovation to stakeholder satisfaction is also proven by the result ($\beta = 0.6222996$) and ($p<0.000$). This indicates that innovation is a significant predictor of stakeholder satisfaction. With Adj R-squared corresponding to 0.3638 shows that innovation explains 36.385 of stakeholder satisfaction.

Hypothesis 8 is accepted since the result yielded ($\beta = 0.6568424$) and ($p<0.000$) which means that affective dimension of student-based school reputation has positive significant impact on stakeholder satisfaction. The Adj R-squared equal to 0.3483 also suggests that affective dimension which is emotional appeal explains 34.83% of stakeholder’s satisfaction.

Table 3. Simple Linear Regressions for Hypotheses 1 to 8

| Independent Variables | $\beta$     | Std. Err. | P>|t| | Adj. R-squared |
|-----------------------|-------------|-----------|-----|----------------|
| Performance           | 0.769336    | 0.079653  | 0.0000 | 0.2692         |
| Product               | 0.439748    | 0.058627  | 0.0000 | 0.1806         |
| Service               | 0.52608     | 0.057456  | 0.0000 | 0.2485         |
| Leadership            | 0.499008    | 0.055572  | 0.0000 | 0.2412         |
| Governance            | 0.466842    | 0.056567  | 0.0000 | 0.2112         |
| Citizenship           | 0.543668    | 0.063701  | 0.0000 | 0.2228         |
| Innovation            | 0.6223      | 0.051834  | 0.0000 | 0.3638         |
| Emotional Appeal      | 0.656842    | 0.056572  | 0.0000 | 0.3483         |
Note: DV=Stakeholder’s Satisfaction, n=253

For multicollinearity, results show that vif for all independent variable were all less than 10, which means there is no multicollinearity. On the other hand, Breusch-Pagan test statistic indicate that there is heteroskedasticity as shown by the p-value of less than 0.05. Robust option was employed to correct the heteroskedasticity.

Based on the confluence of cognitive quality dimensions and affective dimension of student-based school reputation as shown in Table 4, only 3 factors have significant effect on stakeholder’s satisfaction. These are performance (β= 0.2987544) and (p<0.004), innovation (β= 0.3356361) and (p<0.000) and emotional appeal (β= 0.357236) and (p<0.000). The Adj R-squared equivalent to 0.4659 implies that the model of stakeholder’s satisfaction is better when independent variables converged.

Table 4. Multiple Regression analysis for hypothesis 9

<table>
<thead>
<tr>
<th>Independent Variables</th>
<th>β</th>
<th>Robust Std. Err.</th>
<th>P&gt;t</th>
</tr>
</thead>
<tbody>
<tr>
<td>Performance</td>
<td>0.298754</td>
<td>0.1014905</td>
<td>0.0040</td>
</tr>
<tr>
<td>Service</td>
<td>-0.09411</td>
<td>0.0979259</td>
<td>0.3380</td>
</tr>
<tr>
<td>Products</td>
<td>-0.00653</td>
<td>0.0720855</td>
<td>0.9280</td>
</tr>
<tr>
<td>Leadership</td>
<td>-0.01549</td>
<td>0.0885279</td>
<td>0.8610</td>
</tr>
<tr>
<td>Governance</td>
<td>0.098088</td>
<td>0.0720982</td>
<td>0.1750</td>
</tr>
<tr>
<td>Citizenship</td>
<td>-0.00264</td>
<td>0.0849057</td>
<td>0.9750</td>
</tr>
<tr>
<td>Innovation</td>
<td>0.335636</td>
<td>0.080341</td>
<td>0.0000</td>
</tr>
<tr>
<td>Emotional Appeal</td>
<td>0.357236</td>
<td>0.0915526</td>
<td>0.0000</td>
</tr>
<tr>
<td>Age</td>
<td>0.004108</td>
<td>0.0171159</td>
<td>0.8110</td>
</tr>
<tr>
<td>Gender</td>
<td>-0.08856</td>
<td>0.0873566</td>
<td>0.3120</td>
</tr>
</tbody>
</table>

Notes: n=253, DV=Satisfaction, Adj. R-squared= 0.4659

Hypothesis 10 is also accepted. Result generated is (β= 0.7654248) and (p<0.000). This shows that stakeholder’s satisfaction is a significant predictor of stakeholder’s loyalty pointing into positive direction as shown in Table 5. This is also explained by the Adj R-squared which is equal to 0.5268 which implies that stakeholder’s satisfaction explains 52.68% of stakeholder’s loyalty.

Table 5. Simple Linear Regression Analysis for hypothesis 10

<table>
<thead>
<tr>
<th>Independent Variables</th>
<th>β</th>
<th>Std. Err.</th>
<th>P&gt;t</th>
</tr>
</thead>
<tbody>
<tr>
<td>Satisfaction</td>
<td>0.765826</td>
<td>0.04563</td>
<td>0</td>
</tr>
<tr>
<td>Age</td>
<td>0.001313</td>
<td>0.0169075</td>
<td>0.938</td>
</tr>
<tr>
<td>Gender</td>
<td>0.155859</td>
<td>0.0815573</td>
<td>0.057</td>
</tr>
</tbody>
</table>

Notes: n=253, DV=Stakeholder’s Loyalty, Adj. R-squared= 0.5300

Findings of this study are consistent with the result of literatures reviewed pertaining to reputation as predictor of stakeholder’s satisfaction as well as the significant impact of stakeholder’s satisfaction on the loyalty of Partido State University’s stakeholders.

Conclusions and Recommendations
All cognitive quality dimensions of student-based school reputation and affective dimension represented by emotional appeal are predictors of stakeholder’s satisfaction when measured independently. When the convergence of all dimensions were tested, only two cognitive quality dimensions and affective dimension positively and significantly impacts stakeholder’s satisfaction. These are performance, innovation and emotional appeal. Consequently, results further established that stakeholder’s satisfaction have positive and significant impact on stakeholder’s loyalty. It can also be concluded that the confluence of cognitive quality dimensions and affective quality dimensions are better predictors compared when student-based school reputation were taken independently.

Student-based school reputation should not be undermined due to its significant impact on stakeholder’s satisfaction leading to better stakeholder’s loyalty. It is recommend that Partido State University should pay attention to stakeholder’s feedback on the quality dimensions found to have significant impact on attaining stakeholder’s satisfaction. Due to limited resources, it is important for Partido State University to be strategic in the programs and projects it will implement. PSU may give more weight on the factors which significantly influence satisfaction such as improving performance, promoting innovativeness and building trust, admiration, respect, good feeling and high public esteem. PSU-human resource department and research unit to improve its intellectual performance. They can do so by recruiting faculty who are masters/doctor of philosophy degree holders as well as sending existing faculty into research capability training. Network performance may be enhanced by the Guidance and Placement office by communicating to the community the strengths of the university in terms of the products and services it offers as well as strengthening its ties with the alumni and monitoring their performance regularly in jobs. Financial performance can be improved by intensifying the production programs of the university by utilizing its idle resources for profit-generating activities. In addition, Academic planners of PSU may re-examine the innovativeness of curriculum and delivery methods to ensure that it adapts quickly to change and do benchmarking with public and private universities that are center of excellence/development.

This study is not without limitations. The researcher have focused only on one college of Partido State University, thus results cannot be generalized for the entire university. Future researchers may extend the coverage of this study. Other factors that may affect student satisfaction and loyalty may be looked into. This undertaking also did not touch on the potential moderating effects of age, gender, year level as well as the impact of economic status on stakeholder satisfaction and loyalty. Since this research assessed school-based reputation’s effect on satisfaction based on student’s perspectives as part of external stakeholder, future researchers may also look into the perspectives of the internal stakeholder, the academic employees and analyse the difference in their views.

Acknowledgments

The researcher wished to thank Partido State University administration for allowing her to distribute questionnaires among the Management students and the CBM faculty who assisted in distributing questionnaires. Due recognition is also given to Dr. Emmie Sarreal and Dr. Brian
Gozun for the inputs in the course of research.

References


Social Commerce Continuance Participation Intention among Business Administration Students of Jose Rizal University

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Abstract

In today’s digital era, social commerce platforms are the new battle ground for companies to offer and market their products and services. For consumers, it spelled convenience in terms of time and effort as well as the support they got from the online community as well as its members. The study investigated the different factors that impact the continuance participation intention on Facebook. An operational model was developed based on literature review. The research made use of quantitative analysis using STATA. The findings of the study revealed a statistically significant and positive relationship among the six factors and the continuance participation intention on Facebook. Furthermore, study identified that service quality had the strongest impact on continuance participation intention on Facebook followed by ease of navigation, trust towards community, information supports, community commitment and trust towards community. Conclusions and recommendations for future study were also discussed in the paper.

Key Words

social commerce; continuance participation intention; Facebook

Background of the Study

As it started to gain its popularity in 2007-2008, social commerce is the next big thing in the retail industry. Mark Zuckerberg’s says: “If I had to guess, social commerce is the next to blow up” (O’Neill, 2011). He is the man behind Facebook- one of the most used social media worldwide. Based on (www.statista .com), there are over 1.94 billion monthly active Facebook users for March 2017 (Facebook MAUs) and 1.15 billion mobile daily active users (Mobile DAU) for December 2016 worldwide. This is significantly huge to say that there is indeed high traffic in Facebook that is too big to ignore. It is not a phenomenon happening only in the U.S. In Europe, over 307 million people are on Facebook. (Source: Search Engine Journal). It was said that 42% of marketers report that Facebook is critical or important to their business (State of Inbound Marketing, 2012). Hence, according to the September 2016 survey (Source: www.statista.com), 45 percent of responding online shoppers stated that reading reviews, comments and feedback influenced their online shopping behavior.
Graph 1 Ranking of Social Media Platforms in United Kingdom

This statistic captured the leading social media platforms in the United Kingdom (UK) ranked by market share as of April 2017. Data was gathered based on more than 15 billion hits online per month onto more than 2.5 million tracking Statcounter member sites worldwide. In January 2017, Twitter accounted for approximately 12 percent of the social media market in the United Kingdom. It was followed by Pinterest and Tumblr with 7 and 2.18 percent market share respectively.
Graph 2 Social Media Usage in Southeast Asia

With respect to the Southeast Asian context, Brunei heads up the regional rankings for social media use. On the other hand, more than three-quarters of Singaporeans use social media each month. Philippines sits fifth in the regional ranking but barely one-quarter of the populations of Laos and Myanmar are using social media today. There is a year-on-year growth in social media users of 84% - one of the highest growth rates in the world. Moreover, mobile social media continues to grow even more rapidly around the region too, with the number of monthly active users accessing social platforms via mobile devices up 34% year-on-year. At a platform level, Facebook has the greatest number of monthly active users (MAUs) across all 11 countries in the region with a total of 305.9 million.

Graph 3 Top Active Social Platforms in the Philippines

Source: https://wearesocial.com/special-reports/digital-southeast-asia-2017

Source: http://isupportworldwide.com/blog/archive/socialmediaphilippines/
In the Philippines, Facebook is the most active social media platform with 26%, followed by Facebook Messenger with 23%, while Twitter and Instagram also tops the list with 13% and 12%. Of those using social media, 29% of the population used social media platforms for searching and purchasing products and services. The present study gave highlights on the continuance participation intention. It is significant as the decision to continue or discontinue participating in online community will help different organizations as well as various social media platforms in their decision making and strategy building for economic sustainability. The study discussed the different relationships that exist between the different factors identified to the continuance participation intention on Facebook.

Statement of the Problem

The study investigated the relationships of the different factors in social commerce to the continuance participation intention in Facebook.

Research Questions

1. What is the relationship of informational support to continuance participation intention on Facebook?
2. What is the relationship of community commitment to continuance participation intention on Facebook?
3. What is the relationship of trust towards community to continuance participation intention on Facebook?
4. What is the relationship of trust towards members to continuance participation intention on Facebook?
5. What is the relationship of ease of navigation to continuance participation intention on Facebook?
6. What is the relationship of service quality to continuance participation intention on Facebook?

Research Objectives

1. To discover the relationship of informational support to the continuance participation intention on Facebook
2. To examine the relationship of community commitment to the continuance participation intention on Facebook
3. To analyze the relationship of trust towards community to the continuance participation intention on Facebook
4. To determine the relationship of trust towards members to the continuance participation intention on Facebook
5. To analyze the relationship of ease of navigation to the continuance participation intention on Facebook
6. To test the relationship of service quality to the continuance participation intention on Facebook

**Significance of the Study**

The following will benefit from the study:

1. **Facebook** - Since the study focused on this particular social commerce website, the results of the study gave valuable information that the company can use to further strengthen their strategies on factors that significantly affect continuance participation intention.
2. **Students** - The results of the study provided the factors that are significant in the continuance participation intention on Facebook. As the respondents of this study, this will give them ideas as to what are the most important factors they need to consider when purchasing products/services in social commerce websites.
3. **Academe** - The results of this study will contribute to the literatures on social commerce especially in the continuance participation intention that will lead to brand loyalty.
4. **Future researchers** - The study will be a good reference among future researchers working on the topic social commerce.

**Scope and Limitations**

The study was conducted from the period June to August 2017 among Business Administration students of Jose Rizal University who already purchased something from Facebook. The famous Slovin’s formula was used to come up with a sample size. The study made use of different factors adopted from (Lal, P., 2017) such as: informational support, community commitment, trust towards community, trust towards members, ease of navigation and service quality. It utilized descriptive and causal-explanatory research design and quantitative data analysis.

**Chapter II Review of Related Literature**

**Social Commerce**

Social commerce is a phenomenon rooted in social media practice and Web 2.0 technologies, which have become popular consumer tools to socialize and share commercial-related information. Due to the popularity and growth of social media tools, consumers are now able to interact actively with consumer peers, which enhance their evaluations of products and leads to better-informed purchasing decisions (Wang & Zhang, 2012). It is an Internet-based commercial application, leveraging social media and Web 2.0 technologies which support social interaction and user-generated content in order to assist consumers in their decision making and acquisition of products and services within online marketplaces and communities (Huang & Benyoucef, 2013). Moreover, within this new Internet setting, consumers employ social
knowledge and experiences to support them in filtering their choices and in making more informed and accurate purchase decisions (Court et al., 2009). Furthermore, in case of social commerce, organizations leverage social media technologies for designing customer oriented business via creating online communities and encouraging customers to share their experience, opinions regarding their products or services (Füller, Bartl, Ernst, & Mühlbacher, 2006; Hajli, 2015).

Social commerce differs from e-commerce primarily in two ways, first it is built on the social technology platform and second it encourages social media supported commercial activities as opposed to e-commerce that depends on online system characteristics related to user interface, shopping cart, search engine or preference-based recommender systems that are used to influence online purchase behavior (Chen &Shen, 2015). Social commerce can be classified into three primary trends: adding commercial features to social media tools (e.g. SNSs), adding social media features to e-commerce sites (e.g. Amazon), and the increasing use of social media by traditional offline firms to improve business performance (e.g. customer service) (Liang et al., 2011; Ng, 2013).

**Trends and Issues in Social Commerce:**

The study of (Lina, X.; Lib, Y.; Wang, X., 2017) examined previous literature to identify the major themes and topics of social commerce research. Latent semantic analysis (LSA) was used to analyze the abstracts of previous social commerce studies. The results of the LSA analysis revealed three major themes on social commerce namely: social commerce and organization, social commerce and advertisement, and social commerce and electronic word-of-mouth (e-WOM). Additional LSAs were conducted for each theme. The results provided
prominent topics in each theme. Some of the interesting trends in social commerce research topics includes: (a) innovation, corporate reputation, and user-generated content remain the major research topics, although they are experiencing a slight decline; (b) the online review, trust, and e-WOM are also attracting the attention of more researchers.

Measures of Electronic Service Quality

<table>
<thead>
<tr>
<th>Dimension (abbreviation)</th>
<th>Factor (abbreviation)</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reliability (REL) (0.169)</td>
<td>Accurate and Reliable Service (ARS)</td>
<td>(0.068)</td>
</tr>
<tr>
<td>Responsiveness (0.123) (RESP)</td>
<td>Accurate Description of Product (ADP)</td>
<td>(0.004)</td>
</tr>
<tr>
<td></td>
<td>Sincere desire to Solve Problems for Customers (SSPC)</td>
<td>(0.005)</td>
</tr>
<tr>
<td></td>
<td>Promptness in Response to Requests (PRR)</td>
<td>(0.086)</td>
</tr>
<tr>
<td></td>
<td>Availability of Alternative Communication Channels (AACC)</td>
<td>(0.004)</td>
</tr>
<tr>
<td>Information (INFO) (0.127)</td>
<td>Providing Accurate Information (PAI)</td>
<td>(0.007)</td>
</tr>
<tr>
<td></td>
<td>Providing Timely Information (PTI)</td>
<td>(0.031)</td>
</tr>
<tr>
<td></td>
<td>Providing Easy to Understand Information(PEUI)</td>
<td>(0.031)</td>
</tr>
<tr>
<td>Security (SECU) (0.235)</td>
<td>Protecting Privacy (PP)</td>
<td>(0.115)</td>
</tr>
<tr>
<td></td>
<td>Obtaining Permission before Creating a Personal Account (OPCPA)</td>
<td>(0.051)</td>
</tr>
<tr>
<td></td>
<td>Assure Personal Information will Not be Shared with others (APINS)</td>
<td>(0.077)</td>
</tr>
<tr>
<td>Ease of use (0.136) (EOU)</td>
<td>User-Friendly Website Interface (UWI)</td>
<td>(0.072)</td>
</tr>
<tr>
<td></td>
<td>Clear Structure of Web site (CSW)</td>
<td>(0.040)</td>
</tr>
<tr>
<td></td>
<td>Containing a Site Map (CSM)</td>
<td>(0.023)</td>
</tr>
<tr>
<td>Trust (TRUS) (0.200)</td>
<td>Having a Good Reputation (HGR)</td>
<td>(0.084)</td>
</tr>
<tr>
<td></td>
<td>Always Keeping Promises (AKP)</td>
<td>(0.116)</td>
</tr>
</tbody>
</table>

Figure 2: Model of e-SQ according to the dimensions and factors in accordance with the ranking of e-SQ citations (Wu, Shen & Chang, 2015)

The study made use of fuzzy AHP and run the data of respondents and transferred them to become a weighting of FAHP. These results show that the three most important dimensions of FB users are SECU (security), TRUS (trust) and REL (reliability). These are followed by the dimensions of EOU (ease of use), INFO (information), and RESP (responsiveness).
(Wu, Shen & Chang, 2015) found in the study that when consumers click the link and cross to other platforms, the dimensions the consumers emphasize are different from the previous e-SQ searches. The findings of the investigation revealed that FB users consider potential problems before linking to ads such as Phishing, internet fraud and leaking personal information. In the course of the study, companies attract customers to link to their advertisements base on the FB users’ trust in their friends “likes” and “talking about this”. (Vinerean, Cetina, Dumitrescu, & Tichindelean, 2013). Second, the homepage of the company have an announcement about privacy protection. Last, they have accurate description about the products they sell and usually respond to comments from FB users. (Lee & Shin, 2014)

Determinants and constructs

Social factors

The existence of social support leads to sharing of information and experiences among members. Further it also helps individuals in building a strong relationship with members of the network which may result in commitment to the community an individual is part of (Liang et al. 2011).

Informational support

Savolainen (2015), in his study of online discussion groups identified three types of informational support in an online environment namely, providing factual information, providing advice and providing a person an opinion. In the context of social commerce, individuals may share their experiences or opinions related to purchasing of product, delivery timing, packaging of product while delivering, time taken to deliver product, features of product, as well as experience of using the product, etc. Such significant information helps users of social commerce in their decision making. (Chen & Shen, 2015; Liang et al. 2011).

Community Commitment

According to Meyer and Alien (1991), organizational commitment is a psychological bond that describes an individual’s relationship with an organization. In the context of social commerce, individual’s commitment to online communities as one of the significant factors that influences their intention to use social commerce.

Trust

Trust has been studied intensively by researchers to understand its impact on an individual’s intention to use online platform for purchases (e.g. Gefen, Karahanna, & Straub, 2003; Hoffman, Novak, & Peralta, 1999; Kim, 2012; Mcknight & Chervany, 2001). In case of social commerce, individuals have a tendency to seek advice from online communities and members who they can trust to provide correct information regarding their experience of purchasing a product or using any online service (Chen & Shen, 2015). Many studies in the past
proved that the higher level of commitment towards an online community will lead to higher involvement by individuals within that community (Bateman, Gray, & Butler, 2011; Wu, Chen, & Chung, 2010).

In the social commerce context, if users of social networking websites find a community where they can share their experiences and interest and felt as sense of belongingness, This results in influencing their intention to be part of the community (Lal, 2017).

**Trust towards members**

Trust towards members is referred to as an individual's willingness to count on the suggestions, opinions, and views of other members of a social commerce community (Chen & Shen, 2015). In context of social commerce, success depends on how much an individual can trust the views posted by other members of a social commerce community (Lal, 2017).

**Trust towards community**

Trust towards community refers to an individual’s perception of online community as a reliable and capable online platform for providing quality services for social interaction as well as online commerce (Chen & Shen, 2015; Lu et al., 2010). If an individual has a positive perception towards social commerce community, then he or she will be influenced to use social commerce.

**Website quality**

**Ease of navigation**

In the context of social commerce, ease of navigation plays a key role as it impacts on an individual’s intention to use a particular website. (Ye, Fu, & Law, 2016). Being able to easily navigate various functions and features of the website encourages individuals to use the website for fulfilling their objective. Thus, it is important that social commerce website should be designed in such a way that users are able to post their views, respond to the other member's queries as well as communicate with each other with ease as well as be able to use various functions and features without any technical hiccup. In addition to that, response time is also critical in social commerce as users will tend to return to the website second time if they had a good experience of quick response from the members of website regarding their queries or opinions (Lal, P., 2017).

**Service quality**

Liang, Ho, Li, and Turban (2011) define service quality as “the degree to which a user evaluates supports and services delivered by the service provider via the Website.” In context of social commerce, website service quality is evaluated by the users in terms of how quickly their queries are resolved as well as how they are handled by the customer care executive. This is
even more significant when a user who is not tech savvy faces a technical glitch and customer service provider is able to help him resolve the issue without making him or her uncomfortable regarding technical jargons and complex processes. Moreover, since a social commerce website will be used for online transactions, users need to be ensured that website is reliable enough to share their personal as well as payment details as they will be protected. Thus, if a social commerce website provides a good service quality, then it will positively impact an individual's intention to use the website for online transactions (Lal, P., 2017).

Research Gap

Many studies were made that focus on the different factors that leads to purchase intention on social media but as to the continued intention of a member of social commerce website remains a subject for future research. It is at this juncture that this study investigated the relationship of the different factors identified (social, trust and website quality) to the continued intention of members of a social commerce website. It adapted the model of (Lal, P. 2017) in her study “Analyzing determinants influencing an individual's intention to use social commerce website”. In order to bridge the gap, the construct for the continued intention was adapted from the study done by (Hajli et al., 2014).

Chapter III Conceptual Framework

Conceptual Framework

![Conceptual model by (Lal, P. 2017)](image)

Figure 3: Conceptual model by (Lal, P. 2017)

The conceptual model for this study is built on the theoretical grounding of Social Network theory, Trust Transfer theory, and Task-Technology Fit theory. Social Network
Theory studies the exchange of resources between actors and its impact on the behavior. These actors can be individuals, groups, organizations, or societies (Katz, Lazer, Arrow, & Contractor, 2004; Wasserman & Faust, 1994). In case of online environment intangible resources such as information, social support, or influence play a critical role where each relationship among actors refers to a particular type of resource exchange. In case of social commerce websites, it can help in understanding an individual's behavior regarding sharing information resource with fellow members and its impact on their usage of a website. Thus, Social Network theory is used as a foundation to group two constructs, i.e. informational support and community commitment to understand the impact of social factors in influencing an individual to use social commerce websites (Lal, 2017, p. 72).

Trust Transfer theory suggests that an individual's perceptions regarding an object is influenced either from the insights of other reference objects that are associated with the target object or from diverse sources (Stewart & Zhang, 2003; Ogbanufe & Kim, 2015). According to Stewart (2003) trust transfer can be defined as “when a person (the trustor) bases initial trust in an entity on trust in some other related entity, or on a context other than the one in which the target is encountered (e.g. a different place)”. Moreover, there is a positive relationship between trust and online repurchase intention in the context of B2C e-commerce (Fang et al., 2011; Lee et al., 2011). Based on Trust Transfer theory in this study two constructs i.e. trust towards members and trust towards community were grouped under trust category to understand the impact of trust on an individual's intention to use social commerce website (Lal, 2017, p. 72).

Task-Technology Fit theory refers to the “degree to which a technology assists an individual in performing his or her tasks” (Goodhue & Thompson, 1995). It can be measured using factors such as: quality, location, authorization, compatibility, ease of use/training, production timeliness, systems reliability, and relationship with users (Goodhue & Thompson, 1995). In case of websites, the quality is determined by both system functions as well as service. On one hand, easy navigation or use of website helps users in performing their task easily and in less time. On the other hand, good service quality of the website can always lead to the satisfaction and ensures the continued use by an individual (Liang, Ho, Li, & Turban, 2011). Task-Technology Fit theory forms the basis of third category i.e. Website quality. The quality of social commerce website is represented by two constructs namely: ease of navigation and service quality (Lal, 2017, p. 72).

In this study, the researchers investigated the relationship of the different factors in social commerce such as: informational support, community commitment, trust towards community, trust towards members, ease of navigation and service quality to the continuance participation intention on Facebook since it remains a gap in the literature. The factors identified and the construct of which was adapted from (Lal, P., 2017) while the continuance participation intention constructs was adapted from (Hajli, N. et al., 2015).
Hypothesis/Proposition of the Study

Hypothesis 1: Informational support will positively impact the continuance participation intention to use Facebook.

Hypothesis 2: Commitment to online communities will positively impact the continuance participation intention to use Facebook.

Hypothesis 3: Trust towards social commerce community members will positively impact the continuance participation intention to use Facebook.

Hypothesis 4: Trust in social commerce community will positively influence the continuance participation intention to use Facebook.

Hypothesis 5: Ease of navigation of social commerce website will positively influence the continuance participation intention to use Facebook.

Hypothesis 6: Service quality of Facebook will positively influence the continuance participation intention.

Operational Definition of Terms:

Community commitment- This refers to the willingness of an individual to be part of the community in Facebook.
Continuance intention participation - This refers to the continuous usage of Facebook in the future to purchase something.

Ease of navigation - This pertains to the features and functions of Facebook that will help the users to easily communicate with other members in terms of giving opinion and comments.

Informational support - This refers to the comments and opinions of other members of Facebook that will help in the intention to purchase something in this social commerce website.

Service quality - This refers to the quality of Facebook in terms of security of personal information.

Trust towards community - This refers to the amount of trust given by an individual towards Facebook community.

Trust towards members - This refers to the amount of trust given by an individual to the other members using Facebook.

Chapter IV Methodology

Research Locale

The study was conducted at Jose Rizal University among Business Administration students who already bought something using Facebook.

Research Design

The study made use of descriptive and causal-explanatory research design. The proponent conducted a pre-test among 50 respondents and made use of Cronbach alpha to measure the validity and reliability of the questionnaire. An actual survey followed after using Slovin’s formula. An initial 300 questionnaires were given among the respondents. Only 202 out of the 300 were valid. The proponent made use of sampling replacement to obtain the 242 sample size. Another 100 questionnaires were given to complete the required sample size.

Sampling Design

The study made use of Slovin’s formula \( n = \frac{N}{1 + Ne^2} \) to obtain sample size among students of Jose Rizal University under Business Administration department.

Research Instrument

A questionnaire was used in the study and adapted the constructs used by (Lal, P., 2017) such as: informational support (IS), community commitment (CC), trust towards community (TTC), trust towards members (TTM), ease of navigation (EON) and service quality (SQ). On
the other hand, the construct on the continuance participation intention (CPI) was adapted from (Hajli, N. et al., 2015). A total of 26 items was measured using six-point Likert scale (1=Strongly Disagree to 6=Strongly Agree). A pre-test was conducted among 25 respondents to measure the validity and reliability of the instrument using Cronbach alpha.

**Statistical Treatment of Data**

Descriptive analysis was used particularly in demographic profile of the respondents as well as in the quantitative results of the data obtained. On the other hand, causal-explanatory analysis was used to exploit the relationship between informational support, community commitment, trust towards community, trust towards members, ease of navigation, service quality and the continuance participation intention on Facebook. Furthermore, STATA was used for quantitative data analysis.

**Chapter V Discussion of Results**

**Table 1**

<table>
<thead>
<tr>
<th>Test of Multicollinearity</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>variable</td>
<td>VIF</td>
</tr>
<tr>
<td>IS</td>
<td>1.39</td>
</tr>
<tr>
<td>CC</td>
<td>1.49</td>
</tr>
<tr>
<td>TTC</td>
<td>1.97</td>
</tr>
<tr>
<td>TTM</td>
<td>1.87</td>
</tr>
<tr>
<td>EON</td>
<td>1.64</td>
</tr>
<tr>
<td>SVQ</td>
<td>2.61</td>
</tr>
<tr>
<td>Mean VIF</td>
<td>1.83</td>
</tr>
</tbody>
</table>

Clearly there is no evidence of Multicollinearity present among the constructs since the vif of each is less than 10 (Williams, 2015).

**Table 2**

<table>
<thead>
<tr>
<th>Demographic Attributes of the Respondents</th>
</tr>
</thead>
<tbody>
<tr>
<td>Demographic categories</td>
</tr>
<tr>
<td>------------------------</td>
</tr>
<tr>
<td>Gender</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>Age</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>Monthly Family Income</td>
</tr>
<tr>
<td></td>
</tr>
</tbody>
</table>
More than half of the respondents (61.16%) who bought products on Facebook were women. Women compared to men are more inclined in shopping clothes, bags, shoes, accessories, etc. This is not only true in brick and mortar shops but also through online social networking sites.

Most of those who use Facebook for purchasing products (81.82%) were 15-20 years old because these are Business Administration students. Only few (1.65%) of the respondents belong to above 25 years old. Mostly this are students who for some reasons discontinue their education for quite a while.

A little more than one-fourths (28.10%) of the respondents has a monthly family income of Php 20 to 30 thousand. Only few (6.20%) of the respondents has a monthly family income of Php 51 to 60 thousand. This gives a profile that the students come from an average family income family.

Majority (88.43%) of the respondents has more than 12 months of experience using Facebook. This means that students of Jose Rizal University are familiar to this particular social networking site (SNS).

### Table 3

<table>
<thead>
<tr>
<th>Hypothesis</th>
<th>β</th>
<th>S.E.</th>
<th>P value</th>
<th>Hypothesis testing result</th>
</tr>
</thead>
<tbody>
<tr>
<td>H&lt;sub&gt;1&lt;/sub&gt; IS → CPI</td>
<td>.388</td>
<td>.060</td>
<td>.000***</td>
<td>Accepted</td>
</tr>
<tr>
<td>H&lt;sub&gt;2&lt;/sub&gt; CC → CPI</td>
<td>.378</td>
<td>.046</td>
<td>.000***</td>
<td>Accepted</td>
</tr>
<tr>
<td>H&lt;sub&gt;3&lt;/sub&gt; TTC → CPI</td>
<td>.550</td>
<td>.056</td>
<td>.000***</td>
<td>Accepted</td>
</tr>
<tr>
<td>H&lt;sub&gt;4&lt;/sub&gt; TTM → CPI</td>
<td>.310</td>
<td>.048</td>
<td>.000***</td>
<td>Accepted</td>
</tr>
<tr>
<td>H&lt;sub&gt;5&lt;/sub&gt; EON → CPI</td>
<td>.631</td>
<td>.071</td>
<td>.000***</td>
<td>Accepted</td>
</tr>
<tr>
<td>H&lt;sub&gt;6&lt;/sub&gt; SVQ → CPI</td>
<td>.636</td>
<td>.053</td>
<td>.000***</td>
<td>Accepted</td>
</tr>
</tbody>
</table>

S.E._ Standardized error; β_ Standardized Regression Weights
ns =not significant; *po0.05. **po0.01. ***po0.001
Using Regression analysis on STATA, all of the six hypotheses were found statistically significant at .05 levels. The study investigated the relationship of the different factors on the continuance participation intention of Business Administration students at Jose Rizal University.

The study identified two constructs under social factors that influence continuance participation intention on Facebook namely: informational support (IS) and community commitment (CC). Although both factors are found statistically significant, they were not the strongest among the six factors identified in terms of impact on the continuance participation intention. These findings are contrary on the prior research findings of (Lal, 2017) where informational support is the strongest factor and community commitment is the least factor that influence purchase intention on social commerce. The respondents may find it very convenient to get information through online communities but it isn’t the strongest impact they consider when they want to continuously participate on Facebook. Moreover, respondents are more likely willing to share their experience and be involved in Facebook as they consider community commitment with strong significant impact.

Trust towards members (TTM) and community (TTC) were found to be statistically significant and have positive relationship with continuance participation intention on Facebook. In contrast to the prior findings of (Lal, 2017), the present study revealed the impact of TTM is the least among all the factors considered. The respondents considered trust towards community as the third strongest impact on the continuance participation intention on Facebook among all the factors considered. The respondents gave more importance on the online community on Facebook rather than the members of it. They were more of the collective impact rather than the individual when it comes to trust and their continuous participation intention.

Finally, quality of website namely ease of navigation (EON) and service quality (SVQ) was considered by the respondents to have the highest and strongest impact on the continuance participation intention on Facebook. Service quality was considered to have the strongest impact among all the factors considered. The respondents thought that they will continuously participate on Facebook if it is reliable, prompt in making response, secure their personal information and understand customer preferences. This supports the findings done in the prior study of (Lal, 2017). On the other hand, EON was considered to be the second highest in the continuance participation intention on Facebook because respondents felt that convenience brought by a particular social commerce website is important. This is in line with the studies done by (Lal, 2017) and Ye et al., 2015) where interactivity of website was found to be statistically significant to use online services.

In sum, this study identified that service quality (SVQ) has the strongest impact on an individual's continuance participation intention followed by ease of navigation (EON), trust towards community (TTC), information support (IS), community commitment (CC) and trust towards members (TTM).
VI. CONCLUSION AND RECOMMENDATIONS

The study investigated the role of various factors (social, trust and website quality) in the continuous intention to use Facebook for purchasing of products or services. The findings of this study can be utilized by different organizations as one of their strategies to use Facebook as their platform to market their products/services after thorough analysis of the individual’s preferences. Moreover, it is of high importance for organizations to give service quality a deeper look when they choose social commerce websites. In terms of theoretical contribution, the study proposed a new model on the six factors that presents an individual’s perspective on the continuance participation intention on Facebook.

Areas for Future Research

The study provides some opportunities for future researchers interested on this topic. First, this study made use of cross-sectional data; future research can make use of time series analysis. Second, this study was done in the Philippines environment; further study can be done by replicating this study in other countries and compare the results. Finally, this study focused on Facebook alone; future studies can consider other social networking sites like LinkedIn, Twitter, Instagram, etc.

Bibliography:

Journals


On-line materials


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Session C - Finance and business
Profitability of Taro (Colocasia Esculenta L. Schott) Production in Camarines Sur, Bicol Region

Mae S.A. Lustre
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Email: mae.lustre@cbsua.edu.ph

Abstract: The study was conducted to assess the profitability of Taro production in the province of Camarines Sur, determine the socio-economic and farm characteristics of taro farmers, identify the production and marketing practices, identify the problems and constraints affecting the taro industry and recommend solutions. Purposive sampling technique was used and 95 served as respondents. Data analysis was performed using descriptive statistics such as frequency counts and percentages. The results show that females made up 53% with 79% of the farmers were married and between 41-50 years age bracket. Majority (92%) of them has formal education and has 5 years and above farming experience, most of the farmers have monthly income amounting to 1,000.00 to 5,000.00 with family size of 5-9 members, 59% are land owners and operating of less than 2 hectares. Production is mostly lowland (78%) using 50mx50m spacing and 1mx1m in the upland. Urea (46-0-0) fertilizer is used by farmers to fertilize the soil, insecticides and fungicides are applied in controlling pests and diseases. Taro is marketed through local traders and direct to consumers. Costs and returns were analyzed using the Return on Investment (ROI). Result shows that taro is a profitable enterprise with an ROI of 214.44 % with net cash income of PhP 78,672.00 per hectare. Findings showed that the farmers were having problem on pest and diseases, weeds, unstable price, poor road condition, bad weather and lack of support services. This suggests that for the farmers to increase taro output in the area they should apply appropriate pesticides and to control the weeds intercropping can be done using legumes like mungbean. Government should also provide price support and additional facilities in drying and irrigation. The study concludes that taro farming is profitable however new innovation should be passed to the farmers to adopt.

Keywords: taro, production, marketing, profitability, constraints

I. INTRODUCTION

The Philippines has the largest area devoted to taro in Asia proper, apart from China. In 1996, about 34,000 hectares of land were devoted to taro, producing about 117,000
tons (FAO, 1997). It ranked number 11 in the world ranking on Taro production quantity (tons) from 1961 to 2012.

The top 5 producing regions in the Philippines are the Eastern Visayas, Cagayan Valley and the Bicol Region, Caraga and Central Visayas. Bicol region ranks third in producing Taro throughout the country (Balisoro, 2013). The municipality of Nabua is a major producer of Gabi or Taro leaves in Camarines Sur, with varieties of Princessa and Balitaka as an indigenous crop and the most promising and highly demanded in the local and export market. Presently, there are 69.98 hectares in Nabua town planted to gabi involving 226 farmers. (Bureau of Agricultural Statistics, 2009).

Taro (*Colocasia esculenta* L. Schott) has become an integral part of many traditional diets not only in the local but also worldwide. In Tonga, for example, tubers represent almost half the nation’s” calorie intake of which about 40% is contributed by taro. Similarly, in Solomon Islands, about 10% of people’s dietary calories come from taro and 30% from other tubers. Moreover, in Samoa, prior to a devastating spread of taro leaf blight (TLB), virtually all the populations’ dietary intake from tubers (one-fifth of the overall diet) came from taro (CTA, 2003).

Hence, Taro is one of the few major staple foods where both the leaf and underground parts are important in the human diet (Lee, 1999). As such, it has attained considerable economic importance as a fresh crop in many large islands in the region such as Samoa, Fiji and others (Hanson and Imamuddin, 1983). It is now becoming one of the major export commodities providing substantial foreign exchange to some of the Pacific Island countries.

As a vegetable, taro in its many unprocessed and processed forms is still a very sought-after commodity to date. Currently, there is a renewed interest in Taro production to a number of factors including: a growing market, a growing snack food market and a new recognition of the value of Taro by the medical community (Hollyer, J. et. al. 1990).

Despite this, studies have shown that one of the problems of the industry is its poor market structure and lack of information in terms of marketing as well as production is concerned.

For instance, in a study conducted by J.R. Hollyer, et.al in 1990, it was noted that some farmers are reluctant to enter into forward contacts, thereby adding to the instability in the market. Insufficient information on market potential and little coordination between producers and processors were also observed. Another issue that was identified in the study was the lack of raw materials to keep up with the demand.

II. **OBJECTIVES**
1) Determine the socio-economic profile and farm characteristics of taro farmers;
2) Identify the production and marketing practices of taro farmers;
3) Determine the profitability of taro production; and
4) Identify the problems and constraints of the taro industry and recommend management prescriptions to address such problems

III. Methodology

The study area covered the municipalities of Nabua, Iriga and Goa, Camarines Sur, Bicol Region, Philippines. A total of 95 respondents were interviewed using a structured questionnaire. Data gathered were further validated and reviewed through a focus group discussion and presentation of data. Taro farmers were purposively selected according to the municipalities which were identified by the Department of Agriculture as being the top producers of taro in the province. Those farmers who owns at least .25 square meters were qualified to serve as respondents of the study.

The study utilized descriptive and quantitative methods. Descriptive method is used in discussing the socio-economic profile of the respondents, production and marketing practices, problems and constraints. Frequency counts, weighted means, percentages were used in the analysis. Cost and Return-analysis was utilized to determine the profitability of taro production.

\[
\text{Net Income} \\
\text{ROI} = \frac{\text{Net Income}}{\text{Total Cost}} \times 100
\]

IV. RESULTS AND DISCUSSIONS

Table 1. Socio-economic Characteristics of the Respondents

<table>
<thead>
<tr>
<th>Attributes</th>
<th>Frequency</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>95</td>
<td>100</td>
</tr>
<tr>
<td><strong>I. Gender</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>50</td>
<td>53</td>
</tr>
<tr>
<td>Male</td>
<td>45</td>
<td>47</td>
</tr>
<tr>
<td><strong>II. Age</strong></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Gender distribution in table 1 shows that 47% and 53% of the respondents were male and female respectively. Evaluation of the respondents by age group reveals that the age of...
the respondents ranges from 20 to 71 years and above. The mean age was 46 years while the modal age group was between 41-50 years age bracket. Based from the result one could infer that taro farmers in the province are still in productive age. As to the civil status majority (79%) were married and 17% and 4% were widow and single respectively. This could imply that both husband and wife has their own role as what they have said that the husband took care of production while the wife were the one in-charge in marketing their products. Aside from these, majority of women also help during planting and weeding.

Table 1 also shows the educational attainment of the farmers and it can be viewed that the highest number (32%) of respondents finished high school while 28%, 11%, 10%, 8%, 3% were elementary graduate, college level, secondary level, elementary level and college graduate, and vocational respectively. This could have positive impact on the adoption of new technologies and innovations because majority of the farmers have undergone formal education. As to the source of income 87 out of 95 or 92 % of the respondents are farmers while 5 % and 3 % were employed and engaged in business respectively as their primary source of income. This could have a positive result on the productivity because most of them were really farmers and have experienced farming for a quiet a long time.

Results show that in terms of household size, 63% has 3-5 members while 30% and 7% has 6-8 members and 9-11 members respectively. Family income of the respondents ranges from PhP 1,000-16,000 above where the highest percentage of farmers (65%) belongs to the lowest bracket (PhP 1,000-5000); while 25% of them receives PhP 6,000-10,000 monthly and only 10% receives higher than PhP 10,000.00. Low monthly income could be attributed production cycle and size of the farm since majority of the respondents as reflected in table 1 depends on farming and with farm size less than 1 hectare (see table 2).

Farm characteristics are reflected in table 2. Table 2 shows that most of the farmers in the study area are small scale farmers as it is reflected that 91% reported farm size were less than a hectare, only 9% had between 1 ha to 2 ha. The study also shows that taro producers either produce leaves, corms or both but almost all of the farmers in the study areas are producing leaves because according to them they found it more profitable especially in Nabua, Camarines Sur which was identified by the Department of Agriculture RFU5 as the highest producer of Taro in the province. Another reason given by farmers was that they cannot produce taro corms and leaves using a single plant because the moment they harvest the leaves the corms will have poor quality and taste so if they want to produce corms they do it separately.

Based on the tenurial status 59 % owned the land that they are cultivating while 39% and 2% were tenant and leasehold. This also implies a positive result on the profitability of taro because production cost could be minimized because farmers who own their lands do not need to pay for rent. In terms of years in farming, highest numbers of farmers (57%) were engaged to taro production for 1 to 10 years followed by 29%, 8% and 6% of farmers who are engaged in farming for 11-20 years, 31-40 years and 21-30 years respectively. One could infer that the long years of experience could lead to a positive impact on the productivity and profitability of taro.
Table 2. Farm Characteristics

<table>
<thead>
<tr>
<th></th>
<th>Frequency</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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</tr>
<tr>
<td>I. Tenurial Status</td>
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<td></td>
</tr>
<tr>
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<td>56</td>
<td>59</td>
</tr>
<tr>
<td>Tenant</td>
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<tr>
<td>Leasehold</td>
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<tr>
<td>II. Years in farming</td>
<td></td>
<td></td>
</tr>
<tr>
<td>31-40</td>
<td>8</td>
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<td>21-30</td>
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<td>27</td>
<td>29</td>
</tr>
<tr>
<td>1-10</td>
<td>54</td>
<td>57</td>
</tr>
<tr>
<td>III. Farm Size (Hectare)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>1.5</td>
<td>1</td>
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</tr>
<tr>
<td>1</td>
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<td>6</td>
<td>6</td>
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<tr>
<td>.5</td>
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<td>22</td>
</tr>
<tr>
<td>.25</td>
<td>60</td>
<td>63</td>
</tr>
<tr>
<td>IV. Farm Description</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lowland</td>
<td>74</td>
<td>78</td>
</tr>
<tr>
<td>Upland</td>
<td>21</td>
<td>22</td>
</tr>
</tbody>
</table>

Source: Field Survey 2016

As reflected on the table there are two types of taro production in the province, one is upland (dry land) and the other is lowland (wet land) type. The farmers in the study areas usually started to plant taro during the rainy season especially for upland culture this is true with what other literatures have said that planting gabi in upland cultivation should be timed because in the first four to five months of its growth, the plant should receive a good amount of rain. Farmers under lowland culture also preferred to plant taro during rainy season but for other farmers whose farms have a continuous supply of water rainfall pattern is not critical.

B. Production and Management Practices

1) Land preparation and propagation

For upland cultivation, the land is first plowed and harrowed manually using farm tools like hoe, bolo, rake and other materials to pulverize the soil thoroughly and set the land for planting. Field preparation for lowland cultivation, farmers mostly used hand tractor to pulverize the soil and it takes 4 to 5 days to properly set the land for planting. Farmers
use healthy and vigorous medium to large suckers from the mother because it generally yields higher than small ones. According to the farmers balitaka variety has the ability to produce planting materials fast.

Taro is mainly vegetatively propagated (Shaw, 1975; Strauss et al., 1979), but may also reproduce sexually (Ivancic, 1992). Due to vegetative/clonal propagation, there is almost no genetic variation within the cultivars although somatic mutations do occur thus increasing their vulnerability to pest and diseases or changes in climatic conditions (Ivancic, 1992).

2) Planting

Planting is done after the field has been leveled and squared. The recommended planting distance for taro is 75 cm between rows and 50 cm between plants. This recommendation is both for upland and low land production. Lowland farmers use an approximately 50 cm x 50 cm. Farmers in the area do not recommend very wide spacing because according to them it provides opportunity for weed growth. In the province, there are two planting methods performed by the lowland farmers; the first method is the furrow planting method in which the farmers make plots and maintain furrows beside each plot which is used for irrigation. Using this method the planting distance is between 30 cm to 50 cm.

Lowland Cultivation

![Figure 1. 1 Plots with furrows](image)

The second method is making flat beds with the distance of 50 cm x 50 cm. Soil and water are two important factors that directly affect productivity thus it have to be managed properly, Princessa and balitaka varieties preferred to thrive well in a loamy type of soil and the water should not be steady.
In upland cultivation, farmers also make flat except that their planting distance is 1 meter x 1 meter. This means that even the upland farmers does not follow the recommended 75 cm x 50 cm spacing. Planting of taro is done anytime of the day but for lowland culture it is necessary that the water is maintained or controlled.

Upland Cultivation

In Camarines Sur taro is grown mostly under flooded low land or wet land condition particularly in Nabua, Camarines Sur which is also identified by the Department of Agriculture Region 5 as the top producing municipality in the province. Farmers in the area have mentioned that in order for them to attain maximum yields, the water level should be controlled and make sure that the base of the plant is always under water.

On the other hand, dry-land cultivation is also practiced in some parts like in municipalities of Goa, and Iriga. Balitaka is one of the upland varieties being planted by farmers and it is good for producing corms, other local varieties named by farmers are Trinidad, calamba, quinzol, kalpao, sibulanon, dasheen and ngatong. Before taro is
cultivated primarily for its corms but now the growers of this crop pays more attention in producing its leaves, only few of the respondents were found to be still producing corms especially in Nabua where the majority of the respondents have focused only on producing leaves due to its high market demand.

3) Irrigation

Under lowland culture higher yield is achieved with the proper amount of water thus farmers needed to facilitate flooding. Because the growth will be restricted and reduced quality may occur if plants are water stressed.

4) Fertilizer application

In order to achieve higher productivity, taro farmers in the study areas in Camarines Sur use fertilizer. The most common is urea fertilizer (46-0-0) (urea). Fertilizer is broadcasted into the lowland fields because it easily dissolved in water. In upland culture, fertilizer is applied through side dress method. In a 1 ha farm farmers apply 50 kilos of urea; they only apply fertilizer if the leaves of the crop become yellowish. Fertilizer application according to the farmers should be controlled because too much application may result to a poor quality of leaves which becomes soft and fragile.

5) Weeding

Farmers perform weeding in both lowland and upland taro cultivation. Weeding is done not only during land preparation but also during the first 8-10 weeks after planting. It takes four laborers per day in order to clean a 1 ha farm. Weeding in lowland culture is simply done by manually pulling the unwanted plants in the field. Upland field weeding is done using bolo, and sickle. Farmers usually perform weeding because taro crop is sensitive to weed competition.

6) Pest control

Taro plant is also prone to insect pests. The common pests that attack taro crops in the study areas are aphids, army worms, hornworms, grasshoppers and snail especially in the lowland. Taro farmers seldom use pesticides however there were 41 respondents in Nabua and Iriga who were recorded using chemical control such as surekill and magnum pesticides while some of them also uses fungicide for diseases like leaf blight, which is according to them is an effective control practice. Ducks and manual hand picking of snails are some of the natural pest control methods performed by farmers.

7) Harvesting
Time of harvest depends upon the variety used although normally taro planted in the upland culture matures earlier than lowland cultured taro. It takes 3 to 5 months before the farmers can harvest taro leaves. An average of 4 leaves per crop can be harvested during the first harvest then every 15 days the farmers could get an average of 2 leaves per crop. Average yield per hectare is 300 kilograms of dried leaves.

Corm production is performed separate from leaf production because according to taro farmers it is not advisable to harvest the leaves of taro if it is intended for corms because it was found to result to an itchy feel once one eats the corms so it reduces the quality and marketability of the corms. Taro intended for corm or tuber production are grown for 7-9 months depending on its management before it could be harvested. The main corms begin to push out of the soil surface, which usually indicates that the crop should be harvested soon.

Harvesting of corms is laborious; the main corms are pulled out by hand, washed to remove roots and soil. The skin is resistant to mechanical damage during handling. There were 7 respondents in Goa and 1 from Nubua, Camarines Sur who were found to produce and market taro corms together with dried leaves and fresh leaves.

8) Post-harvesting

Chopping, drying and packing are post-harvest practices performed by farmers for taro leaves before they deliver it to the market. Taro corms are simply bundled after harvesting and then farmers deliver it to the market. Leaves are chopped using a knife or bolo. Taro leaves are dried for an average of 1-2 days depending on the heat of the sun (for solar drying). Mechanical drying for taro is also available especially for farmers in Nabua Camarines Sur using a Multi-Commodity Solar Dryer in which the leaves are dried using the machine in an average of 4 hours. Packaging of taro dried leaves is done using a plastic with a minimum of 10kg per pack while the corms are directly transported to the market.

<table>
<thead>
<tr>
<th>Variety Planted</th>
<th>TOTAL</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Princessa</td>
<td>75</td>
<td>79</td>
</tr>
<tr>
<td>Balitaka</td>
<td>20</td>
<td>21</td>
</tr>
<tr>
<td>Binting Dalaga</td>
<td>10</td>
<td>11</td>
</tr>
<tr>
<td>Quinzol</td>
<td>9</td>
<td>9</td>
</tr>
<tr>
<td>Bicol purple</td>
<td>12</td>
<td>13</td>
</tr>
</tbody>
</table>

Note: Multiple responses

Princessa, Balitaka and Binting dalaga are the three main variety of taro being planted by the taro farmers. However, among these varieties Princessa is the most used variety with 79% of the respondents were found to be growing it while 21% of the farmers uses
Balitaka and 11% are planting Binting dalaga variety. Other varieties being used by farmers are Quinzol and Bicol purple as reflected in table 3 with 13% and 9% respectively. Flooded cultivation has some advantages over dry-land cultivation because according to them higher yields and out-of-season production, which may result in higher prices and weed control, are facilitated by flooding.

Farmers received support services coming from the Department of Agriculture which provides planting materials, techno-demo and mechanical and flatbed dyer. They also receive support from the National Irrigation Administration and from the Central Bicol State University of Agriculture which offered them trainings.

C. Marketing Practices

In the province taro is marketed in different forms. Fresh leaves are tied in bundles, 7% of the respondents were found to be practicing this while dried leaves are packed in big plastic bags and marketed directly or delivered (35%) to the local traders, market retailers or in some municipality. In Nabua, farmers sell their produce to their association per kilogram basis as reflected in table 4 with 93%. There are also producers who does not need to bring their produce to the market because some buyers especially those who came from the Metro Manila pick-up (65%) taro dried leaves direct from the farm. Price of dried leaves varies from 80.00 -120.00 per kilo. Fresh taro leaves are sold at 10.00 per bundle but if directly to the consumers the price is 15.00 per bundle. Taro corm price
varies from 22.00 to 35.00 per bundle depending on the location. In Nabua, taro corm price is 30.00 per bundle whereas in Iriga corms are sold at 35.00 and 22.00 in Goa.

Table 4. Marketing Practices

<table>
<thead>
<tr>
<th></th>
<th>Frequency</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>I. Mode of selling</td>
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</tr>
<tr>
<td>Delivered</td>
<td>33</td>
<td>35</td>
</tr>
<tr>
<td>Pick-up</td>
<td>62</td>
<td>65</td>
</tr>
<tr>
<td>II. Mode of sale</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Kilo</td>
<td>89</td>
<td>93</td>
</tr>
<tr>
<td>Bundle</td>
<td>7</td>
<td>7</td>
</tr>
<tr>
<td>III. Mode of payment</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cash</td>
<td>95</td>
<td>100</td>
</tr>
</tbody>
</table>

Source: Field Survey 2016

As to the mode of payment all respondents sell on cash basis. In Nabua farmers have bigger market especially for dried taro leaves some of them brought their produce to their organization called the Nabua Gabi Farmers Association, which bought their produce at 100.00 per kilo which is the standard price of the association and have markets in Legaspi, Metro Manila and in abroad.

Figure 4 shows the marketing channel of taro in Camarines Sur. The channels are composed of producers, local traders (wholesaler, assembler-wholesaler, wholesaler-retailer, processor, and retailer) and consumer. The data presented further how the product flow from the source as it passes through the channels. Furthermore, taro farms are accessible and the means of transportation are available thus bringing their produce to the market is not a big issue to the farmers however it still incur additional cost to the farmers if they are the ones who will bring their products to the market.

After harvesting taro corms are directly marketed because it has a short shelf life. In order to minimize tuber losses they must be converted from perishables to non-perishables through food processing operations. Converting them into a long shelf life will minimize losses and maximize profit. It was reported by Aboubakar et.al, 2008.
D. Profitability

Table 5 provides the detailed cost and return for taro production in a one-hectare farm for 1 year. Cash sales and non-cash sales amounted to Php 113,801.00 and Php 1,558.00, respectively giving a total return of Php 115,359.00. Cash cost includes land preparation, hired labor, fertilizer & pesticide cost while non-cash cost consists of planting materials/tubers, unpaid family labor and depreciation giving a total cost of Php 36,687.00. Results show a net income of 78,672.00 with an ROI of 214.44%. This implies high profitability of taro production.

Return on investment is 214.55% which is computed as follows:

\[
\text{ROI} = \frac{\text{Net Income}}{\text{Cost}} \times 100 = \frac{78,672}{36,687} \times 100 = 214.44\%
\]

**Table 5. Cost and Return Analysis**

<table>
<thead>
<tr>
<th>ITEM</th>
<th>AMOUNT</th>
</tr>
</thead>
<tbody>
<tr>
<td>I. Return</td>
<td></td>
</tr>
<tr>
<td>Cash Sales</td>
<td>Php 113,801</td>
</tr>
<tr>
<td>Total Cash Sales</td>
<td>113,801</td>
</tr>
<tr>
<td>Non-Cash Return</td>
<td></td>
</tr>
<tr>
<td>Consumed at Home</td>
<td>730</td>
</tr>
</tbody>
</table>
This result means that taro is really a promising industry. In Camarines Sur although there is an equal utilization of taro parts, results of the study found out that farmers give more value on its leaves due to its increasing demand both in the local and international markets. Cash sales were based from the current farm prices for taro dried leaves, corms and fresh leaves which are PhP 100.00 per kilo, 29.00 per bundle and 10.00 per bundle respectively.

F. Problems and Constraints

The following are some problems that are identified in the study areas;

1. Pest and diseases. Majority of taro farmers have raised problem on pests and diseases as it reduces the quality of both leaves and corms hence reduce also their productivity.
2. Weeds. Weeds are competitors of taro crops in both nutrients and sunlight. This also contributes additional cost during production.

3. Unstable price. Unstable price of taro affects farmers profitability because of

4. Poor road condition. One of the causes of spoilage or wastage of taro products is the poor road condition. It also affects market accessibility of some farmers especially those from the far flung areas.

5. Taro impurities. Impurities in taro is a result of drying practices by farmers which affects its marketability, quality and profitability.

6. Bad weather. Bicol region is prone to typhoon and other calamities. Taro leaf growers said that in order to dry the leaves well good weather is badly needed to prevent spoilage.

7. Flood. Flood becomes a problem in lowland areas e.g. Nabua and Iriga and it can result to a considerable damage on the crops.

8. Lack of water. Insufficient water is still a problem of lowland farmers especially during dry season because they need to maintain water in order to achieve higher productivity and prevent weed competition.

9. Lack of Mechanical dryer. Lack of mechanical dryer is one of the identified problems in the municipalities of Nabua and Iriga which produces high volume of dried taro leaves because they are forced to limit or not to produce dried leaves especially when the weather is not good.

G. CONCLUSION

The results of the cost and return analysis showed that taro production is profitable by giving an ROI of 214.44%. Farmers should be encouraged to go into taro production since it is a highly profitable venture. Given that taro is an important enterprise of the region, any attempt to increase its productivity would be a right step towards the productivity and profitability of the industry.

H. RECOMMENDATION

It is believed that the following recommendations if properly implemented could enhance profitability of taro production:
1. The Department of Agriculture through their project should conduct extensive field trials of taro plants which develops variety that are resistant to pests and diseases. Insect pests like aphids, army worms, hornworms and grasshoppers that are attacking taro plants can be controlled by spraying appropriate insecticides.

For plants that show symptoms of virus infection, removing and burning the plants are good control measures. For upland culture, weeds can be controlled by means of plowing the inter-row spaces during off baring and hilling up operations. Another good way of controlling weeds in upland gabi is by planting the intercrops. Legumes, especially mungbean, are a good intercrop because of its short growing period and early maturation before the gabi canopy closes.

Further, chemical weed control is good as long as the plants are thoroughly protected. For lowland culture, it is enough that weeds are properly controlled. This can be done by regulating the water depth in the paddy. *(Source: Root Crop Digest Vol. 2 No. 3 1987)*

2. Provision of marketing supports such as price and farm to market roads which increase market access and income of farmers.

3. Provision of production and post-harvest facilities, extension services, value-addition, processing, packaging and marketing which increase the quality and marketability of taro.

I. References


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Taro plantations in Camarines Sur

Sun drying of Taro

Dried taro leaves in plastics bag
Determinants of Profitability of Sweet Potato Production in Camarines Sur

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I. INTRODUCTION

Sweet potato has found its niche in the global market because of its potential to respond to the pressing needs of food security and poverty alleviation (Oke, 2013; Fawole, 2007; Fuglie, 2007). It is now outpacing other major staple foods not only because of its desirability for human consumption but as immediate source of income as well. Likewise, it is an important crop that fits well in the country's farming and food systems. Sweet potato is also considered as a healthy, cheap source of animal feed. Recent studies suggest that animals fed on high protein sweet potato vines produce less methane gas than with other feed, potentially contributing an important reduction in harmful global emissions (IPC, 2014).

In terms of production, Asia is the largest sweet potato-producing region in the world, with figures showing over 90 million tons produced annually. China is the world's biggest producer and consumer of sweet potato, where it is used for food, animal feed, and processing as food, starch, and other products (IPC, 2014). In the Philippines, recent report showed that the volume of production for sweet potato is 536,000 metric tons covering a total area of 85,800 hectares. The value of production was estimated at Php7.75 million pesos (PSA, 2016). For the first quarter of 2017, the Philippine Statistics Authority reported 21.41 thousand metric tons production in Bicol region which accounts to 19.1 per cent of the total sweet potato production.

The huge annual volume of sweet potato is an indicator that more farmers are growing this crop not only for their consumption but to feed the entire nation as well. It is in this light that sweet potato production, processing and marketing activities as well as factors influencing them must be given attention hence, this study.

II. OBJECTIVES

a. Identify the production and marketing practices of sweet potato growers
b. Determine the factors affecting the profitability of sweet potato production
c. Identify the problems and constraints affecting the sweet potato industry and recommend solutions to address these problems

III. METHODOLOGY

The study was carried out in ten (10) barangays within the three (3) municipalities of Bula, Cabusao and Nabua in Camarines Sur. The respondents were from barangays Barcelona, Biong
and San Pedro in Cabusao; Barangays Sto. Nino, Lubgan, Lanipga and Bagoladio in Bula; and Barangays Tandaay, Duran and Inapatan in Nabua, Camarines Sur, Philippines. Respondents are 108 farmers who are involved in growing sweet potato, with a minimum farm size of ½ hectare. Purposive sampling was used with data taken from the Department of Agriculture.

Descriptive method was employed in discussing the secondary data gathered on sweet potato in Camarines Sur. A structured questionnaire with open-ended questions was developed and used as the main tool for gathering the needed data. Likewise, focused group discussion was also undertaken to elicit more information from the farmers. Document review and analysis of data was also undertaken to confirm and validate the data gathered from the survey.

Frequency counts, weighted means and percentages were used to describe the profile of respondents and analyse the production and marketing data gathered from the respondents. The cost and return analysis and return on investment were used to determine the profitability of sweet potato production using the formula:

\[
\text{ROI} = \frac{\text{Net Income}}{\text{Total Cost}} \times 100
\]

The determinants of profitability of sweet potato production were evaluated using multiple regression analysis. The model used was explicitly expressed as:

\[
Y_i = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \beta_6 X_6
\]

where:

- \(Y_i\) represents the average income per hectare of sweet potato produced
- \(\beta_0\) = constant
- \(\beta_i\) = estimated coefficients of the explanatory variables
- \(X_i\) = explanatory variables

IV. RESULTS AND DISCUSSION

A. Respondent’s Profile

Table 1 shows the socio-demographic profile of the respondents. A total of 108 respondents were taken for this study. In terms of gender, there are more males (52%) than females (48%), the oldest at 81 years old and the youngest at 24 years old. In terms of age range, most of the respondents’ age clustered at middle age (between 36-65 years old) with only 1% at 25 years old and below and 4% at 76 years old and above. On educational attainment, 57% of the respondents belong to high school level and 26% and 17% at the college and elementary levels, respectively. Majority of the respondents (95%) are farmers and the rest are into labour and business. Minor sources of income include pig raising, copra and fishing. Growing of sweet potato is the main source in Cabusao but secondary only for Nabua farmers.
Table 1. Socio Demographic Profile of Respondents

<table>
<thead>
<tr>
<th></th>
<th>Frequency</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>I. Gender</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>56</td>
<td>52%</td>
</tr>
<tr>
<td>Female</td>
<td>52</td>
<td>48%</td>
</tr>
<tr>
<td><strong>II. Age</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>76 and above</td>
<td>4</td>
<td>4%</td>
</tr>
<tr>
<td>66–75</td>
<td>8</td>
<td>7%</td>
</tr>
<tr>
<td>56–65</td>
<td>35</td>
<td>32%</td>
</tr>
<tr>
<td>46–55</td>
<td>32</td>
<td>30%</td>
</tr>
<tr>
<td>36–45</td>
<td>24</td>
<td>22%</td>
</tr>
<tr>
<td>26–35</td>
<td>4</td>
<td>4%</td>
</tr>
<tr>
<td>25 and below</td>
<td>1</td>
<td>1%</td>
</tr>
<tr>
<td><strong>III. Educational Attainment</strong></td>
<td>108</td>
<td>100%</td>
</tr>
<tr>
<td>College Level</td>
<td>28</td>
<td>26%</td>
</tr>
<tr>
<td>High School Level</td>
<td>62</td>
<td>57%</td>
</tr>
<tr>
<td>Elem Level</td>
<td>18</td>
<td>17%</td>
</tr>
<tr>
<td><strong>IV. Source of Income</strong></td>
<td>108</td>
<td>100%</td>
</tr>
<tr>
<td>Farming</td>
<td>103</td>
<td>95%</td>
</tr>
<tr>
<td>Labor</td>
<td>2</td>
<td>2%</td>
</tr>
<tr>
<td>Business</td>
<td>3</td>
<td>3%</td>
</tr>
</tbody>
</table>

In terms of tenurial status, most of the farmers are owners (56%) and the rest are tenants and leaseholders with 35% and 9%, respectively (Table 2). Most of them are into farming for 30 years or so, with 47%, 31% and 16% doing farming for 1-10 years, 11-20 years and 21-30 years, respectively. Likewise, majority of these farmers (71%) have a farm size of 0.5-1.0 hectare while a few (3%) have a farm size between 4.1-5.0 hectares.

Table 2. Farming Characteristics

<table>
<thead>
<tr>
<th></th>
<th>Frequency</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>I. Tenurial Status</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Owner</td>
<td>60</td>
<td>56%</td>
</tr>
<tr>
<td>Tenant</td>
<td>38</td>
<td>35%</td>
</tr>
<tr>
<td>Leasehold</td>
<td>10</td>
<td>9%</td>
</tr>
</tbody>
</table>
B. Production Practices

Cultural Management
The cultural management practices for sweet potato are the following:

1) **Land preparation** - area is prepared by removing all weeds. It is thoroughly ploughed and harrowed twice to encourage better root penetration, proper aeration and to control immediate growth of weeds.

2) **Preparation of planting materials** - terminal cuttings of sweet potato with 30 cm long is used. But some of the farmers use all parts of the vines from the terminal until one inch away from the roots.

3) **Fertilizer Application** - farmers with small farm sizes seldom apply fertilizer and only those farmers with more than one hectare are using inorganic fertilizer. They use urea as basal application with a minimum of 2 bags per hectare.

4) **Planting** - farmers use 2 to 3 cuttings of sweet potato planted at a distance of 80 cm between rows and 35 cm between hills. Each cutting is slipped on the ridges using a sharpened stick.

5) **Weeding Control** – this is done manually by pulling the grass or by using a bolo.

6) **Hilling up** - farmers harrow the spaces between hills of the plants to lift the soil and cover the roots of the plants. It is also done to remove weeds and promote proper aeration.
7) **Harvesting** - there are two (2) ways by which harvesting is done: 1) By lifting all the vines or sometimes all the vines are first harvested and then the field is harrowed and all the tubers are picked up from the ground 2) Farmers harvest only tubers using bolo and they wait for at least 1 week to let some tubers become bigger. Farmers then, harvest 2 to 3 times before the vines are totally removed from the field.

Most of the sweet potato varieties grown are Inubi or Ubi Violet, Durat, Tinarlac or Tinapayas, Tres kolores, Tinuring, Taiwan orange, Inaswang, Paryados, Maligaya and Tinirung.

![Inubi or Ube Violet](image1)

![Durat](image2)

![Tinarlac or Tinapayas](image3)

![Tres Colores](image4)

![Tinirung](image5)

![Inaswang](image6)

Some of the reasons given by respondents as to why they grow sweet potato are the following: as an additional source of income, the crop is not difficult to grow, typhoon-resistant, does not need irrigation and fertilizer and entails less production cost.

Harvest is usually between 80 to 100 sacks with an average of 80 kilos per sack. The selling cost depends on the size and quality of the sweet potatoes. The biggest or 1st class usually cost between Php 10-15 per kilo; second class at Php8-10/kilo; third class at Php 6-8/kilo; fourth class at Php4.00/kilo and the smallest at Php100-150/sack.

After harvesting, farmers noted that they cannot store sweet potato for a long time because of disease called ‘atutang’ (sweet potato weevil). Likewise, there is no postharvest facilities or storage room available hence, they can only store sweet potatoes up to a maximum of 5 days in the farm.

**C. Marketing Practices**
There are two ways by which farmers market their produce. They either sell their products directly to the consumers or through local traders which they have initially contacted. This marketing channel is illustrated in Figure 1. Farmers usually sell their products direct to their consumers to minimize transportation cost since their products are picked up from the farm gate. Transportation cost, to some extent, eats up a big slice of their income. Another way is to market their produce individually via local traders. Traders in return, sell these products in nearby municipalities in Sipocot, Libmanan, Calabanga and the province of Camarines Norte. This finding is in consonance with the result of the study wherein smallholder farmers either sell to local traders or directly to consumers at the farm gate (Gift, 2014).

When they sell in the local markets, the transactions are done informally. Farm gate sales usually result to lower revenues for the farmer since the prices offered to the farmers are lower and variable in nature. Variable prices result from the unavailability of scales for weighing produce and lack of market price knowledge. Likewise, at the farm gate, farmers are often obliged to sell to their neighbours even when the latter cannot pay immediately for the produce (Gift, 2014). Even then, farmers still opt to sell directly to the nearby buyers because they receive direct immediate payments without thinking about transportation cost.

Given this scenario, a previous research study also posited that households that did not sell their produce and those that sold to their neighbours recorded losses whilst those that sold to private traders within the district, within the village and those that sold to consumers outside the district recorded profits (Samboko, 2011).

Farmers noted that the price of sweet potato is not stable in the market. Some of the reasons given by farmers are: the occurrence of typhoon, the use of banana instead of sweet potato, unstable supply and price variability and control by buyers.

In 2014, the Philippine Statistics Authority reported that price instability was the major marketing problem of 55.78 percent of all sample sweet potato farmers. Low price of produce was the constraint of 36 percent. There were 28 percent whose problem was on rough roads/high transport cost and 14 percent on limited buyer/ market outlets. Farmers who cited problem on lack of marketing information were 10.89 percent (PSA, 2014). Market information and its availability play a critical role to farmers. Its limitation has an adverse effect on the marketing of agricultural products. It may be noted that smallholder farmers still remain uninformed on market prices and trends despite the technological progress brought about by the Internet and mobile phones. Thus, farmers generally do not have the required information and means to locate better markets leading to poor market participation.

This corroborates with the report that farmers are in a disadvantaged situation with regard to the flow of market, pricing, and technological information as a result of severe constraints in
information distribution and resources. Access to real-time information on changing demands in the market, the quality of the crops, and fluctuations in market prices as well as the accuracy of the information is vital. There are very few reliable alternative sources of market information that farmers can access, with 90 per cent of them having to rely on the information provided by the buyers (Naing, 2015).

Aside from poor marketing system, sweet potato farmers are faced with several constraints that significantly affected their efficiency of production at optimal levels. This also includes inadequate storage facilities, high cost of production and poor transportation system which also tends to increase the rate of post-harvest spoilage (Tiku, 2015).

D. Profitability

Table 3 provides the detailed cost and return for growing sweet potato for a one-hectare farm. Cash sales and non-cash sales amounted to Php 72,000.00 and Php 10,000.00, respectively giving a total return of Php 82,000.00. Cash cost includes land preparation, hired labour, fertilizer & pesticide cost while non-cash cost consists of planting materials/cuttings, fixed cost and unpaid family labour giving a total cost of Php 33,600.00. The computed net income is Php48,400.00.

Return on investment is 144% which is computed as follows:

\[
ROI = \frac{48,400}{33,600} \times 100 = 144\%
\]

Table 3. Cost and Return Analysis

<table>
<thead>
<tr>
<th>ITEM</th>
<th>AMOUNT</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>I. Return</strong></td>
<td></td>
</tr>
<tr>
<td>Cash Sales</td>
<td>Php 72,000</td>
</tr>
<tr>
<td>Total Cash Sales</td>
<td>72,000</td>
</tr>
<tr>
<td>Non-Cash Return</td>
<td></td>
</tr>
<tr>
<td>Consumed at Home</td>
<td>10,000</td>
</tr>
<tr>
<td>Total non-cash return</td>
<td>10,000</td>
</tr>
<tr>
<td>TOTAL RETURN</td>
<td>Php 82,000</td>
</tr>
<tr>
<td><strong>II. Cost</strong></td>
<td></td>
</tr>
<tr>
<td>Cash Cost</td>
<td></td>
</tr>
<tr>
<td>Land Preparation</td>
<td>7,000</td>
</tr>
<tr>
<td>Hired Labour</td>
<td>15,450</td>
</tr>
<tr>
<td>Fertilizer (Urea)</td>
<td>3,800</td>
</tr>
<tr>
<td>Pesticide</td>
<td>550</td>
</tr>
<tr>
<td>Total Cash Cost</td>
<td>26,800</td>
</tr>
<tr>
<td>Non-cash Cost</td>
<td></td>
</tr>
<tr>
<td>Planting Materials/cuttings</td>
<td>3,200</td>
</tr>
</tbody>
</table>
Fixed Cost | 1,500  
Unpaid Family Labour | 2,100  
Total Non-cash Cost | 6,800  
TOTAL COST | 33,600  
Net Cash Income | 45,200  
Net non-cash income | 3,200  
NET INCOME | 48,400  
RETURN ON INVESTMENT | 144%

Previous reports revealed that production of sweet potato in Camarines Sur averaged P3,961 kilograms per hectare. In addition, planting materials harvested were 655 kilograms. Together, gross earnings of sweet potato farmers amounted to P57,759 per hectare. In Camarines Sur, the average cost of production of sweet potato per hectare was P30,057. On a per kilogram basis, production cost was P7.59 (PSA, 2014). In this study, the gross earnings is Php 45,000.00 and the production cost is Php 33,600.00.

Most recently however, the Philippine Statistics Authority reported that production of sweet potato dropped to 112.24 thousand metric tons, from 113.37 thousand metric tons in 2016 or by 1.0 percent. Among the factors that caused the decline were decrease in yield due to root rot caused by continuous rains during root formation and poor quality of tubers harvested due to effect of weevils caused by frequent rainfall.

The description of the explanatory variables hypothesized to have a relationship with dependent variable, average income are presented in Table 4. These variables are years of experience in farming, tenurial status, size of the farm, cost of labor, cost of other inputs and mode of sale of sweet potato.

| Table 4. Description of the Independent Variables used in the Profitability Model |
|-------------------------------|-----------------|-----------------|-----------------|
| Variables | Assigned variable/code | Description & coding system | Category |
| Experience | X1 | Number of years of experience in farming | Continuous |
| Tenurial status | X2 | 1 - Owner; 2 - Tenant; 3 - Leasehold | Dummy |
| Farm Size | X3 | Area of the farm planted to sweet potato | Continuous |
| Labor Cost | X4 | Cost of labor | Continuous |
| Cost of other Inputs | X5 | Cost such as use of machines & equipment | Continuous |
| Mode of Sale | X6 | 1 - delivered; 2 – pick-up | Dummy |

Multiple linear regression was employed to investigate factors affecting the quantity and income of sweet potato production per hectare (Table 5). Results revealed that positive relationship exist between income and farm size, labor input cost, cost of other inputs and mode of sale. This implies that as more of these variables are employed, there will be an increase in income on
sweet potato production. On the other hand, results showed inverse relationship between income and years of experience and tenurial status. The negative sign for the years of experience may be due to the fact that farmers with long years of experience are used to obsolete methods of farming, traditional tools and varieties which do not encourage high income return. For the tenurial status, the inverse relationship may be explained by the fact that majority of the farmer-respondents are tenants and leaseholders and their desire to have high sweet potato production may not be as much as when you are the owner of the farm.

The coefficient on farm size was significant (p<0.05) and positively related to the income of sweet potato produced. The results suggest that for every hectare increase in farm size, all else equal, the income on sweet potato would increase by Php 55,851. Also, a 1-peso unit increase in the cost of other inputs will increase the income by Php 1.29. Furthermore, the value of R² suggests that the independent variables used in the model accounted for about 98% of the variation in profitability.

<table>
<thead>
<tr>
<th>Table 5. Determinants of Profitability of Sweet Potato Production</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Coefficients</strong></td>
</tr>
<tr>
<td>Intercept</td>
</tr>
<tr>
<td>years of experience (X1)</td>
</tr>
<tr>
<td>Tenurial status (X2)</td>
</tr>
<tr>
<td>Area for SP (X3)</td>
</tr>
<tr>
<td>Labor input cost (X4)</td>
</tr>
<tr>
<td>Cost of other inputs (X5)</td>
</tr>
<tr>
<td>Mode of Sale (X6)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Regression Statistics</th>
</tr>
</thead>
<tbody>
<tr>
<td>Multiple R</td>
</tr>
<tr>
<td>R Square</td>
</tr>
<tr>
<td>Adjusted R Square</td>
</tr>
<tr>
<td>Standard Error</td>
</tr>
<tr>
<td>Observations</td>
</tr>
</tbody>
</table>

In terms of support structure, farmer-respondents identified several agencies and entities for the sweet potato industry. In Cabusao, The Department of Agriculture support the farmers through the AKBAY program. Small financing is also available through ARDCI, CARD and the Church. Usually, the highest amount that can be lent is P 85,000.00 pesos from micro-financing and 5,000 for new members. Likewise, nearby universities like CBSUA and Ateneo de Naga had provided a training on Disaster Risk Reduction program.

For the municipalities of Bula and Nabua, there are no trainings from DA however, seeds are given for other crops. Micro-financing is also available from CARD, ARDCI and cooperatives.
The Department of Agrarian Reform had issued titles to some residents of the community. Also, training on Integrated Pest Management was conducted.

**E. Problems and Challenges**

Some of the problems encountered by the sweet potato farmers are the following:

1. Excessive hot weather which causes the drying of sweet potatoes. The increasing temperatures has an adverse effect to the quality of the harvested product.
2. Harvest is only done once a year hence, farmers find difficulty in sustaining their income for their families for the whole year. Farmers sometimes use their income for the basic needs of the family hence, limited money is used as a capital for the next planting season.
3. Pest infestation such as the presence of mice and worms (ulod) makes the farm area less productive. Mice feed on the sweet potatoes causing leaves to curl and results to the production of inferior/small sweet potatoes.
4. On marketing, there are no permanent buyers of sweet potatoes or if ever there is, these buyers are very limited. Farmers go to the main of the municipality to canvass for the price before bringing the produce in the market. It was observed however, that price is low when there is too much supply of sweet potatoes in the market and buyers dictate and control the price.
5. In terms of transport, farmers noted the high cost in ‘paghihilada’ or the transfer of the produce from the farm site to the highway. They usually pay Php30.00 per sack which is very costly for farmers.
6. On processing of sweet potatoes, knowledge of farmers is very limited and training is essential. The only processed products developed from sweet potato are camote que, kalingking and buchi.
7. The negative attitude and behaviour of some farmers cause a problem to others. Some farmers experience their farm produce are stolen and taken for free by other farmers in the area who are non-producers of sweet potato. Likewise, some farmers would prefer to go to cockfighting rather than plant sweet potatoes.
8. Some organizations who visited the farmers promised that they are going to conduct trainings. However, this did not happen making the farmers indifferent and doubtful towards the programs offered by the government and other organizations/entities.

**V. CONCLUSION**

The study examined the factors affecting the profitability of sweet potato production. Sweet potato production is generally profitable with high financial return of 144% to farmers, or a net income of Php 48,400.00 per hectare. The study also revealed that positive relationship exist between income and farm size, labor input cost, cost of other inputs and mode of sale but inverse relationship exist between income and years of experience and tenurial status. Furthermore, farm size and cost of other input are significant variables that contribute to the increase in income of sweet potato farmers. Various problems affect the sweet potato farmers. One major difficulty is unavailability of market and high transaction costs which are significant hurdles to realizing the aims of agricultural development for farmers. Likewise, farmers lack trainings and have limited...
information on value-adding especially on food processing and product development. Pest infestation is also a problem and need to be addressed to increase the volume of sweet potato production.

VI. RECOMMENDATIONS

1) Stabilize the pricing system for sweet potato through the formation/creation of production clusters to improve their market intelligence. This could be achieved through the formation of producer groups or cooperatives to have access to updated pricing information and making it available to farmers on time.

2) Policies should be developed to enhance productivity of sweet potato farmers through the provision of seminars and workshops where farmers would acquire more training on sweet potato production and product development. This would enable farmers to improve their productivity and hence profitability.

3) Provision of subsidies/financial support on agricultural inputs such as fertilizers, seeds and agro-chemicals is essential to reduce cost of production and increase income of farmers.

4) Provision of modern technologies and extension services, basic and high-tech infrastructure, having agencies teaching good agricultural practices, establishment of an information network on the agricultural market, appropriate institutions, and credit market development.

VII. REFERENCES


Focus Group Discussion in Bula, Camarines Sur
Focus Group Discussion in Cabusao, Camarines Sur
Focus Group Discussion in Nabua, Camarines Sur
The Linear Regression Model of Profitability Performance of Philippine Banks

Marycris Ongayo Albao
De La Salle University

Abstract

The study examines the factors that influence profitability of Universal and Commercial Banks in the Philippines for the period 2011 to 2015 using linear regression model. Bank-specific ratios culled the Bangko Sentral ng Pilipinas website were used for the empirical analysis. Non-interest margin, capital adequacy, liquidity, operational efficiency and bank size were used as independent variables, while return on assets was utilized as proxy for the profitability of banks. Return on assets and non-interest income remained stable across banks in the country while their liquidity, operational efficiency and bank size showed higher variations, which is indicative of the lesser stability over the 5-year period. When the relationship of the determinants of profitability was examined among each other using Pearson test of significance, non-interest income has a strong positive relationship with capital adequacy and liquidity and a strong negative relationship with the bank size. Capital Adequacy variable has a positive and strong relationship with liquidity as contrasted to bank size which showed negative relations; hence, it has a weak negative relationship with operational efficiency (negative). Banks’ liquidity only showed moderate negative relationship with operational efficiency and bank size. Operational Efficiency and Bank Size variables are negatively correlated at a moderate degree.

The OLS regression results show that non-interest income, capital adequacy, and liquidity have strong positive relationship with banks’ profitability. The degree of relationship of ROA of banks to their operational efficiency was found to be weak and negative. After the financial crisis, banks in the Philippines shifted from their traditional activities to commission- and fee-based undertakings to mitigate risk arising from credit transactions. This explains why their liquidity has strong positive and significant relationship with profitability. Profitability and bank size have strong negative relationship, which means that the bigger the bank size, the lower their profitability performance due to diseconomies of scale. Despite bank management’s deliberate move to cut its costs and increase asset size, their profitability is not greatly affected. The increase in bank assets resulted to the decline in the capital adequacy ratios over the five-year period; hence, they are highly compliant with the international standards. Philippine banks should monitor their activities (both traditional and fee-based) to maximize their profitability and design ways for managing their operations to stay competitive in the industry.

Keywords: profitability; capital adequacy; operational efficiency; bank size; liquidity

Introduction

Depository institutions (banks) are financial intermediaries that accept deposits from individuals and businesses and provide loans. In the Philippines, universal and commercial banks are the leading depository institutions that facilitate deposits which is one of the main components of the money supply of the country (‘Economics and Finance Review’ July 30)
Today, banks offer diverse services in order to augment their income and achieve their target growth amidst the presence of competition. Especially with the competition existing among banks locally and with the entry of foreign banks under the ASEAN Economic Community, banks have to think outside the box or their comfort zones in order to put their best interest forward, amidst the stringent policies imposed by the Bangko Sentral ng Pilipinas to protect the public and comply with the international standards.

Over the past two decades, opportunities and threats posed challenges among banks to mitigate risks while generating sufficient profits to stay in the business while maintaining financial soundness. The Asian Financial Crisis in 1997 and the global crisis in 2008 had provided a big blow onto the operations of the bank as a result of the poor credit transactions that resulted to high non-performing loans. The international capital requirements had prepared them to have mitigate various risks arising from their activities. In fact, domestic banks took diverse strategies other than their traditional financial intermediation role by allocating funds to activities other than loans to enable them to realize non-interest income from trading of securities, assistance to companies on the issuance of equity as a financing source, commission from securities and wealth management, sale of land, building, profit and loss on revaluation of assets and many others. If they are profitable, they will be able to withstand adverse effect of any crisis that may come their way. Customers are quite concern about the bank’s financial health and at times, they are willing to pay premium or shoulder the costs as long as their funds are managed well; otherwise, it will cause financial panic and distress in the financial system.

Problem and Objective Statements

The study investigates the main drivers of the Philippine universal and commercial banks’ profitability to understand their behavior and to determine if the business is truly worthwhile to keep despite the financial and operational obstacles that come their way. This will also enable the researcher to know and understand if sound and safe operations were exercised.

The study will focus in answering the research question: “What are the bank-specific factors that affect the profitability of universal and commercial banks in the Philippines? Specifically, it seeks to answer the following objectives:

1. To describe and explain the factors that affect the profitability performances of universal and determine the relationship among these factors.
2. To determine effect of capital adequacy ratio, liquidity ratio, operational efficiency, bank size and non-interest income on the profitability of banks as measured in terms of Return on Assets.
3. To develop a linear regression model that best fit the dependent and predictor variables that will give the greatest possible value of profitability performance (ROA);

Statement of Hypotheses:

To answer the objective statements provided above, the following hypotheses will be tested:

\[ H_1 \] There is no correlation among the factors of bank’s profitability.
H₁ The is a negative correlation degree of profitability and its factors of the universal and commercial banks.
H₂ Capital adequacy ratio, liquidity ratio, operational efficiency, bank size and non-interest income does not significantly affect the profitability of banks in the Philippines.

Framework of the Study and Review of Related Literature

There are several studies that measures the effect of bank specific and macro-economic variables on the profitability of banks (Mndeme, 2015; Oniang ‘o,2015; Shipho, 2011; Athanasoglou, Delis and Staikouras, 2006). Mndeme (2015) examined the influence of non-interest income on the financial performance of Tanzanian banks for the period 2002 -2012 using fixed-effect panel regression model. Their findings revealed that the banks’ non-interest income has negative and significant impact on the profitability of banks while interest income’s effect was positive as banks in the country rely heavily from income generated from the traditional activities such as loans.

Athanasoglou, Delis and Staikouras (2006) et al. investigated the drivers of profitability of banks in South Eastern Europe using panel regression model. Their findings reveal that among the bank specific variables, capital adequacy ratios found to be positive and statistically significant with profitability which is consistent with good financial health of the banks and therefore leads to better profitability performance. Likewise, it was also found that operating efficiency significantly affect profitability while negative significant effect of operating expenses on the banks’ profitability in the region was quite evident. Unlike the current investigation, it also considered credit risk measured in terms of the ratio of deposit to loan also revealed positive significant effects.

Figure 1 below shows the relationship or impact of independent variables, as measured in terms of capital adequacy ratio, liquidity ratio, operational efficiency ratio, bank size and non-interest income on the profitability of banks. For this study, only return on assets was utilized as proxy of the universal and commercial banks’ profitability. In this study, the proponent attempts to determine the relationship existing among the five independent variables found in Figure 1, which are limited to the bank specific variables that may or may not affect profitability. Likewise, it examines the impact of the said variables on the banks’ profitability.
The study uses return on assets (ROA) as the dependent variable to measure the banks profit performance. Return on assets shows the ability of the bank to generate income per peso of asset used while operating. Oniang’o (2015) utilized return on assets (ROA) as the profitability measure. Based from the study, there is a large variation in the profitability of banks, as shown from the high standard deviation of 2.042, with a mean mean value of 2.41, while the noninterest income only has 0.5%. This results shows that the banks in Kenya diversify their business activities other than its core activities (deposit and lending). Iloska (2014) analyzed the impact of the factors that affect profitability (measured in terms of ROA) in Macedonia for the period 2008-2011 using multiple regression model. The results showed that productivity, bank size, balance sheet structure, capitalization, and non-interest income positively affect profitability while operating expenses, credit and liquidity risk do not affect profitability. Also the study of Alkarim (2013) assessed the significance of each independent variable on ROA such as bank size, asset management, and credit risk. It was found out that these variables significantly affect ROA while operational efficiency was found to be insignificant at 5% level.

Capital Adequacy Ratio

Capital adequacy ratio (CAR) is a specialized ratio employed by banks to determine the adequacy of maintaining a capital in lieu of the exposures to risk. Hence, there is a required minimum capital adequacy ratio set by the Bangko Sentral ng Pilipinas to protect the depositors and investors in case of losses incurred by the bank. In fact, the Basel Committee on Banking
Supervision developed and implemented capital adequacy standards for all banks worldwide. As of January, 2013, the committee requires banks to maintain the following minimum ratios: Common Equity Tier1/Risk-weighted Exposures of 3.5%, Tier 1 Capital/Risk-weighted Exposures of 4.5%, and Total Capital/Risk-weighted Exposures of 8%. (Jan, 2013) http://accountingexplained.com/financial/specialized-ratios/capital-adequacy-ratio. The purpose of the said regulation is supported by the study of Sulfian and Chong (2008), whose study aimed to examine the determinants of Philippines banks profitability during the period 1990–2005. The study results shows that the level of capitalization (EQASS) is positively related to the profitability of Philippines banks and is statistically significant at the five percent level or better in all regression models. Also, Olweny and Shipo (2011) revealed statistical significance and positive impact of capital adequacy on profitability in their sample of small and medium and large banks. The results showed that a 1% increase in capital adequacy could result in 0.076% increase in profitability. Kushani Panditharathna (2017) also confirmed a positive and highly significant relationship between capital ratio and profitability among domestic commercial bank.

Liquidity Ratio

The liquidity of banks refers to their ability to convert assets to cash and its ability to pay its financial obligations on maturity period. These include working capital and current ratio. The current ratio refers to the relationship of bank’s near-cash assets to its current obligations. With regards to Philippine banks, the regulator (Bangko Sentral ng Pilipinas) adopted Basel III’s liquidity Coverage Ratio (LCR) as highlighted under Circular No. 905 dated March 2016. The new rule aimed at banks to meet unforeseen net cash outflow for a 30-day period under stressful conditions. This regulation initially covers universal and commercial banks, under a normal situation, with the liquidity ratio set at 60% in 2015 and will rise to 100% for 2019 on a daily basis. Hence, banks are required to submit quarterly reports to BSP for monitoring purposes. Compliance with the said regulation is supported by the study of Olweny and Shipo (2011) where they found that there was preference on the local banks to invest in short term liquid assets. Furthermore, it shows that the correlation coefficient result of 0.176 between profitability and liquidity indicates a positive correlation, which is in contrast to the findings of Kushani Panditharathna (2017) where liquidity has no statistical significant impact on Sri Lankan domestic commercial bank profitability even though it represented the expected negative relationship.

Operational Efficiency Ratio

The bank’s efficiency ratio is a measure of the bank’s overhead (operational expenses) as a percent of its revenue. It explains the cost incurred by a bank for every peso of revenue it generates. This is important also for the bank to observe as high revenue will be useless if the cost of operation is also high. Shipho (2011) revealed a strong negative correlation between profitability and operational costs with coefficient of correlation(\(r\)) of -0.76. The descriptive analysis of the findings supported this result as operating costs are higher in the covered sector. Lipunga (2014) conducted an evaluation on the determinants of profitability of listed commercial banks in Malawi during the period 2009-2012 and revealed that management efficiency is significantly affecting ROA while earnings yield is significantly affected by management efficiency.
Bank Size

Bank size is represented by bank’s total assets. This variable will create a differentiation on the banks among them due to the economies or diseconomies of scale. It allows the bank to have cost differentiation and operation. Universal and Commercial banks need to increase their size through diversification of product offerings beyond their traditional operation. Oniang’o (2013) findings show that the mean size of commercial banks in Kenya as 14.5%, an indication of the commercial banks adequate resources and capacity through its large customer base and branch network to enable them to diversify into other product offerings. Sulfian and Chong (2008) findings showed that bank size are negatively related to bank profitability.

Non-interest Income

Non-interest income refers to the bank’s income from deposit and transactions fees, insufficient funds (NSF) fees, annual fees, service charges, inactivity fees, check and deposit slip fees and many others. High share of non-interest income reflect more bank involvement in market-based activities. Oniang’o (2013) found that noninterest income is positively related to profitability of commercial banks in Kenya. It is an indication of the commercial banks’ diversification of product services to augment their income sources. Assaf, Khalaf and Tarawneh (2017) empirically tested the influence of non-interest income, size of bank, loans, capital adequacy and overhead expenses on the financial performance of Jordanian banks using fixed-effect panel regression model. Their findings reveal that overhead expenses decrease the financial performance of banks, while capital adequacy, loans and size contributed to its increase.

Data and Methodology

This study utilizes secondary financial data which were gathered from the website of Bangko Sentral ng Pilipinas for the period 2011 to 2015. This includes aggregate data for all universal and commercial banks of the Philippines. For this particular study, the Ordinary Least Square Model will be utilized, sometimes called the Linear Regression Model. It attempts to determine how the bank specific-variables, measured in terms of non-interest income, capital adequacy, liquidity, operational efficiency and bank size could explain the behavior of profitability of banks in the Philippines.

The researcher used minitab in the statistical analysis and statistica software in confirming the results.

Analysis, Results and Findings

Descriptive statistics of profitability performance and its factors of universal and commercial banks in the Philippines are provided in Table 1. Column 3 shows the mean values for the covered banks and the standard deviation and coefficient of variation for column 4 and 5 respectively. Table 1 below shows the descriptive statistics of the data on different variables included in the study. The mean, standard deviation, minimum and maximum values and the coefficient of variations are observed.
Table 1: Descriptive Statistics of Profitability and Bank specific Factors

<table>
<thead>
<tr>
<th></th>
<th>Minimum</th>
<th>Maximum</th>
<th>Mean</th>
<th>Standard Deviation</th>
<th>Coefficient of Variation (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>ROA</td>
<td>1.150</td>
<td>1.640</td>
<td>1.430</td>
<td>0.213</td>
<td>14.9</td>
</tr>
<tr>
<td>Non-Interest Income</td>
<td>0.480</td>
<td>0.636</td>
<td>0.579</td>
<td>0.067</td>
<td>11.6</td>
</tr>
<tr>
<td>Capital Adequacy</td>
<td>15.780</td>
<td>18.350</td>
<td>17.138</td>
<td>1.097</td>
<td>6.4</td>
</tr>
<tr>
<td>Liquidity</td>
<td>55.610</td>
<td>62.000</td>
<td>58.918</td>
<td>2.509</td>
<td>4.3</td>
</tr>
<tr>
<td>Operational efficiency</td>
<td>58.920</td>
<td>63.980</td>
<td>61.558</td>
<td>1.816</td>
<td>2.9</td>
</tr>
<tr>
<td>Bank Size (Billion Php)</td>
<td>6.541</td>
<td>10.895</td>
<td>8.739</td>
<td>1.851</td>
<td>21.2</td>
</tr>
</tbody>
</table>

It can be observed in the table above that the dependent variable ROA ranged from 1.150 to 1.640 from 2011 to 2015, revealing an average value of 14.9%. In the case of the independent variables, operational efficiency of banks showed the least variation of 2.9% while bank size, which is a proxy for bank’s total assets shows the highest variation at 21.2% for five years. This only reveals that as there are no significant fluctuations in the profitability and operational efficiency of the universal and commercial banks in the Philippines. On the other hand, high variability in the size of the banks is evident over the five-year period. This only reveals that bank size measured in terms of total assets are quite variable for the period.

1. To Measure the Relationship among the Factors that Affect Bank Profitability

Table 3-b: Pearson r Test of Significance Among the Factors of Bank's Profitability. N=5

<table>
<thead>
<tr>
<th></th>
<th>Mean</th>
<th>Standard Deviation</th>
<th>r</th>
<th>r²</th>
<th>t</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Non-Interest Income</td>
<td>0.579</td>
<td>0.067</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Capital Adequacy</td>
<td>17.138</td>
<td>1.097</td>
<td>0.95</td>
<td>0.902</td>
<td>5.254</td>
<td>0.013*</td>
</tr>
<tr>
<td>Liquidity</td>
<td>58.918</td>
<td>2.509</td>
<td>0.962</td>
<td>0.925</td>
<td>6.075</td>
<td>0.009*</td>
</tr>
<tr>
<td>Operational efficiency</td>
<td>61.558</td>
<td>1.816</td>
<td>-0.245</td>
<td>0.06</td>
<td>-0.439</td>
<td>0.691</td>
</tr>
<tr>
<td>Bank Size (Php Bil)</td>
<td>8.739</td>
<td>1.851</td>
<td>-0.777</td>
<td>0.604</td>
<td>-2.137</td>
<td>0.122</td>
</tr>
<tr>
<td>Capital Adequacy</td>
<td>17.138</td>
<td>1.097</td>
<td>0.86</td>
<td>0.74</td>
<td>2.919</td>
<td>0.062</td>
</tr>
<tr>
<td>Liquidity</td>
<td>58.918</td>
<td>2.509</td>
<td>-0.015</td>
<td>0</td>
<td>-0.026</td>
<td>0.981</td>
</tr>
<tr>
<td>Operational efficiency</td>
<td>61.558</td>
<td>1.816</td>
<td>-0.479</td>
<td>0.23</td>
<td>-0.945</td>
<td>0.414</td>
</tr>
<tr>
<td>Bank Size (Php Bil)</td>
<td>8.739</td>
<td>1.851</td>
<td>-0.593</td>
<td>0.351</td>
<td>-1.275</td>
<td>0.292</td>
</tr>
<tr>
<td>Liquidity</td>
<td>58.918</td>
<td>2.509</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Operational efficiency</td>
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<td>1.816</td>
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<td>0.23</td>
<td>-0.945</td>
<td>0.414</td>
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<td>0.292</td>
</tr>
<tr>
<td>Operational efficiency</td>
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<td>1.816</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bank Size (Php Bil)</td>
<td>8.739</td>
<td>1.851</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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The result from the Pearson Test of Significance revealed that strong positive relationship of Non-Interest Income with the Capital Adequacy and Liquidity are significant at 5% level. The strong positive correlation of Capital Adequacy and Bank Size is also significant. The relationship between non-interest income and bank size, and capital adequacy and liquidity are insignificant, in spite of strong degree of relationship existing between them. All negative degree of correlation among the independent variables shows an insignificant relationship.

2. The correlation degree of profitability and its factors of universal and commercial banks in the Philippines for the period 2011 to 2015.

Table 2: Correlation Analysis of profitability and its factors of universal and commercial banks in the Philippines for the period 2011 to 2015. N=5

<table>
<thead>
<tr>
<th></th>
<th>ROA</th>
<th>Non-Interest Income</th>
<th>Capital Adequacy</th>
<th>Liquidity</th>
<th>Operational Efficiency</th>
<th>Bank Size (Php Bil)</th>
</tr>
</thead>
<tbody>
<tr>
<td>ROA</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Non-Interest Income</td>
<td>0.985</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Capital Adequacy</td>
<td>0.938</td>
<td>0.95</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Liquidity</td>
<td>0.982</td>
<td>0.962</td>
<td>0.86</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Operational efficiency</td>
<td>0.349</td>
<td>-0.245</td>
<td>-0.015</td>
<td>-0.479</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Bank Size (Bil Php)</td>
<td>0.702</td>
<td>-0.777</td>
<td>-0.888</td>
<td>-0.593</td>
<td>-0.418</td>
<td>1</td>
</tr>
</tbody>
</table>

Profitability, in terms of ROA, has a strong positive relationship with variables Non-Interest Income, Capital Adequacy, and Liquidity. It has strong negative relationship with the bank size which means that the bigger the bank size, the lower its profitability performance, as banks are not efficiently utilizing their resources, especially, if funds are invested in highly liquid assets to mitigate credit and operational risk. On the other hand, the degree of relationship of ROA of banks to their operational efficiency is weak and negative.

The independent Non Interest Income variable has a strong positive relationship with other independent variables Capital Adequacy and Liquidity. It has strong negative relationship with the bank size and weak negative relationship with operational efficiency. The findings on operational efficiency is inconsistent with Shipho’s (2011) and Lipunga’s (2014) findings where strong negative relationship exist between the two. This may be in line with the bank size where large banks are not efficiently maximizing their operations to their advantage compared to small banks.

The independent variables, namely, Capital Adequacy and liquidity have strong positive relationship with non-interest income and bank liquidity ratio has strong positive relationship with capital adequacy. This is understandable considering that banks will invest funds in fixed income securities and/or highly-liquid assets to comply with the capital adequacy requirements.
through diversification. Especially in the Philippines where banks resort to fee-based income sources to generate revenues as earlier pointed out. Bank size has a strong negative relationship with non-interest income and capital adequacy ratios. As bank size increases, the bank is less able to increase its non-interest income and is likely to have lower capital adequacy ratios. This is quite understandable, as banks have to resort to high-risk investments to maximize their operations and this will definitely affect their capital adequacy ratios.

It is quite surprising that liquidity ratio has a strong positive relationship with profitability ratio variable has a strong relationship with liquidity (positive) and bank size (negative) but has a weak relationship with operational efficiency (negative). The Liquidity variable has a moderate negative relationship with operational efficiency and bank size. Operational Efficiency and Bank Size variables are negatively correlated at a moderate degree.

2. The Significance of the Relationship between Banks’ Profitability Performance and its Factors;

Table 3-a: Pearson r Test of Significance Between the Bank’s Profitability Performance and its Factors. N=5

<table>
<thead>
<tr>
<th>Factor</th>
<th>Mean</th>
<th>Standard Deviation</th>
<th>r</th>
<th>r^2</th>
<th>t</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>ROA</td>
<td>1.43</td>
<td>0.213</td>
<td>0.985</td>
<td>9.708</td>
<td>9.993</td>
<td>0.002*</td>
</tr>
<tr>
<td>Non-Interest Income</td>
<td>0.579</td>
<td>0.067</td>
<td>0.938</td>
<td>0.879</td>
<td>4.679</td>
<td>0.018*</td>
</tr>
<tr>
<td>Capital Adequacy</td>
<td>17.138</td>
<td>1.097</td>
<td>0.982</td>
<td>0.923</td>
<td>8.897</td>
<td>0.003*</td>
</tr>
<tr>
<td>Liquidity</td>
<td>58.918</td>
<td>2.509</td>
<td>0.982</td>
<td>0.923</td>
<td>8.897</td>
<td>0.003*</td>
</tr>
<tr>
<td>Operational efficiency</td>
<td>61.558</td>
<td>1.816</td>
<td>-0.349</td>
<td>0.122</td>
<td>-0.644</td>
<td>0.565</td>
</tr>
<tr>
<td>Bank Size (Php Bil)</td>
<td>8.739</td>
<td>1.851</td>
<td>-0.702</td>
<td>0.493</td>
<td>-1.707</td>
<td>0.186</td>
</tr>
</tbody>
</table>

* The value is significant at 5% alpha.

The linear regression model reveals that there is a strong positive relationship between profitability as measured in terms of ROA and Non-Interest Income, Capital Adequacy, and Liquidity, as shown in the p-values generated which are below the 5% significance level. This only reveals that as non-interest income decreases, profitability increases. This is consistent with the intermediation activities where banks still rely on credit as their main source of income.

The negative relationship of ROA with Operational Efficiency and Bank Size are not statistically significant, with Pearson r-values of -0.349 and -0.702, respectively. This can also be seen from the p-values generated which are highly that 0.05 significance level.

4) To Develop Linear Regression Model that best fit the dependent and predictor variables that will give the greatest possible value of profitability performance (ROA).

Below are the possible regression models:

A. One independent variable (simple linear regression)
\[ Y = -0.3781 + 3.1216X_1 \]

where \( Y \) = profitability performance (ROA), and \( X_1 \) = non-interest income.

The researcher will build a model that best fits the situation of interest based on the data available. The statistical model will then be used to determine the answer to the problem or objectives in this study. The model that the researcher will build must represent the data collected as closely as possible.

B. Two independent variables (multiple linear regression), possible equations are:

\[ Y = -0.4113 + 3.059X_1 + 0.0041X_2 \]
\[ Y = -1.8467 + 1.7428X_1 + 0.03851X_3 \]
\[ Y = 0.4966 + 3.0332X_1 - 0.01341X_4 \]
\[ Y = -0.7678 + 3.1560X_1 + 0.01851X_5 \]

Where \( Y \) = profitability performance (ROA),
\( X_1 \) = non-interest income
\( X_2 \) = capital adequacy
\( X_3 \) = liquidity
\( X_4 \) = operational efficiency
\( X_5 \) = bank size

C. Three or Four independent variables: NONE because all results are insignificant.

The researcher assumed values of independent variables at 1, then computed the estimated value of dependent variable. See table below:

<table>
<thead>
<tr>
<th>Model</th>
<th>Suppose values of all X’s are 1, then the estimated value of Y is …</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>(1) ( Y = -0.3781 + 3.1216X_1 )</td>
<td>2.7435 ± SSE(3.182)</td>
<td>2.610 to 2.8775</td>
</tr>
<tr>
<td>(2) ( Y = -0.4113 + 3.059X_1 + 0.0041X_2 )</td>
<td>2.6518 ± SSE(3.182)</td>
<td>2.4879 to 2.8157</td>
</tr>
<tr>
<td>(3) ( Y = -1.8467 + 1.7428X_1 + 0.03851X_3 )</td>
<td>−0.0654 ± SSE(3.182)</td>
<td>−0.1780 to 0.0472</td>
</tr>
<tr>
<td>(4) ( Y = 0.4966 + 3.0332X_1 - 0.01341X_4 )</td>
<td>3.5164 ± SSE(3.182)</td>
<td>3.3913 to 3.6415</td>
</tr>
<tr>
<td>(5) ( Y = -0.7678 + 3.1560X_1 + 0.01851X_5 )</td>
<td>2.4067 ± SSE(3.182)</td>
<td>2.2743 to 2.5391</td>
</tr>
</tbody>
</table>

Note: SSE = standard error of estimate

Model 4 gives the most profitability performance with variables non-interest income and operational efficiency as predictors.

Below are the tables of values:
Table 5: Model Summary

<table>
<thead>
<tr>
<th>$R$</th>
<th>$R \text{-} squared$</th>
<th>Adjusted $R\text{-} squared$</th>
<th>Standard Error of Estimate</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.991</td>
<td>0.983</td>
<td>0.996</td>
<td>0.0393</td>
</tr>
</tbody>
</table>

Predictors: (Constant), Non-interest income, Operational Efficiency

Table 6: Analysis of Variance

<table>
<thead>
<tr>
<th>Source</th>
<th>DF</th>
<th>SS</th>
<th>MS</th>
<th>F-value</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Regression</td>
<td>2</td>
<td>0.1789</td>
<td>0.0895</td>
<td>57.88</td>
<td>0.017*</td>
</tr>
<tr>
<td>Error</td>
<td>2</td>
<td>0.0031</td>
<td>0.0015</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>4</td>
<td>0.1820</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* The value is significant at 5% alpha.

Dependent variable: ROA; Predictors: Non-Interest Income and Operational Efficiency

The regression model is a good fit of the data.

The best fit regression model is $Y = 0.4966 + 3.0332X_1 - 0.01341X_4$ where the dependent variable is $Y = ROA$, and the independent variables or the predictors are $X_1 = Non-Interest\text{ Income}$ and $X_4 = Operational\text{ Efficiency}$. The regression model shows that when the operational efficiency factor is constant, a unit increase in the non-interest income results to a corresponding increase in the profitability performance in terms of ROA by 3.0332.

Conclusion

This empirical study showed that there was only 14.9% variation in the return on assets of the banks, with a standard deviation of 0.213. Only bank size showed higher coefficient of variation by 21.2% within the period while operational efficiency shows the least variation of 2.9%. The OLS results show that non-interest income, capital adequacy, and liquidity have strong positive relationship with profitability variable. The degree of relationship of ROA of banks to their operational efficiency was found to be weak and negative. Profitability and bank size have strong negative relationship, which means that the bigger the bank size, the lower is their profitability performance. Despite bank management’s deliberate move to cut its costs an increase in asset size their profitability is not greatly affected. The increase in bank assets resulted to the decline in the capital adequacy ratios over the five year period; hence they are high compliant with the international standards. Philippine Banks should monitor their activities (both traditional and fee-based) to maximize their profitability and design ways for managing their operations to their advantage.

When the relationship of the determinants of profitability was examined among each other using Pearson Test of significance, non-interest income has a strong positive relationship with capital adequacy and liquidity and a strong negative relationship with the bank size. Capital Adequacy variable has a strong relationship with liquidity (positive) and bank size (negative) but has a weak relationship with operational efficiency (negative). Banks’ liquidity only showed
moderate negative relationship with operational efficiency and bank size. Operational Efficiency and Bank Size variables are negatively correlated at a moderate degree.

REFERENCES


Lipunga, A. (2014) Department of Accountancy, University of Malawi - The Polytechnic Private Bag 303 Chichiri, Blantyre 3, Malawi E-mail: alipunga@poly.ac.mw


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Forecasting the Net Income Performance of the Life Insurance Industry Using Economic and Insurance Development Indicators Through Multiple Linear Regression

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Abstract

The life insurance industry is primarily concerned with helping insureds manage the risks that they face in life through its varied product offerings. The industry, which belongs to the financial services sector, is a potent vehicle for capital formation which contributes funds for national development. It also provides meaningful engagement through employment as well as selling and financial services work for its sales force called the agency. As with all businesses, it has to generate sufficient level of net income to adhere to compliance and reserve requirements of the government, provide adequate benefit payments to its insureds when due, provide its employees with salaries and benefits and adequate commission and incentives for its agency as well as generate sufficient surplus to be a going concern. This paper determined significant variables in terms of economic indicators and insurance development metrics which affect the industry’s net income. Data was generated from the Insurance Commission website, the government agency in charge of supervising the industry’s operations. The multiple linear regression forecasting approach was used to come up with significant results. Among the economic indicators and industry development metrics considered, the one variable with statistically significant impact on net income performance was the number of its agents. It has been a challenge for the industry to recruit and develop members of its agency force who will stay with the business and generate sufficient production to contribute to the company’s sales targets as well adequate income for the agents’ personal needs. The industry should continue its recruitment and development effort focusing on motivation, development, recognition and training activities to support this thrust.

Key Words
Life insurance; economic indicators; insurance development metrics; recruitment and development; multiple linear regression

Introduction

The life insurance industry is primarily concerned with helping insureds manage the risks that they face in life through its varied product offerings. The industry, which belongs to the financial services sector, is a potent vehicle for capital formation which contributes funds for national development. It also provides meaningful engagement through employment as well as selling and financial services work for its sales force called the agency.
Broadly defined, “a life insurance policy is a contract with an insurance company. In exchange for premium payments, the insurance company provides a lump-sum payment, known as a death benefit, to beneficiaries upon the insured's death.” (What is life insurance?, n.d.). There are insurance plans which provide living benefits to insureds in terms of maturity benefits from endowment plans, anticipated payments and dividends, health and critical illness benefits as well as fund appreciation through variable unit linked products.

The financial needs and goals of the insureds determine the kind of life insurance coverage they will get. It provides opportunity for the insured to build funds for the future needs – family protection; education; capital for purchase of big ticket items like a house and a car or put up a business; retirement, among other things.

**Capital formation**

The industry, which belongs to the financial services sector, is a potent vehicle for capital formation which contributes funds for national development. It generated P32B in investments in 2015, its total premium income of P188B accounted for 1.41% of the country’s gross national income (GNI) of P16T, and the life sum insured of the industry amounting to P3.68T was 33.13% of GNI for the same year (Key insurance indicators, n.d.).

**Work opportunity**

It also provides meaningful engagement through employment as well as selling and financial services work for its sales force called the agency. The 30 life insurance companies in 2015 had around 10,000 employees but more significantly, engaged more than 61,000 licensed agents who sold life insurance products to the public (Key insurance indicators, n.d.).

**Economic indicators**

The general economic performance of the country generally impacts the well-being of the population and the way business and industry operate and perform. For the latter, in general, a robust set of macroeconomic fundamentals will lead to better business and economic opportunities which in turn will lead to favorable business results in terms of revenues, profits as well as other value creation for the benefit of the business’ stakeholders.

In the following Table 1 were the identified economic indicators for the period 2007-2015 (Key insurance indicators, n.d.) which in this study which will be used to relate to and forecast the net income performance of the life insurance industry.

Gross national income (GNI) as of 2015 stood at P16 trillion with a compounded growth of 7.09% for the period, one of the fastest in the Asia-Pacific region. Per capita income stood at P158K with a good 5.5% growth. The labor force, which numbered 39 million, 38% of the population, did not grow as fast at only 1.62%. Population, exchange rate and inflation were contained to growths of less than 2%.
Insurance development metrics

Table 2 shows insurance development metrics (Key insurance indicators, n.d.) which indicate the level of performance of the industry. Net income, the primary variable of interest to be forecasted, stood at P21B in 2015 and posted 4.12% compounded growth. Premium income, number of business policies and number of agents were the three fastest growing metrics for the period with 10.49%, 9.01% and 6.06% respectively. Only one variable declined for the period – operating expenses which may be favorable for bottom-line purposes.

Table 1
ECONOMIC INDICATORS

<table>
<thead>
<tr>
<th>Year</th>
<th>Gross National Income (P Billion)</th>
<th>Population (In millions)</th>
<th>Per capita GNI (In pesos)</th>
<th>Labor force (employed-in millions)</th>
<th>Exchange rate (P:$)</th>
<th>Inflation rate (in percent)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2007</td>
<td>8,634</td>
<td>89</td>
<td>97,340</td>
<td>33.7</td>
<td>41.4</td>
<td>1.25</td>
</tr>
<tr>
<td>2008</td>
<td>9,776</td>
<td>90</td>
<td>108,024</td>
<td>34.1</td>
<td>47.49</td>
<td>4.26</td>
</tr>
<tr>
<td>2009</td>
<td>10,652</td>
<td>91</td>
<td>117,060</td>
<td>35.1</td>
<td>46.36</td>
<td>2.09</td>
</tr>
<tr>
<td>2010</td>
<td>10,852</td>
<td>93</td>
<td>117,190</td>
<td>36.1</td>
<td>43.88</td>
<td>1.51</td>
</tr>
<tr>
<td>2011</td>
<td>11,598</td>
<td>94</td>
<td>123,123</td>
<td>37.2</td>
<td>43.93</td>
<td>2.72</td>
</tr>
<tr>
<td>2012</td>
<td>12,608</td>
<td>96</td>
<td>130,796</td>
<td>37.6</td>
<td>41.19</td>
<td>3.2</td>
</tr>
<tr>
<td>2013</td>
<td>13,850</td>
<td>99</td>
<td>140,191</td>
<td>38.1</td>
<td>44.41</td>
<td>3.2</td>
</tr>
<tr>
<td>2014</td>
<td>15,327</td>
<td>100</td>
<td>153,429</td>
<td>37.3</td>
<td>44.62</td>
<td>4.1</td>
</tr>
<tr>
<td>2015</td>
<td>16,096</td>
<td>102</td>
<td>158,434</td>
<td>39</td>
<td>47.17</td>
<td>1.4</td>
</tr>
<tr>
<td>Average</td>
<td>12,155</td>
<td>95</td>
<td>127,287</td>
<td>36</td>
<td>44</td>
<td>3</td>
</tr>
<tr>
<td>Compounded growth</td>
<td>7.09%</td>
<td>1.51%</td>
<td>5.50%</td>
<td>1.62%</td>
<td>1.45%</td>
<td>1.25%</td>
</tr>
</tbody>
</table>

Table 2
INSURANCE DEVELOPMENT METRICS

<table>
<thead>
<tr>
<th>Year</th>
<th>Net income after tax (PMillion)</th>
<th>Premium income (PMillion)</th>
<th>Number of agents</th>
<th>Number of policies – new business</th>
<th>Number of policies – in-force</th>
<th>Benefit payments (PMillion)</th>
<th>Operating expenses (PMillion)</th>
<th>Gross investment income (PMillion)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2008</td>
<td>10,581</td>
<td>56,891</td>
<td>40,865</td>
<td>269,375</td>
<td>3,336,609</td>
<td>35,158</td>
<td>10,994</td>
<td>26,290</td>
</tr>
<tr>
<td>2009</td>
<td>11,953</td>
<td>57,239</td>
<td>35,550</td>
<td>267,840</td>
<td>3,344,432</td>
<td>37,556</td>
<td>5,002</td>
<td>28,345</td>
</tr>
<tr>
<td>2010</td>
<td>12,024</td>
<td>70,727</td>
<td>34,364</td>
<td>314,954</td>
<td>3,385,934</td>
<td>34,154</td>
<td>11,518</td>
<td>30,929</td>
</tr>
<tr>
<td>2012</td>
<td>12,046</td>
<td>120,298</td>
<td>36,646</td>
<td>399,972</td>
<td>3,770,915</td>
<td>50,034</td>
<td>35,578</td>
<td>33,662</td>
</tr>
<tr>
<td>2013</td>
<td>13,756</td>
<td>171,154</td>
<td>32,576</td>
<td>617,813</td>
<td>3,829,252</td>
<td>54,763</td>
<td>12,342</td>
<td>33,301</td>
</tr>
<tr>
<td>2014</td>
<td>17,939</td>
<td>158,727</td>
<td>55,169</td>
<td>640,819</td>
<td>4,104,664</td>
<td>55,113</td>
<td>13,690</td>
<td>33,128</td>
</tr>
<tr>
<td>2015</td>
<td>21,244</td>
<td>188,818</td>
<td>61,461</td>
<td>692,884</td>
<td>4,426,405</td>
<td>49,964</td>
<td>12,704</td>
<td>32,561</td>
</tr>
<tr>
<td>Average</td>
<td>14,256</td>
<td>109,601</td>
<td>41,050</td>
<td>426,360</td>
<td>3,678,876</td>
<td>43,393</td>
<td>14,724</td>
<td>30,741</td>
</tr>
<tr>
<td>Compounded growth</td>
<td>4.12%</td>
<td>10.49%</td>
<td>6.06%</td>
<td>9.01%</td>
<td>2.92%</td>
<td>6.46%</td>
<td>-1.76%</td>
<td>2.68%</td>
</tr>
</tbody>
</table>
In Annex I is a glossary of terms for all the specified economic indicators and insurance development metrics.

**Objective**

The objective of the study is to come up with a forecasting model to determine net income of the life insurance industry as affected by macroeconomic indicators as specified in the foregoing as well as insurance development metrics.

As net income is an effective measure in the performance of business, it will be useful at the macro-level for industry decision makers to determine variables which impact the income performance of the organization.

The multiple linear regression and correlation analysis will be used to build forecasting model for net income as dependent variable and the economic indicators and insurance development metrics as independent variables. The study will cover the period 2007-2015 and will be done at the industry level.

**Literature Review**

**Life insurance**

There are four basic characteristics of life insurance operations: (1) products, (2) premiums, (3) marketing and sales, and (4) business operations (Feng, 2007).

*Products.* The general types of life insurance products can be classified as follows: term, whole life, direct purchase, endowment, investment-linked and annuities (Types of life insurance, n.d.). In Annex II are short descriptions of each of them. The products generally contain features and benefits which cater to the financial needs of insurance clients.

Sale of insurance products relies on sales people (Feng, 2007). Although direct marketing (thru print media, mailers, and lately the Web are being used and bancassurance (selling through bank branches with life insurance tie up) have gained traction as a distribution system in the country at the start of the millennium, sales people known as the agency remains to be the principal distribution system for life insurance products.

*Premiums.* “An insurance premium is the amount of money that an individual or business must pay for an insurance policy. The insurance premium is considered income by the insurance company once it is earned, and also represents a liability in that the insurer must provide coverage for claims being made against the policy.” (Insurance premium, n.d.).

The two basic types of premiums are first year and renewal (Feng, 2007). First year premiums are the amount of money paid by insureds during the first twelve months of their policies and are “key performance indicators among insurance companies” (Feng, 2007) as they measure the amount of new sales they generate. Single premium is the third type which is “a lump sum of money paid into the policy in return for a death benefit that is guaranteed to remain paid-up until
you die” (Single premium, n.d.). Based on my experience in the industry, about 60% of the premiums come from renewals, 30% from first year and 10% from single premiums.

**Marketing.** Marketing and sales are all the activities done by insurers to generate new business premiums or revenues for the company. “The marketing mix is the combination of marketing activities that an organization engages in so as to best meet the needs of its targeted market…The marketing mix includes sub-mixes of the 7 P’s of marketing i.e. the product, its price, place, promotion, people, process & physical attraction” (Shodhganga, n.d.).

**Sales.** Most sales processes follow roughly the same pattern. It's a cycle of seven different steps, starting with prospecting, appointment, qualifying, presentation, handling objections and ending with asking your new customer for referrals (The seven stages of the sales cycle, n.d.). The life insurance industry, given the nature of its product which remains in the books of the company for future benefit payments, has a seventh critical step – servicing of the policy.

**Business operations.** This involves all the other activities undertaken by life insurance companies to provide quality service to existing clients, maintain branch network to access clients, manage the financials of the company to maintain sufficient reserves for future benefit payments and observe and implement compliance rules. “Life insurance company’s financial stability is very important. Prudent business operations are the fundamental management principle of a life insurance company” (Feng, 2007).

All the foregoing, when properly planned and implemented will result to specific levels of performance manifested through insurance development metrics identified in Table 2 which are the macro-level measures of the success of its operations. The eventual net income experience of the companies will depend on generating improving levels of performance variable results.

**Economic indicators**

“An economic indicator is a piece of economic data, usually of macroeconomic scale, that is used by analysts to interpret current or future investment possibilities or to judge the overall health of an economy. Economic indicators can be anything the investor chooses, but specific pieces of data released by government and non-profit organizations have become widely followed. Such indicators include but aren’t limited to: the consumer price index (CPI), gross domestic product (GDP), unemployment figures and the price of crude oil” (What is an economic indicator?, n.d.).

“Leading indicators, such as consumer durables, net business formations and share prices, are used to predict the future movements of an economy. Coincident indicators, which include such things as GDP, employment levels and retail sales, are seen with the occurrence of specific economic activities. Finally, lagging indicators, such as gross national product (GNP), CPI, unemployment rates and interest rates, are only seen after a specific economic activity occurs. Most of these economic indicators have a specific schedule for release, allowing investors to prepare for and plan on seeing certain information at certain times of the month and year” (What is an economic indicator?, n.d.).
This study focused on economic indicators as specified in the Insurance Commission website (Key insurance indicators, n.d.) discussed earlier in the Introduction portion. The economic indicators were summarized with their values for the period 2007-2015 in Table 1.

Since economic indicators affect the level of income and ability to consume among the population, they were used as predictors for the performance of the life insurance industry.

“Rise in income is necessary but not sufficient condition for insurance purchase...Ability to purchase insurance depends not only on income but readiness of households to postpone consumption and save. Life insurance institutions as financial intermediaries are seen as conduits for mopping up savings surplus of the people...Strong correlation between low levels of per capita income and insurance penetration have been observed” (Kutty, 2008)

**Multiple linear regression** (What is multiple linear regression?, n.d.)

Multiple linear regression is the most common form of linear regression analysis. As a predictive analysis, the multiple linear regression is used to explain the relationship between one continuous dependent variable and two or more independent variables. The independent variables can be continuous or categorical (dummy coded as appropriate).

At the center of the multiple linear regression analysis is the task of fitting a single line through a scatter plot. More specifically, the multiple linear regression fits a line through a multi-dimensional space of data points.

There are three major uses for multiple linear regression analysis. First, it might be used to identify the strength of the effect that the independent variables have on a dependent variable. Second, it can be used to forecast effects or impacts of changes. That is, multiple linear regression analysis helps us to understand how much will the dependent variable change when we change the independent variables. Third, multiple linear regression analysis predicts trends and future values. The multiple linear regression analysis can be used to get point estimates.

**Methodology**

The Insurance Commission website (Key insurance indicators, n.d.) was accessed to surface key indicators for the life insurance industry during the period 2007-2015. Two sets of indicators were identified – economic indicators and insurance development metrics (see Tables 1 & 2).

Net income of the industry was identified as the variable of interest to be forecasted using the economic indicators and insurance development metrics. Multiple linear regression and correlation analyses were done to identify which among the surfaced indicators will be good predictors of net income performance.

The correlation analysis established which of the variables were related to each other so as to avoid the condition of multicollinearity – the independent variables being correlated (What is multiple linear regression?, n.d.).
Results

Correlation

The initial evaluation involved correlation analysis to establish which variables were significantly correlated. For this study, the cut off adopted as significant correlation were values which were 0.7 or higher. Correlation measure was determined using Pearson r determination.

In Table 3 are the correlation matrix of economic indicators together with the net income (NI) as the independent variable. The results show that NI had a significant relationship with gross national income (GNI), population and per capita income. Of the three, GNI had the highest correlation measure at 0.746.

GNI however had very strong correlation measures with population and per capita income. Therefore, to avoid multicollinearity, GNI alone was used to predict NI among the economic indicators.

Table 3
Correlation matrix, r: Net Income with Economic Indicators

<table>
<thead>
<tr>
<th></th>
<th>GNI</th>
<th>Population</th>
<th>Per capita income</th>
<th>Labor force</th>
<th>Exchange rate</th>
<th>Inflation</th>
</tr>
</thead>
<tbody>
<tr>
<td>NI</td>
<td>0.746</td>
<td>0.736</td>
<td>0.731</td>
<td>0.578</td>
<td>0.184</td>
<td>-0.247</td>
</tr>
<tr>
<td>GNI</td>
<td>0.989</td>
<td>0.998</td>
<td>0.903</td>
<td>0.249</td>
<td>0.184</td>
<td></td>
</tr>
<tr>
<td>Population</td>
<td>0.983</td>
<td>0.931</td>
<td>0.162</td>
<td>0.142</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Per capita income</td>
<td>0.9</td>
<td>0.267</td>
<td>0.192</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Labor force</td>
<td>0.052</td>
<td>0.051</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Exchange rate</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0.181</td>
</tr>
</tbody>
</table>

Note: Specified significance cutoff: r >= 0.7
1. NI with GNI significant
2. NI with population & per capita income significant but GNI multicollinear
   with population and per capita

For the insurance development metrics, NI had significant correlation measures with premium, number of agents, new business policies and in-force policies. In-force policies however were multicollinear with premium, number of agents and new business policies. Hence, it was dropped as a variable of interest in the regression model generated.

The three insurance development metrics used in the multiple linear regression to predict NI were: premium, number of agents, and new business policies.
Multiple linear regression

The initial multiple linear regression model had the NI as the dependent variable with GNI, premium income, number of agents and number of new policies as independent variables, four in all. Table 5 is the full regression output.

**Significance of p-value.** The critical p-value used was 0.05. All computed p-values for the independent variables which were higher than 0.05 resulted to the acceptance of the null hypothesis that they do not have significant statistical impact on NI. The results showed that all the independent variables have p-values greater than 0.05.

Using sensitivity analysis however, we considered evaluating number of agents whose p-value at 0.08 was close to the 0.05 critical value and the least p-value among the four variables.

From Table 6, a simple linear regression where NI was the dependent variable while number of agents was the independent variable was modeled. The p-value for number of agents at 0.0032 was much lower than the critical p which made us conclude that they were significantly related.

In addition, the r-value for the model of 0.856 meant a strong linear relationship between the variables and the r-squared figure at 0.733 meant that 73% of the changes in NI can be explained by the changes in number of agents.

The analysis of variance result for the F-test also supported the significance of the model since the F value at 0.0033 was a lot smaller than the critical value of 0.01. We rejected the null hypothesis of no relationship and concluded that the model was indeed statistically significant.
The final regression model is as follows: \( NI = 2,551.197 + 0.285 \times \text{Number of agents} \). This means that NI will increase by an average of P285,000 for every increase of one (1) agent.

### Table 5
**SUMMARY OUTPUT: Net income with GNI, premium income, number of agents, number of new policies**

<table>
<thead>
<tr>
<th>Regression Statistics</th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Multiple R</td>
<td>0.923966752</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>R Square</td>
<td>0.853714558</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Adjusted R Square</td>
<td>0.707429117</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Standard Error</td>
<td>1830.092175</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Observations</td>
<td>9</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>ANOVA</th>
<th>df</th>
<th>SS</th>
<th>MS</th>
<th>F</th>
<th>Significance F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Regression</td>
<td>4</td>
<td>78183930.52</td>
<td>19545983</td>
<td>5.83595</td>
<td>0.057937441</td>
</tr>
<tr>
<td>Residual</td>
<td>4</td>
<td>13396949.48</td>
<td>3349237</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>8</td>
<td>91580880</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Coefficients</th>
<th>Standard Error</th>
<th>t Stat</th>
<th>P-value</th>
<th>Lower 95%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intercept</td>
<td>6640.578628</td>
<td>5052.855776</td>
<td>1.314223</td>
<td>0.259067</td>
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<tr>
<td>Gross National Income (PBillion)</td>
<td>-0.65355162</td>
<td>0.768300823</td>
<td>-0.85065</td>
<td>0.44289</td>
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<tr>
<td>Premium income (PMillion)</td>
<td>0.046826937</td>
<td>0.078867254</td>
<td>0.593744</td>
<td>0.584632</td>
</tr>
<tr>
<td>Number of agents</td>
<td>0.241817475</td>
<td>0.106111712</td>
<td>2.278895</td>
<td>0.08489</td>
</tr>
<tr>
<td>Number of policies – new business</td>
<td>0.001174442</td>
<td>0.023685263</td>
<td>0.049585</td>
<td>0.96283</td>
</tr>
</tbody>
</table>

### Table 6
**SUMMARY OUTPUT: Net income with number of agents**

<table>
<thead>
<tr>
<th>Regression Statistics</th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
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</thead>
<tbody>
<tr>
<td>Multiple R</td>
<td>0.856153828</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>R Square</td>
<td>0.732999378</td>
<td></td>
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<td></td>
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<tr>
<td>Adjusted R Square</td>
<td>0.694856432</td>
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<td></td>
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<td></td>
</tr>
<tr>
<td>Standard Error</td>
<td>1869.000954</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Observations</td>
<td>9</td>
<td></td>
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</table>

<table>
<thead>
<tr>
<th>ANOVA</th>
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<th>SS</th>
<th>MS</th>
<th>F</th>
<th>Significance F</th>
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<tr>
<td>Regression</td>
<td>1</td>
<td>67128728.05</td>
<td>67128728</td>
<td>19.21717</td>
<td>0.003219799</td>
</tr>
<tr>
<td>Residual</td>
<td>7</td>
<td>24452151.95</td>
<td>3493165</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>8</td>
<td>91580880</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Coefficients</th>
<th>Standard Error</th>
<th>t Stat</th>
<th>P-value</th>
<th>Lower 95%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intercept</td>
<td>2551.196388</td>
<td>2741.8432</td>
<td>0.930468</td>
<td>0.383097</td>
</tr>
<tr>
<td>Number of agents</td>
<td>0.285146496</td>
<td>0.065046413</td>
<td>4.383739</td>
<td>0.00322</td>
</tr>
</tbody>
</table>

**Stepwise regression.** After building the simple linear regression with NI as dependent variable and number of agents as independent, we did stepwise regression adding the other three independent variables to the model one at a time to consider their impact in explaining NI and establishing model significance. They were added from the strongest to the least correlation value with NI.
From the initial simple linear regression which showed an r-value of 0.856 (Table 6), the addition of each variable only resulted to slight improvement in the r-values with the r-value of 0.924 (Table 5) as the final value with all the four variables in the model.

In addition, the adjusted r-values also decreased as the variables were added from one to four.

In Annex III are the results of the stepwise regression.

**Conclusions**

Six economic indicators were used in this study: gross national income, population, per capita GNI, employed labor force, exchange rate and inflation rate. Population was considered as a lead economic indicator while employment was coincidental. The rest (GNI, per capita income, exchange and inflation rates) were lagging indicators.

Among the six, it was GNI which had a significant correlation with the life insurance industry’s net income for the period 2007-2015. Although population and per capita also had significant correlation values with NI, they were not included as independent variables since they were highly correlated with GNI, a multicollinearity condition.

Among the seven insurance development metrics (premium income, number of agents, number of policies – new business, number of policies – in-force, benefit payments, operating expenses and gross investment income), only premium, number of agents and number of new policies – new business, manifested strong correlation values with NI and were included as independent variables to explain NI.

The multiple linear regression with NI as the dependent variable and with four independent variables – GNI, premium income, number of agents and number of policies- new business, revealed that it was the number of agents alone which had a statistically significant relationship in explaining NI.

**Recommendations**

Decision makers can make use of the results in forecasting the performance their net income results using number of agents as their predictor.

Companies however can build their own regression models using the specified economic indicators but use their own insurance development metrics as they may have different results from the study’s outputs given their own companies’ performance and experience.

Managing life insurance company operations is a complex activity and it may be oversimplifying to just focus on number of agents in predicting net income performance. However, since life insurance rely on the agency to distribute and sell life insurance products, it is indeed a critical variable to consider.
Continued focus and enhancement of recruitment and selection activities for the agents with specific emphasis in coming up with motivational, developmental, training and recognition activities with performance management and compliance added into the mix will contribute to heightened level of performance among the agents.

The number of agents will also be instrumental in contributing to the number of policies – new business through their sales efforts as well as number of policies – in-force through their sales efforts as well as servicing of existing policies for them to remain in the books of the company.

References


Annexes

Annex I
Glossary of Terms – Economic Indicators and Insurance Development Metrics

Annex I-1: Economic indicators

Exchange rate - price for which the currency of a country can be exchanged for another country's currency. (www.businessdictionary.com/definition/exchange-rate.html)

Gross national product - an estimate of total value of all the final products and services produced in a given period by the means of production owned by a country's residents. GNI as used in this study. (www.investopedia.com/terms/g/gnp.asp)

Inflation rate - the rate at which the general level of prices for goods and services is rising and, consequently, the purchasing power of currency is falling. (www.investopedia.com/terms/i/inflation.asp)

Labor force employed - consists of all the people who are able to work in a country or area. Only employed statistics as used in this study. (https://www.collinsdictionary.com/dictionary/english/labour-force)

Per capita GNI - total national income (GNI) divided by total population. (www.businessdictionary.com/definition/per-capita-income.html)

Population - the total number of persons inhabiting a country, city, or any district or area. (http://www.dictionary.com/browse/population)

Annex I-2: Insurance development metrics

Benefit payments – all the amount of money that life insurance companies pay to their insureds or beneficiaries either as death benefits, maturities, endowments, dividends, cash values, health and accident payouts, as well as other monetary benefits defined in the insurance policy contracts (Berino, D.)

Gross investment income - comes from interest payments, dividends, capital gains collected upon the sale of a security or other assets, and any other profit made through an investment vehicle of any kind. (www.investopedia.com/terms/i/investmentincome.asp)
Net income - a company's total earnings (or profit); net income is calculated by taking revenues and subtracting the costs of doing business such as depreciation, interest, taxes and other expenses. ([www.investopedia.com/terms/n/netincome.asp](http://www.investopedia.com/terms/n/netincome.asp))

Number of agents – total number of agents licensed by the Insurance Commission to sell the life insurance companies’ products (Berino, D.)

Number of policies – new business – the number of new policies that are written by an insurance company in a particular period. ([https://www.collinsdictionary.com/dictionary/english/new-business](https://www.collinsdictionary.com/dictionary/english/new-business))

Number of policies – in force - refers to the total of all life insurance policies the company has that are currently paid up and active. The face amount of the policies represent total obligations of the insurance provider, and is equal to the amount that would have to be paid out if all of the life insurance policies were to mature at the same time. ([https://usinsuranceagents.com/answers/2917/can-you-explain-the-phrase-life-insurance-in-force](https://usinsuranceagents.com/answers/2917/can-you-explain-the-phrase-life-insurance-in-force))

Operating expenses – expenditures that a business incurs to engage in any activities not directly associated with the production of goods or services. These expenditures are the same as selling, general and administrative expenses. ([https://www.accountingtools.com/articles/what-are-examples-of-operating-expenses.html](https://www.accountingtools.com/articles/what-are-examples-of-operating-expenses.html))

Premium income - revenue generated by an insurance company from the total premium it charges on its policies. ([lexicon.ft.com/Term?term=premium-income](https://lexicon.ft.com/Term?term=premium-income))

Annex II
General Types of Life Insurance Products

*Term Insurance.* Insurance provides you with insurance protection for only a fixed period of time. It pays the sum assured only upon the death of the insured or if the insured becomes totally and permanently disabled (if this benefit is provided) during this period.

Whole Life Insurance. Insurance provides life-long protection for your dependants. It pays out the death benefit upon the death of the insured.

Direct Purchase Insurance (DPI). A class of simple term and whole life insurance products that you can buy directly from the customer service centers or websites (if available) of life insurance companies. As DPI are sold without financial advice, no commission is charged and you pay lower premiums than comparable life insurance products.

Endowment Insurance. Often marketed to help you meet a financial goal like paying for your children’s education, or to build up savings over a fixed policy term. But unlike savings deposits, the guaranteed cash values you get back may be less than the sum of the premiums paid.
Investment-Linked Insurance Policies (ILPs). These policies have both life insurance and investment components. Your premiums are used to pay for units in investment–linked fund(s) of your choice. Some of the units you buy are then sold to pay for insurance and other charges, while the rest remain invested.

Annuities. A type of insurance policy which guarantees fixed payments at regular intervals (usually monthly), for as long as the policyholder lives or for a fixed period of time.

Source: Types of life insurance, n.d.

Annex III
Stepwise Regression Outputs

<table>
<thead>
<tr>
<th>Stepwise Regression Step 1 (Table 6 in the main paper)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stepwise Regression Step 2</td>
</tr>
<tr>
<td>SUMMARY OUTPUT: Net income with Premium income, number of agents</td>
</tr>
<tr>
<td><strong>Regression Statistics</strong></td>
</tr>
<tr>
<td>Multiple R</td>
</tr>
<tr>
<td>R Square</td>
</tr>
<tr>
<td>Adjusted R Square</td>
</tr>
<tr>
<td>Standard Error</td>
</tr>
<tr>
<td>Observations</td>
</tr>
<tr>
<td><strong>ANOVA</strong></td>
</tr>
<tr>
<td>df</td>
</tr>
<tr>
<td>Regression</td>
</tr>
<tr>
<td>Residual</td>
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<tr>
<td>Total</td>
</tr>
<tr>
<td><strong>Coefficients</strong></td>
</tr>
<tr>
<td>Intercept</td>
</tr>
<tr>
<td>Number of agents</td>
</tr>
<tr>
<td>Premium income (PMillion)</td>
</tr>
</tbody>
</table>

| Stepwise Regression Step 3 |
| SUMMARY OUTPUT: Net income with GNI, Premium income, premium income, number of agents |
| **Regression Statistics** |
| Multiple R | 0.923918092 |
| R Square | 0.85362464 |
| Adjusted R Square | 0.765799424 |
| Standard Error | 1637.387204 |
| Observations | 9 |
| **ANOVA** |
| df | SS | MS | F | Significance F |
| Regression | 3 | 78175695.72 | 26058565 | 9.719585 | 0.015799915 |
| Residual | 5 | 13405184.28 | 2681037 | | |
| Total | 8 | 91580880 | | | |
| **Coefficients** | **Standard Error** | **t Stat** | **P-value** | **Lower 95%** |
| Intercept | 6640.793399 | 4520.798714 | 1.468943 | 0.201789 | -4980.289657 |
| Gross National Income (PBillion) | -0.65307592 | 0.687346723 | -0.95014 | 0.385673 | -2.419956918 |
| Number of agents | 0.244405716 | 0.082657579 | 2.956846 | 0.031634 | 0.031927644 |
| Premium income (PMillion) | 0.050371528 | 0.029808433 | 1.689842 | 0.151853 | -0.026253489 |

| Stepwise Regression Step 4 (Table 5 in the main paper) |
About the Author

Dr. Berino is the current Head of MDRT Development Team under the Agency Training Department of Pru Life UK, a life insurance company. He is a part-time associate professorial lecturer of the RVR-College of Business, De La Salle University where he has been teaching for 15 years. He teaches quantitative methods, business ethics and corporate social responsibility, risk management and insurance in the MBA program. He is an online learning enthusiast. He obtained his BS in Statistics and MBA from UP Diliman and his DBA from De La Salle University. He is a Fellow of the Life Management Institute (FLMI), a Fellow of the Life Underwriters’ Training Council (LUTCF) and a Fellow of the Center for Business Research and Development of DLSU.
Forecasting consumer price index: A comparison between Vector Autoregressive (VAR) and Ordinary Least Squares (OLS) Models

Reynaldo Bautista Jr., Dioscoro Baylon, Jr., & Zorayda Ang
De La Salle University
E-mail address of corresponding author: Reyn_97@yahoo.com

Abstract

Levels of economic performance, agricultural production, and population growth are just some of the major factors that influence prices of commodities. Consumer price index or CPI is a good measure of the average change over time in price levels of consumer goods and services purchased by households. Hence, CPI shows the effect of inflation on the purchasing power of the currency. Accurate forecasting of CPI is important not only because of the information it gives about inflation and its effects on financial markets but more importantly of the resulting monetary policy that policymakers set out on it. This study evaluated two models, VAR and OLS, in forecasting CPI using data on Philippine agricultural production, population, and constant gross domestic product (GDP) from 1961 to 2013, as reported annually from the World Bank and Food and Agriculture Organization (FAO) statistics. Which is a better model between VAR and OLS in estimating dynamic forecast of CPI? Results of forecasting analysis using the Eviews7 software reveal that CPI estimation using agricultural production, population, and constant GDP could be better estimated using VAR model based on the value of mean absolute percentage error (MAPE).

Key Words
Consumer price index; Vector Autoregressive (VAR) model; Ordinary Least Square (OLS) model

Introduction

The consumer price index (CPI) “attempts to measure the average change in the prices paid by urban consumers for a fixed market of goods and services, and new samples for most item categories are routinely introduced over time to keep the CPI sample representative of consumer spending patterns” (Yuan & Li, 2010, p. 112). There are various uses of CPI but the major ones include: 1) as a measure of general inflation; 2) as a compensation index; 3) as a cost of living index (COLI); and 4) as a consumption deflator (Diewert, 1999). CPI is calculated “using the weighted arithmetic mean of price relatives, a variant of Laspeyres formula with fixed base year period weights” [Philippine Statistics Authority (PSA), p. 1]. The following are the important points as reported in the PSA primer:

a. Base Period. The base period, used as reference date, is a year and a “benchmark to which a continuous series of index can be related”. Accordingly, it is necessary to
compare between price movement in the current year and in previous years back to a reference date where index is taken as equal to 100 since CPI measures average changes in retail prices of a fixed basket of goods.

b. Market Basket. This represents the composite behavior of all goods and services purchased by consumers. Accordingly, it is virtually impossible to have periodic measures on the changes in the prices of all the thousands of varieties of goods purchased for consumption and services availed of by households in the country, a sample of these items, known as the ‘CPI market basket’, was selected to represent the composite price behavior of all goods and services purchased by consumers.

c. Weighting System. This uses the expenditures on various consumer items purchased by households as a proportion to total expenditure, with consideration to the relevance of the components of the index. Hence, the weight of each item in the basket of consumer goods is the share of the item in the total expenditure of households.

Global Agricultural Production/Supply and Demand

Price volatility of world agricultural commodities has increased in the recent years causing variability in food price inflation around the world (García-Germán, Morales-Opazo, Garrido, Demeke, & Bardají, 2013). Accordingly, long-term trends that reflect slower growth in crop yields, primarily attributed to reduced agricultural R&D on yield-enhancing technologies, coupled with rapid growth in demand have caused price increases for major food commodities (Trostle, 2008). Other factors that contributed to sharp increases in food commodity prices since 2002 include rising energy costs, increasing agricultural production costs for most of the world’s farmers, declining value of the US dollar, and reduced global production of grains and oilseeds as a result of the adverse weather particularly in 2006 and 2007 (Trostle, 2008). Figure 1 shows the demand and supply factors that contributed to higher food commodities from 1996 to 2008.

Price increases in agricultural commodities translate to increases in food prices at the domestic level greatly impacting on consumers and households particularly the poorest and most vulnerable in both developing and developed countries (García-Germán, et al., 2013). In developing countries, in particular, growth in average income coupled with rising population increased consumers’ demand for food and diversified their diets to include more meat, dairy products, and vegetable oils, which in turn, amplified the demand for grains and oilseeds (Trostle, 2008).

Increasing food price inflation continue to push up CPIs in many countries thereby leading to possible consequences on the macroeconomy, thus, evaluating the potential impacts of the rise and volatility of world commodities becomes a fundamental issue to forecast food and general inflation rates (García-Germán, et al., 2013).
Figure 1. Factors contributing to higher food commodity prices (adopted from Trostle, 2008)

Economic Performance - GDP

Gross domestic product (GDP) is the nation’s total economic activity representing the “monetary value of all goods and services produced within a nation's geographic borders over a specified period of time” (“Constant-Price GDP”, n.d.). GDP report includes information on inflation; however, inflation changes the value of money over time. Constant-price GDP or real GDP, accordingly, is inflation-adjusted GDP (“Constant-Price GDP”, n.d.).

Global economic growth has been strong since the late 1990s with developing countries, particularly in Asia recording exceptionally strong for more than a decade. For example, China and India with almost 40% of the world’s population have “provided a powerful and sustained stimulus to the demand for agricultural products” (Trostle, 2008, p. 7).

Population

World population is increasing by about 75 million or 1.1% per year. Accordingly, increasing population increases global demand for agricultural products and energy. This is amplified in developing countries where population growth rates and rising incomes are most rapid (Trostle, 2008).

The VAR Model

Let $X_t = (X_{t1}, \ldots, X_{Dt})^T$ be a compositional vector measured at time $t, t = 1, \ldots, n$. Then $Z_t = (X_{t1}, \ldots, X_{D-1,t})^T$ represents coordinates of $x_t$ obtained by using an ilr transformation.
(determined by a contrast matrix \( V \)). Here we consider a VAR model in reduced form with \( p \) lags, denoted by \( \text{VAR}(p) \), which is defined as:

\[
\mathbf{z}_t = \mathbf{c}_V + \mathbf{A}^{(1)}_V \mathbf{z}_{t-1} + \mathbf{A}^{(2)}_V \mathbf{z}_{t-2} + \ldots + \mathbf{A}^{(p)}_V \mathbf{z}_{t-p} + \mathbf{\epsilon}_t
\]

where \( \mathbf{c}_V \) is a real vector, \( \mathbf{A}_V^{(i)} (i = 1, \ldots, p) \) are parameter matrices, and \( \mathbf{\epsilon}_t \) is the error component (see, for example, Lütkepohl, 2005). The error process is considered to be a zero mean white noise process with covariance matrix \( \mathbf{\Sigma}_\mathbf{\epsilon} \). This means that the transformed observation \( \mathbf{z}_t \) is modeled based on the \( p \) earlier observations \( \mathbf{z}_{t-1}, \ldots, \mathbf{z}_{t-p} \). The \( \text{VAR}(p) \) model can be equivalently expressed directly on the simplex as:

\[
\mathbf{x}_t = \mathbf{b} \oplus \left( \mathbf{A}^{(1)}_V \mathbf{x}_{t-1} \right) \oplus \left( \mathbf{A}^{(2)}_V \mathbf{x}_{t-2} \right) \oplus \ldots \oplus \left( \mathbf{A}^{(p)}_V \mathbf{x}_{t-p} \right) \oplus \mathbf{w}_t
\]

where \( \mathbf{b} \) represents the compositional counterpart to \( \mathbf{c}_V \) and \( \{ \mathbf{w}_t \} \) is the white noise process on the simplex (see Barceló-Vidal et al., 2011).

Let us consider two different ilr-transformed coordinates \( \mathbf{z}_t \) and \( \mathbf{z}^*_t \) \((t=1, \ldots, n)\) for given compositional time series \( \{ \mathbf{x}_t : t=1, \ldots, n \} \). Let \( \mathbf{z}_t = \text{ilr}_V(\mathbf{x}_t) \) represent ilr coordinates of the composition \( \mathbf{x}_t \in \mathcal{S}^D \) associated with the matrix \( V \), and \( \mathbf{z}^*_t = \text{ilr}_V^*\mathbf{x}_t \) represent ilr coordinates associated with the matrix \( V^* \). Using the following relations:

\[
\mathbf{z}^*_t = V^{*T} V \mathbf{z}_t, \quad \mathbf{A}^{(i)}_V = V^{*T} V \mathbf{A}_V^{(i)} V^T V^*, \quad i = 1, \ldots, p
\]

it can be shown that a VAR model for compositional time series does not depend on the concrete choice of the ilr transformation. In this case we say that two \( \text{VAR}(p) \) models, resulting from two different ilr transformations:

\[
\mathbf{z}_t = \mathbf{c}_V + \mathbf{A}_V^{(1)} \mathbf{z}_{t-1} + \mathbf{A}_V^{(2)} \mathbf{z}_{t-2} + \ldots + \mathbf{A}_V^{(p)} \mathbf{z}_{t-p}
\]

\[
\mathbf{z}^*_t = \mathbf{c}_V^* + \mathbf{A}^*_V \mathbf{z}^*_{t-1} + \mathbf{A}^*_V \mathbf{z}^*_{t-2} + \ldots + \mathbf{A}^*_V \mathbf{z}^*_{t-p}
\]

are compositionally equivalent. This means that the final model on the simplex (10), obtained from using the inverse ilr transformation, is invariant to the choice of ilr transformation, and the same predictions are thus obtained (Barceló- Vidal et al., 2011) (the equivalent properties also hold for alr and clr transformations). Moreover, within the log-ratio methodology, the obtained predictions can always be rescaled to a prescribed constant sum constraint without loss of information.

While for prediction purposes any of the above mentioned log-ratio transformations can be applied due to the compositional equivalence of VAR models, the role of an appropriate coordinate representation becomes crucial if also statistical inference (such as hypothesis testing) is considered. In the following sections we show how ilr coordinates can be used for this purpose.

**Model specification**
The order of a VAR model, i.e. the number of lags $p$ of $\text{VAR}(p)$, is unknown in practice, but it can be chosen by using selection criteria. The general approach is to fit $\text{VAR}(p)$ models for $p = 0, \ldots, p_{\text{max}}$ and then choose that number of lags which minimizes the corresponding function of the given selection criterion.

In this paper, the Akaike information criterion (AIC), Hannan–Quin criterion (HQ), Schwarz criterion (SC) and final prediction error (FPE) are computed to choose the value $p$. They are defined as follows:

$$
\begin{align*}
\text{AIC}(p) & = \ln \left( \hat{\Sigma}_\varepsilon(p) \right) + \frac{2pK^2}{n} \\
\text{HQ}(p) & = \ln \left( \hat{\Sigma}_\varepsilon(p) \right) + \frac{2\ln n}{n} pK^2 \\
\text{SC}(p) & = \ln \left( \hat{\Sigma}_\varepsilon(p) \right) + \frac{\ln n}{n} pK^2 \\
\text{FPE}(p) & = \left[ \frac{n + Kp + 1}{n - Kp - 1} \right]^K \left| \hat{\Sigma}_\varepsilon(p) \right|
\end{align*}
$$

where $K = D - 1$ is the dimension of $zt$, $n$ is the length of the time series, and $\hat{\Sigma}_\varepsilon(p)$ is the maximum likelihood estimator of the residual covariance matrix (see, for example, Lütkepohl, 2005). All the above criteria for model specification are invariant to the choice of ilr transformation, since the value of the determinant of $\hat{\Sigma}_\varepsilon(p)$ remains unchanged.

The above criteria have different properties: The AIC tends to asymptotically overestimate the real order with a positive probability. Conversely, HQ and SC yield consistent estimates of the order $p$, and under general conditions the estimated order converges in probability, if the true VAR order $p$ is less than or equal to $p_{\text{max}}$ (see, for example, Lütkepohl, 2005). In many cases, the choice of order depends on the objective of the analysis. For instance, if forecasting is the main aim, then the correct order of the VAR model is not needed. In this case it is reasonable to find a suitable model for prediction by choosing such an order that minimizes a measure of forecast precision. Note that the order of a VAR model can also be specified by sequential testing procedures, namely by testing zero restrictions on parameter matrices (see Lütkepohl, 2005).

**Estimation of VAR models**

The stationary VAR($p$) model can be written in the form of a matrix equation:

$$
Y = ZB + E
$$

where $Y = (z_1, \ldots, z_n)^T$, the $t$th row of the $n \times (D-1)p + 1$ matrix $Z$ equals $Z_t = (1, z_{t-1}^T, \ldots, z_{t-p}^T)^T$ and $B = [a, A^{(1)}, \ldots, A^{(p)}]^T$ contains the parameters. Assuming a sample of size $n$, $z_1, \ldots, z_n$, and $p$ pre-sample values, $z_{-p+1}, \ldots, z_0$, the parameters $B$ can be estimated separately for each equation (formed by the columns of $Y$) by the ordinary least squares (OLS) method. If the
regressors in all equations are the same (no restriction for parameters are imposed), the estimator is identical to the generalized least squares (GLS) estimator. This estimator is also identical to the maximum likelihood (ML) estimator (conditional on the size of a given initial pre-sample), if the VAR(p) process \( z_t \) is normally distributed and \( \epsilon_t \) (rows of the \( n \times p \) error matrix \( E \)) represent a white noise process, thus \( \epsilon_t \sim \mathcal{N}(0, \Sigma_{\epsilon}), t = 1, \ldots, n \).

Such an estimator has the convenient asymptotic properties of standard estimators, and is consistent and asymptotically efficient. If the VAR(p) process is not stationary, or if restrictions are imposed on the parameters, the GLS estimator may be more beneficial (Lütkepohl, 2005).

**Statement of the problem**

As noted in the literature review, among the major factors that influence the price of commodities are strong economic performance, increase population, agricultural production level. In this research, we use the same variables to forecast consumer price index.

This study aims to create a forecasting model for CPI. This research hopes to shed light on the question “Which is a better model between VAR and OLS in estimating dynamic forecast of CPI?”

Specifically, the above question endeavors to answer the following objectives:

1. Create a dynamic forecasting model for CPI using VAR
2. Build a dynamic forecasting model for CPI using OLS
3. Compare which between OLS and VAR models is the more appropriate model by comparing the root mean square error (RMSE) and mean absolute percentage error (MAPE)

**METHODOLOGY**

The annual data used in this study were extracted from World Bank and Food And Agriculture Organization (FAO) statistics covering the period 1961 to 2013. EViews 7 was used for forecasting analysis.

In this research, both Ordinary Least Squares (OLS) and Vector Auto Regression (VAR) forecasting models were used, with consumer price index as the dependent variable, while agricultural production, population and constant Gross Domestic Product were the explanatory variables.

**RESULTS AND DISCUSSION**
An Augmented Dickey Fuller test was initially done to determine the presence of unit roots. As indicated in Table 1 below, all variables have unit root at level values. However, stationarity was achieved after first differencing.

Table 1
Test for Unit Root Summary

<table>
<thead>
<tr>
<th>Variable Name</th>
<th>ADF</th>
<th>P-value</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Log_Price_index</td>
<td>-3.117831</td>
<td>0.1399</td>
<td>Non-stationary (I1)</td>
</tr>
<tr>
<td>Log_Agri_prod</td>
<td>-3.146954</td>
<td>0.1275</td>
<td>Non-stationary (I1)</td>
</tr>
<tr>
<td>Log_Populaiton</td>
<td>-1.872698</td>
<td>0.3417</td>
<td>Non-stationary (I1)</td>
</tr>
<tr>
<td>Log_GDP_const</td>
<td>-1.491906</td>
<td>0.7915</td>
<td>Non-stationary (I1)</td>
</tr>
</tbody>
</table>

Forecast model building using Ordinary Least Squares (OLS)

A regression analysis was conducted on the differenced values of the explanatory variables. The results of the regression analysis are shown in Table 2 below:

Table 2
Result of Preliminary Regression Model

<table>
<thead>
<tr>
<th>Variable</th>
<th>Coefficient</th>
<th>Std. Error</th>
<th>t-Statistic</th>
<th>Prob.</th>
</tr>
</thead>
<tbody>
<tr>
<td>DLOG(AGRI_PRODUCTION)</td>
<td>0.438897</td>
<td>0.256122</td>
<td>1.713623</td>
<td>0.0929</td>
</tr>
<tr>
<td>DLOG(POPULATION)</td>
<td>5.086766</td>
<td>0.533831</td>
<td>9.528801</td>
<td>0.0000</td>
</tr>
<tr>
<td>DLOG(GDP_CONSTANT)</td>
<td>-1.281692</td>
<td>0.266278</td>
<td>-4.813359</td>
<td>0.0000</td>
</tr>
</tbody>
</table>

Results of the multiple regression indicate the influence exerted by the individual predictors on the dependent variable: The differenced logs of AGRI_PRODUCTION ($\beta = 0.4389$, $t = 1.71$, $p = 0.0929$), of POPULATION ($\beta = 5.087$, $t = 9.53$, $p = 0.0000$) and of GDP_CONSTANT ($\beta = -1.282$, $t = -4.81$, $p = 0.0000$) were all statistically significant at the 90% confidence level.

An analysis of the autocorrelation function was done. The correlogram of residuals shown below in Figure 2 showed an autoregressive function with lag 1.
A regression with the lagged independent variables was done. Table 3 below shows the results of the regression analysis.

Table 3
Result of Regression including Lag 1

<table>
<thead>
<tr>
<th>Variable</th>
<th>Coefficient</th>
<th>Std. Error</th>
<th>t-Statistic</th>
<th>Prob.</th>
</tr>
</thead>
<tbody>
<tr>
<td>DLOG(AGRI_PRODUCTION)</td>
<td>0.511659</td>
<td>0.235113</td>
<td>2.176224</td>
<td>0.0349</td>
</tr>
<tr>
<td>DLOG(POPULATION)</td>
<td>32.96724</td>
<td>18.83909</td>
<td>1.749938</td>
<td>0.0871</td>
</tr>
<tr>
<td>DLOG(GDP_CONSTANT)</td>
<td>-1.590694</td>
<td>0.292282</td>
<td>-5.442333</td>
<td>0.0000</td>
</tr>
<tr>
<td>DLOG(PRICE_INDEX(-1))</td>
<td>0.208009</td>
<td>0.134884</td>
<td>1.542134</td>
<td>0.1302</td>
</tr>
<tr>
<td>DLOG(AGRI_PRODUCTION(-1))</td>
<td>-0.421220</td>
<td>0.235461</td>
<td>-1.788920</td>
<td>0.0805</td>
</tr>
<tr>
<td>DLOG(POPULATION(-1))</td>
<td>-29.16345</td>
<td>18.55496</td>
<td>-1.571734</td>
<td>0.1232</td>
</tr>
<tr>
<td>DLOG(GDP_CONSTANT(-1))</td>
<td>1.216787</td>
<td>0.299084</td>
<td>4.068386</td>
<td>0.0002</td>
</tr>
</tbody>
</table>
The regression results show that among the differenced log variables, AGRI_PRODUCTION ($\beta = 0.5112$, $t = 0.235$, $p = .0349$), POPULATION ($\beta = 32.967$, $t = 1.7499$, $p = 0.0871$), GDP_CONSTANT ($\beta = -1.59$, $t = -5.442$, $p = 0.000$), and GDP_CONSTANT (-1) ($\beta = 1.2168$, $t = 4.068$, $p = .0002$) were all statistically significant at the 90% confidence level.

In order to determine other potential significant lags, residual analysis was conducted. Figure 3 below shows the residual analysis after including lagged 1 variables. By inspection, it could be noted that all the lags are within the Bartlett’s band.

Finally, each of the insignificant variables in the regression was eliminated one by one starting from the highest $p$-value. After a series of eliminations, the optimum equation was achieved. Table 4 below displays the final model for the OLS method.

<table>
<thead>
<tr>
<th>Date: 12/19/16</th>
<th>Time: 14:15</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sample: 1083 2013</td>
<td>Included observations: 51</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Autocorrelation</th>
<th>Partial Correlation</th>
<th>AC</th>
<th>PAC</th>
<th>Q-Stat</th>
<th>Prob</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>-0.019</td>
<td>0.0189</td>
<td>0.891</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>-0.030</td>
<td>0.0680</td>
<td>0.967</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>0.210</td>
<td>2.5553</td>
<td>0.465</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>0.029</td>
<td>2.6027</td>
<td>0.626</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>-0.151</td>
<td>3.9421</td>
<td>0.558</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>-0.033</td>
<td>4.0065</td>
<td>0.675</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>-0.175</td>
<td>5.8974</td>
<td>0.552</td>
<td></td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>-0.062</td>
<td>6.1394</td>
<td>0.632</td>
<td></td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>0.034</td>
<td>6.2154</td>
<td>0.718</td>
<td></td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>0.029</td>
<td>6.2695</td>
<td>0.792</td>
<td></td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>-0.057</td>
<td>6.4982</td>
<td>0.839</td>
<td></td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>0.043</td>
<td>6.6201</td>
<td>0.882</td>
<td></td>
<td></td>
</tr>
<tr>
<td>13</td>
<td>0.068</td>
<td>6.9499</td>
<td>0.905</td>
<td></td>
<td></td>
</tr>
<tr>
<td>14</td>
<td>0.022</td>
<td>6.9861</td>
<td>0.935</td>
<td></td>
<td></td>
</tr>
<tr>
<td>15</td>
<td>-0.082</td>
<td>7.4933</td>
<td>0.942</td>
<td></td>
<td></td>
</tr>
<tr>
<td>16</td>
<td>-0.164</td>
<td>9.5674</td>
<td>0.888</td>
<td></td>
<td></td>
</tr>
<tr>
<td>17</td>
<td>0.093</td>
<td>10.252</td>
<td>0.893</td>
<td></td>
<td></td>
</tr>
<tr>
<td>18</td>
<td>-0.045</td>
<td>10.420</td>
<td>0.917</td>
<td></td>
<td></td>
</tr>
<tr>
<td>19</td>
<td>-0.172</td>
<td>12.916</td>
<td>0.843</td>
<td></td>
<td></td>
</tr>
<tr>
<td>20</td>
<td>-0.025</td>
<td>12.972</td>
<td>0.879</td>
<td></td>
<td></td>
</tr>
<tr>
<td>21</td>
<td>0.097</td>
<td>13.825</td>
<td>0.877</td>
<td></td>
<td></td>
</tr>
<tr>
<td>22</td>
<td>-0.054</td>
<td>14.096</td>
<td>0.898</td>
<td></td>
<td></td>
</tr>
<tr>
<td>23</td>
<td>-0.062</td>
<td>14.465</td>
<td>0.913</td>
<td></td>
<td></td>
</tr>
<tr>
<td>24</td>
<td>0.052</td>
<td>14.738</td>
<td>0.928</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Figure 3. Residual test after lag 1 in the equation.*
Table 4

Final Model for OLS

Dependent Variable: DLOG(PRICE_INDEX)
Method: Least Squares
Date: 12/19/16 Time: 14:19
Sample (adjusted): 1963 2013
Included observations: 51 after adjustments

<table>
<thead>
<tr>
<th>Variable</th>
<th>Coefficient</th>
<th>Std. Error</th>
<th>t-Statistic</th>
<th>Prob.</th>
</tr>
</thead>
<tbody>
<tr>
<td>DLOG(AGRI_PRODUCTION)</td>
<td>0.590556</td>
<td>0.236215</td>
<td>2.500075</td>
<td>0.016</td>
</tr>
<tr>
<td>DLOG(POPULATION)</td>
<td>4.446834</td>
<td>0.532159</td>
<td>8.356220</td>
<td>0.000</td>
</tr>
<tr>
<td>DLOG(GDP_CONSTANT)</td>
<td>-1.802475</td>
<td>0.286827</td>
<td>-6.284192</td>
<td>0.000</td>
</tr>
<tr>
<td>DLOG(GDP_CONSTANT(-1))</td>
<td>0.884103</td>
<td>0.277691</td>
<td>3.183769</td>
<td>0.0026</td>
</tr>
</tbody>
</table>

R-squared                          | 0.514991    | Mean dependent var | 0.088586   |
Adjusted R-squared                 | 0.484033    | S.D. dependent var | 0.072283   |
S.E. of regression                 | 0.051922    | Akaike info criterion | -3.02970  |
Sum squared resid                  | 0.126706    | Schwarz criterion | -2.851454  |
Log likelihood                     | 80.57574    | Hannan-Quinn criter. | -2.945071 |
Durbin-Watson stat                 | 1.524444    |                      |            |

All independent variables in the final model AGRI_PRODUCTION ($\beta = 0.5906$, $t = 2.5$, $p = 0.016$), POPULATION ($\beta = 4.4468$, $t = 8.356$, $p = 0.000$), GDP_CONSTANT ($\beta = -1.8025$, $t = -6.284$, $p = 0.000$), GDP_CONSTANT (-1) ($\beta = 0.884$, $t = 3.1837$, $p = 0.0026$) significantly predicted PRICE_INDEX at the 90% confidence level. The independent variable also explained a significant proportion of variance in PRICE_INDEX, adjusted $R^2 = 0.484$.

As a final test for the adequacy of the equation, the adjusted $R$ square value was compared with the Durbin-Watson statistic. It can be concluded that the regression is not spurious as shown by the higher value of Durbin-Watson ($DW = 1.5244$) compared to adjusted $R$ ($R^2 = 0.484$). Also, the RMSE and MAPE were generated which were used a basis for comparison between OLS and VAR. Figure 4 shown below highlights the MAPE (13.15) and RMSE (3.34) of the regression equation using OLS.
Forecast model building using VAR

Before proceeding to VAR model building, a test for cointegration was conducted to determine whether Error Correction Model (ECM) is appropriate. The test yielded no cointegration among the variables, as such ECM is not appropriate. Table 5, shows the result of the Engle-Granger test.

Table 5
Engle-Granger Test of Cointegration

<table>
<thead>
<tr>
<th>Specification: LOG(PRICE_INDEX) LOG(AGRI_PRODUCTION) LOG(POPULATION) LOG(GDP_CONSTANT) C</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cointegrating equation deterministics: C</td>
</tr>
<tr>
<td>Null hypothesis: Series are not cointegrated</td>
</tr>
<tr>
<td>Automatic lag specification (lag=0 based on Schwarz Info Criterion, maxlag=10)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>Value</th>
<th>Prob.*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Engle-Granger tau-statistic</td>
<td>-2.553455</td>
<td>0.6581</td>
</tr>
<tr>
<td>Engle-Granger z-statistic</td>
<td>-10.15440</td>
<td>0.7535</td>
</tr>
</tbody>
</table>

**Number of stochastic trends in asymptotic distribution.

The Engle-Granger tau-statistic (t-statistic) and normalized autocorrelation coefficient (z-statistic) both indicate we do not reject the null hypothesis of no cointegration (unit root in the residuals) at the 5% level.

A VAR model was run subsequently, showing the following results in Table 6 below.
Table 6
VAR Estimates
Vector Autoregression Estimates
Included observations: 50 after adjustments
Standard errors in ( ) & t-statistics in [ ]

<table>
<thead>
<tr>
<th>Vector</th>
<th>Estimate 1</th>
<th>Estimate 2</th>
<th>Standard Error 1</th>
<th>Standard Error 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>DLOG(PRICE_INDEX(-1))</td>
<td>0.442463</td>
<td>-0.000132</td>
<td>0.020834</td>
<td>-0.156402</td>
</tr>
<tr>
<td></td>
<td>(0.19897)</td>
<td>(0.00059)</td>
<td>(0.10091)</td>
<td>(0.08105)</td>
</tr>
<tr>
<td></td>
<td>[ 2.22382]</td>
<td>[-0.22471]</td>
<td>[ 0.20647]</td>
<td>[-1.92976]</td>
</tr>
<tr>
<td>DLOG(PRICE_INDEX(-2))</td>
<td>-0.062833</td>
<td>0.134153</td>
<td>0.226722</td>
<td>0.10091</td>
</tr>
<tr>
<td></td>
<td>(0.18646)</td>
<td>(0.07595)</td>
<td>(0.09456)</td>
<td>(0.07595)</td>
</tr>
<tr>
<td></td>
<td>[-0.33698]</td>
<td>[ 1.76628]</td>
<td>[ 2.39754]</td>
<td>[ 0.77457]</td>
</tr>
<tr>
<td>DLOG(AGRI_PRODUCTION(-1))</td>
<td>-0.664971</td>
<td>-0.000209</td>
<td>-0.113835</td>
<td>0.12795</td>
</tr>
<tr>
<td></td>
<td>(0.32750)</td>
<td>(0.13340)</td>
<td>(0.16609)</td>
<td>(0.07595)</td>
</tr>
<tr>
<td></td>
<td>[-2.03046]</td>
<td>[ 0.84551]</td>
<td>[-0.68536]</td>
<td>[-0.21706]</td>
</tr>
<tr>
<td>DLOG(AGRI_PRODUCTION(-2))</td>
<td>-0.180075</td>
<td>0.105803</td>
<td>-0.274652</td>
<td>-0.01587</td>
</tr>
<tr>
<td></td>
<td>(0.55798)</td>
<td>(0.14096)</td>
<td>(1.67803)</td>
<td>(0.07595)</td>
</tr>
<tr>
<td></td>
<td>[-0.52484]</td>
<td>[-0.14096]</td>
<td>[-0.75900]</td>
<td>[-0.21706]</td>
</tr>
<tr>
<td>DLOG(POPULATION(-1))</td>
<td>29.23922</td>
<td>1.894839</td>
<td>-0.14779</td>
<td>3.168097</td>
</tr>
<tr>
<td></td>
<td>(26.3625)</td>
<td>(10.7386)</td>
<td>(13.3700)</td>
<td>(10.7386)</td>
</tr>
<tr>
<td></td>
<td>[ 1.10912]</td>
<td>[ 0.29502]</td>
<td>[ 2.43161]</td>
<td>[ 0.29502]</td>
</tr>
<tr>
<td></td>
<td>[-0.97760]</td>
<td>[-0.3287]</td>
<td>[-0.75900]</td>
<td>[-0.21706]</td>
</tr>
<tr>
<td>DLOG(GDP_CONSTANT(-1))</td>
<td>0.759994</td>
<td>0.347083</td>
<td>0.210706</td>
<td>0.347083</td>
</tr>
<tr>
<td></td>
<td>(0.51130)</td>
<td>(0.20828)</td>
<td>(0.25931)</td>
<td>(0.20828)</td>
</tr>
<tr>
<td></td>
<td>[ 1.48639]</td>
<td>[ 0.66646]</td>
<td>[ 0.81256]</td>
<td>[ 0.66646]</td>
</tr>
<tr>
<td>DLOG(GDP_CONSTANT(-2))</td>
<td>0.041360</td>
<td>0.121055</td>
<td>0.388987</td>
<td>0.121055</td>
</tr>
<tr>
<td></td>
<td>(0.46997)</td>
<td>(0.19144)</td>
<td>(0.23835)</td>
<td>(0.19144)</td>
</tr>
<tr>
<td></td>
<td>[ 0.08801]</td>
<td>[ 0.63234]</td>
<td>[ 1.63200]</td>
<td>[ 0.63234]</td>
</tr>
<tr>
<td>C</td>
<td>-0.033157</td>
<td>0.030834</td>
<td>-0.002885</td>
<td>0.030834</td>
</tr>
<tr>
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<td>(0.05182)</td>
<td>(0.02111)</td>
<td>(0.02628)</td>
<td>(0.02111)</td>
</tr>
<tr>
<td></td>
<td>[-0.63981]</td>
<td>[ 1.46062]</td>
<td>[-0.10977]</td>
<td>[ 1.19798]</td>
</tr>
</tbody>
</table>

R-squared                          0.332864  0.169545  0.998737  0.369380
Adj. R-squared                     0.202691  0.007505  0.998491  0.246333
Sum sq. resid                      0.173506  0.044628  1.50E-06  0.028790
S.E. equation                      0.065053  0.032992  0.000191  0.026499
F-statistic                        2.557094  1.046316  4052.878  3.001927
Log likelihood                     70.64225  104.5886  362.0765  115.5472
Akaike AIC                         -2.465690 -3.823546 -14.12306 -4.261887
Mean dependent                     0.089263  0.027929  0.024254  0.039390
S.D. dependent                     0.072854  0.033117  0.004926  0.030524
The next step was to look at the lag order. Based on Table 7, lag 3 is shown to be significant. Therefore, this is added to the equation.

Table 7

Lag Order Selection Criteria

<table>
<thead>
<tr>
<th>Lag</th>
<th>LogL</th>
<th>LR</th>
<th>FPE</th>
<th>AIC</th>
<th>SC</th>
<th>HQ</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>457.24</td>
<td>NA</td>
<td>7.39e-14</td>
<td>-18.88507</td>
<td>-18.72914</td>
<td>-18.82615</td>
</tr>
<tr>
<td>1</td>
<td>599.71</td>
<td>255.25</td>
<td>3.81e-16</td>
<td>-24.15447</td>
<td>-23.37480</td>
<td>-23.85983</td>
</tr>
<tr>
<td>2</td>
<td>642.35</td>
<td>69.29</td>
<td>1.28e-16</td>
<td>-25.26451</td>
<td>-23.86111</td>
<td>-24.73417</td>
</tr>
<tr>
<td>3</td>
<td>710.42</td>
<td>99.27</td>
<td>1.51e-17*</td>
<td>-27.43417*</td>
<td>-25.40703*</td>
<td>-26.66811*</td>
</tr>
<tr>
<td>4</td>
<td>717.68</td>
<td>9.38</td>
<td>2.34e-17</td>
<td>-27.07010</td>
<td>-24.41923</td>
<td>-26.06833</td>
</tr>
</tbody>
</table>

* indicates lag order selected by the criterion
LR: sequential modified LR test statistic (each test at 5% level)
FPE: Final prediction error
AIC: Akaike information criterion
SC: Schwarz information criterion
HQ: Hannan-Quinn information criterion

The final model was arrived at by repeatedly looking at the correlogram and adding those lags which exceeded the Bartlett’s band. Table 8 shows the final VAR model.
<table>
<thead>
<tr>
<th></th>
<th>DLOG(PRICE_INDEX(-1))</th>
<th>DLOG(AGRI_PRODUCTION)</th>
<th>DLOG(POPULATION)</th>
<th>DLOG(GDP_CONSTANT)</th>
</tr>
</thead>
<tbody>
<tr>
<td>DLOG(PRICE_INDEX(-1))</td>
<td>0.364910</td>
<td>0.076528</td>
<td>0.000301</td>
<td>-0.141055</td>
</tr>
<tr>
<td>(0.17750)</td>
<td>(0.09948)</td>
<td>(0.00095)</td>
<td></td>
<td>(0.07842)</td>
</tr>
<tr>
<td>[2.05588]</td>
<td>[0.76931]</td>
<td>[0.31653]</td>
<td></td>
<td>[-1.79870]</td>
</tr>
<tr>
<td>DLOG(PRICE_INDEX(-5))</td>
<td>-0.093554</td>
<td>0.036093</td>
<td>0.001084</td>
<td>0.034012</td>
</tr>
<tr>
<td>(0.17752)</td>
<td>(0.09949)</td>
<td>(0.00095)</td>
<td></td>
<td>(0.07843)</td>
</tr>
<tr>
<td>[-0.52700]</td>
<td>[0.36277]</td>
<td>[1.14037]</td>
<td></td>
<td>[0.43365]</td>
</tr>
<tr>
<td>DLOG(AGRI_PRODUCTION(-1))</td>
<td>-0.828655</td>
<td>-0.024040</td>
<td>-0.001078</td>
<td>0.184370</td>
</tr>
<tr>
<td>(0.31209)</td>
<td>(0.17491)</td>
<td>(0.00167)</td>
<td></td>
<td>(0.13789)</td>
</tr>
<tr>
<td>[-2.65519]</td>
<td>[-0.13744]</td>
<td>[-0.64508]</td>
<td></td>
<td>[1.33711]</td>
</tr>
<tr>
<td>DLOG(AGRI_PRODUCTION(-5))</td>
<td>0.378087</td>
<td>0.044330</td>
<td>-0.001069</td>
<td>-0.048386</td>
</tr>
<tr>
<td>(0.31879)</td>
<td>(0.17867)</td>
<td>(0.00171)</td>
<td></td>
<td>(0.14085)</td>
</tr>
<tr>
<td>[1.18600]</td>
<td>[0.24811]</td>
<td>[-0.62607]</td>
<td></td>
<td>[-0.34353]</td>
</tr>
<tr>
<td>DLOG(POPULATION(-1))</td>
<td>13.71238</td>
<td>-0.827395</td>
<td>1.119446</td>
<td>0.832586</td>
</tr>
<tr>
<td>(8.42600)</td>
<td>(4.72232)</td>
<td>(0.04514)</td>
<td></td>
<td>(3.72275)</td>
</tr>
<tr>
<td>[1.62739]</td>
<td>[-0.17521]</td>
<td>[24.8004]</td>
<td></td>
<td>[0.22365]</td>
</tr>
<tr>
<td>DLOG(POPULATION(-5))</td>
<td>-8.854344</td>
<td>1.034564</td>
<td>-0.130934</td>
<td>-0.862418</td>
</tr>
<tr>
<td>(8.61709)</td>
<td>(4.82942)</td>
<td>(0.04616)</td>
<td></td>
<td>(3.80718)</td>
</tr>
<tr>
<td>[-1.02753]</td>
<td>[0.21422]</td>
<td>[-2.83639]</td>
<td></td>
<td>[-0.22652]</td>
</tr>
<tr>
<td>DLOG(GDP_CONSTANT(-1))</td>
<td>0.750014</td>
<td>0.123063</td>
<td>0.000953</td>
<td>0.284316</td>
</tr>
<tr>
<td>(0.39992)</td>
<td>(0.22413)</td>
<td>(0.00214)</td>
<td></td>
<td>(0.17669)</td>
</tr>
<tr>
<td>[1.87542]</td>
<td>[0.54907]</td>
<td>[0.44481]</td>
<td></td>
<td>[1.60913]</td>
</tr>
<tr>
<td>DLOG(GDP_CONSTANT(-5))</td>
<td>-0.091695</td>
<td>-0.205975</td>
<td>0.005544</td>
<td>-0.003259</td>
</tr>
<tr>
<td>(0.42224)</td>
<td>(0.23664)</td>
<td>(0.00226)</td>
<td></td>
<td>(0.18655)</td>
</tr>
<tr>
<td>[-0.21716]</td>
<td>[-0.87040]</td>
<td>[2.45079]</td>
<td></td>
<td>[-0.01747]</td>
</tr>
<tr>
<td>C</td>
<td>-0.050651</td>
<td>0.014002</td>
<td>-0.000157</td>
<td>0.036250</td>
</tr>
<tr>
<td>(0.06358)</td>
<td>(0.03563)</td>
<td>(0.00034)</td>
<td></td>
<td>(0.02809)</td>
</tr>
<tr>
<td>[-0.79665]</td>
<td>[0.39296]</td>
<td>[-0.45982]</td>
<td></td>
<td>[1.29049]</td>
</tr>
</tbody>
</table>

R-squared: 0.389321  Adj. R-squared: 0.260757
Sum sq. resids  0.155275  0.048772  4.46E-06  0.030310  
S.E. equation  0.063923  0.035826  0.000342  0.028242  
F-statistic  3.028229  0.433669  1095.258  2.374630  
Log likelihood  67.55845  94.77247  313.3377  105.9509  
Akaike AIC  -2.491849  -3.649892  -12.95054  -4.125569  
Schwarz SC  -2.137565  -3.295609  -12.59626  -3.771285  
Mean dependent  0.091630  0.028306  0.023808  0.039170  
S.D. dependent  0.074347  0.034016  0.004736  0.031438  

To establish the stability of the model, roots test was conducted. As displayed in Table 9, no root lies outside the unit circle. Thus, the model is stable.

Table 9
Result of Root Test for the VAR Model

<table>
<thead>
<tr>
<th>Root</th>
<th>Modulus</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.973180</td>
<td>0.973180</td>
</tr>
<tr>
<td>0.856521</td>
<td>0.856521</td>
</tr>
<tr>
<td>0.635049 + 0.394296i</td>
<td>0.747500</td>
</tr>
<tr>
<td>0.635049 - 0.394296i</td>
<td>0.747500</td>
</tr>
<tr>
<td>-0.137232 - 0.673885i</td>
<td>0.687717</td>
</tr>
<tr>
<td>-0.137232 + 0.673885i</td>
<td>0.687717</td>
</tr>
<tr>
<td>0.242735 + 0.615378i</td>
<td>0.661521</td>
</tr>
<tr>
<td>0.242735 - 0.615378i</td>
<td>0.661521</td>
</tr>
<tr>
<td>0.657554</td>
<td>0.657554</td>
</tr>
<tr>
<td>-0.643501</td>
<td>0.643501</td>
</tr>
<tr>
<td>0.042407 + 0.612062i</td>
<td>0.613530</td>
</tr>
<tr>
<td>0.042407 - 0.612062i</td>
<td>0.613530</td>
</tr>
<tr>
<td>0.443970 - 0.395144i</td>
<td>0.594347</td>
</tr>
<tr>
<td>0.443970 + 0.395144i</td>
<td>0.594347</td>
</tr>
<tr>
<td>-0.458082 + 0.371605i</td>
<td>0.589855</td>
</tr>
<tr>
<td>-0.458082 - 0.371605i</td>
<td>0.589855</td>
</tr>
<tr>
<td>-0.273525 + 0.499628i</td>
<td>0.569600</td>
</tr>
<tr>
<td>-0.273525 - 0.499628i</td>
<td>0.569600</td>
</tr>
<tr>
<td>-0.544883 - 0.158655i</td>
<td>0.567511</td>
</tr>
<tr>
<td>-0.544883 + 0.158655i</td>
<td>0.567511</td>
</tr>
</tbody>
</table>

No root lies outside the unit circle.
VAR satisfies the stability condition.

The point and interval estimate for the consumer price index is shown below in Table 10, using the VAR model generated above for estimation.
Table 10

*Point and Interval Estimates of CPI*

<table>
<thead>
<tr>
<th>Point Estimates</th>
<th>Interval Estimates</th>
</tr>
</thead>
<tbody>
<tr>
<td>124.2777989</td>
<td>100.07696</td>
</tr>
<tr>
<td>136.120918</td>
<td>111.92008</td>
</tr>
<tr>
<td>148.9017755</td>
<td>124.70093</td>
</tr>
<tr>
<td></td>
<td>148.4786398</td>
</tr>
<tr>
<td></td>
<td>111.92008</td>
</tr>
<tr>
<td></td>
<td>160.3217588</td>
</tr>
<tr>
<td></td>
<td>124.70093</td>
</tr>
<tr>
<td></td>
<td>173.1026164</td>
</tr>
</tbody>
</table>

We now compare the VAR and OLS models using the MAPE and RMSE. These are shown in Table 11 below.

Table 11

*Comparison of MAPE and RMSE of VAR and OLS*

<table>
<thead>
<tr>
<th>MODEL</th>
<th>MAPE</th>
<th>RMSE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vector Autoregressive</td>
<td>11.58</td>
<td>12.35</td>
</tr>
<tr>
<td>Ordinary Least Squares</td>
<td>13.15</td>
<td>3.24</td>
</tr>
</tbody>
</table>

Based on the table above, VAR is the better method in terms of MAPE. However, in terms of RMSE, OLS appears to be the better model.

There are, though, some concerns over using RMSE as raised by Willmott and Matsuura (2005). These concerns may be valid. However, the proposed avoidance of RMSE in favor of MAPE is not the solution. Citing the aforementioned papers, many researchers chose MAPE over RMSE to present their model evaluation statistics when presenting or adding the RMSE measures could be more beneficial. Based on Table 11 and the argument of not using MAPE over RMSE, it may be concluded that in terms of adequacy, OLS model is more appropriate.

**CONCLUSIONS, RECOMMENDATION AND DIRECTION FOR FUTURE RESEARCH**

The study evaluated two models: VAR and OLS in forecasting CPI. Based on a comparison of the final models of both methods, VAR model is more adequate based on the value of MAPE. Therefore, CPI estimation using agricultural production, population and constant GDP could be better estimated using VAR model.

As direction for future research, it is interesting to look at other indicators that might influence CPI such as livestock production, price of gas, among other things. Also, it is recommended that other forecasting models be used to identify the optimum model for forecasting CPI.
References:


Session D - Spirituality and resilience
Play, Pray and Pay-It-Forward: Resiliency, Spirituality and Sustainability in Community Theatre Arts Program

Richard G. Castor and Rosa C. Ubano-Cid
Central Bicol State University of Agriculture

ABSTRACT

Community theatre was once touted to spur development that spans social and intellectual relevance to education, tourism and economic advantages. This paper explores resiliency, spirituality and sustainability through narratives of outcome and impact of community theatre arts program which introduced theatre arts workshops, produced religious scripts and have the community take part in staging play productions. An exploratory multiple case study approach was used through series of in-depth key informant interviews, focus group discussion and participant observation accounts including examination of process documentation of an extension project. Community theatre arts program conducted by SAMBIT as an extension modality commenced with co-creative workshops highlighting the essence of play and having fun in unleashing creativity and appreciation for diversity. Street and stage play productions are direct outcomes of the workshops collaboratively participated both by community members and trainers. Three of the produced stage and street plays are religious in nature namely, An Pasyon ni Kristo, Ang Mabathalang Awa and Nazareno, teaching and inviting participants and audience in a pray-while-you-watch experience. In all 33 staging of these plays, a pay-it-forward scheme was established in which community generates economic gains contributing to vibrant tourism and infrastructure development of churches. Five IEC materials were produced, four of which are copyrighted books, two are commercially available and all are utilized as references for instruction and extension. There is potential for further research on a larger scale to include other cases and add evidence on community theatre arts program as extension modality in substantiating the nexus and interplay of resiliency, spirituality and sustainability.

Keywords: Community theatre, Resiliency, Spirituality, Sustainability

Acronym:
SAMBIT – Sentro ng Artistikong Manlilikha na Bumubuo ng Identidad at Talento
IEC – information, education and communication
Building Resilient and Sustainable Farms through Organic Agriculture

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Central Bicol State University of Agriculture
Email: carmelita.cervantes@cbsua.edu.ph

Abstract

In 2011, a study was done in the Bicol Region, Philippines to assess the production and livelihood capacities of selected vulnerable farming communities. It was found out that these communities have low productivity and sustainability ratings associated with or due to high dependence to external inputs (e.g. agri-chemicals and seeds), low cropping diversity and livelihood mix, poor access to financial and technical support, and poor resiliency of communities against environmental stresses associated with climate change.

To address these situations, an action project, entitled, Organic Agriculture-based Social Enterprise (OABSE) was implemented in 2012 through collaborations of government and non-government agencies. One intervention of OABSE was the establishment of five Organic Agriculture Community Learning Farms or OACLF in selected villages with farm families as co-operators. These farms were developed to provide on-farm learning and research facilities on organic agriculture and to showcase organic farming systems and enterprise models aimed at hastening the conversion of conventional farms to certifiable organic ones. The farming family co-operators were trained and provided with technical and financial support to develop village level/type facilities and enterprises anchored on organic agriculture-based farming systems. Farm enterprises with positive economic returns identified were organic rice-legume relay, organic vegetables production, animal production, and vermicompost production. Aside from being more secured with food and production inputs, the farms also became research sites for sweet potato and rice varietal trials which identified adaptable varieties for organic production systems. Likewise, they became venues for on-farm trainings for organic agriculture for local farmers and other stakeholders.

Keywords: organic agriculture, community learning farm, resilient and sustainable farms, social enterprise
Exploring the Role of Natural Disaster Entrepreneurship in Community Resilience, A Research Proposal

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De La Salle University
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Abstract

The occurrence of natural disasters is increasingly becoming a norm. Natural disasters have widespread effects on a community’s economic, social and environmental dimensions. It is due to these ubiquitous effects that makes the topic of resilience a very important research area. Despite this acknowledged importance, the number of resilience studies continue to be small and largely conceptual. It is because of this that this research study is being proposed. This proposal seeks to explore the role of natural disaster entrepreneurship, particularly those of small and medium enterprises, in community resilience.

Key Words

natural disaster entrepreneurship; community resilience
Research Problem

The number of natural disasters happening worldwide is increasing. Natural disasters affect the fabric of society. The effects of disasters are expensive not only economically but socially as well. This is the reason why people from various sectors are highly interested in finding out ways to make communities resilient to natural disasters. This is in light of the failure of nation-wide policies in quickly and effectively preparing communities before a natural disaster and addressing local problems in the aftermath of a disaster.

While majority of the research concerning community resilience focus on the role of government, non-profits and individual households, discussions on the role of the private sector has been limited to providing finance and insurance. Attention to the role of small and medium enterprises in community resilience is scant. Among the existing studies available, the focus has been on westernized settings.

Research Objectives

A. To narrate the experiences of selected micro, small and medium enterprises (MSMEs) in the Philippines in the aftermath of a disaster
B. To determine the role of natural disaster entrepreneurship in community resilience
C. To apply the disaster entrepreneurship typology proposed by Linnenluecke and McKnight (2016)
D. To be able to narrate how this role is fulfilled in the context of a developing country
E. To contribute to the overall literature regarding disaster entrepreneurship with focus on the role of Philippine MSME during disasters

Review of Related Literature

To enable us to better understand the important concepts in this study, we need to examine what has been studied so far.

Natural Disaster and Disaster Recovery

Mechler as cited by Galbraith (2006) defined natural disasters as “the impact of an extreme natural event on an exposed, vulnerable society” (p. 10). Tierney as cited by the same author defined disaster recovery as

Longer-term efforts to (1) reconstruct and restore the disaster-stricken area, e.g., through repairing or replacing homes, businesses, public works, and other structures; (2) deal with the disruption that the disaster has caused in community life and meet the recovery-related needs of victims; and (3) mitigate future hazards (pp. 1-2).

Resilience and Community Resilience

The topic of resilience is discussed in many disciplines including ecology, psychology and sociology (Bhamra, Dani, & Burnard, 2011; Jenkins, 2015; M. K. Linnenluecke, 2015).
Despite this, the concept of resilience has been universally related to the “capability and ability of an element to return to a stable state after a disruption” (Burnard & Bhamra, 2011, p. 5376).

Resilience is different from resistance. As Figure 1 indicates, resistance occurs when an element is able to function after a crisis in exactly the same way as if the crisis did not occur at all. Resilience is somewhat similar but the difference lies in how the element functions after a crisis. The element changes due to a transient dysfunction and functions after this in such a way that it has adapted to the new environment that result after a crisis. Vulnerability, a closely related concept, occurs when an element is not able to function after a crisis (Norris, Stevens, Pfefferbaum, Wyche, & Pfefferbaum, 2008).

![Figure 1. Model of stress resistance and resilience over time](image)

As such Bruneau et al. as cited by Linnenluecke and McKnight (2016) defined community resilience as “the ability of a community to absorb devastating impacts and ‘bounce back’ despite encountering significant adversity” (p. 2).

Community resilience has the following properties – robustness, redundancy, rapidity and resourcefulness. Robustness refers to the strength and capacity “to withstand the impact of a major disaster” (Norris, et. al., p. 144); redundancy refers to a community’s access to substitutable resource; rapidity is the capacity to react in a timely fashion; resourcefulness refers to the capacity to identify problems and gather resources to respond to this problem (Norris et al., 2008).
Given the extent of negative impact a natural disaster has on a community, Norris et. al. (2008) has proposed that community resilience is a set of networked adaptive capacities as illustrated in Figure 2. It will be noticed that entrepreneurship has very important roles to play in all of the four central ingredients of this model – information and communication, community competence, social capital and economic development.

![Diagram of Community Resilience](image)

Figure 2. Community resilience as a set of networked adaptive capacities.


This important role has been demonstrated in a case study done after Hurricane Katrina in the United States. Chamlee-Wright and Storr (2008) focused on the role of commercial relationships and spaces after disasters. The results of that study showed that social relationships come out of commercial relationships and that the entrepreneurs provide commercial spaces used by the New Orleans population for various functions. These spaces contribute to the recovery after a major disaster by providing a venue for social interaction. Aside from this, entrepreneurs were also found to provide essential goods and service to the devastated population and through this action, created a signal that people are ready to recover and move on thus helping strengthen the social capital in the community (Chamlee-Wright & Storr, 2008, 2014).

**Entrepreneurship**
For the sake of parsimony, entrepreneurship will be defined in this paper as “the process through which new economic activities and organizations come into existence” (Davidsson, 2015, p. 675). While entrepreneurship as a concept, encompass many subjects (Carlsson et al., 2013), researchers do agree that opportunity plays a central role in it (Davidsson, 2015). Kirzner (1973) indicates that alertness to those opportunities is what entrepreneurship is all about.

**Disaster Entrepreneurship**

As cited above, the concept of opportunity is central to entrepreneurship. Disaster settings provide plenty of opportunities for entrepreneurs and as such disaster entrepreneurship can be defined as

attempts by the private sector to create or maintain value during and in the immediate aftermath of a natural disaster by taking advantage of business opportunities and providing goods and services required by community stakeholders (Chamlee-Wright and Storr as cited by Linnenluecke and McKnight 2016, p. 2).

Linnenluecke and McKnight (2006) proposed two general forms of disaster entrepreneurship. Because of the difference in context, it can either be planned or improvised. This is different from the process of new value creation commonly found in the mainstream entrepreneurship literature (M. Linnenluecke & Mcknight, 2015).

**Disaster Entrepreneurship Typology**

Given the scant amount of studies done about the topic of disaster entrepreneurship, this review of related literature had to rely on conceptual papers. Linnenluecke and McKnight’s conceptual paper proposed a disaster entrepreneurship typology based on past exploratory studies and case evidences (M. Linnenluecke & Mcknight, 2015).

Figure 3 below shows the four types of disaster entrepreneurship - entrepreneurial business continuity, improvisation, scaling of organizational responses and emergence – in relation to the community resilience properties. These four can be further described by the type of expansion undertaken by the firm (established structure or adaptive structure) and whether an enterprise’s disaster response involves a change in the role it plays – does it play its usual role or does it have a new or adaptive role. It should be noted that the four typologies represent ideal types but enterprises can mix their responses (M. Linnenluecke & Mcknight, 2015).

Entrepreneurial business continuity means a firm recovering from a disaster by focusing on reopening and continuing pre-disaster operations. Improvisation means a firm changing or creating new roles after a disaster. Scaling of organization responses happens when firms activate pre-established structures to continue providing the goods and services a community needs. Emergence includes the creation of a venture that has never existed before (M. Linnenluecke & Mcknight, 2015).
<table>
<thead>
<tr>
<th>Structural Expansion</th>
<th>Role</th>
<th>New/Adaptive Role</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Scaling of Organizational Responses</strong></td>
<td><strong>Emergence</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Definition:</strong> Firms activate response structures established prior to the disaster (activation) or provide goods and services to communities that need them (scaling)</td>
<td><strong>Definition:</strong> Firm responses that are unique in response to the natural disaster, new venture creation to fill resource voids</td>
<td></td>
</tr>
<tr>
<td><strong>Strategic Orientation:</strong> Opportunistic within existing scope</td>
<td><strong>Strategic Orientation:</strong> Opportunistic and explorative</td>
<td></td>
</tr>
<tr>
<td><strong>Illustration:</strong> External utility firms or construction businesses entering a disaster zone</td>
<td><strong>Illustration:</strong> Crowdsourced collaborations in the aftermath of a disaster to fill unmet community needs</td>
<td></td>
</tr>
<tr>
<td><strong>Resilience Properties:</strong> Rapidity (+); Redundancy (+)</td>
<td><strong>Resilience Properties:</strong> Resourcefulness (+)</td>
<td></td>
</tr>
</tbody>
</table>

| **Entrepreneurial Business Continuity** |**Improvisation** |
| **Definition:** Firms focusing on recovering from a disaster and resuming operations |**Definition:** Firms improvise to either modify their roles or adopt new roles in the face of adversity |
| **Strategic Orientation:** Maintaining income and profitability |**Strategic Orientation:** In vivo. deviation from prior plans |
| **Illustration:** Critical infrastructure providers repairing infrastructure and restoring service to customers; banks setting up mobile ATMs to service customers close to damaged branches |**Illustration:** Walmart’s response following Katrina |
| **Resilience Properties:** Rapidity (+); Robustness (+) |**Resilience Properties:** Rapidity (+); Resourcefulness (+) |


**Business Enterprises and Community Resilience**

After conducting several in-depth interviews with rural enterprise owners in South Australia, Steiner and Atterton (2015) came up with the model below explaining the importance of the rural context and the unique role that rural enterprises play in enhancing rural community resilience.

Steiner and Atterton’s (2015) study provided a more detailed understanding of the important role that private enterprises have in building community resilience. The authors adapted the resilience definition by Magis as “the existence, development, engagement of community resources by community members to thrive in an environment characterized by change, uncertainty, unpredictability and surprise,” (Magis as cited by Steiner & Atterton, 2015, p. 31). Steiner and Atterton (2015) also acknowledged Norris, et. al’s (2008) conceptualization of community resilience as a set of networked capacities. The cited studies by Steiner and Atterton (2015) provided the foundation for their own research and they have added their
conceptualization of community resilience as having economic, social and environmental dimensions.

Figure 4. Steiner and Atterton’s relationship between context, entrepreneurial behavior and community resilience.


The main findings of Steiner and Atterton’s study are that rural enterprises both have direct and indirect impacts on the economic, social dimensions and environmental dimensions of community resilience. Economic impacts include employment creation, product and service delivery, collaboration and networking and the provision of added value and multiplier effect of helping other businesses. The social impacts mentioned include engagement with the community, promotion of community and marketing a geographical area, training opportunities and sponsorship and event support. The key themes associated along the environmental dimension include environmental awareness and natural environment protection (Steiner & Atterton, 2014).

**Conceptual Framework**

With the above review of related literature, this research forwards the theoretical framework below for explaining the role of disaster entrepreneurship in the immediate aftermath of a disaster. It can be observed that the framework is a combination of the two studies cited – that of Linnenluecke and Mcknight’s and Steiner and Atterton’s works.

Bearing in mind the objectives specified, this research seeks to apply the forms of disaster entrepreneurship and how it affects the community resilience with its three dimensions.
Figure 5. Proposed theoretical framework combining the work of Steiner and Atterton and Linnenluecke and Mcknight.

Research Methodology

Study Context

Cainta is a first class municipality that is located in the Marikina Valley with a total area of 26 square kilometers that is 90% of this used for residential-industrial purposes (Municipal Government of Cainta, 2015). As of 2010, it has a population of 311,845 (Philippine Statistics Authority, 2013). In 2008, it was considered the second richest municipality in terms of total income from local sources. In the same year, its total tax revenue amounted to 312,863,560 (Virola, 2010).

In 2009, Cainta was one of the places hit hard by Typhoon Ondoy. The combination of continuous heavy rainfall plus the simultaneous release of flood waters from water dams left thousands of residents in the municipality homeless (Almeda & Albis, 2013).

Cainta was chosen due to its geographical proximity to the National Capital Region. This is also bearing in mind the limitations in time and financial resources available to the researcher in the conduct of this research.

Research Methods

Due to the nature of the research objectives, data will be collected via in depth, semi-structured interviews. This method is deemed the most appropriate because it provides the context that a survey cannot. Interviews provide a richer picture and provide avenues for the researcher to capture insights that might have otherwise been lost in a survey questionnaire (Yin, 2014).
Study Sample

To arrive at a list of potential enterprises to interview, a focus group discussion with the Municipal Administrator and other concerned municipal officials will be done. The focus group discussion needs to be done so that baseline information about micro, small, and medium enterprises could be established. Another objective for doing this is to get the perception of government officials on the contribution of MSMEs to community resilience. This focus group will also be tasked to identify MSMEs that would meet the criteria of having a positive influence on community resilience. Thus, this represents non-probability sampling.

Request for interview letters will be sent to the list of the potential enterprises that will be the product of the focus group discussion. The letter will contain an explanation of the objectives of the study and instructions on how to get in touch with the researcher.

Data Collection

The questions that will be asked during the interviews will revolve around the combined theoretical framework of Steiner and Atterton (2015) and the disaster entrepreneurship typology of Linnenluecke and McKnight (2015). The interviews’ duration is foreseen anywhere from 40 minutes to 90 minutes. All interviewees will be given a consent form and will be assured anonymity. Interviews will be recorded with consent and would then be transcribed. Field notes and observations would also be collected.

Transcripts from the interviews would be read by the researcher. Themes will be identified and a coding system will be described and identified (Saldana, 2009). The N-Vivo software would then be used to systematically analyze the data gathered. Another researcher would then be consulted to provide feedback on the initial coding and result of the analysis. A second iteration would then be done using the feedback given by the independent researcher (Saldana, 2009).

Reliability and Validity and Study Limitations

In order to ensure reliability, all interviewees will be asked the same set of questions. Aside from this, only one researcher will be doing the interview and analysis of the data to avoid inter-interviewer bias and inter-researcher coding problems.

In terms of study validity, it is the aim of the study to derive some over-arching findings that might have potential relevance to other municipalities other than Cainta, Rizal while bearing in mind the importance of contextual factors that might influence natural disaster entrepreneurship.

Triangulation of the data will be achieved through conduct of the literature review, the focus group discussion and the in-depth interviews. The literature provided the foundation for the type of questions that will be asked. However, the focus group and the interviews would still
provide the themes that will be discussed in the findings. Themes that emerge from the focus group discussion will be compared with themes that will emerge from the in-depth interviews.

Despite the above situation, it is important to note the limitations inherent in the data collection method chosen. Interviews consume time and are very difficult to conduct in a big geographical area. The results from the interviews also have limitations because the interviewees might have errors in recalling events, selective perception and the unavoidable possibility of the interviewees wanting to present themselves in a favorable light in front of the interviewer. On top of all these, the interviewees will be subjective and embedded in their context and as such would not be able to give objective data. However, it is important to note that the limitations of interviews are also its strengths. With the expected small sample size, the study does not aim for generalizability of results. The value of the findings of this study is to contribute to the discussion about community resilience.
References


How Philippine Businesses Care for God’s Creation

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Abstract

Catholic Social Teaching refers to the compilation of doctrines of the Roman Catholic Church that have to do with society – essentially, with how people should treat each other and the earth. It is based on the Bible and on encyclicals issued by different popes through the ages, the earliest of which was written in 1740 (Masci, 2014).

In this paper, the authors look at how two businesses based in the Philippines apply the Catholic Social Teaching on care for God’s creation.

Key Words: Catholic Social Teaching; Care for God’s Creation; Environment

“Catholic Social Teaching” (CST) has many definitions, but one of the clearer ones is as follows:

Catholic Social Teaching is the church's presentation and articulation of its reflection on human beings in society. It takes into consideration the various arenas that encompass life in society, including the political, economic, social, and cultural. It sets about naming the realities confronting persons and societies at a given point in time, highlighting the benefits and dangers those realities present to full human flourishing, and critiquing those realities and developments from the point of view of the values and moral vision of the Catholic faith. (Education for Justice, n.d.)

The United States Conference of Catholic Bishops (USCCB) classifies CST into seven themes, as follows: 1) life and dignity of the human person; 2) call to family, community, and participation; 3) rights and responsibilities; 4) option for the poor and vulnerable; 5) the dignity of work and the rights of workers; 6) solidarity; and 7) care for God's creation (USCCB, 2017-a). This paper focuses on the last theme, care for God’s creation.

Care for God’s Creation

The United States Conference of Catholic Bishops (2017-b) lists the Scriptural basis for the need to care for God’s creation. The Bible clearly states that God's creation is good (Genesis 1:1-31, New Living Translation). God owns the heavens and the earth and everything in it (Deuteronomy 10:14, New Living Translation), and one of the functions of creation is to reveal His eternal power and divine nature (Romans 1:20, New Living Translation). People are supposed to take care of God’s creation (Genesis 2:15, New Living Translation), and part of that care involves allowing the land to rest (Leviticus 25:1-7).
The United States Conference of Catholic Bishops (2017-a) also lists the encyclicals that form the basis for the theme on care for God’s creation. These are Pope Francis’ *Laudato Si’ – On Care for Our Common Home* (2015) and *Evangelii Guadium – The Joy of the Gospel* (2013); Pope Benedict XVI’s *Caritas in Veritate – Charity in Truth* (2009); and Pope John Paul II’s *Centesimus Annus – The One Hundredth Year* (1191) and *Sollicitudo rei Socialis – The Social Concern of the Church* (1987).

Many organizations and people have long decried how the environment has been degraded over the ages. However, the Catholic Church has an expanded perspective of the issue in that it believes that “the environmental crisis is a moral challenge. It calls us to examine how we use and share the goods of the earth, what we pass on to future generations, and how we live in harmony with God's creation” (USCCB, 2017-b). In 2015, Pope Francis instituted September 1 as the Day of Prayer for the Care of Creation. On September 1, 2017, the third year of observance, Pope Francis, in conjunction with Bartholomew I, the 270th and current Archbishop of Constantinople, Ecumenical Patriarch, and spiritual leader of 300 million Orthodox Christians worldwide, issued a joint message on the subject, which reads in part:

> The earth was entrusted to us as a sublime gift and legacy, for which all of us share responsibility until, “in the end”, all things in heaven and on earth will be restored in Christ (cf. Eph 1:10). Our human dignity and welfare are deeply connected to our care for the whole of creation. (Vatican Radio, 2017)

The message discusses how people have disrupted the world’s ecosystems in their belief that they own them and in their desire to profit from the earth’s limited resources (Vatican Radio, 2017). The statement continues:

> The human environment and the natural environment are deteriorating together, and this deterioration of the planet weighs upon the most vulnerable of its people. The impact of climate change affects, first and foremost, those who live in poverty in every corner of the globe. Our obligation to use the earth’s goods responsibly implies the recognition of and respect for all people and all living creatures. The urgent call and challenge to care for creation are an invitation for all of humanity to work towards sustainable and integral development. (Vatican Radio, 2017)

The message ends with several pleas including “to hear the cry of the earth and to attend to the needs of the marginalized” (Vatican Radio, 2017).

The integral dimensions of ecological responsibility are as follows:

1. God-centered and sacramental view of the universe, which grounds human accountability for the fate of the earth;
2. Consistent respect for human life, which extends to respect for all creation;
3. World view affirming the ethical significance of global interdependence and the common good;
4. An ethics of solidarity promoting cooperation and a just structure of sharing in the world community;
5. An understanding of the universal purpose of created things, which requires equitable use of the earth’s resources;
6. An option for the poor, which gives passion to the quest for an equitable and sustainable world;
7. A conception of authentic development, which offers a direction for progress that respects human dignity and the limits of material growth. (USCCB, 2017-c)

Sacramental Universe

“Sacrament” in this instance is used in the sense of “something regarded as possessing a sacred character or mysterious significance (Sacrament, 2017). Hebrews 11:3 (New Living Translation) states, “By faith we understand that the entire universe was formed at God’s command, that what we now see did not come from anything that can be seen.” Thus, He is the Creator, and His creation proclaims his glory and power (Psalm 19:1, New Living Translation). God entrusted the earth to Adam’s care (Genesis 2:15, New Living Translation), and as descendants of Adam, we have inherited this responsibility to care for the environment. The earth is the Lord’s (Psalm 24:1, New Living Translation); we are merely stewards and are thus accountable to Him for what we do or neglect to do.

Respect for Life

In Genesis 8:21-22 and Genesis 9:9-11 (New Living Translation), God promised after the Great Flood that He would never again destroy all living things. God planned for creation to reveal His divine nature in different ways, and anything that God plans, we should respect (USCCB, 2017-b). The USCCB further states:

By preserving natural environments, by protecting endangered species, by laboring to make human environments compatible with local ecology, by employing appropriate technology, and by carefully evaluating technological innovations as we adopt them, we exhibit respect for creation and reverence for the Creator. (USCCB (2017-c)

The Planetary Common Good

As early as 1963, Pope John XXIII pointed out the world’s growing interdependence as he witnessed emerging problems that could no longer be solved by individual countries (Pacem in Terris (1963), as cited in (USCCB, 2017-c). Therefore, he enlarged the scope of the common good from individual nations to the global community (USCCB, 2017-c). The common good, as defined by the Catholic Church, refers to “the sum total of social conditions which allow people, either as groups or as individuals, to reach their fulfillment more fully and more easily” (Paul VI, Gaudium et Spes 26).

Some of the most serious environmental problems affect everyone worldwide; however, those who are least responsible are often the most affected (USCCB, 2017-c). Griffin (2017) of the Climate Accountability Institute points out, “Over half of global industrial emissions since human induced climate change was officially recognized can be traced to just 25 corporate and state producing entities.”
The most recent example of the global community’s working for the common good in terms of care of God’s creation is the Paris Agreement, which was signed by 195 countries and ratified by 145 of them. Signatories to this Agreement obligate themselves to fight climate change while supporting developing countries in the latter’s efforts (Harrington and Gould, 2017).

A New Solidarity

Solidarity is one of the seven themes of the Catholic Church (USCCB, 2017-a). The Church defines it as “a firm and persevering determination to commit oneself to the common good; that is to say, to the good of all and of each individual, because we are all really responsible for all (John Paul II, Sollicitudo rei Socialis 38). John Paul II wrote:

The ecological crisis reveals the urgent moral need for a new solidarity, especially in relations between the developing nations and those that are highly industrialized. Only with equitable and sustainable development can poor nations curb continuing environmental degradation and avoid the destructive effects of the kind of overdevelopment that has used natural resources irresponsibly. (John Paul II, as cited in USCCB, 2017-b)

Universal Purpose of Created Things

The USCCB (2017-c) avers, “God has given the fruit of the earth to sustain the entire human family ‘without excluding or favoring anyone’." It also states, “Created things belong not to the few, but to the entire human family” (USCCB, 2017-c). However, in January 2017, Oxfam reported, “Eight men own the same wealth as the 3.6 billion people who make up the poorest half of humanity” (“Just 8 men,” 2017). This situation stands in stark contrast to the Church’s teaching of “a just economic system which equitable shares the bounty of the earth and of human enterprise with all peoples” (USCCB, 2017-c).

Option for the Poor

Creation, according to Pope John Paul II (1991, as cited in USCCB, 2017-c), should be everyone’s property; however, only a few use and often abuse it, causing loss to everyone. When the environment is abused, the poor are usually who suffer the most, and when measures are taken to slow down or reverse the damage to the environment, the rights of the poor should be considered (USCCB, 2017-c). According to CST (USCCB, 2017-c), decision-makers should not have to choose between the good of the environment and the good of workers. If caring for the environment results in job loss (e.g., the closure of an open-pit mine), measures should be taken so that the workers have alternative work that can sustain their families (USCCB, 2017-c).

Authentic Development

Authentic development, according to Benedict XVI (2009, as cited by Sison and Fontrodona, 2011), “must be integral, that is, it has to promote the good of every man and of the whole man,”
and should not be “reduced to the mere accumulation of wealth.” In fact, Alford and Naughton (2001) state that integral human development involves not just the material dimension of the person, but also the spiritual, moral, physical, aesthetic, cognitive, emotional, and social dimensions. However, Pope John Paul II (1991, as cited by USCCB, 2017-c), warned that in man’s desire “to have and to enjoy rather than to be and to grow,” humanity “consumes the resources of the earth subjecting it without restraint...as if it did not have its own God-given purposes.” Thus, Catholic Social Teaching calls for the non-excessive use of natural resources especially by developed nations, and promotes the use of agricultural and industrial technologies to serve people and improve the land (USCCB, 2017-c).

How Philippine Companies Care for God’s Creation

For this study, we will describe how two companies based in the Philippines address the CST on care for God’s creation. The data on these companies are largely sourced from the unpublished undergraduate thesis of Casal, Kahn, Mangubat, & Occeño (2017), and are supplemented by material sourced from the Internet. For the thesis, the students interviewed Ross Harper-Alonso of Finca del Carmen and Charlene Tan of Good Food Community.

Company Profiles

Finca del Carmen

Finca del Carmen is at the foot of Mt. Malarayat, Lipa, Batangas. When the owner and operator, Ross Harper-Alonso, bought the 2.5-hectare farm, it had “been neglected by its previous owner—in a good way. It was virtually untouched jungle. No one had chopped down the trees to turn them into charcoal or slashed and burned everything in sight to plant short term crops. The soil was very fertile.” (Alfonso, 2017)

The business started in 2012. However, it began selling in 2016, after the coffee plants had fully grown. The farm roasts, packs, and sells three blends of single-origin Robusta coffee under the Finca del Carmen Single Origin Estate Coffee brand: Tuyo sa Puno (tree-dried); Tuyo sa Araw (sun-dried); and Hinugas sa Tubig (water-washed). The farm produces five tons of coffee yearly. The coffee is sold at Tesoro outlets and at Real Food, Molito Lifestyle Mall, Alabang (Finca del Carmen, personal communication, September 30, 2017).

Good Food Community

Charlene Tan first heard about community shared agriculture, a distribution model that espouses organic agriculture, while working for a local NGO (Del Mundo, 2016). She and her friends submitted a business plan to the I Am a Changemaker Social Enterprise Programme of the British Council in 2010, and were given a P100,000 grant (Martel, 2010). She started Good Food Community (GFC) with her prayer groupmates in the Christian Life Community of the Philippines (CLC-P) because “we were looking for an apostolate at that time so our collective ears and hearts were ready to try it” (Del Mundo, 2016).
GFC acts as a “benevolent” middleman between customers and farmers. The customers, or “shareholders,” pay in advance for four weeks’ or twelve weeks’ worth of organic produce, which they pick up from any of sixteen community hubs closest to them (Good Food Community, 2017-a). The farmers could then plant and be assured of buyers. However, the business had to “go on hiatus” for a while because sometimes the harvest would be “too light” for the customers’ satisfaction. The company has since reopened with new partners. (Del Mundo, 2016).

GFC is a 2015 finalist of the Developmental Social Enterprise Awards (Developmental Social Enterprise Awards, 2017-a), which are presented by PwC Philippines and the Benita and Catalino Yap Foundation and which seek to “recognize developing and viable organizations that are committed to a social objective, and can be multipliers of social progress through their enterprises” (Developmental Social Enterprise Awards, 2017-b).

How Two Philippine Businesses Care for God’s Creation

Sacramental Universe

Caring for God’s creation begins with an understanding and appreciation of everything that God has created, whether animate or inanimate (USCCB, 2017-c).

Tan of GFC finds farms beautiful.

I find the red insects sitting on a blade of grass beautiful; the way we’re invited for coffee in the morning; the way things grow through you in spite of you. It’s a way to be with each other and the world…I like seeing the plants grow. I also like seeing how communities grow and sometimes I see parallelisms between gardens and people – seeing how the energies interact, thinking about how we can transform relationships, change dynamics, grow harmony. Also I pay attention to the life as it is growing within me. I think it’s beautiful to take steps towards peace. (Biado, 2015)

Similarly, Alonso, the owner of Finca del Carmen, prefers to keep the farm “as close to its natural state as possible… We also wanted our sons to feel a connection to the earth and eat less grocery-sourced food. For myself, I wanted to produce our own food, free from pesticides and harmful chemicals” (Alonso, 2017).

At Finca del Carmen, wild animals such as civets, bats, and owls flourish and can feed on coffee beans. Alonso (2016) finds it “a real trip to watch wild musangs or civets and birds enjoying the berries; she likens it to “watching the National Geographic Channel live.” Alonso (2017) also writes, “It’s no exaggeration to say that when you share the greens you yourself planted and harvested, you also feed your soul. Because there are many moments between the frenetic planting, harvesting and repairs when you can literally just sit back and smell the flowers—which, in the case of coffee, smell and look like jasmine.”

According to Alonso, running a coffee farm is water-intensive; “coffee seedlings need to be hand watered daily if it’s not rainy season, with double or even triple the amount of water in the
summer. Investing in an automated drip irrigation system can cost several thousands [of pesos] but [is] definitely worth it especially on adult coffee trees” (Alonso, 2017). To make the business environmentally sustainable, Finca del Carmen has “an obsession to harvest and save rain water so we don’t deplete our ground water” (Alonso, 2017).

The farm does not use pesticides and other toxic chemicals. Instead, it does the following (Alonso, 2016):

- Compost, vermicompost worms, and seaweed fertilize the soil. “We depend on nature and don’t pump up our trees with chemicals in order to produce more coffee.”
- Farm dogs control the rat problem.
- Free-range chickens and turkeys eat bugs. To combat aphids and fire ants, “we spray Joy [dishwashing] liquid detergent, water and sili labuyo (small chili pepper). Works extremely well as long as you don’t get any in your eyes.”

Alonso (2016) says that part of the farm’s sales supports the Wild Bird Club of the Philippines. The club was established in July 2003 to promote bird watching as a hobby and the responsible enjoyment of nature (Wild Bird Club of the Philippines, n.d.).

Respect for Life

Finca del Carmen and GFC show respect for life through the following ways:

By preserving natural environments: Cutting trees at Finca del Carmen is prohibited. After all, according to Alonso (2016), there is “no harm [in] raising coffee trees in partial shade.” In fact, native flowering plants and fruit trees were planted so that the wild animals would have more food and shelter (Alonso, 2016). The only time that trees were cut was after the property was acquired. “Working alongside the locals we hired to clear the land, we made sure they only cut what wasn’t useful” (Alonso, 2017). Alonso left part of the farm untouched “because you have to have wild land for the wild life.”

On their part, Tan of GFC states that the partners are learning about forest regeneration and seed diversity so that GFC can increase its gene pool of vegetables.

By caring for God’s creatures: Alonso relates that there was a time when people would try to sell civets to her. “I wanted to buy [them] because I knew they were going to die [otherwise], but I told them [the civet sellers] to leave.” She believes that once you start buying, the sellers will construe this as a go-signal to keep on selling the animals in the province. She paraphrases National Geographic, “The killing will stop when the buying stops.”

Alonso also claims that her farm is the only place in the area where nobody hunts. When she once found traps in her forest, she simply removed them. “We take out the traps, so everyone knows it’s bawal (not allowed).”
By employing appropriate technology, and by carefully evaluating technological innovations before adopting them: The operations of Finca del Carmen are intentionally “low tech.” The farm website declares:

Our Robusta coffee trees were hand planted. Hand weeded and watered for the 1st 3 years of their lives before rain watered and supplemented by drip irrigation. Just think as close to natural farming as possible. The surrounding fruit orchard, shaded areas and moderate alttitude they are grown in contributes to the sweetness of every hand picked coffee bean to produce the highest quality coffee…[The coffee is] organically grown [and the beans are] manually selected. (Finca del Carmen, n.d.)

Alonso explains:

Our beans are washed and sun dried just a few feet from where they were harvested like [in] the old days. We’re not high tech at all. Finca del Carmen coffee farm doesn’t produce on a big scale. Low volume. High value. (Alonso, 2016)

The Planetary Common Good

While human-induced climate change has been caused by huge corporations and state entities (Griffin, 2017), all organizations can contribute to improving the environment, or at least not ruining it further, for everyone’s benefit. The USCCB (2017-c) states that “the universal common good can serve as a foundation for a global environmental ethic.”

Finca del Carmen has a greenhouse, where tomatoes, cabbage, lettuce, and other vegetables are grown. Alonso has also invested in a solar-panel coffee bean dryer, which does not emit carbon dioxide the way an electric dryer does.

According to Alonso (2016), the farm staff have realized the importance of caring for the environment. She points out that “solid waste segregation and recycling has become a way of life [for] them (the farm staff) and no longer just rules.”

Tan (as cited in Bueno, 2017) asserts that so much pesticide is used to make regular vegetables look nice. Farmers, such as those in La Trinidad, Benguet, have told her that they would like to grow chemical-free crops, but organic farming is more expensive and “we need to send our kids to school.” Tan was challenged to find a market that would willingly pay fair prices (Bueno, 2017).

GFC used to wrap its produce in plastic, but has since switched to eco-friendly packaging such as bayong (sturdy native bags woven from buri palm leaves) and paper bags.

A New Solidarity

Solidarity promotes cooperation and just sharing of resources, burdens, and profits. Such cooperation and sharing is purposeful and determined, with the goal of improving the good of each individual (USCCB, 2017-c). While the Church talks about the need for solidarity between
developed and developing nations (USCCB, 2017-c), this teaching can also be applied between the more affluent and the less affluent citizens of a nation.

After buying the farm, Alonso hired laborers from the community to clear the land and to construct the house and the infrastructure for processing coffee beans. Seeing that they could be trained, Alonso taught them how to plant and harvest crops organically. Initially, they were stubborn and very sensitive, and would frequently get drunk. So Alonso also had to teach them values and good manners. Alonso said that she could have hired skilled farmers from the very start, but her effort was worth it because now the lives of the farmers and their families have improved.

To build trust with her four permanent employees, Alonso meets with them regularly and uses psychology in talking with them. She believes that “you don’t have to get angry; you make it a joke.” This approach has helped her in tutoring them on farm rules and good manners. Alonso sets high expectations, which the employees eventually meet. She cherishes “the feeling that you’ve made a positive change in the lives of your staff, as they become part of your team.”

Alonso shoulders the hospital bills of her four farmer employees and their families. She provided toothbrushes and toothpaste to them to improve their oral hygiene. When the barangay lost access to clean water after typhoon Glenda (international name: Rammasun) hit it in 2014, Alonso constructed a shower room on the farm for the use of everyone in the barangay. Also, the wife of one of the farmers is in charge of and knows how to use the farm’s first aid kit.

Tan explains the solidarity between GFC and the farmers:

> Our solidarity is expressed in a number of tangible ways such as face-to-face dialogues and joint learning visits. Whenever there is some venture or idea or change in policy, we meet face to face to discuss and figure out a way forward. You must understand, however, that they are communities in themselves so they have their own process as we [as a team] have ours. This is all a grand process of us learning to work together as one good food community…The point of it all is for people to be involved in farming – not just as a passive consumer but as someone with a stake, as someone who cares, as a member of a community. (Tan, as cited by Del Mundo, 2016)

She also points out the solidarity between the farmers and the consumers. Because the consumers pre-pay “subscriptions” for produce for four or twelve weeks, a relationship is born between the two parties whereby the consumers becomes “co-producers” and stakeholders (Del Mundo, 2016). Under this set-up, the stakeholders run the risk of not receiving little or no produce if, say, a typhoon has ruined the crops and the farmers have nothing to harvest (Kharchenko, 2018).

Everyone also shares in the risk. The subscription means that stakeholders get to see both the thick and thin of the harvests. If a storm has damaged the crops, or if nothing is ready to harvest for that week, then the stakeholders also have to accept that reality.
Stakeholders can also visit the farms. “My heart smiles remembering them… It’s always lovely bringing people with a sense of wonder and awe (Del Mundo, 2016).

Tan also states:

I thought this [GFC] was a beautiful and elegant solution to our modern disconnectedness. I thought it would be great for our farmers to have a steady demand; it would be great for people like me who would like to eat better and more responsibly. It would be great for society if there were some bridge for us to help one another, to be in community. (Tan, as cited by Del Mundo, 2016)

In one interview, Tan muses:

We have to deal with different groups. One of them is consumers and urban communities. We have to educate them how to cook different vegetables and be flexible with what they get from farmers instead of strictly following a recipe. The first thing is to let it be, not controlling every step and appreciating what nature gives you. We do what we do, not only for social good, but also for environment, we teach consumers to be more conscious, satisfied with what they have without wanting always more and more. The second group we work with are the farmers. They speak a different language. I have a framework [for] how I see and describe the world: social justice, sustainability, social enterprise, bottom line… But when I’m talking to farmers I have to figure out what language they speak and adjust to it. Be open to their world, their way of thinking and their attitude. (Entrepreneur Impet Ltd., 2016)

Universal Purpose of Created Things

The Catholic Church teaches that God created the earth and everything in it for the use and enjoyment of the whole of mankind, but it recognizes that private property helps people meet their and their families’ basic needs (Catechism, n.d.). However, the fruit resulting from human work and the use of the private property should also benefit other people.

Alonso writes:

Farm staff are our treasure. They’ve made Finca del Carmen their home and embraced new found values and rediscovered old ones. Their meals consist of vegetables they cultivate for everyone to share and from the fishpond where we raise tilapia (St. Peter’s fish) and kohol (snails). The days of running to the sari-sari store (neighborhood convenience store) for a can of sardines or instant noodles are gone. (Alonso, 2016)

Alonso also states that a percentage of the farm’s profits goes to the farmers “who've helped us work the land and care for the coffee trees from the beginning” (Finca del Carmen, n.d.).

Tan relates a similar anecdote:
“In Capas, I was told that they didn’t feel the lean months because of the vegetables that they were able to both eat and sell steadily.” The farmers no longer have to fear the periods of hunger as they wait for the next harvest.” (Del Mundo, 2016)

One of GFC’s goals is to fund greenhouses that can shield farmers’ produce from bad weather and thus ensure constant harvests for stakeholders (Kharchenko, 2015) and steady incomes for the farmers.

Option for the Poor

The Catholic Church states that caring for the environment and caring for the poor and the marginalized are not mutually exclusive goals (USCCB, 2017-c). Doing one but not the other would make us no different from the Pharisees whom Jesus accused of being careful to tithe even the tiniest income from their herb gardens, but who ignored the more important aspects of the law—justice, mercy, and faith” (Matthew 23:23, New Living Translation).

Both Tan and Alonso state that growing and harvesting things organically and in an environmentally friendly manner is more expensive than, say, relying on pesticides and conventional electric dryers (Bueno, 2017; Casal et. al, 2017)

Despite the higher equipment and operating costs, however, Alonso does not scrimp on the salaries of the farm’s four regular employees to minimize her total costs. Rather, the farmers receive the minimum wage of P444 required for Metro Manila instead of the minimum wage of P267 (National Wages and Productivity Commission, 2016) mandated for the Calabarzon area, of which Batangas is part. (The wage difference at the time of the interview with Alonso was 66 per cent.) She states, “The payment here is more than enough to feed their families…In terms of alaga (caring), they’re the most alaga daw here.” (Finca del Carmen, n.d.).

Similarly, GFC’s community shared agriculture model has purchase guarantees and fixed prices to protect the farmers, who can then plant without having to worry if sales of their produce will be profitable, or if their produce will be bought at all (Del Mundo, 2016). These fixed prices are not cheap. Based on the Facebook posts, the produce costs are as follows:

<table>
<thead>
<tr>
<th>Produce Package</th>
<th>Price (in Pesos)</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>Gulay Pambahay</em> (Household vegetables): 3.5 kg. of seasonal hearty and leafy veggies with a variety of 9 to 12 vegetables</td>
<td>580</td>
</tr>
<tr>
<td>Salad Pack: 0.5 kg. mix of salad greens such as Mizuna, Lollo Rossa, Carlo Rossa, Arugula, Green Ice, Iceberg, Romaine, spinach, kale, herbs, and a sprinkling of hearty veggies that can be eaten raw</td>
<td>300</td>
</tr>
<tr>
<td>Juicing Pack: 2 kg. of hearty vegetables mixed with a bundle or two of leafy vegetables</td>
<td>420</td>
</tr>
</tbody>
</table>

Table 1. Good Food Community Vegetable Packages. Source: Good Food Community (2017).

GFC’s packages are more expensive than vegetables sold in markets and most supermarkets. Tan (as cited in Bueno, 2017) explains, “I can’t compete with *palengke* (market) prices, because those are practically what we pay our farmers at the farmgate. And then to bring their produce to
the market, I have to pay for the freight cost, quality control, what dies along the way, and even the assurance that they are farming in a way that respects the soil.” Instead of selling the produce in markets and supermarkets, GFC sells through community hubs (e.g., restaurants, coffee shops) in Metro Manila, mostly based in Pasig and Quezon City (Good Food Community, 2017-b).

According to Tan, GFC is not currently profitable, but she hopes it will be in the future. GFC sets prices with its farmer partners based on the situation of each farmer and. For example, in Capas, farmers are paid higher than local market prices. To determine the selling price, GFC first multiplies the purchase price by two, and then adjusts it based on the situation of the farmer. Factors that affect the margin are the type of market, the volume of the produce, and the perishability of the items.

When the farmers’ produce does not meet GFC’s standards but is still edible, GFC gives it away to feeding programs (Good Food Community, May 11, 2017).

Similarly, Finca del Carmen does not sell in supermarkets. It sells its coffee solely through Tesoro outlets and Real Food, Molito Lifestyle Mall, Alabang (Finca del Carmen, personal communication, September 30, 2017). The coffee costs P280 or P380 per 250-gram pack (Finca del Carmen, October 26, 2016). Alonso also accepts orders through text or email.

Authentic Development

The Catholic Church teaches that material wellbeing is just one aspect of integral human development (Alford & Naughton, 2001), and that the desire for financial prosperity should not result in the wanton use of the earth’s limited resources (USCCB, 2017-c). It calls for the use of “agricultural and industrial technologies to serve people and improve the land” (USCCB, 2017-c).

Alonso takes an active interest in the families of her regular farmers. For instance, one farmer had a son who could not read, so Alonso taught him how to spell by using Scrabble. As a result, the boy was accepted into a better school that Alonso had persuaded the boy’s parents to enroll him in despite the higher tuition and fees. Alonso states that the boy is doing well in school. Alonso also has scholars; one of them has finished a vocational course and now works in Dubai. Such initiatives on Alonso’s part develops not only the financial wellbeing of the farmers and their families but even the cognitive development of their children.

The operations of Finca del Carmen can be summarized in Alonso’s (2016) statement: “We run a happy and healthy coffee farm.”

GFC’s farming methods hark back to the old, sustainable ways of growing produce. But what make GFC different from other organizations that sell organic produce are its business model and process. According to Tan, no other group works as closely with the farmers as GFC does. In fact, Tan and her partners familiarize themselves with the stories of each farmer and his or her “dynamics.” Thus, it is not only the farmers’ material wellbeing that improves; their social wellbeing is also nurtured through these relationships.
Tan believes that social entrepreneurship is a calling, which necessitates getting rid of “materialism, consumerism, and modern notions of development” and instead “living an authentic life” (Tan, as cited by Biado, 2015).

GFC’s mission is to “change the world with food” (Tan, as cited by Biado, 2015). “We say this as an invitation to everyone because we can’t do it alone. It’s a call to responsibility, a call to community. We want the greater conversation made possible by this initiative.”

Says Tan (as cited by Calpo, 2014), “Good Food Community is about building an alternative, shaping a new kind of market, and enabling a culture of sharing.” She points out that mainstream farming does not favor farmers; thus, she ensures that GFC practices collaboration and accountability and builds strong relationships (Calpo, 2014). “I think prioritizing this helped us grow organically.”

Tan dreams of a tomorrow in which farmers’ health and their income can be achieved simultaneously, and in which the land is not treated with toxic chemicals. GFC envisions a world “where we can all live healthy and generously, where we can all slow down and celebrate what the earth gives us” (Tan, as cited by Biado, 2015).

The ways by which the two companies care for God’s creation are summarized in Table 2 below.

<table>
<thead>
<tr>
<th>Dimension</th>
<th>Finca del Carmen</th>
<th>Good Food Community</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sacramental universe</td>
<td>The farm owner enjoys watching wild animals enjoying the coffee berries.</td>
<td>GFC main owner enjoys seeing plants, animals, and communities grow and how their energies interact. She thinks about how GFC can transform relationships, change dynamics, and grow in harmony.</td>
</tr>
<tr>
<td></td>
<td>The farm owner feels that sharing the harvest with others feeds the soul.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>The farm owner invested in an automated drip irrigation system to harvest rain water and conserve ground water.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>The farm does not use pesticides and other toxic chemicals.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Part of the farm’s sales supports the Wild Bird Club of the Philippines.</td>
<td></td>
</tr>
<tr>
<td>Respect for life</td>
<td>Finca del Carmen has a greenhouse and a solar-panel</td>
<td>GFC owners encouraged farmers to grow their produce</td>
</tr>
</tbody>
</table>

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<p>| Universal purpose of created things | Farmers can freely eat the vegetables, tilapia, and snails raised on the farm. Farmers receive, in addition to their wages, a percentage of the farm’s profits. | GFC’s farmer partners no longer fear lean months because they can eat and sell their organic produce. GFC aims to fund greenhouses for its farmer partners. |
| New solidarity | Farm owner shared her knowledge in organic farming with the carpenters who built the farm so that they could become farmers and have a regular source of income. Farm owner built a shower room for use of the community after a strong typhoon struck the area and left the village residents without access to clean water. Farm owner shoulders the hospital bills of her employees and their families. Farm owner tutored her employees on farm rules and good manners, and involves them in discussions concerning farm matters. Farm employees can eat the vegetables and fish that grown in the farm for free. | GFC owners have joint learning visits and face-to-face dialogues with the farmers about ideas and policy changes. GFC owners teach consumers and urban communities how to be flexible and cook whatever vegetables they receive. GFC owners adjust to the language, way of thinking, and attitudes of the farmers whom they partner with. |</p>
<table>
<thead>
<tr>
<th>Option for the poor</th>
<th>Farmers receive the higher Metro Manila minimum wage instead of the Calabarzon minimum wage. The regular farmers receive a percentage of the farm’s profits.</th>
<th>GFC has purchase guarantees and fixed prices to assure the farmers of buyers even before the farmers plant.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Authentic development</td>
<td>Children of farmers are taught by the owner or receive scholarships, resulting in the children’s cognitive development.</td>
<td>GFC owners familiarize themselves with the farmers’ life stories and dynamics, resulting in the farmers’ social development.</td>
</tr>
</tbody>
</table>

Table 2. Summary of How Finca del Carmen and GFC Care for God’s Creation

Conclusion

Both Finca del Carmen and GFC have practices that address the different dimensions of caring for God’s creation. In fact, although each practice was classified under one dimension, some practices can or actually address more than one dimension. For example, both Finca del Carmen and the farmers whom GFC partners with do not use pesticides. This practice supports the concept of stewardship, with humans taking care of and living responsibly within God’s creation (USCCB, 2017b). It also indicates respect for life, so that, for example, only aphids and fire ants are eliminated, but plants and other animals are not harmed. It shows solidarity with the farmers, who could otherwise be poisoned if pesticides were used. Finally, it supports authentic development, because the use of organic alternatives benefits the customers physically and prevents destruction of the land.

However, in their quest to have environment-friendly operations, both Finca del Carmen and GFC are incurring higher costs than companies with similar products but more mainstream practices. For example, Finca del Carmen invested in an automated drip irrigation system, which costs several thousands of pesos, to conserve ground water, and in a solar-panel coffee bean dryer, which does not emit carbon dioxide the way an electric dryer does. It also pays its farmer employees wages that are higher than the minimum wage required for the Calabarzon area.

In contrast, since GFC does not grow its own produce, its biggest expense is the purchase prices that it pays its farmer partners. According to Tan, GFC pays the farmers about the equivalent of the selling prices of produce in supermarkets.

Both companies have deliberately chosen to be more environmentally friendly, and this choice has resulted in higher product and operating costs. To remain viable, they have to resort to premium pricing of their products. As a result, both companies do not and cannot sell to mass markets, and instead distribute through limited outlets that are patronized by their target markets.

Based on their experience, the cost of doing business in compliance with CST is higher than the cost of doing business in the traditional, profit-maximizing way. If all companies were to follow
the examples of Finca del Carmen and GFC, the implication is that their costs would also go up, and such costs would be passed on to consumers. Would consumers consider the additional costs as commensurate to the value of CST-compliant products? This could be the topic of further research.

References


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Finca del Carmen (October 26, 2017). We’re accepting orders. We roast in small batches by order: Black P380/250 grams. Silver & Gold P280 / 250 grams. Available in ground and beans. Buyer shoulders LBC delivery charges. Payment by bank deposit at following banks Chinabank, BPI, BDO. Contact Ross at 09172041052 or email rossharperalonso@gmail.com. Retrieved from https://www.facebook.com/Fincadelcarmenph/


Good Food Community (May 11, 2017). CLAIMED! We’ve got another round of veggies up for grabs for any feeding centers or programs in Metro Manila. Unfortunately our trusty Kuya Center isn’t available so hit us up and pick em up at the office! [Facebook status update]. Retrieved from https://www.facebook.com/pg/goodfoodcommunity/posts/?ref=page_internal


Session E - Human resource management
Leadership Competence and Organizational Culture in Banking Institutions: Towards a Synthesized Leadership and Organizational Culture Framework

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Abstract

This research adapted the Wagner et.al (2012) leadership competency and Denison (2006) organizational culture frameworks to the member-banks of the Nueva Vizcaya Banker’s Association to help them develop a synthesized leadership and organizational framework. After establishing the profile of the bank and its respondents, the study investigated the bank administrators’ leadership competencies and the banks’ organizational culture, difference on the bank administrators’ leadership competencies and banks’ organizational culture when the respondents are grouped according to the respondents’ and banks’ profile, and the significant correlation between the bank administrators’ leadership competencies and the perceived organizational culture assessment. Using a combination of both quantitative and qualitative methods, the study found out that the financial intermediaries in Nueva Vizcaya are mostly rural banks, mostly young and have not received an award and employ 20 or less employees. Most of the respondents are mostly female aged 40 years and below, finished a bachelor’s degree, permanent and bank employee and have been in the bank for more than 1 year to 6 years. Generally, the bank administrators display a high level of leadership competencies and the bank’s organizational culture is a strong factor to the bank managers and employees. Moreover, it was also found out that the perception on the bank administrators’ leadership competencies and banks’ organizational culture vary in terms of the respondents’ and banks’ profile. Furthermore, the leadership competencies of bank administrators have significant positive relationship with organizational culture. A synthesized leadership and organizational culture framework was also designed to guide the bank examine their administrators’ leadership competencies and its organizational culture.

Keywords: financial intermediaries; management; leadership organizational culture framework
1. Introduction

Leaders have a substantive effect on the success of individual careers and overall organizational performance. They initiate action, motivate, provide guidance, create confidence, promote teamwork, and build morale. In other words, good leadership builds, encourages, and promotes a strong organization culture. CEOs understand that they cannot run companies on their own; therefore, one critical role of a CEO is to find and develop leaders (Lussier, 2012).

In the case of banks, administrators and managers as stated in the Banking Law of 2000 must perform the following functions and responsibilities to effectively carry out the purposes and objectives of the bank: (1) effecting internal control on the conduct of the bank operations and ensuring compliance with laws, regulations, and directives in force; (2) providing the board of directors of the bank with periodical status reports, ensuring that all of the bank's activities are carried out according to the board of director's policies, and recommending to the board of directors any proposals he deems necessary for improving the business of the bank; and (3) providing the Central Bank with information and data required by the provisions of this law and the regulations and orders issued pursuant. Aside from the functions and responsibilities assigned to them, it is also important to note that they also have to lead their employees.

The absence of leadership is equally dramatic in its effects. Without leadership, organizations move too slowly, stagnate, and lose their way. Many of the literatures about organizations stress on the importance of decision-making, which implies that if decision-making is timely, complete, and correct, then things will go well. Yet a decision by itself changes nothing. After a decision is made, an organization faces the problem of implementation—how to get things done in a timely and effective way (Mills, 2005).

Miller, et al. (2001) identified two primary reasons why organizations use leadership competencies: (1) to help increase the performance of employees via appraisal, training, and other personnel practices; and (2) to articulate corporate values and objectives.

The leadership competency framework is an integral element of the leadership development process whereby it is used to define the content and mechanism of delivery and to help individuals measure and explore their own level of development (Wagner, et al., 2012).

Every organization has its own way of doing things that influences virtually every aspect of working life—from how long coffee breaks are to how products and services are sold. Thus, organizational culture refers to the underlying values, beliefs, and principles that serve as a foundation for an organization's management system, as well as the set of management practices and behaviors that both exemplify and reinforce those basic principles. These principles and practices endure because they have meaning for the members of an organization. They represent strategies for survival that have worked well in the past and that the members believe will work again in the future.

Cultures can grow to be extremely strong, reinforced by common values, behavior patterns and practices, with many close connections between deeply held assumptions and
visible concrete behaviors. When a culture is strong, it can have very powerful consequences. It can enable a group to take rapid and coordinated action to respond to a competitor or to satisfy a customer. Unfortunately, during changing times, a strong culture can also lead intelligent people to walk, in concert, off a cliff (Denison & Neale, 1996).

Schein (1992) observes that organizational culture and leadership are intertwined. He illustrates this interconnection by looking at the relationship between leadership and culture in the context of the organizational life cycle. Thus, during the process of organizational formation, the founder of a company creates an organization which reflects their values and beliefs. In summarizing the consensus of opinion on the links between organizational culture and leadership, Bass and Avolio (1993) mirror the argument of Schein (1992) by suggesting that the relationship between the two concepts represents an ongoing interplay in which the leader shapes the culture and is in turn shaped by the resulting culture.

Since the early to mid-1970s, organizational downsizing has become an omnipresent feature of a multitude of corporations and governmental agencies throughout the industrialized world (Littler, 1998). The prime catalyst for the majority of downsizing activities is the objective of a reduction of costs (Cascio, 1993), an increase of an organization’s levels of efficiency, effectiveness, productivity (Gandolfi, 2002), and competitiveness (Cameron, 1994), and thus an organization’s overall performance (Thornhill & Saunders, 1998). Therefore, the major raison d’être of any downsizing endeavor is to make an organization more competitive compared to its rivals (De Vries & Balazs, 1997). A significant amount of research has been done to ascertain the success rate of mergers and acquisitions in banks to be able to draw conclusion on its profitability and efficiency (Behr and Heid, 2011). It was pointed out that despite the considerable prospective U.S banking mergers in the 1970s, many of them were not successful in achieving their aim due to cost of efficiency. Banks have diverse reasons why they merge which relates to the business motives behind it like managerial incentives (Wood, 2006). The banking industry was partly strengthened through mergers and acquisitions as they use the merged assets to build a strong capital base for the bank and more assets that have appreciated value.

Moreover, the banking industry worldwide is being transformed. The global forces for change include technological innovation; the deregulation of financial services at the national level and opening-up to international competition; and changes in corporate behavior, such as growing disintermediation and increased emphasis on shareholder value. In addition, recent banking crises in Asia and Latin America have accentuated these pressures. The banking industries in Central Europe and Latin America have also been transformed as a result of privatizations of state-owned banks that had dominated their banking systems in the past (Hawkins & Mihaljek, 2000).

The General Banking Law of 2000 also cites the declaration of policy where the State recognizes the vital role of banks in providing an environment conducive to the sustained development of the national economy and the fiduciary nature of banking that requires high standards of integrity and performance. In furtherance thereof, the State shall promote and maintain a stable and efficient banking and financial system that is globally competitive, dynamic and responsive to the demands of a developing economy.
In the province of Nueva Vizcaya, there are 25 member-banks of the Nueva Vizcaya Bankers’ Association (NVBA). The association was organized by the heads of banks in Nueva Vizcaya (1) to promote the common welfare of the member-banks; (2) to provide a forum for the discussion of problems and issues affecting member-banks; (3) to adopt uniform banking practices; (4) to promote camaraderie and fellowship among the officers and employees of member-banks through social, cultural, and athletic activities; (5) to provide insurance aid among the officers and employees of member-banks; and (6) to be involved with community service. Currently, among them are four (4) commercial banks, ten (10) rural banks, two (2) thrift banks, seven (7) universal banks, one (1) government bank, and one (1) cooperative bank.

An assessment of the leadership competencies of these banking institutions will help the managers to be aware of their competencies, know their own shortcomings, and focus on developing these competencies in themselves or be able to recognize these qualities in others so they can select people who compensate for their weaknesses. It is very important to determine the organizational culture of the banking institutions to uncover the cultural traits of the organizations.

With the data presented above, this study intended to investigate the leadership competencies and organizational culture in banking institutions in Nueva Vizcaya. The results shall be used to develop a synthesized leadership and organizational culture framework.

1.1. Statement of the Problem

Generally, this study aimed to determine the leadership competencies of bank administrators and organizational culture of banking institutions in Nueva Vizcaya as perceived by both bank administrators and employees which will eventually help in the development of a synthesized leadership and organizational culture framework.

Specifically, this study sought answers to the following questions:

1. What is the profile of the banking institutions in terms of the following:
   1.1. Classification of banks;
   1.2. Years of existence;
   1.3. Awards and recognitions received; and
   1.4. Number of employees?

2. What is the profile of the bank administrators and employees in terms of the following:
   2.1. Sex;
   2.2. Age;
   2.3. Highest educational attainment;
   2.4. Position in the bank;
   2.5. Nature of employment; and
   2.6. Number of years of experience?
3. What is the level of leadership competencies of the bank administrators as assessed by both the bank administrators themselves and their employees along the following areas:

3.1. Self- management
   3.1.1. Work habits;
   3.1.2. Work Attitudes;
   3.1.3. Stress management;
   3.1.4. Self- insight; and
   3.1.5. Learning.

3.2. Leading others
   3.2.1. Communicating;
   3.2.2. Interpersonal awareness;
   3.2.3. Motivating others;
   3.2.4. Developing others; and
   3.2.5. Influencing.

3.3. Task management
   3.3.1. Executing Task;
   3.3.2. Solving Problems;
   3.3.3. Managing Information and Material Resources;
   3.3.4. Managing Human Resources; and
   3.3.5. Enhancing Performance.

3.4. Innovation
   3.4.1. Creativity;
   3.4.2. Enterprising;
   3.4.3. Integrating Perspectives;
   3.4.4. Forecasting; and
   3.4.5. Managing Change.

3.5. Social responsibility
   3.5.1. Civic responsibility;
   3.5.2. Social knowledge;
   3.5.3. Ethical processes;
   3.5.4. Leading others ethically; and
   3.5.5. Acting with integrity.

4. What is the assessment of the respondents on the organizational culture of their bank along the following areas:

4.1. Involvement
   4.1.1. Empowerment;
   4.1.2. Team Orientation; and
   4.1.3. Capability.

4.2. Consistency
   4.2.1. Core values;
   4.2.2. Agreement; and
4.2.3. Coordination and Integration.

4.3. Adaptability
   4.3.1. Creating change;
   4.3.2. Customer focus; and
   4.3.3. Organizational learning.

4.4. Mission
   4.4.1. Strategic Direction and Intent;
   4.4.2. Goals and Objectives; and
   4.4.3. Vision.

5. Is there a significant difference on the perceived leadership competencies of the bank administrators when respondents are grouped according to (a) their profile variables and (b) the institutional profile variables?

6. Is there a significant difference in the assessment of organizational culture when the respondents are grouped according to (a) their profile variables and (b) institutional profile variables?

7. Is there a significant correlation between the leadership competencies of the bank administrators and the perceived organizational culture assessment?

8. What leadership competency and organizational culture framework can be developed to improve the operations of these banking institutions?
2.2. Conceptual Framework

Profile of Banking Institutions in terms of:
1. Classification of banks
2. Years of existence
3. Awards and recognitions received
4. Number of employees

Profile of the Respondents (Bank administrators and employees)
1. Sex
2. Age
3. Highest Educational Attainment
4. Position
5. Nature of employment
6. Number of years of work experience

Leadership Competencies
1. Self-management
2. Leading others
3. Task management
4. Innovation
5. Social responsibility

Organizational Culture
1. Involvement
2. Consistency
3. Adaptability
4. Mission

Figure 2. Research Paradigm

The research parading above shows the stages or processes in the research study. It commenced with the input of the study which includes the profile of the banking institutions in terms of bank classification, years of existence, awards and recognitions received, and number of employees. The respondents’ profile includes sex, age, highest educational attainment, position in the organization, nature of employment and the number of years of work experience. As for the process, the leadership competency of the bank administrators is determined using Wagner, et al.’s (2012) framework on leadership competencies in terms of self-management, leading others, task management, innovation and social responsibility. Also part of the process is the determining of the organizational culture of banking institutions using Denison’s Organizational Culture Model along the areas of involvement, consistency, adaptability and mission. The significant difference of the leadership competencies of the bank administrators when grouped according to (a) their profile variables and (b) the profile variables of banking institutions; the significant difference in the assessment of organizational culture when the bank administrators and employees are grouped according to (a) their profile variables and (b) institutional profile variables; and significant correlation between the leadership competencies and the perceived organizational culture assessment are determined. As presented in the previous studies, organizational culture and leadership are interrelated. This study therefore aimed at finding out
the bank administrators’ leadership competencies of the respondents and bank administrators and employees’ perception on the banks’ organizational culture.

The results of the relationships established are the bases for the development of a synthesized leadership and organizational culture framework that can be adapted by banking institutions in the Province of Nueva Vizcaya.

2. Methodology

2.1. Research Design

This study employed the descriptive method of research, particularly comparative and evaluative sub-types. The descriptive type of research endeavors to describe systematically, factually, accurately and objectively a situation, problem or phenomenon. Evaluation rating sheets in the form of questionnaires were administered to the bank administrators and employees to assess the bank administrators’ leadership competencies as well as their organizational culture. A questionnaire checklist, unstructured interview and documentary sources were used to gather the needed data.

2.2. Research Environment

This study was conducted in Nueva Vizcaya as the banks included in the study are members of the Nueva Vizcaya Bankers’ Association (NVBA). NVBA was organized by the heads of banks operating in Nueva Vizcaya to create, promote and foster professionalism, fellowship, and camaraderie among all the member-banks.

Table 1. Member-banks of the Nueva Vizcaya Bankers’ Association and their Classification

<table>
<thead>
<tr>
<th>Classification</th>
<th>Member-banks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Commercial Banks</td>
<td>Rizal Commercial Banking Corporation branch</td>
</tr>
<tr>
<td></td>
<td>Philippine Savings Bank branch</td>
</tr>
<tr>
<td>Rural Banks</td>
<td>Agribank</td>
</tr>
<tr>
<td></td>
<td>Banco Lagawe branch</td>
</tr>
<tr>
<td></td>
<td>GM Bank branch</td>
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<tr>
<td></td>
<td>RB Bagabag</td>
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<tr>
<td></td>
<td>RB Dupax</td>
</tr>
<tr>
<td></td>
<td>RB Solano</td>
</tr>
<tr>
<td></td>
<td>RB Villaverde</td>
</tr>
<tr>
<td></td>
<td>Vizcaya Bank</td>
</tr>
<tr>
<td>Thrift Banks</td>
<td>Cordillera Savings Bank, Inc.</td>
</tr>
<tr>
<td></td>
<td>Producers Bank branch</td>
</tr>
<tr>
<td>Universal Banks</td>
<td>Banco de Oro branch</td>
</tr>
<tr>
<td></td>
<td>China Banking Corp. branch</td>
</tr>
<tr>
<td></td>
<td>East West Banking Corp. branch</td>
</tr>
<tr>
<td></td>
<td>Metropolitan bank and TCO branch</td>
</tr>
<tr>
<td></td>
<td>Philippine National Bank branch</td>
</tr>
<tr>
<td></td>
<td>United Coconut Planters Bank branch</td>
</tr>
</tbody>
</table>
2.3. Respondents of the Study

The respondents of the study were the six bank administrators and 191 employees of the 21 member-banks of the Nueva Vizcaya Bankers’ Association (NVBA) who were available during the conduct of the study. They were selected as respondents of the study considering their experiences as bank administrators and employees.

2.4. Research Instruments

The primary gathering tool of the study was an adapted questionnaire from Wagner, et al. (2012) and Denison, et al. (2012), which consists of three major parts.

Part I-A covers the profile variables of the banking institutions in terms of their classification, years of existence, number of employees and awards and recognitions received.

Part I-B consists of the respondents’ profile in terms of sex, age, highest educational attainment, position in the bank, nature of employment and number of years of work experience.

Part II-A comprises of the perception of the bank administrators and employees of the bank administrators’ leadership competencies along the areas of self-management, leading others, task management, innovation, and social responsibility.

Part II-B consists of the leadership competency problems and the proposed solution forwarded by both the bank administrator and employees.

Part III-A consists of the Denison Organizational Culture Survey (DOCS). It assesses the organizational culture of the banking institutions along the areas of involvement, consistency, adaptability, and mission. The table below shows the table of specification for the organizational culture.

Part III-B consists of the organizational culture problems and the proposed solution forwarded by both the bank administrator and employees.

2.5. Data Gathering Procedures

The researcher went to the library and read books and online literatures and journals for the formulation of the questionnaire. The survey questionnaire was subjected for further review before its approval and validation. The list of Nueva Vizcaya Bankers’ Association member-banks was taken from an officer of the association. The researcher asked the approval of the managers of the different banking institutions before the distribution of the survey questionnaire was administered. After the approval, the researcher personally administered the distribution of the adapted survey-questionnaire. The survey questionnaire was retrieved after the respondents had answered them. Separate interviews were also conducted to bank administrators and employees.

<table>
<thead>
<tr>
<th></th>
<th>Philippine National Bank (Allied) branch</th>
</tr>
</thead>
<tbody>
<tr>
<td>Government Banks</td>
<td>Development Bank of the Philippines branch</td>
</tr>
<tr>
<td>Cooperative Banks</td>
<td>Cooperative Bank of Nueva Vizcaya</td>
</tr>
</tbody>
</table>

207
employees to validate the responses. Documents about the Nueva Vizcaya Bankers' Association, brochures, and newsletters were also requested from different banks to supplement the data in the study.

2.6. Statistical Treatment of Data

To analyze the data gathered, the following statistical tools were used:

**Frequencies and Percent Values** were used to determine the profile of the respondents and the respondents of the banking institutions.

**Means and Standard Deviation** were used to determine the bank administrators’ leadership competency level along the areas of self-management, leading others, task management, innovation and social responsibility and the organizational culture of banking institutions along the areas of involvement, consistency, adaptability, and mission.

**Independent Samples T-test, ANOVA, Games-Howell Post Hoc test for ANOVA, Hochberg, and Robust test** were used to identify the significant difference in the bank administrators’ leadership competencies when the respondents are grouped according to (a) their profile variables and (b) institutional profile variables.

**Independent Samples T-test, ANOVA, Hochberg, Robust test, and Games-Howell Post Hoc test for ANOVA** were used to identify the significant difference in the assessment of organizational culture when the respondents are grouped according to (a) their profile variables and (b) institutional profile variables.

**Pearson r correlation test** was used to determine the significant correlation between the leadership competencies and the perceived organizational culture assessment.

3. Results and Discussion

1. Out of the 21 banks studied, 38.10% were rural banks, 33.30% were universal banks, 9.50% equally belonged to commercial and thrift banks, and 4.80% each were government and cooperative banks. In terms of years of existence, 33.30% have been operating for 10 years and below, then followed by 41 years and above (28.60%), 31 to 40 years (23.80%), and 21 to 30 years (14.30%). In terms of awards and recognitions received, 18 or 85.70% of the banks did not have awards while 3 or 14.30% had received awards. In terms of number of employees, 76.20% of the banks have employed 20 employees and below. The rest have employed 21 employees and above.

2. Female respondents (64 %) had the higher population than the male respondents (36 %). Out of 197 respondents, 165 or 83.80% were 40 years old and below, and the rest were more than 40 years old. About 98% of the bank employees had bachelor’s degree while a smaller number had postgraduate degrees. Bank employees (97%) outnumbered bank administrators (3%). Permanent employees were greater in number (88.30%) compared to probationary (7.60%) and contractual employees (4.10%). The majority of the respondents served the bank
for more than are 1 year to 6 years (41.7%). The rest of the respondents served the banks for either less than one year (18.2%) or more than 6 years.

3. Overall, leadership competencies were rated as “high” along the areas of task management, innovation and social responsibility while “very high” on the areas of self-management and leading others. Generally, the leadership competencies of bank administrators were rated as “high”.

4. Involvement, consistency, adaptability and mission had “strong” influence to the bank administrators and employees’ attitudes and behavior.

5. Significant difference on the leadership competencies when grouped according to:
   a. **Sex.** Male and female respondents manifested the same level of competence (i.e. no significant difference exists) along all the five areas namely self-management, leading others, task management, innovation and social responsibility.
   b. **Age.** All age groups manifested the same level of competence (no significant difference) along all areas namely self-management, leading others, task management, innovation and social responsibility.
   c. **Highest educational attainment.** Both groups (bachelor’s degree and postgraduate degree) manifested the same level of competence (no significant difference) along the areas of self-management, leading others, task management, innovation, and social responsibility.
   d. **Position.** Bank administrators and employees manifested the same level of competence (no significant difference) along self-management, leading others, task management, innovation, and social responsibility.
   e. **Nature of employment.** Probationary, contractual, and permanent did not differ significantly in their assessment on the leadership competencies of bank administrators (p-values<0.05).
   f. **Number of years of work experience.** The respondents significantly differed in their self-management, leading others, task management, innovation and social responsibility dimensions (p-values<0.05) in relation to their work and experiences in the bank.
   g. **Classification of banks.** The respondents significantly differed in their self-management, leading others, task management, innovation, and social responsibility dimensions (p-values<0.05).
   h. **Years of existence.** The respondents significantly differed in their self-management, leading others, task management, innovation and social responsibility dimensions (p-values<0.05).
   i. **Number of employees.** Regardless of the number of employees, the respondents manifested the same competency for self-management, leading others, task management, innovation and social responsibility (p-values>0.05).
   j. **Awards and recognitions.** Those with awards had significantly higher level of competencies on the mentioned areas than those banks without awards. However, they manifested the same competency for self-management, leading others, task management, innovation and social responsibility (p-values>0.05). It can be noted that banks with awards performed better in communication, managing human
resources, enterprising, integrating perspectives and civic responsibility as compared to banks with no awards.

6. **Significant Difference in the assessment of organizational culture when the respondents are grouped according to their profile variables and institutional profile variables**

   a. **Sex.** Sex was not a determinant of their level of assessment (p-values>0.05). Overall, male respondents did not significantly differ from female respondents on their assessment of organizational culture (p-value=0.357).

   b. **Age.** The respondents significantly differed in mission (p-value=0.018). The respondents did not significantly differ in the other areas of organizational culture when grouped according to age.

   c. **Highest educational attainment.** When grouped according to highest educational attainment, the respondents significantly differed in involvement (p-value=0.041). Based on the means, bachelor’s degree holders had significantly lower assessment in these aspects than post-graduate degree holder. It could be noted that bachelor’s degree respondents had the same level of assessment with the post degree respondents in terms of consistency, adaptability, and mission.

   d. **Position.** When grouped according to position, the respondents displayed the same perception along the areas of involvement, adaptability, and mission. However, there was a significant difference in the area of consistency where bank employees gave significantly higher assessment on consistency of the organizational culture of the banks than bank administrators.

   e. **Nature of employment.** Using Brown-Forsythe test, there were no significant differences among the different groups (p-values>0.05).

   f. **Number of years of work experience.** When grouped according to number of years of experience, the respondents differed significantly in their assessment of organizational culture (p-values>0.05). The difference in the assessment of organizational culture is attributed to their work and experiences in the bank.

   g. **Classification of banks.** There existed a significant difference among the respondents when grouped according to banks’ classification (p-values<0.05) in all the areas of involvement, consistency, adaptability, and mission.

   h. **Years of existence.** There existed a significant difference among the different banks as assessed by administrators and employees in all the areas of organizational involvement, consistency, adaptability and mission, there exists a significant difference among the respondents when grouped according to the banks’ years of existence (p-values<0.05).

   i. **Number of employees.** Using ANOVA, it was found that in the areas of involvement, consistency, adaptability and mission, and in the overall organizational culture, there were no significant differences among the respondents when grouped according to their banks’ number of employees (p-values>0.05).

   j. **Awards and recognitions.** In terms of its overall organizational culture, banks with awards had significantly higher level of assessment than those banks with no awards at all (p-value=0.004). Banks with awards had stronger organizational culture than banks with no awards.
7. Significant Correlation between the leadership competencies and the perceived organizational culture assessment

    a. Test of significance of the different leadership competencies and organization culture under involvement. Work habits, work attitude, stress management, self-insight and learning under self-management dimension had significant positive correlation with empowerment, team orientation, and capability development under involvement (r>0, p-values<0). Communicating, interpersonal awareness, motivating others, developing others and influencing under leading others also had significant positive correlation with empowerment, team orientation and capability development under involvement (r>0, p-values<0). Under task management, executing task, solving problems, managing information and material resources, managing human resources and enhancing performance also had significant positive correlation with empowerment, team orientation and capability development under involvement (r>0, p-values<0). Creativity, enterprising, integrating perspectives, forecasting and managing change under innovation also had significant positive correlation with empowerment, team orientation and capability development under involvement (r>0, p-values<0). Civic responsibility, social knowledge, ethical processes, leading others and acting with integrity under social responsibility also had significant positive correlation with empowerment, team orientation and capability development under involvement (r>0, p-values<0). In general, under self-management, leading others, task management, innovation, and social responsibility dimensions, it was found that the respondents’ leadership competencies had significant positive correlation with all the aspects of their organizational involvement (r>0, p-values<0.05). Moreover, the strongest relationship existed between leadership competencies and capability development (r=0.649, p-value=0).

    b. Test of correlation with test of significance of the different leadership competencies and organization culture under consistency. Work habits, work attitude, stress management, self-insight and learning under self-management dimension had significant positive correlation with core values, agreement, and coordination under organizational consistency (r>0, p-values<0). Communicating, interpersonal awareness, motivating others, developing others, and influencing under leading others also had significant positive correlation with core values, agreement and coordination under organizational consistency (r>0, p-values<0). Task management, executing task, solving problems, managing information and material resources, managing human resources and enhancing performance also had significant positive correlation with core values, agreement and coordination under organizational consistency (r>0, p-values<0). Creativity, enterprising, integrating perspectives, forecasting and managing change under innovation had significant positive correlation with core values, agreement and coordination under organizational consistency (r>0, p-values<0). Civic responsibility, social knowledge, ethical processes, leading others and acting with integrity under social responsibility had significant positive correlation with core values, agreement and coordination under organizational consistency (r>0, p-values<0). In general, under self-management, leading others, task management, innovation, and social responsibility dimensions, it was found that the respondents’ leadership competencies had significant positive correlation with all the aspects of their organizational consistency.
(r>0, p-values<0.05). Moreover, the strongest relationship existed between the overall leadership competencies and core values (r=0.648, p-value=0).

c. **Test of significance of the different leadership competencies and organization culture under adaptability.** Work habits, work attitude, stress management, self-insight and learning under self-management dimensions had significant positive correlation with creating change, customer focus and organizational learning under organizational adaptability (r>0, p-values<0). Communicating, interpersonal awareness, motivating others, developing others and influencing under leading others also had significant positive correlation with creating change, customer focus and organizational learning under organizational adaptability (r>0, p-values<0). Under task management, executing task, solving problems, managing information and material resources, managing human resources and enhancing performance had significant positive correlation with creating change, customer focus, and organizational learning under organizational adaptability (r>0, p-values<0). Creativity, enterprising, integrating perspectives, forecasting and managing change under innovation had significant positive correlation with creating change, customer focus, and organizational learning under organizational adaptability (r>0, p-values<0). Civic responsibility, social knowledge, ethical processes, leading others and acting with integrity under social responsibility had significant positive correlation with creating change, customer focus, and organizational learning under organizational adaptability (r>0, p-values<0). In general, under self-management, leading others, task management, innovation, and social responsibility dimensions, it was found that the respondents' leadership competencies had significant positive correlation with all the aspects of their organizational adaptability (r>0, p-values<0.05). Moreover, the strongest relationship existed between the overall leadership competencies and creating change (r=0.505, p-value=0).

d. **Test of correlation with test of significance of the different leadership competencies and organization culture under mission.** Work habits, work attitude, stress management, self-insight and learning under self-management dimension had significant positive correlation with the organization’s strategic direction and intent, goals and objectives and vision under the organization’s mission (r>0, p-values<0). Communicating, interpersonal awareness, motivating others, developing others and influencing under leading others had significant positive correlation with the organization’s strategic direction and intent, goals and objectives, and vision under the organization’s mission (r>0, p-values<0). Under task management, executing task, solving problems, managing information and material resources, managing human resources and enhancing performance had significant positive correlation with the organization’s strategic direction and intent, goals and objectives, and vision under the organization’s mission (r>0, p-values<0). Creativity, enterprising, integrating perspectives, forecasting and managing change under innovation had significant positive correlation with the organization’s strategic direction and intent, goals and objectives, and vision under the organization’s mission (r>0, p-values<0). Civic responsibility, social knowledge, ethical processes, leading others and acting with integrity under social responsibility had significant positive correlation with the organization’s strategic direction and intent, goals and objectives, and vision under the organization’s mission.
(r>0, p-values<0). In general, under self-management, leading others, task management, innovation, and social responsibility dimensions, it was found that the respondents’ leadership competencies had significant positive correlation with all the aspects of their organizational mission (r>0, p-values<0.05). Moreover, the strongest relationship existed between the overall leadership competencies and organizations’ strategic direction and intent (r=0.505, p-value=0).

4. Conclusions and Recommendations

Conclusions

Based on the findings of the study, the following conclusions are drawn:

1. Most of the financial intermediaries in Nueva Vizcaya are rural banks. Most of the banks operating in the province are still young considering that the origin of the bank is from other cities/provinces. Most of them have no awards and employ 20 employees and below.

2. Most of the respondents are females aged 40 years and below, finished a bachelor’s degree, permanent, bank employees and have been in the bank for more than 1 year to 6 years.

3. The bank administrators of the Nueva Vizcaya Bankers’ Association display high leadership competence.

4. The bank’s organizational culture highly affects the underlying values, beliefs and principles which serve as a foundation for an organization’s management system.

5. Bank administrators’ leadership competencies are related to respondents’ number of years of work experience and bank’s classification, years of existence, and awards and recognition.

6. Banks’ organizational culture are related to the respondents’ age, highest educational attainment, position, number of years of work experience, bank classification, years of existence, number of employees, and awards and recognitions.

7. Bank administrators’ leadership competencies are related to organizational culture.

Recommendations

In light of the findings of the study, the following are recommended:

1. **Nueva Vizcaya Bankers Association.** They should continue strengthening the association to promote its purpose through the discussion of problems and issues affecting member-banks and the adoption of uniform banking practices.
2. **Bank administrators.** They should conduct a human resource inventory to determine how many employees are needed and to address the problem on overloading of work and frequent multi-tasking of employees. Regular meetings and daily huddles should be maintained to disseminate information regularly to the staff and to address work-related issues and concerns. Aside from the work-related trainings provided to employees, it is also suggested that the bank should provide activities that will help develop the employee to improve holistically (for instance, personality development seminars). It is also recommended that to avoid the overloading of work, job description should be reviewed and it should be well-defined. It is recommended that communication with other branches be strengthened. Compensation package should be reviewed considering that other banks offer a competitive salary over other banks. The banks in the province should consider the leadership and organizational culture framework for adoption to evaluate their existing leadership and organizational culture which will lead them to improve their human resource relationship.

3. **Bank employees and staff.** They should take advantage of regular meetings and daily huddles to open to their supervisors the problems they encounter in the workplace (for instance, shortage of manpower, overloading of work) including their professional development (for example, trainings and seminars). They should learn how to manage their time and work to avoid stress in the workplace.

4. **Bank customers.** They should be open to the bank so that the management will be able to determine what the expectations of the clients are. They should be open in providing feedback to the company to help them improve in their service.

5. **Future researchers.** They may also consider looking into the effect of leadership competencies and organizational culture on the banks’ financial stability as an offshoot of the study. A study including the non-member banks of the Nueva Vizcaya Bankers’Association can also be conducted in relation to the bank administrators’ leadership competencies and banks’ organizational culture. Furthermore, a study on the clients’ perception on the promotion of bank can also be considered.

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Entrepreneurial Competencies and Management Practices of Nueva Vizcaya and Benguet Microentrepreneurs: Towards the Development of a Competency-based Training Plan

Harrison T. Villanueva, Catalina K. Acpal, Eleanor C. Domingo, Marvin G. Eslava, and Monaloufel Rosario J. Hernandez

Saint Mary’s University

Abstract

This research assessed the level of entrepreneurial competencies and management practices of selected microentrepreneurs engaged in personal services in Nueva Vizcaya and Benguet, particularly those with 5 years or less of business experience. This is with the purpose of coming-up with a benchmark for extension services. This study employed descriptive-quantitative method to generate and analyze the data. In assessing the entrepreneurial competencies and the level of their management practices, the Personal Entrepreneurial Competencies (PEC) adapted from Management Systems International (MSI) and McBer Team as cited by Azarcon, Ernie Roy S. (2008) and the Management Practices Survey Tool developed by Dr. Eric Parilla (2013) were used. In analyzing the entrepreneurial characteristics, these were categorized into the three domains of achievement, planning and power competencies while the management practices were in the areas of marketing, human resource management and financial management. The levels of entrepreneurial competencies and management practices were subjected to comparison and association tests using Means, Spearman rho, Mann Whitney U and Friedman Test with pairwise analysis for the sources of variations. Results showed that Nueva Vizcaya microentrepreneurs manifest stronger entrepreneurial competencies as compared to Benguet microentrepreneurs. For both groups, the power competencies showed moderate level as compared to strong levels for both of the achievement and planning competencies. This further showed that power competencies are significantly lower than their achievement and planning competencies. In terms of management practices, both groups showed high levels in all areas. Specific levels of management practices along the areas of marketing, human resource management and financial management showed significant difference from each other which implies that microentrepreneurs’ level of management practices vary in each area. In order to address the issues arising from the results of the study, a competency-based training plan for the School of Accountancy and Business Extension Services is developed.

Key Words

Keywords: entrepreneurship; management; competencies; extension services
1. Introduction

In the developing countries, micro and small enterprises (MSEs) contain the largest part of the business fabric and are among the most significant growth agents in society. MSEs give millions of the underprivileged around the world the opportunity of earning money, training, work experience and employment (Berner, Gomez & Knorringa, 2008).

With such important contribution of MSEs in creating employment, income and other economic opportunities, entrepreneurship is now accepted as an important phase of development. Nowadays, entrepreneurship is the key instrument in stirring various nations’ economic advancement and competitiveness (Scarborough and Zimmerer 2003; Kuratko and Hodgetts 2004). Likewise, entrepreneurship is considered as one of the best economic growth strategies to increase a country’s economic status and/or sustain the country’s competitiveness in the face of growing inclination to globalization (Venkatachalam and Waqif 2005). Research studies suggest that better entrepreneurial atmosphere leads to a sustainable economic growth and crucial to move from managed economy to entrepreneurial economy (Audretsch, Jagannadha and Keilback 2009). Moreover, most studies have revealed that there is a positive relationship between entrepreneurship and economic development in terms of work opportunities, business’s continued survival and technological transformation (Lena and Wong 2003; Karanassios, N & Pazarskis, M., 2006).

Despite the acknowledged significance of MSEs to local economy, most MSEs are stagnating with only a few of them managing to grow with mere 20 employees. This is observed across developed and developing economies. In Sierra Leone, Bangladesh, Jamaica, Honduras, Thailand and Egypt, it was found out that only 1 per cent of enterprises with four workers or fewer managed to upgrade into the next size category (Mead 1994, Leidholm 1998 and Milagrosa 2014). In Kenya, enterprise advancement rates are either zero or so low that no policy intervention could address the situation (Cotter 1996 and Milagrosa 2014). These findings indicate the need for targeted policy interventions supported by empirical evidence – specially to inspire MSEs and develop the private sector’s potential to be engines of economic growth in the developing countries (Milagrosa, 2014).

In the Philippines, MSEs contribute only around 25 per cent of the country’s total gross value added or GVA (www.nscb.gov.ph). “Empirical evidence shows that most small enterprises never develop the business beyond a certain level and only a small number of them manages to upgrade to the next level of productivity, income and employment” (Berner, Gomez & Knorringa 2008). Thus, despite the number of MSEs in the private-sector led business environment, they do not maximize their potential contribution to the economy.

Focusing on Nueva Vizcaya and Benguet’s entrepreneurship follows the national condition. These provinces have also exhibited huge potentials in terms of building its local economy on MSMEs particularly that of micro and small enterprises. Nueva Vizcaya and Benguet are predominantly agriculture, but micro and small enterprises provide the value chain for agricultural products to reach the market and end consumers. Based on the location quotients for Micro, Small and Medium Enterprises in Nueva Vizcaya, the province is over-represented in
micro, and small categories, with a few medium and large industries (Nueva Vizcaya PDPFP 2011-2019). This implies that these firms are providing more than the local requirement of Nueva Vizcaya, thus have the potential for exports. It also further implies that Nueva Vizcaya has a high likelihood to develop economic based industries with micro and small enterprises. However, the province exhibits the same stagnation and low contribution issues. On the other hand, the Cordillera region is represented by mostly micro enterprise and few large enterprises, mostly in economic zones located in Baguio City and Benguet. Benguet has shown huge growth in terms of the growing number of micro and small enterprises. “But it is noted that there was lack of balance in the number of business establishments engaged in the agriculture, manufacturing, and services, which are the top three sectors contributing to the region’s economy” (Lacsama, 2016).

A lot of reasons can be attributed to the low contribution and stagnation of the enterprise. A lot has also been said about external factors such as lack of policy interventions or government support, unfavorable business environment and market failures as causes of low performance of MSEs (Vahlhaus et. al 2005, Chironga et.al 2012). On the internal factors, a number of researches have focused on the entrepreneurial competencies as the driving force to thrive in a competitive industry (Adegbite et.al 2006, Bautista et.al 2007, Depositario et.al 2011, De Vera 2012, Parilla 2013, Laguador 2013 and Paladan 2015).

The researchers hypothesize that competencies and management practices are huge reasons for the slow growth of MSEs. Thus, this study aims to dig deeper into the internal factors affecting the MSE’s performance in the local business environment. To build on the current studies on competency and management issues, the researchers aim to zero in on the personal entrepreneurial competencies and management practices of the business owners. This aim supports the government’s 10-point agenda (Duterte 10-point agenda) on investing in human capital development since the output of this research is the identification of competencies and the outcome is a competency-based training plan for local microentrepreneurs. This human capital development goal also contributes to the other points of the government agenda on increasing competitiveness of local enterprise and promoting rural enterprise productivity.

Considering that services have been one of the strongest and fast-growing sectors of the Philippine economy, with a gross value added contribution reaching 57% in 2014, focusing on microentrepreneurs in this sector will cover a greater number of enterprises and entrepreneurs. While this contribution is considered as huge by most analysts, there is still a huge potential for increasing the value-added in services outputs, as well as the deepening participation in the global value chains.

The aim of this study is to assess the level of personal entrepreneurial competencies and extent of management practices of microentrepreneurs in the personal sector of Nueva Vizcaya and Benguet. It specifically aims at assessing the achievement, planning and power competencies of these entrepreneurs, as well as their management practices along the areas of marketing, human resource management and finance.
The result of this study will be used as a benchmark and input to the preparation of a Competency-based Training Plan. The Plan shall focus on strengthening the entrepreneurial and managerial practices of microentrepreneurs engaged in personal services in Nueva Vizcaya and Benguet, particularly those with 5 years or less of business experience, which will eventually lead to the development of a competency-based training plan for the local microentrepreneurs.

1.1. Objectives of the Study

This study aimed to assess the level of entrepreneurial competencies and management practices of microentrepreneurs engaged in the personal services in Nueva Vizcaya and Benguet. The result will be a basis for the preparation of a competency-based training plan.

Specifically, this study sought to answer the following:

1. Determine the level of Personal Entrepreneurial Competencies (PEC) of microentrepreneurs in Nueva Vizcaya and Benguet along the three domains of:

   1.1. achievement competency cluster covering:
      1.1.1. opportunity seeking
      1.1.2. persistence
      1.1.3. commitment to work contract
      1.1.4. demand for quality and efficiency
      1.1.5. risk taking,

   1.2. planning competency cluster covering:
      1.2.1. goal setting
      1.2.2. information seeking
      1.2.3. systematic planning and monitoring,

   1.3. power competency cluster covering:
      1.3.1. persuasion and networking
      1.3.2. self-confidence

2. Determine the level of management practices in terms of:
   2.1. marketing
   2.2. human resources
   2.3. finance

3. To determine the significant difference among the level of Personal Entrepreneurial Competencies (PEC) of the microentrepreneurs in Nueva Vizcaya and Benguet.

4. To determine the significant difference among the level of management practices of the microentrepreneurs in Nueva Vizcaya and Benguet.

5. To determine the correlation between the levels of Personal Entrepreneurial Competencies (PEC) and levels of management practices of the microentrepreneurs in Nueva Vizcaya and Benguet.
6. To compare the levels of Personal Entrepreneurial Competencies (PEC) and management practices between Nueva Vizcaya and Benguet microentrepreneurs

7. To identify issues on the entrepreneurial competencies and the management practices encountered by the microentrepreneurs in Nueva Vizcaya and Benguet.

8. To develop strategic actions that will help the microentrepreneurs through a competency-based training plan.

2.2. Conceptual Framework

The paradigm of the study indicates that a competency-based training plan is based on the assessment of the entrepreneurial competencies and management practices of the micro entrepreneur-respondents. The identified respondents will be subjected to a self-rating competency test and management practice questionnaire. The association between the competency ratings and the level of good management practices will be determined. Entrepreneurial competency and management practice issues will also be identified which will set the focus of the competency-based training plan.

The investigation and assessment of the entrepreneurial competencies will use an already established tool, the Personal Entrepreneurial Competencies (PEC) of entrepreneurs adapted from Management Systems International (MSI) and McBer Team as cited by Azarcon, Ernie Roy S. (2008). This competency assessment will cover the three domains namely: achievement, planning and power competency clusters. In assessing the level of the management practices along the areas of marketing, human resources and finance, the tool developed by Dr. Eric S. Parilla published in July 2013 at the International Journal of Academic Research for Business and Social Sciences shall be used.
2. Methodology

2.1. Research Design

The study adopted the descriptive-correlational method of research to describe and assess the current entrepreneurial competencies and management practices of microentrepreneurs in Nueva Vizcaya and Benguet. This is the most appropriate design since the study aims to determine levels of entrepreneurial competencies and management practices and further aims to associate these two categories and compare these competencies across locations.

2.2. Research Environment

The study took place in the provinces of Nueva Vizcaya and Benguet. Nueva Vizcaya is one of the provinces of Region II. Its developmental role in the entire region rests in its position as the agro-forestry hub and educational center of the region. In terms of MSEs, Nueva Vizcaya ranks third to Cagayan and Isabela, but by a huge margin. Benguet has similar economic structure with that of Nueva Vizcaya. It is economic backbone is agriculture and enterprises are predominantly micro in scale or size. However, in terms of regional ranking, Benguet ranks first among the provinces in the Cordillera Administrative Region (www.dti.gov.ph).

2.3. Respondents of the Study

The respondents covered the micro-enterprises operating in selected municipalities in Nueva Vizcaya namely: Bayombong, Bambang, Solano, Bagabag and Aritao as well as those within Baguio and La Trinidad in Benguet, who are engaged in personal service enterprise, registered with DTI and are operating for 5 years or less are the respondents of the study. This is because the ultimate goal of this study is to prepare a competency-based training plan for microentrepreneurs. This training plan shall focus on strengthening the entrepreneurial and managerial competencies of microentrepreneurs with less years of experience in the industry.

Out of total number of micro enterprises engaged in the personal services sector in Nueva Vizcaya and Benguet, 51 are from Nueva Vizcaya and 46 from Benguet. The summary of the profile of respondents is presented in Tables 1.1 and 1.2.
Table 1.1: Profile Characteristics of Nueva Vizcaya Enterprises on Personal Services, 2016

<table>
<thead>
<tr>
<th>Mode</th>
<th>Interpretation</th>
</tr>
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<tbody>
<tr>
<td>Age of owner</td>
<td>Owners are mostly young adult (35 years old and below)</td>
</tr>
<tr>
<td>Sex of owner</td>
<td>Owners are mostly male</td>
</tr>
<tr>
<td>Highest educational attainment of owner</td>
<td>Owners are mostly college undergraduate and below of educational attainment</td>
</tr>
<tr>
<td>Number of seminars attended by owner</td>
<td>Owners have no seminars attended</td>
</tr>
<tr>
<td>Membership to organization</td>
<td>Owners are not members of any organization</td>
</tr>
<tr>
<td>Years of operation</td>
<td>Enterprises are in operation for 1 to 1.99 years from the time of survey</td>
</tr>
<tr>
<td>Type of business</td>
<td>Beauty salon or parlor are mostly the type of business</td>
</tr>
<tr>
<td>Form of ownership</td>
<td>Ownership is sole proprietorship</td>
</tr>
<tr>
<td>Number of workers</td>
<td>Most enterprises have an average of 2 workers hired</td>
</tr>
<tr>
<td>Source of capital</td>
<td>Source of capital is mostly from personal money or savings of the owner</td>
</tr>
</tbody>
</table>

Table 1.2: Profile Characteristics of Benguet Micro Enterprises on Personal Services, 2016

<table>
<thead>
<tr>
<th>Mode</th>
<th>Interpretation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age of owner</td>
<td>Owners are mostly young adult with age range of 35 years old and below</td>
</tr>
<tr>
<td>Sex of owner</td>
<td>Owners are mostly female</td>
</tr>
<tr>
<td>Highest educational attainment of owner</td>
<td>Owners are college graduate</td>
</tr>
<tr>
<td>Number of seminars attended by owner</td>
<td>Owners have attended at least one (1) seminar</td>
</tr>
<tr>
<td>Membership to organization</td>
<td>Owners are not members of any organization</td>
</tr>
<tr>
<td>Years of operation</td>
<td>Most enterprises have been in operation for less than a year during the time of survey</td>
</tr>
<tr>
<td>Type of business</td>
<td>Common type of business is on repair services (for automotive, gadgets, appliances and industrial equipment)</td>
</tr>
<tr>
<td>Form of ownership</td>
<td>Ownership is sole proprietorship</td>
</tr>
<tr>
<td>Number of workers</td>
<td>Enterprises have mostly 1 worker hired</td>
</tr>
<tr>
<td>Source of capital</td>
<td>Source of capital is mostly from personal money or savings of the owner</td>
</tr>
</tbody>
</table>

2.4. Research Instruments

The researchers made use of a survey questionnaire as its primary data gathering materials. The first part consists of the Personal Entrepreneurial Competencies (PEC), a self-rating questionnaire composed of three domains: achievement, planning and power clusters. This is adapted from the Management Systems International (MSI) and McBer Team as cited by Azarcon, Ernie Roy S. (2008). The second part is the Management Practice survey questionnaire, also a self-rating questionnaire developed by Dr. Eric Parilla covering the areas of marketing,
human resource management and finance. Informal conversations with the micro-scale entrepreneurs were done to identify issues encountered by them.

The tool, although adopted was subjected to reliability tests. Results show a Cronbach’s Alpha of greater than 0.70. Thus, the instrument passed reliability test

Table 1.3: Reliability Tests for Data Gathering Tool

<table>
<thead>
<tr>
<th>Questionnaire</th>
<th>N of Items</th>
<th>Cronbach's Alpha</th>
</tr>
</thead>
<tbody>
<tr>
<td>Personal Entrepreneurial Competency</td>
<td>50</td>
<td>0.770</td>
</tr>
<tr>
<td>Management Practice Questionnaire</td>
<td>36</td>
<td>0.948</td>
</tr>
<tr>
<td>Both questionnaires</td>
<td>86</td>
<td>0.912</td>
</tr>
</tbody>
</table>

Acceptable Cronbach’s alpha = .70

2.5. Data Gathering Procedures

The researchers wrote a letter to the Department of Trade and Industry to get the list of registered micro-scale entrepreneurs operating in the municipalities of Bayombong, Solano and Bambang. After the respondents were identified using a purposive sampling method, the researchers conducted a site visit to the target areas and seek permission from target respondents before the survey questionnaire was administered. During the floating of survey questionnaires, interviews and observations were also conducted to be able to validate the responses of the respondents and to triangulate the data and data sources. The data was encoded using the in SPSS and a statistician was consulted for the data analysis. Interpretation of data was done after the consultation.

2.6. Statistical Treatment of Data

2.6.1. Quantitative Data:

The data gathered involve largely quantitative data. For entrepreneurial competency, the PEC scores were determined using the PEC tool. The method used in processing the mean scores of individual components (opportunity seeking to self-confidence) is as prescribed in the Manual for Starting a Business prepared by the ASEAN-EU University Network Programme (2005). Each item corresponds to a competency component. As prescribed by the mentioned method, some items have to be added or subtracted to get a total score (which represents the mean competency score).
Table 1.4: Descriptive Rating for Entrepreneurial Competence

<table>
<thead>
<tr>
<th>Statistical Range</th>
<th>Descriptive Rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>20-25</td>
<td>Very strong</td>
</tr>
<tr>
<td>15-19</td>
<td>Strong</td>
</tr>
<tr>
<td>10-14</td>
<td>Moderate</td>
</tr>
<tr>
<td>5-9</td>
<td>Fair</td>
</tr>
<tr>
<td>0-4</td>
<td>Weak</td>
</tr>
</tbody>
</table>

Table 1.5: Descriptive Rating for Levels of Management Practice

<table>
<thead>
<tr>
<th>Statistical Range</th>
<th>Descriptive Rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>3.5 – 4.0</td>
<td>Very highly practiced</td>
</tr>
<tr>
<td>2.5 – 3.4</td>
<td>Highly practiced</td>
</tr>
<tr>
<td>1.5 – 2.4</td>
<td>Moderately practiced</td>
</tr>
<tr>
<td>0.5 – 1.4</td>
<td>Slightly practiced</td>
</tr>
<tr>
<td>0.0 – 0.4</td>
<td>Not practiced</td>
</tr>
</tbody>
</table>

To answer the inferential question on the difference among the level of Personal Entrepreneurial Competencies (PEC) of microentrepreneurs and level of management practices in Nueva Vizcaya and Benguet, the Friedman Test and pairwise comparison was used. The Spearman Rho shall be used to describe the relationship between the entrepreneurial competency scores and levels of management practice.

2.6.2. Qualitative Data:

Interview with the respondents was used to triangulate the data and to substantiate the analysis from the quantitative data. Review of related literatures and studies were also used to provide comparisons of results as well as to corroborate the over-all results.

3. Results and Discussion

Section 3.1. The Level of Personal Entrepreneurial Competencies (PEC) of Nueva Vizcaya and Benguet Microentrepreneurs

Table 3.1.1: Level of PEC – Achievement Competency of Nueva Vizcaya and Benguet Microentrepreneurs

<table>
<thead>
<tr>
<th>Achievement Competency Components</th>
<th>Nueva Vizcaya</th>
<th>Benguet</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean</td>
<td>SD</td>
</tr>
<tr>
<td>Opportunity seeking</td>
<td>16.06</td>
<td>1.702</td>
</tr>
<tr>
<td>Persistence</td>
<td>16.63</td>
<td>2.059</td>
</tr>
</tbody>
</table>
Table 3.1.1 shows that Nueva Vizcaya microentrepreneurs have a mean score of 16.06 for opportunity seeking, 16.63 for persistence, 16.24 for commitment to work contract, 22.00 for demand for quality and efficiency, and 14.78 for risk taking with an over-all competency score of 16.00. The same holds true for Benguet microentrepreneurs because their mean scores in the first four areas (16.48, 15.67, 15.93 and 16.30) suggest that they are strong in the said areas, but moderate in the fifth area (15.63).

The over-all achievement competency score implies a strong competency. This further implies that most of the time, microentrepreneurs in both provinces engaged in business activities characterized by the presence of all the achievement competency components. Although a strong competency is registered on an over-all level, the risk-taking competency showed moderate level. This implies that risk-taking activities or decisions are only often practiced or are observed by the respondent-entrepreneurs. This level of risk-taking is manifested in the type of personal service-business the respondents are commonly engaged into. In Nueva Vizcaya, most of them are into beauty salon or parlor while in Benguet, most of them are engaged in repair services.

This moderate level of “risk taking” can be best explained by the fact that “an entrepreneur takes moderate risks if he knows he has good prospect of success” (Calvin, 2003). Beauty salon or parlor has proven to have good prospects as evident by the growing number of these enterprises in all town centers.

Table 3.1.2: Level of PEC- Planning Competency of Nueva Vizcaya and Benguet microentrepreneurs

<table>
<thead>
<tr>
<th>Planning Competency Components</th>
<th>Mean</th>
<th>SD</th>
<th>Qualitative Description</th>
<th>Mean</th>
<th>SD</th>
<th>Qualitative Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Goal setting</td>
<td>16.33</td>
<td>1.915</td>
<td>Strong</td>
<td>16.13</td>
<td>1.869</td>
<td>Strong</td>
</tr>
<tr>
<td>Information seeking</td>
<td>16.80</td>
<td>2.164</td>
<td>Strong</td>
<td>16.15</td>
<td>1.977</td>
<td>Strong</td>
</tr>
<tr>
<td>Systematic planning &amp; monitoring</td>
<td>15.83</td>
<td>2.154</td>
<td>Strong</td>
<td>15.13</td>
<td>1.668</td>
<td>Strong</td>
</tr>
<tr>
<td>Over-all planning competency</td>
<td>16.26</td>
<td>1.75</td>
<td>Strong</td>
<td>15.80</td>
<td>1.42</td>
<td>Strong</td>
</tr>
</tbody>
</table>

Legend: Weak = 0-4; Fair = 5-9; Moderate = 10-14; Strong = 15-19; Very Strong = 20-25

The level of planning competency among Nueva Vizcaya and Benguet microentrepreneurs in terms of goal-setting, information seeking, and systematic planning and
monitoring is strong with mean scores of 16.33, 16.80 and 15.83, respectively for Nueva Vizcaya and 16.13, 16.15 and 15.13 for Benguet. The overall planning competency for both provinces is strong with 16.26 and 15.80 mean scores respectively. This strong level of competency in planning implies that planning process is practiced or observed most of the time, but not all of the time or always. This can be attributed to the fact that this competency is often more observed in or very strongly practiced by entrepreneurs with more years of business experience. Since most of the respondents are new entrants with less than 5 years of business experience, planning is seen as costly and time-intensive, particularly systematic planning and monitoring. But it is good to note that findings revealed that the microentrepreneurs from Nueva Vizcaya and Benguet are goal-setters and information seekers. As stated by Calvin (2003), an entrepreneur, to succeed has the vision to stimulate an inner drive for making his dreams come true because for him, achievement is an end in itself.

Table 3.1.3: Level of PEC- Power Competency and its Components of Nueva Vizcaya and Benguet Microentrepreneurs

<table>
<thead>
<tr>
<th>Competency Components</th>
<th>Nueva Vizcaya</th>
<th>Benguet</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean</td>
<td>SD</td>
</tr>
<tr>
<td>Persuasion &amp; networking</td>
<td>15.73</td>
<td>2.011</td>
</tr>
<tr>
<td>Self confidence</td>
<td>16.35</td>
<td>1.927</td>
</tr>
<tr>
<td>Over-all Power Competency</td>
<td>16.04</td>
<td>1.43</td>
</tr>
</tbody>
</table>

Legend: Weak = 0-4; Fair = 5-9; Moderate = 10-14; Strong = 15-19; Very Strong = 20-25

In both components of power competency, namely: persuasion and networking, and self-confidence, microentrepreneurs of Nueva Vizcaya are strong as shown by their mean scores of 15.73 and 16.35, respectively, with an overall power competency level of 16.04 or strong. The Benguet microentrepreneurs have a fair level of power competency in the area of persuasion and networking as shown by the mean score 9.80. Self-confidence is moderate with a mean score of 10.35. The overall power competency level is moderate (10.07).

Nueva Vizcaya microentrepreneurs are capable of using a strategy that can influence and persuade others, connect or maintain network with key people to achieve their objectives. They are capable of doing something and take total responsibility for making things happen, as reflected in their level of self-confidence. On the other hand, Benguet microentrepreneurs are weak in the area of persuasion and networking; that is, they do not exercise the skill to connect to key people who can follow them or do something for them. This holds true in the study conducted by Depositario (2011) and De Vera (2012) that microentrepreneurs do not exhibit power competency all the time, thus the strong competency of Nueva Vizcaya microentrepreneurs and not very strong competency.

In addition, Parilla (2013) in his study supports the results of the study in Benguet, wherein micro business owners in Ilocos Norte, have also exhibited low self-confidence and ability to persuade people and have networks affected.
Table 3.1.4: Over-all PEC of Nueva Vizcaya and Benguet Microentrepreneurs

<table>
<thead>
<tr>
<th>Nueva Vizcaya</th>
<th>Benguet</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean</td>
<td>SD</td>
</tr>
<tr>
<td>Over-all Personal Entrepreneurial Competency</td>
<td>16.08</td>
</tr>
</tbody>
</table>

Legend: Weak = 0-4; Fair = 5-9; Moderate = 10-14; Strong = 15-19; Very Strong = 20-25

From the results shown in Tables 3.1.1 to 3.1.3, Table 3.1.4 summarizes the overall personal entrepreneurial competency of Nueva Vizcaya and Benguet microentrepreneurs in all aspects of competency namely achievement, planning and power. Nueva Vizcaya microentrepreneurs exhibited strong over-all personal entrepreneurial competency while Benguet microentrepreneurs have moderate overall level of competency. The strong PEC of Nueva Vizcaya microentrepreneurs resulted from their strong competency level in achievement, planning, and power competencies. This shows that they are opportunity seekers, persistent, quality and efficiency conscious, goal setters, information seekers, systematic planners with persuasion and networking skills and self-confidence. Benguet microentrepreneurs moderate over-all PEC, lower than that of Nueva Vizcaya, can be attributed to the lower power competency exhibited by Benguet microentrepreneurs.

The level of PEC of Nueva Vizcaya microentrepreneurs are similar to that of Cagayan de Oro-Iligan Corridor based on the study conducted by Carinan (2001). The study of Lasmarias (2001) on the PECS of owners of computer shops and hotel and restaurant, showed that in both types of business, owners exhibited very strong competency in information seeking. Moreover, hotel businessmen garnered highest scores on competencies such as risk taking, goal setting and persistence. However, owners of hotel and restaurant firms showed that their lowest competency is in power competency, particularly persuasion. The lowest points for the computer industry were risk taking and persuasion and networking. It can be noted that in different business locations, personal entrepreneurial competencies vary. This may explain the differences in the level of competencies exhibited by Nueva Vizcaya and Benguet microentrepreneurs.

Section 3.2. Level of Management Practices of Nueva Vizcaya and Benguet Microentrepreneurs

Table 3.2.1: Level of Marketing Practices-Nueva Vizcaya and Benguet Microentrepreneurs

<table>
<thead>
<tr>
<th>Components of Marketing Practices</th>
<th>Nueva Vizcaya</th>
<th>Benguet</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean</td>
<td>SD</td>
</tr>
<tr>
<td>Buying practices</td>
<td>2.80</td>
<td>1.03</td>
</tr>
<tr>
<td>Selling practices</td>
<td>3.41</td>
<td>0.69</td>
</tr>
<tr>
<td>Pricing practices</td>
<td>2.88</td>
<td>0.73</td>
</tr>
<tr>
<td>Promotion practices</td>
<td>2.57</td>
<td>0.92</td>
</tr>
<tr>
<td>Financing practices for marketing</td>
<td>2.75</td>
<td>0.70</td>
</tr>
</tbody>
</table>
Nueva Vizcaya entrepreneurs highly practiced their marketing capabilities as shown in the above table. As stated by Armstrong (2006), the ability to understand who the customers are and how to meet their needs better than the competitors is a clear indication of marketing proficiency. Among the components of marketing practices, selling has the highest mean (3.41) while promotion has the lowest mean (2.57). Marketing proficiency is also present among Benguet microentrepreneurs with selling practices. Although they highly practice their marketing capabilities, the practice of promotional activities is not as intense as the other areas.

According to De Vera (2012), most of the IPs reports revealed that a main marketing problem is lack of advertisement or promotion because the business owner himself is the only one selling and no sales agents are involved to promote the products. It can be noted that the average number of workers these microentrepreneurs hire is 1-2. The size of the business and the number of workers hired can be reasons for the lack of intensity in promotion practices as compared to other more regular marketing practices of buying, selling and pricing. Thus, promotion is not given much attention and thereby not intensely practiced.

Sequira (2002) study reveals that part of the success of the small-enterprises in Tarlac City is their strong adherence to marketing practices. It was revealed that small-scale enterprise owners have the major responsibility of analyzing and interpreting the needs and wants of their customers before they determine their business plan from their product, price, promotion and place strategies. Parilla (2013) also found out that microentrepreneurs in Ilocos Norte put high importance to marketing practices as evidenced by the “highly practiced” results.
The level of human resource as practiced by Nueva Vizcaya microentrepreneurs is high in the areas of job orientation, working conditions and motivation, with an overall mean of 3.27. Motivation has the highest mean (3.39). The Benguet entrepreneurs got a mean score of 3.59 in the area of working conditions with a rating of “very highly practiced”, while in the area of job orientation and motivation, they are rated as “highly practiced” (3.34 and 3.35), with an overall level of highly practiced (3.45).

The above findings contradict to the findings of Parilla (2013) that microentrepreneurs are practicing human resource management to a certain extent. This is because most of the employees of the micro-businesses are family members and there is no formal human resource structure. It is not surprising to note that in the case of Nueva Vizcaya and Benguet microentrepreneurs, given that they are engaged in personal services, they are visible in the day-to-day operations of their business, thus they are there personally to manage well their employees or workers. The very highly practiced working condition in Benguet can be explained by the availability of more modern structures and process that allow more comfortable working conditions to workers.
In the area of financial management, the Nueva Vizcaya microentrepreneurs highly practice the components of financing decisions, working capital management, and capital budgeting resulting to an overall mean score of 2.75 (highly practiced). The Benguet microentrepreneurs practice their working capital management to a very high extent, whereas, in the areas of financing decisions and capital budgeting, they are rated as highly practiced. Both Nueva Vizcaya and Benguet microentrepreneurs have sound financial management practices and these owners focus on their financial position and performance.

The overall management practices among Nueva Vizcaya and Benguet microentrepreneurs are at a high extent. In the area of financial management, Kubickova and Soucek (2013) cited that many owner-mangers monitor their cash flow and financial positions closely. Kotler (2000) said that marketing practices play a vital role in managing a business because it involves all the activities to provide customer satisfaction and thus, building a strong customer base. Likewise, since the microentrepreneurs are the ones who have personal connections with their employees and customers given the fact the enterprise is micro in size and that there are only 1-2 workers, they could personally identify the skills of each person in the workplace to fully utilize their abilities and potentials.

Section 3.3. Significant Difference Among the Level of PEC of Nueva Vizcaya and Benguet Microentrepreneurs
To determine any significant difference among each level of PEC of both Nueva Vizcaya and Benguet microentrepreneurs, the Friedman test was used. The test revealed that there is a significant difference among levels of competency in the areas of achievement, planning and power (chsq=52.29 p value=0.00 at α=0.05). This implies that when these areas of competency are paired (achievement vs planning; planning vs power; and power vs achievement), at least one of these pairings shows significant difference in the mean competency levels.

Table 3.3.2: Multivariate Tests for Variations in PECs between Nueva Vizcaya and Benguet Microentrepreneurs

<table>
<thead>
<tr>
<th>Method</th>
<th>Value</th>
<th>F</th>
<th>Hypothesis df</th>
<th>Error df</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pillai’s trace</td>
<td>.413</td>
<td>33.456</td>
<td>2.00</td>
<td>95.000</td>
<td>.000</td>
</tr>
<tr>
<td>Wilks' lambda</td>
<td>.587</td>
<td>33.456</td>
<td>2.00</td>
<td>95.000</td>
<td>.000</td>
</tr>
<tr>
<td>Hotelling's trace</td>
<td>.704</td>
<td>33.456</td>
<td>2.00</td>
<td>95.000</td>
<td>.000</td>
</tr>
<tr>
<td>Roy's largest root</td>
<td>.704</td>
<td>33.456</td>
<td>2.00</td>
<td>95.000</td>
<td>.000</td>
</tr>
</tbody>
</table>

Each F tests the multivariate effect of factor1. These tests are based on the linearly independent pairwise comparisons among the estimated marginal means.

a. Exact statistic

Table 3.3.2 shows that all methods show that there is a significant difference among the three areas of PEC. This result is consistent with the result using the Friedman Test. Thus, five (5) methods of testing show the same result which reinforces the appropriateness of the Friedman Test.

To further analyze the significant difference among the three areas of PEC, the source of variation must also be determined. Is a mean level of competency equal to 15.99 (achievement) significantly different from that of 16.04 (planning) or from that of 13.21 (power)? To determine
the source(s) of variation, meaning which pair shows significant difference in levels of competency, the pairwise comparison of the three areas were used.

Table 3.3.3 Sources of Variation among the PECs of Nueva Vizcaya and Benguet Microentrepreneurs Using Pairwise Comparisons of the Three Areas of PEC

<table>
<thead>
<tr>
<th>(I) factor1</th>
<th>(J) factor1</th>
<th>Mean Difference (I-J)</th>
<th>Std. Error</th>
<th>Sig. b</th>
<th>95% Confidence Interval for Difference b</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean for achievement competency</td>
<td>Mean for planning competency</td>
<td>-.048</td>
<td>.121</td>
<td>1.000</td>
<td>-.343 to .248</td>
</tr>
<tr>
<td>Mean for power competency</td>
<td>Mean for planning competency</td>
<td>2.782*</td>
<td>.354</td>
<td>.000</td>
<td>1.919 to 3.646</td>
</tr>
<tr>
<td>Mean for planning competency</td>
<td>Mean for power competency</td>
<td>2.830*</td>
<td>.345</td>
<td>.000</td>
<td>1.991 to 3.670</td>
</tr>
</tbody>
</table>

Based on estimated marginal means
* The mean difference is significant at the .05 level.
b. Adjustment for multiple comparisons: Bonferroni.

Table 3.3.3 explains the sources of variation among the PECs. Using pairwise comparison, the level of achievement competency of both Nueva Vizcaya and Benguet microentrepreneurs differs significantly from their level of power competency, but has no significant difference in the area of planning competency. It is also noted that that their level of planning competency differs significantly from their power competency level. This is explained in the Table 3.3.1, showing the mean of 16.04 (strong) for planning competency followed by achievement competency with a mean of 15.99 (strong), whereas the mean for power competency is only 13.21 (moderate).

The above findings show that among the three areas of PEC, the power competency is the source of variation. This means that microentrepreneurs in both Nueva Vizcaya and Benguet exhibit a level of achievement and planning competencies that do not differ. However, in both location, microentrepreneurs exhibit a significant difference between power competency and achievement and planning competency. Power competency has also been measured to have a lower level in microentrepreneurs in Ilocos Norte (Parilla, 2013).

Section 3.4 Significant Difference Among the Level of Management Practices of Microentrepreneurs of Nueva Vizcaya and Benguet

Table 3.4.1: Friedman Test between Level of Management Practices of Nueva Vizcaya and Benguet Microentrepreneurs

<table>
<thead>
<tr>
<th>N</th>
<th>Mean</th>
<th>Std. Deviation</th>
<th>Qualitative Description</th>
<th>Mean Rank</th>
<th>Chi. Sq.</th>
<th>df</th>
<th>Sig.</th>
<th>Decision</th>
</tr>
</thead>
</table>

235
Mean for Level of Marketing Practices

| Mean for Level of Marketing Practices | 97 | 3.00 | 0.58 | Highly practiced | 2.23 | 75.58 | 3 | 0.00* | Dot not reject Ho |

Mean for Level of Human Resource Management Practices

| Mean for Level of Human Resource Management Practices | 97 | 3.36 | 0.68 | Highly practiced | 3.37 |

Mean for Financial Management Practices

| Mean for Financial Management Practices | 97 | 2.86 | 0.72 | Highly practiced | 1.92 |

Legend: Very highly practiced = 3.5-4.0; Highly practiced = 2.5-3.4; Moderately practiced = 1.5-2.4; Slightly practiced = 0.5-1.4; Not practiced = 0 – 0.4

*Friedman Test at 0.05 level of significance

The Friedman test revealed that there is a significant difference among the level of management practices of Nueva Vizcaya and Benguet microentrepreneurs (ch.sq=75.58, p-value=0.00; α=0.05). This means that when these areas of management are paired (marketing vs human resource management; human resource management vs financial management; and financial management vs marketing), at least one of these pairings shows significant difference in the mean extent of practice.

Although the Friedman Test was used to determine whether a significant difference is registered among the three areas of management, other methods can also be used. Table 3.4.2 summarizes the test results of other four (4) methods.

Table 3.4.2: Multivariate Tests for Variations in Management Practices between Nueva Vizcaya and Benguet Microentrepreneurs

<table>
<thead>
<tr>
<th>Hypothesis df</th>
<th>Error df</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pillai's trace</td>
<td>.438</td>
<td>37.042²</td>
</tr>
<tr>
<td>Wilks' lambda</td>
<td>.562</td>
<td>37.042²</td>
</tr>
<tr>
<td>Hotelling's trace</td>
<td>.780</td>
<td>37.042²</td>
</tr>
<tr>
<td>Roy's largest root</td>
<td>.780</td>
<td>37.042²</td>
</tr>
</tbody>
</table>

Each F tests the multivariate effect of factor1. These tests are based on the linearly independent pairwise comparisons among the estimated marginal means.

a. Exact statistic

Table 3.4.2 shows that all methods show that there is a significant difference among the three areas of management. This result is consistent with the result using the Friedman Test. Again, five (5) methods of testing show the same result which reinforces the appropriateness of the Friedman Test.

Table 3.4.3 Sources of Variation from Among the Areas of Management Practices of Nueva Vizcaya and Benguet Microentrepreneurs Using Pairwise Comparisons
Section 3.5. Correlation between the Levels of Personal Entrepreneurial Competencies (PEC) and Extent of Management Practices of Microentrepreneurs in Nueva Vizcaya and Benguet

Table 3.5.1: Correlation between levels of PEC and Management Practices, Nueva Vizcaya and Benguet Microentrepreneurs
Using the Spearman rho correlation, the levels of PEC and the management practices of Nueva Vizcaya microentrepreneurs do not have any significant relationships ($r=0.25; p \text{ value}>0.05$) when analyzed in its totality. In the same manner, there is no significant relationship between the PEC levels and the levels of management practices among Benguet microentrepreneurs ($r=0.164; p \text{ value}>0.05$). This means that PEC, in a way, does not have a significant bearing on their level of management practices, and vice-versa. Moreover, their PEC level may not necessarily manifest in their extent of management practice.

### Table 3.6.1 Comparison between levels of PEC and Management Practices of Nueva Vizcaya and Benguet Microentrepreneurs

<table>
<thead>
<tr>
<th>Location</th>
<th>N</th>
<th>Mean Rank</th>
<th>Sum of Ranks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean Overall Level of PEC</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nueva Vizcaya</td>
<td>51</td>
<td>62.44</td>
<td>3184.50</td>
</tr>
<tr>
<td>Benguet</td>
<td>46</td>
<td>34.10</td>
<td>1568.50</td>
</tr>
<tr>
<td>Total</td>
<td>97</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean Overall Level of Management Practice</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nueva Vizcaya</td>
<td>51</td>
<td>45.55</td>
<td>2323.00</td>
</tr>
<tr>
<td>Benguet</td>
<td>46</td>
<td>52.83</td>
<td>2430.00</td>
</tr>
<tr>
<td>Total</td>
<td>97</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The overall mean rank describing the level of PEC of Nueva Vizcaya microentrepreneurs is 62.44, while Benguet microentrepreneurs have an overall mean rank of 34.10. In the area of management practice, Benguet microentrepreneurs obtained a higher overall mean rank of 52.83 compared to an overall mean rank of 45.55 for Nueva Vizcaya microentrepreneurs. This implies that Nueva Vizcaya microentrepreneurs in the personal service sector have higher PECs as compared to their Benguet counterparts. But in terms of extent of management practices, Benguet entrepreneurs exhibit higher extent of practice than their Nueva Vizcaya counterpart. It can be noted that no significant correlation exists between PEC and management practice. Thus, Nueva Vizcaya may be exhibiting higher levels in PEC but lower extent of management practices as compared to Benguet microentrepreneurs.
## Mean Overall Level of PEC and Management Practices (Mann-Whitney U, Wilcoxon W, and Asymp. Sig. (2-tailed))

<table>
<thead>
<tr>
<th>Test Statistic</th>
<th>PEC Mean</th>
<th>Management Practices Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mann-Whitney U</td>
<td>487.500</td>
<td>997.000</td>
</tr>
<tr>
<td>Wilcoxon W</td>
<td>1568.500</td>
<td>2323.000</td>
</tr>
<tr>
<td>Z</td>
<td>-4.955</td>
<td>-1.274</td>
</tr>
<tr>
<td>Asymp. Sig. (2-tailed)</td>
<td>.000*</td>
<td>.203*</td>
</tr>
</tbody>
</table>

Note: Grouping Variable: Location  
* at 0.05 level of significance

To test any significant difference between the PEC level and management practice level of Nueva Vizcaya and Benguet microentrepreneurs, the Mann-Whitney U test was used. Based on the results, there is a significant difference in the mean overall level of PEC between Nueva Vizcaya and Benguet microentrepreneurs. It implies that the Nueva Vizcaya microentrepreneurs’ stronger entrepreneurial competency is significantly higher than that of Benguet microentrepreneurs.

In terms of management practices, Benguet exhibit higher levels than Nueva Vizcaya microentrepreneurs. However, test of significance revealed that the difference between the two groups is not significant. This is because the both groups have 5 years or less business experience. As such management practices are also of no significant difference.

### Section 3.7. Issues on Entrepreneurial Competencies and Management Practices Encountered by Microentrepreneurs in Nueva Vizcaya and Benguet

To identify the specific issues encountered by microentrepreneurs in Nueva Vizcaya and Benguet, Table 3.7.1 presents a detailed analysis of the problems they face in their businesses.

<table>
<thead>
<tr>
<th>Type of Business</th>
<th>Baguio-Benguet</th>
<th>Nueva Vizcaya</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tailoring service</td>
<td>Difficulty in handling customer complains on “re-do” dresses (pangit ang tahi, buttons natatanggal, hindi maganda pagkkabit ng)</td>
<td>Lack of workers. With this deficiency, workers hired have to work on an “all-</td>
</tr>
</tbody>
</table>
Section 3.8 Strategic Actions Towards the Development of a Competency-Based Training Plan

To be able to develop a competency-based training plan, strategic actions should first be laid out. These actions are prerequisites to the planning process and module preparation.

Table 3.8.1 Recommended Strategic Actions Towards the Development of a Competency-based Training Plan

<table>
<thead>
<tr>
<th>Key Result Areas</th>
<th>Strategic/ Activities</th>
<th>Time Frame</th>
<th>Performance Indicators</th>
</tr>
</thead>
<tbody>
<tr>
<td>Parlor/Spa shops</td>
<td>Issues on hygiene has been noted by customers. Thus, there is need for regular DOH inspection</td>
<td>• Difficult to maintain skilled workers/beauticians</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Difficult to gain or even sustain existing customers because there are too many parlors offering similar services. That includes those offering home service.</td>
<td>• There is a need to train workers to level-up their skills</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Owners recognized the need for trainings in “how to handle a business etc.”</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Assistance in bookkeeping and taxation</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Employees leave the parlor without permission</td>
<td></td>
</tr>
<tr>
<td>Entrepreneurship and Management Skills Enhancement</td>
<td>The microentrepreneurs in both provinces will organize their own association to provide a forum for the discussion of problems and issues affecting their business and to support programs and other key areas of concerns. They can also organize different seminars and trainings for microentrepreneurs in their respective provinces</td>
<td>1 year</td>
<td>A well-organized and structured association with improved power competency and sustained achievement and planning competencies among its members</td>
</tr>
<tr>
<td>---</td>
<td>---</td>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td>Government and non-government organizations, academe and private sectors may organize different seminars on the following topics:</td>
<td>• Developing capabilities and competencies of microenterprise owners and employees • Product Development and Design • Marketing seminars • Online selling • Establishing long term relationship with customers and employees • Funding for start-up businesses • Accessibility to micro financing • Management seminars • Simplified Bookkeeping • Trainings related to tax payments</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Networking and Linkages to other enterprises or government agencies</td>
<td>Forum or symposium can be organized where microentrepreneurs can share their best practices and successful productivity applications to fellow microentrepreneurs with the assistance of government and non-government organizations, academe and private sectors.</td>
<td>Within the year</td>
<td>Best business practices and business models by microentrepreneurs</td>
</tr>
</tbody>
</table>

4. Conclusions and Recommendations

Conclusions

Based on the findings of the study, it is found that Nueva Vizcaya and Benguet microentrepreneurs in personal service sector with five (5) years or less business operation exhibit strong personal entrepreneurial competencies, with Nueva Vizcaya microentrepreneurs exhibiting higher levels. Common to both groups are low to moderate power competency, specifically in the persuasion, networking and self-confidence. It is found further that extent of management practices is high to very high in both groups. Furthermore, personal entrepreneurial
competencies do not manifest or do not have a bearing in the extent of management practices due to a less than 5 years of business experience.

**Recommendations**

In light of the findings of the study, the following are recommended:

1. Nueva Vizcaya and Benguet microentrepreneurs in the personal service sector must organize themselves into association or become an active member in their respective MSME organization to provide a forum for the discussion of problems and issues affecting their business and to support programs and other key areas of concerns. This association also provide them easy access to network and linkages. Through this, they can benchmark on the best practices of successful entrepreneurs. Moreover, membership in an association enhances one’s capability to strive further with greater tolerance to risks. This all the more enhances power competencies which are found low to moderate in both groups.

2. Attendance to seminars, workshops and trainings conducted by government and non-government entities is also recommended in order to maintain and even further improve their level of entrepreneurial competencies and management practices. New ideas and innovations are most likely to be learned from these to improve the quality of products and services they offer to their customers. This will all the more link personal entrepreneurial competencies to management practices which is found to be not correlated in new entrant microentrepreneurs.

3. Strategic actions for implementation may be adopted by the micro-entrepreneurs in order to address their weak points or deficiencies in the field.

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**Assessing the Competency Level Of Seafarers through Maritime Training and the Relevance of These Training Programs to them**

*Rayan P. Dui*

*De La Salle University*

**Executive Summary**

This study aims to identify whether the training programs provided by Powerlink Maritime Training center is still relevant to the seafarers who took their training in the institution as perceived by them. It also wants to identify whether there was an increase in the competency
level of the seafarers after they attended and finished the courses as perceived by them. Lastly, the researcher aims to evaluate whether there is a relationship between a seafarer’s perceived relevance of the Maritime training courses they took at Powerlink Maritime Training center and the perceived increase in the level of competency as a result of their maritime training with the company. These Maritime trainings are part of the requirement of MARINA in compliance with IMO regulations so that a seafarer may embark a career working on board a shipping vessel.

The Pearson correlation was the major method used with other statistical techniques applied such as linear regression, mean and standard deviation and Mann-Whitney Test. A survey questionnaire was used to get the profile of the respondents and to measure the perceived relevance of these training programs to them as well as whether their competency level improved as a result of these trainings as perceived by them. The sample size is 50 seafarers who are already through with their training at Powerlink. The response rate of the target sample is at 100%. The findings of the study indicated that seafarers who took their training at Powerlink find the courses relevant in their seafaring career. It also showed that these seafarers believe they became more competent as a result of their training with Powerlink based on their perception. It was also validated by the result of statistical findings that there are some courses offered by Powerlink where seafarers find relevant but do not have any significant relationship with increased level of competency as perceived by the seafarers. On the other hand, there are some courses offered by Powerlink that are relevant to the seafarers and have a significant relationship with the increased competency level of the seafarers based on their evaluation. Lastly, there was no significant difference in the relevance of these Maritime training programs to both the officers and ratings who took their training at Powerlink. Both segments find these courses as applicable and useful for their respective positions.

Chapter 1 Background of the Study

The Philippines continues to be a significant supplier of seafarers in the global labor market. Different crewing managers and their foreign principal may agree that the most important people in any shipping company are their seafarers. These foreign principals are very particular and have vested interest in Maritime training because it’s the seafarers which forms part as the foundation from which they do their business. Training is an investment that the owners have to participate in. (Stene, Ole, 2008). These Maritime training centers are duly accredited by the MARINA (government agency in charge of all maritime affairs) and most of them are engaged in providing quality training for the Filipino seafarers.

“As we know that training and development refers to the process to obtain or transfer KSA (knowledge, skills and abilities) needed to carry out a specific activity or task therefore, benefits of training and development both for employer and employees are strategic in nature and hence much broader.” (Niazi, Abdus, 2011, p. 43) For the Maritime sector, training and development of seafarers pertains to whether these seafarers are able to learn and apply KSA (knowledge, skills, and abilities) necessary to perform their individual tasks on board their shipping vessels.

Nature of the Industry (Powerlink Maritime Training Center)
The MARINA is the Government agency responsible to overlook for the welfare of the over-all Maritime industry. With regards to the Maritime training sector, it was assigned to implement the different programs and model courses as required by the IMO. But since there is a growing market for the Filipino seafarers, the MARINA is so small that they cannot handle all of these seafarers. This started the creation of the Maritime training centers whose main objective is to help MARINA train the seafarers based on the model courses of the IMO.

Powerlink Maritime Training center heeded the call and put up a training center that will cater to Filipino seafarers. Not one to rest on its laurels, Powerlink made use of its recognition as a World class training by expanding and offering more courses with corresponding well qualified trainers and instructors in its roster. (Powerlink company manual). The content of the courses of Powerlink comprehends something that can help the seafarers attain both their short-term and long-term goals such as being hired by a manning agency to being promoted to the highest rank possible for a position. It is for this reason why Powerlink hires and enlists instructors who have prior experience working in the Maritime industry or have vast experience in the Seafaring industry.

Statement of the Research Problem

With this guiding philosophy, the aim of this research study is to determine whether the present Maritime training programs applied and implemented by Powerlink Maritime training center contribute to the overall development of the seafarers’ knowledge, skills and attitude in performing their tasks while working on board their respective vessels. Are these training methods still relevant and appropriate in today’s changing technological environment as evaluated by these seafarers? In addition to this, normal questions that the researcher often hear from their seafarers are “what is the course all about?” and “what will it do to my profession?”. These are part of the purpose of the researcher on why he came up with this study. The assumption of the researcher is that when the seafarers believe that the course they will take from Powerlink is relevant, there is a tendency for them to perform much better and that their competency level tends to become higher as well.

This research study aims to assess the impact of Powerlink Maritime training methods to the overall competency level of the seafarers as perceived by themselves once they are through with their training. The researcher would also like to evaluate whether these seafarers find the training programs relevant in their profession.

The result of the competency evaluation of the seafarers and their own assessment of the current training programs of Powerlink can serve as basis for the development of feasible recommendation on how the company can further enhance the mode of training methods for these seafarers that will maximize their competency and improve their performance as they strive on embarking a seafaring career.

Specifically, it ascertained answers to the following inquiries:
1. Did the competency level of seafarers who undertook their training at Powerlink Training center improve as perceived by them?

2. Are these Maritime Training Programs still relevant to the Seafarers in enhancing their performance and pursuing their career?

3. Will the perceived relevance of the training programs that seafarers took from Powerlink significantly impact their competency level as perceived by them?

**Objectives of the Study**

The general objective of the research proposal is to evaluate whether the current training method being applied by Powerlink Maritime training center is contributing to enhancing a seafarer’s competency level. The researcher also wants to establish the relevance of these training methods to the careers of the seafarers despite changing external and internal events that may affect the Maritime training sector. The researcher may achieve this by:

1. Identifying whether the training programs of Powerlink Maritime training contribute to enhancing the seafarer’s competency level in terms of their knowledge, skills, and attitude.
2. Identifying whether the current training methods of Powerlink are relevant in today’s seafaring changing environment as evaluated by the seafarers.
3. Identifying whether there is a significant relationship between the perceived relevance of the Maritime courses of Powerlink and the increase in competency level of the seafarers as perceived by them.

**Significance of the Study**

Seafarers play a critical role in any manning agency. Therefore their competency level should be translated to a positive performance that will benefit when they embark a seafaring career. This study may be important to the different Manning agencies as it can provide them ideas how to identify and assess the competency of their seafarers in performing their specific tasks in the vessels assigned to them. It’s tantamount to saying that a seafarer who is equipped with proper training will enable him to become productive by being both effective and efficient in what he is doing. Knowledge, skill, and attitude are three important factors that a seafarer must possess before he embarks on a seafaring career. The result and output of this assessment will help the training centers as they look into their current systems and structures to improve their people, instructors, and work processes, and most especially how all these integrate to develop specific training programs to enhance seafarer competency and productivity.

**Scope and Limitation**
The area of coverage where the researcher may be planning to obtain data in his research study will be the seafarers who have already taken their training at Powerlink Maritime Training Center. The assessment of the seafarers regarding the impact of Powerlink Maritime training in increasing their competency level is based on their own perception. The reason for this is because trying to get the actual result of their competency level will be coming from the Manning agency through the evaluation of their seafarers while they are working on board as assessed by their immediate superiors and peers. That is why for this particular research study, the researcher will solely rely on the seafarer’s evaluation of their competency level as a result of their training from Powerlink. The assessment of the relevance of the training programs to the seafarers’ profession is also based on their own evaluation. Lastly, the number of seafarers will depend on those who will be claiming their certificates within a particular time frame due to time constraint in soliciting data from them.
Chapter 2 Related Literature

Different organizations from various industries utilize training as a mean of improving the performance of their people and to maximize and reach their full potential so they can be utilized efficiently by the organization. But at the start of the twenty-first century, different Human Resource and Training Managers have already recognized that both external and internal environment have been changing immensely resulting to a change in the design of their programs. According to (Stavrou, Brewster, and Charalambus 2004 as cited by Ameeq-ul-Ameeq and Furqan Hanif, 2012), issues confronting the management are linked with training and development of their personnel. “A comprehensive training and development program helps in deliberating on the knowledge, skills and attitudes necessary to achieve organizational goals and also to create competitive advantage”. (Peteraf 1993 as cited by Olusanya, Samuel Olumuyiwa, et.al., 2012).

Background of Maritime Training in the Philippines

The STCW Convention paved the way for the introduction of Maritime training in our country. With most of our products being transported through sea, it is very important that seafarers are competitive and professional in performing their responsibilities so that they maintain a safe environment and prevent any untoward accidents at sea. In line with this, the International Maritime Organization (IMO), an International Governing body in charge of producing documents for guidance for the training of seafarers around the world established the “International Convention on Standards of Training, Certification and Watchkeeping for Seafarers 1978, as amended in the 1995 and again in 2010”. The members of the IMO aim to raise the level of competitiveness and professionalism of these seafarers that they keep on amending the STCW convention. The latest 2010 amendments continued to emphasize competence rather than sea service or period of training”. (Koji Sekimizu, Secretary-General, IMO 2010) To make its crewmembers more suitable for the position they will handle on board and the ship where they will be deployed, these manning agencies who act as the agents of foreign principals require each crewmember lined-up to undergo training and seminar at the different MARINA Accredited Maritime Training Centers and to enhance their competence above and beyond the STCW ‘95 requirements.

Impact of Maritime Training

It has long been known that the human element plays a crucial part in achieving standards for training. For the Maritime industry, the aim of continuously training these seafarers is to ensure that they are able to comply on rules and regulations set by IMO for the purpose of preventing and minimizing maritime accidents. With today’s changing environment, new training methods are emerging and it is the task of the organization to determine what works for their people in improving and developing their competency level.

The Maritime Education and Training (MET) is governed and guided by the original STCW convention. But despite the presence of these standards, the implementation of these methods were not successful as it did not curve out shipping accidents. Based on a study
conducted by (Emad and Roth, 2008), most of the seafarers who were trained do not think they benefited from the education and training they received. One experienced seafarer from the case even mentioned that “Now I am qualified (air quoting) but really I didn’t learn very much, learned a little bit.” (Emad and Roth, 2008, p. 264)

Chapter 3 Theoretical Framework

(Figure 1 represents the descriptive framework of the current research study)

**Competency Level**

“Competence is generally defined as skills, qualifications and knowledge that gives a person ability to work as a part of a professional team or, when it comes to maritime activities, a crew.” (Berg, et.al., 2013, p.13) The Seafarer's International Research Centre (SIRC) defines crew competence as “uniform standard of the provision of high quality training and education opportunities and to be as least as important as professional training”. Knowledge is an important factor for making a seafarer confident in doing his job accordingly. Being seafarer implies need for constant improvement and knowledge check. According to Kraiger et.al (1993), another classification of measuring learning outcomes is what he called Skill-based outcomes. The ability of the seafarers in manipulating the machines, tools, engines and other more is a result of their continuous training with different training centers and in-house training of their company. These standards are important because they form the foundation for applying marine simulation to marine certification.
Relevance of training

According to relevance theory, “an input is relevant to an individual when it’s processing in a context of available assumptions yields a positive cognitive effect.” (Sperber & Wilson 1995: §3.1-2 as cited by Horn and Ward p.2). Sperber and Wilson in their Relevance theory points out that input is important to an individual when and only when it results to a positive cognitive effect. They also added that “the greater positive cognitive effects achieved by processing an input, the greater its relevance will be”. (Horn and Ward p.3) Trying to adopt the theory of relevance, the input here will be the different Maritime training courses provided by Powerlink and the positive cognitive effects as a result of these will be the relevance of the courses to the seafarers.

Hypothesis

**Hypothesis 1:** Majority of the seafarers who took their Maritime Training at Powerlink improve their competency level based on their perceived assessment of the course.

**Hypothesis 2:** Majority of the courses provided by Powerlink Maritime Training are perceived to be relevant by the seafarers in contributing to the enhancement of their competency level.

**Hypothesis 3:** There is a significant relationship between perceived relevance of training and the increased in competency level as perceived by the seafarers.

**Hypothesis 4:** There is a significant difference between the perceived relevance of these Maritime training from Powerlink among seafarers who are rank as officials and those who are rank as ratings.

Operational Definition of Terms

**Competency** - the ability to do something successfully or efficiently. The researcher will be using three (3) key variables to measure competency of seafarers primarily knowledge, skills, and attitude.

**IMO** – International Maritime Organization is the International Governing body producing documents for guidance for the training of seafarers.

**MARINA** – Maritime Industry Authority, is an agency of the Philippine government under the Department of Transportation and Communications responsible for integrating the development, promotion and regulation of the maritime industry in the Philippines.

**Maritime Training Centers** – are training centers accredited by MARINA to provide education and training at par with international standards.

**Seafarer** – refers to any person who is employed or engaged in any capacity on board a seagoing ship navigating the foreign seas other than a government ship used for military or non-commercial purposes.
Chapter 4 METHODOLOGY

This section presents the methodological process of pursuing this research study. This includes the type of research design used by the researcher, the sample data collected from a particular industry, the research instruments used in collecting these data, the different related literature used for qualitative data, and finally, the different statistical tools and techniques utilized to enable the researcher to make a rational and feasible conclusion about the research study.

Research Locale

Due to the limited time allotted for the research, the respondent chosen were those who already took their Maritime Training at Powerlink Maritime Training, Inc. The Researcher was able to determine the relevance of these training methods to the seafarers in pursuant to their careers on board.

Research Design

The descriptive method was used by the researcher as his research design. “The object of descriptive research is ‘to portray an accurate profile of persons, events or situations” (Robson 2002:59 as cited by Saunders, Mark, et.al 2009, p. 140). According to Saunders, it is important to have an understanding of what is happening (phenomenon) on which you want to collect information before you start collecting these data. (Saunders, Mark, et.al 2009) This method was able to track down the competency level of seafarers as a result of their Maritime training with Powerlink as well as the relevancy of these training programs in enhancing their competency.

Sampling Design

Non-probability sampling technique was utilized to obtained important data. Respondents were chosen based on the expert judgment of the researcher. “Nonprobability sampling does not attempt to select a random sample from the population of interest. Rather, subjective methods are used to decide which elements are included in the sample.” (Battaglia, Michael, 2011, p. 523)

Data Gathering Procedure

The researcher asked the permission of the Administration management of the Training center he is currently affiliated. Survey questionnaires were distributed to those seafarers who have already finished their Maritime training at Powerlink. It should be noted though that the seafarers were profiled by the researcher as to those who were already embarking a seafaring career and not to those who were just fresh graduates and have no experience in seafaring. The Likert scale type of questionnaire was utilized by the researcher for the purpose of measuring the intensity of emotions of the seafarers on how they view the relevance of maritime training to themselves in improving their knowledge, skills, and attitudes. To validate the data of the retrieved questionnaires, the researcher double checked the veracity of the names and their position in their organization. All gathered information formed part of the appendix. The
researcher also used the purposive sampling and random survey method in selecting participants. “There was no gender bias in the selection of the respondent as long as he or she fits in the description.

**Research Instrument**

The primary instrument used in the study is a set of survey questionnaires provided by the researcher and distributed to the seafarers who were already finished with their Maritime training at Powerlink Maritime Training center. The set of questionnaire focused on measuring the relevance of Maritime training to seafarers as evaluated by the different seafarers. The first part of the questionnaire is composed of understanding and knowing the profile of the respondents through the different demographic variables asked from them. The second part focused on utilizing a Likert scale used to measure the degree of emotion of the seafarer with regards to the relevance of Powerlink training courses in their profession as seafarers and whether it improved their competency level as well.

**Statistical Treatment of Data**

The data gathered from the respondents were analyzed using the following statistical tools:

*Frequency Count and Percentage Distribution (f and %).*

These statistical tools were utilized to present the profile of the participants.

*Mean and Standard Deviation (M and SD).*

These statistical devices were employed in describing the over-all competency level of seafarers who enrolled at Powerlink Training center as well as the over-all relevance of these training courses to them. The researcher wants to measure the competency level as a result of their Maritime training at Powerlink and the perceived relevance of these training courses to them.

*Pearson Product-Moment Correlation*

This statistical tool was used to measure the degree and significance of the relationship or association between and among variables. In particular it was used to measure whether there is a significant relationship between relevance of Maritime training to seafarers and the increase in competency level of seafarers as perceived by them. For this statistical method, the researcher divided the courses offered by Powerlink Maritime training center into four broad categories namely (1) Safety, Firefighting & Security courses, (2) Management, Leadership and Behavioral courses, (3) Stewarding courses, and lastly, (4) Assessment courses. This is because currently Powerlink Maritime training has 45 courses and not all of the seafarers who enrolled took the same courses and the same number of courses.

*Mann-Whitney Test*
This statistical tool is a nonparametric test of the null hypothesis that it is equally likely that a randomly selected value from one sample will be less than or greater than a randomly selected value. This was used in the research to evaluate whether there is a difference with regard to the relevance of these Maritime training programs for a seafarer who is an official of the vessel versus a seafarer who is a rating in the vessel.

Chapter 5 Results and Discussion

This section provides the result and interpretation of data, and discusses possible recommendations on how to further improve seafarer competency level for Seafarers of Powerlink Maritime Training Center. These will enable the company to further develop the skills and capabilities of those seafarers who will be enrolling at Powerlink to reach their maximum potential so that they could be efficient and effective while performing their tasks in their respective vessels assigned to them by their foreign principals.

Profile of the Participants

Table 1 Summary of Gender

<table>
<thead>
<tr>
<th>Gender</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>42</td>
<td>84.00</td>
</tr>
<tr>
<td>Female</td>
<td>8</td>
<td>16.00</td>
</tr>
</tbody>
</table>

Presented in Table 1 is the summary of the gender of those seafarers who enrolled at Powerlink. With regards to Gender, it can be seen in Table 1 that the majority of the participants are male, which constitutes (42/50 or 84%) while (8/50 or 16%) of the participants are female. Most of the integral positions that needs to be filled up are reserved mostly for the male seafarer because these positions requires a lot of difficult task from carrying heavy loads, from maintaining engines, from loading and unloading chemicals which might be very difficult for female seafarer to perform.

Table 2 Summary of Civil Status

<table>
<thead>
<tr>
<th>Civil Status</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Single</td>
<td>21</td>
<td>42.00</td>
</tr>
<tr>
<td>Married</td>
<td>29</td>
<td>58.00</td>
</tr>
</tbody>
</table>

Presented in Table 2 is the summary of the civil status of the seafarers. In terms of civil status, married seafarers comprised the majority (29/50 or 58%) of the participants in this study and seafarers who are single make up for (21/50 or 42%).
Table 3 Summary of Age of Seafarers

<table>
<thead>
<tr>
<th>Age</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>25-below</td>
<td>8</td>
<td>16.00</td>
</tr>
<tr>
<td>25 less than 30</td>
<td>20</td>
<td>40.00</td>
</tr>
<tr>
<td>30 less than 35</td>
<td>8</td>
<td>16.00</td>
</tr>
<tr>
<td>35 less than 40</td>
<td>5</td>
<td>10.00</td>
</tr>
<tr>
<td>40 years and above</td>
<td>9</td>
<td>18.00</td>
</tr>
</tbody>
</table>

Presented in Table 3 is the summary of the age of the seafarers who took their training at Powerlink. Majority of the seafarers (28/50 or 56%) are below 30 years old while (22/50 or 44%) are those who are more than 30 years old.

Table 4 Summary of Average Monthly Salary of Seafarers

<table>
<thead>
<tr>
<th>Monthly Salary</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>less than P50,000</td>
<td>15</td>
<td>30.00</td>
</tr>
<tr>
<td>50,000 less than 100,000</td>
<td>18</td>
<td>36.00</td>
</tr>
<tr>
<td>100,000 less than 150,000</td>
<td>15</td>
<td>30.00</td>
</tr>
<tr>
<td>150,000 and above</td>
<td>2</td>
<td>4.00</td>
</tr>
</tbody>
</table>

Presented in Table 4 is the summary of the average monthly salary of the seafarers. In terms of the average salary of the respondents, majority of them (35/50 or 70%) are earning more than P50,000.00 monthly. This gives us an idea that Seafaring career provides a seafarer with huge salary as compared to working locally. Being a seafarer is a high paying job which is understandable considering all the sacrifices they have to make just to be able to provide for the welfare of their families here.

Table 5 Summary of Work Designation of the Seafarers

<table>
<thead>
<tr>
<th>Work Designation</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Official</td>
<td>19</td>
<td>38.00</td>
</tr>
<tr>
<td>Ratings</td>
<td>31</td>
<td>62.00</td>
</tr>
</tbody>
</table>

Presented in Table 5 is the summary of the work designation or ranking of seafarers who enrolled at Powerlink. Majority of them are ratings (31/50 or 62%) and the officers are (19/50 or 38%). The Philippines continues to be the largest supplier of seafarers — both officers and ratings. Based on IMO study in the Philippines, there are around 27.8 percent Filipino seafarer who are officers while majority 72.2 percent of Filipino seafarer are ratings.
Table 6 Summary of Length of Service of Seafarers

<table>
<thead>
<tr>
<th>Length of Service(yrs.)</th>
<th>Count</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;5</td>
<td>15</td>
<td>30.00</td>
</tr>
<tr>
<td>5 and less than 10</td>
<td>18</td>
<td>36.00</td>
</tr>
<tr>
<td>10 and less than 15</td>
<td>14</td>
<td>28.00</td>
</tr>
<tr>
<td>15 and less than 20</td>
<td>2</td>
<td>4.00</td>
</tr>
<tr>
<td>20 and more</td>
<td>1</td>
<td>2.00</td>
</tr>
</tbody>
</table>

Presented in Table 6 is the summary of the length of service of the seafarers to their respective Manning agencies. Majority of the seafarers have been with their respective companies for quite some time. Many of them have been there for more than 5 years (35/50 or 70%) while it can also be said that there is an influx of new seafarers as well coming from other Manning agencies or fresh graduates with (15/50 or 30%) are less than 5 years.

Table 7 Summary of Employment Status of Seafarers

<table>
<thead>
<tr>
<th>Employment Status</th>
<th>Count</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Permanent</td>
<td>40</td>
<td>80.00</td>
</tr>
<tr>
<td>Probationary</td>
<td>10</td>
<td>20.00</td>
</tr>
</tbody>
</table>

Presented in Table 7 is the summary of the employment status of the seafarers. Based on permanency, about (40/50 or 80%) are permanent seafarers as most of their contracts are always renewed every year. Only (10/50 or 20%) are probationary.

Table 8 Summary of Highest Educational Attainment of Seafarers

<table>
<thead>
<tr>
<th>Highest Educational Attainment</th>
<th>Count</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Non-BS degree</td>
<td>22</td>
<td>44.00</td>
</tr>
<tr>
<td>BS ME</td>
<td>12</td>
<td>24.00</td>
</tr>
<tr>
<td>BS MT</td>
<td>15</td>
<td>30.00</td>
</tr>
<tr>
<td>Full-Fledged Master's Degree</td>
<td>1</td>
<td>2.00</td>
</tr>
</tbody>
</table>

Presented in Table 8 is the summary of the highest educational attainment of the seafarers. With regards to their educational background, majority of the seafarers are Non-BS degree (22/50 or 44%), while (12/50 or 24%) are graduates of BS Marine Engineering, (15/30 or 30%) are graduates of BS in Marine Transportation and lastly, only (1/50 or 2%) is a holder of Master’s Degree. A ship cannot run without engine officers and deck officers. Thus the need for both the types of officers will always be there (Unless they come up with totally unmanned ships). Both sides have bright and respectable futures.
Table 9 Summary of number of times seafarer enrolled at Powerlink

<table>
<thead>
<tr>
<th>Number of times enrolled</th>
<th>1 time</th>
<th>2 to 3 times</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>45</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td>90.00</td>
<td>10.00</td>
</tr>
</tbody>
</table>

Presented in Table 9 is the summary of the average number of times that seafarers enrolled at Powerlink. Majority of the seafarers took their training with Powerlink for the first time with (45/50 or 90%) are new students of the Training Center.

Table 10 Means and Standard Deviations on the Relevance of Powerlink Maritime Training to Seafarers

<table>
<thead>
<tr>
<th>Courses Offered from POWERLINK</th>
<th>Mean</th>
<th>SD</th>
<th>VI</th>
</tr>
</thead>
<tbody>
<tr>
<td>SAFETY, FIREFIGHTING &amp; SECURITY COURSES</td>
<td>3.38</td>
<td>0.63</td>
<td>VI</td>
</tr>
<tr>
<td>MANAGEMENT, LEADERSHIP AND BEHAVIORAL COURSES</td>
<td>3.42</td>
<td>0.59</td>
<td>VI</td>
</tr>
<tr>
<td>STEWARDING COURSES</td>
<td>3.68</td>
<td>0.51</td>
<td>VI</td>
</tr>
<tr>
<td>ASSESSMENT COURSES from TesDa</td>
<td>3.71</td>
<td>0.53</td>
<td>VI</td>
</tr>
</tbody>
</table>

Legend: 4=Very Relevant, 3=Relevant, 2=Irrelevant, and 1=Strongly Irrelevant
(Qualitative Description: VR=Very Important, R=Important, I=Unimportant, and SI=Very Unimportant)

Based on table 10, most of the seafarers who took their Maritime training at Powerlink view the courses as relevant to their seafaring career. With a mean of 3.55 for the perceived relevance of the training courses for them, among the seafarers who took their courses at Powerlink, majority of them believe that these courses are practical and applicable to their current positions while working on board. Seafarers are submitted to many specific conditions which shape their career and education. The researcher is trying to observe and analyze data from the enrollees to see whether those who found the courses relevant in their profession will exhibit a higher perceived competency level to the courses they took from the training center.

Table 11 Means and Standard Deviations on the level of Competency of the Seafarers as a Result of Maritime Training

<table>
<thead>
<tr>
<th>Courses Offered from POWERLINK</th>
<th>Mean</th>
<th>SD</th>
<th>VI</th>
</tr>
</thead>
<tbody>
<tr>
<td>SAFETY, FIREFIGHTING &amp; SECURITY COURSES</td>
<td>3.15</td>
<td>0.55</td>
<td>I</td>
</tr>
<tr>
<td>MANAGEMENT, LEADERSHIP AND BEHAVIORAL COURSES</td>
<td>2.94</td>
<td>0.59</td>
<td>I</td>
</tr>
<tr>
<td>STEWARDING COURSES</td>
<td>3.32</td>
<td>0.52</td>
<td>SI</td>
</tr>
<tr>
<td>ASSESSMENT COURSES from TesDa</td>
<td>3.60</td>
<td>0.53</td>
<td>SI</td>
</tr>
</tbody>
</table>

Legend: 4=strongly Improved, 3=Improved, 2=Did not Improved and 1=Strongly did not
improve
(Qualitative Description: SI=Very Competent, I=Competent, DNI=Incompetent, and SDNI=Very Incompetent)

Based on table 11 results it can be said that majority of the seafarers who took their Maritime training at Powerlink Maritime training center believed that their competency level based on knowledge, skills, and attitude increased after they underwent their training at the training center. With a mean of 3.25 for the perceived increase in competency level of the seafarers, majority of them believed that the courses they took from Powerlink improved their knowledge, skills, and attitude in performing their job.

**Table 12: Testing the relationship of the relevance of Powerlink training courses on the overall competency level of seafarers. (SAFETY, FIREFIGHTING & SECURITY COURSES)**

<table>
<thead>
<tr>
<th></th>
<th>safety</th>
<th>competency</th>
</tr>
</thead>
<tbody>
<tr>
<td>safety</td>
<td>Pearson Correlation</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Sig. (2-tailed)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>N</td>
<td>36</td>
</tr>
<tr>
<td>competency</td>
<td>Pearson Correlation</td>
<td>.292</td>
</tr>
<tr>
<td></td>
<td>Sig. (2-tailed)</td>
<td>.084</td>
</tr>
<tr>
<td></td>
<td>N</td>
<td>36</td>
</tr>
</tbody>
</table>

* Correlation is significant at the 0.05 level (2-tailed).

Based on Table 12, the researcher found out using Pearson Product Moment Correlation, there is no significant relationship between the perceived relevance of Powerlink Maritime courses (particularly those under Safety, Firefighting & Security topics) and the perceived increased competency level of the seafarers. Looking at the significant level of the Safety courses which is equal to p=0.084>.05 shows that there is no significant relationship.

**Table 13: Testing the significant impact of the relevance of Powerlink training courses on the overall competency level of seafarers. (SAFETY, FIREFIGHTING & SECURITY COURSES)**

<table>
<thead>
<tr>
<th>Model</th>
<th>Unstandardized Coefficients</th>
<th>Standardized Coefficients</th>
<th>t</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>B</td>
<td>Std. Error</td>
<td>Beta</td>
<td></td>
</tr>
<tr>
<td>1 (Constant)</td>
<td>2.272</td>
<td>.486</td>
<td>4.679</td>
<td>.000</td>
</tr>
<tr>
<td>safetyassessment</td>
<td>.258</td>
<td>.145</td>
<td>.292</td>
<td>1.782</td>
</tr>
</tbody>
</table>

a. Dependent Variable: safetycompetency
Based on table 13, the result of testing the relevance of the courses under Safety, Firefighting & Security courses and the impact it has on the competency level of the seafarer, it can be said that there is no significant impact between the two variables. The significant level of p=0.084>.05 and Beta of .292 tells us that the perceive relevance of the courses under Safety, Firefighting & Security will not have an impact on the competency level of the seafarer. These are those courses that enable the seafarers how to react on situations that can happen in their external environment from Maritime accidents, Pirates trying to go hijack their vessels, Inspection from different port states, and other more.

**Table 14: Testing the relationship of the relevance of Powerlink training courses on the overall competency level of seafarers. (MANAGEMENT, LEADERSHIP AND BEHAVIORAL COURSES)**

<table>
<thead>
<tr>
<th>Correlations</th>
<th>mgmt</th>
<th>competency</th>
</tr>
</thead>
<tbody>
<tr>
<td>mgmt</td>
<td>Pearson</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Correlation</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Sig. (2-tailed)</td>
<td>.026</td>
</tr>
<tr>
<td></td>
<td>N</td>
<td>32</td>
</tr>
<tr>
<td>competency</td>
<td>Pearson</td>
<td>.392*</td>
</tr>
<tr>
<td></td>
<td>Correlation</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Sig. (2-tailed)</td>
<td>.026</td>
</tr>
<tr>
<td></td>
<td>N</td>
<td>32</td>
</tr>
</tbody>
</table>

*Correlation is significant at the 0.05 level (2-tailed).

Based on Table 14, the researcher found out using Pearson Product Moment Correlation, there is a significant relationship between the perceived relevance of Powerlink Maritime courses (particularly those under Management, Leadership and Behavioral topics) and the perceived increased competency level of the seafarers. Looking at the significant level of the Management courses which is equal to p=0.026<.05 showing there is indeed a significant relationship.

**Table 15: Testing the significant impact of the relevance of Powerlink training courses on the over-all competency level of seafarers. (MANAGEMENT, LEADERSHIP AND BEHAVIORAL COURSES)**

<table>
<thead>
<tr>
<th>Coefficientsa</th>
<th>Unstandardized Coefficients</th>
<th>Standardized Coefficients</th>
<th>t</th>
<th>Sig.</th>
</tr>
</thead>
</table>
Based on table 15, the result of testing the relevance of the courses under Management, Leadership and Behavioral courses and the impact it has on the competency level of the seafarer, it can be said that there is a significant impact between the two variables. The significant level of p=0.026<.05 and Beta of .392 tells us that the perceive relevance of the courses under Management, Leadership and Behavioral topics will have an impact on the competency level of the seafarer. For the Management, Leadership and Behavioral courses, these are those reserved particularly for the Officers of the vessels (Captains, Chief Engineers, C/M, C/E, and others) who try to enhance their leadership and communication skills to their crew.

Table 16: Testing the relationship of the relevance of Powerlink training courses on the overall competency level of seafarers. (STEWARDING COURSES)

<table>
<thead>
<tr>
<th>Correlations</th>
<th>stewarding</th>
<th>competency</th>
</tr>
</thead>
<tbody>
<tr>
<td>stewarding</td>
<td>Pearson Correlation</td>
<td>1</td>
</tr>
<tr>
<td>Sig. (2-tailed)</td>
<td></td>
<td>.020</td>
</tr>
<tr>
<td>N</td>
<td>22</td>
<td>22</td>
</tr>
<tr>
<td>competency</td>
<td>Pearson Correlation</td>
<td>.492*</td>
</tr>
<tr>
<td>Sig. (2-tailed)</td>
<td>.020</td>
<td></td>
</tr>
<tr>
<td>N</td>
<td>22</td>
<td>22</td>
</tr>
</tbody>
</table>

* Correlation is significant at the 0.05 level (2-tailed).

Based on Table 16, the researcher found out using Pearson Product Moment Correlation, there is a significant relationship between the perceived relevance of Powerlink Maritime courses (particularly those under Stewarding topics) and the perceived increased competency level of the seafarers. Looking at the significant level of the Stewarding courses which is equal to p=0.020<.05 showing there is indeed a significant relationship.

Table 17: Testing the significant impact of the relevance of Powerlink training courses on the over-all competency level of seafarers. (STEWARDING COURSES)
Based on table 17, the result of testing the relevance of the courses under Stewarding topics and the impact it has on the competency level of the seafarer, it can be said that there is a significant impact between the two variables. The significant level of p=0.020<.05 and Beta of .492 tells us that the perceived relevance of the courses under Stewardship topics will have an impact on the competency level of the seafarer. The Stewarding courses prepare ordinary seafarers to become future Chief cooks in their vessels. Most of these seafarers are ratings (ordinary seafarer, messman, assistant cook, laundry boy, etc.) assisting their superiors in their respective tasks.

**Table 18: Testing the relationship of the relevance of Powerlink training courses on the overall competency level of seafarers. (ASSESSMENT COURSES)**

<table>
<thead>
<tr>
<th>Correlations</th>
<th>assesscourses</th>
<th>competency</th>
</tr>
</thead>
<tbody>
<tr>
<td>pearson</td>
<td>1</td>
<td>.334</td>
</tr>
<tr>
<td>Correlation</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sig. (2-tailed)</td>
<td></td>
<td>.191</td>
</tr>
<tr>
<td>N</td>
<td>17</td>
<td>17</td>
</tr>
<tr>
<td>competency</td>
<td></td>
<td></td>
</tr>
<tr>
<td>pearson</td>
<td>.334</td>
<td>1</td>
</tr>
<tr>
<td>Correlation</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sig. (2-tailed)</td>
<td>.191</td>
<td></td>
</tr>
<tr>
<td>N</td>
<td>17</td>
<td>17</td>
</tr>
</tbody>
</table>

* Correlation is significant at the 0.05 level (2-tailed).

Based on Table 18, the researcher found out using Pearson Product Moment Correlation, there is no significant relationship between the perceived relevance of Powerlink Maritime courses (particularly those under Assessment topics) and the perceived increased competency level of the seafarers. Looking at the significant level of the Assessment courses which is equal to p=0.191>.05 showing there is no significant relationship.

**Table 19: Testing the significant impact of the relevance of Powerlink training courses on the over-all competency level of seafarers. (ASSESSMENT COURSES)**
Based on table 19, the result of testing the relevance of the courses under Assessment topic and the impact it has on the competency level of the seafarer, it can be said that there is no significant impact between the two variables. The significant level of $p=0.191>0.05$ and Beta of $0.334$ tells us that the perceived relevance of the courses under Assessment topics will not have an impact on the competency level of the seafarer. The Assessment courses are those that require competency based learning where an assessor from Tesda will be evaluating the performance of the seafarers enrolled in the specific course before they are given their National Certifications from Tesda.

Table 20 presents if there is any significant difference between the Officer and Rating seafarers with respect to the relevance of the Training Programs to them

<table>
<thead>
<tr>
<th>Test Statistics(^a)</th>
</tr>
</thead>
<tbody>
<tr>
<td>officersratings</td>
</tr>
<tr>
<td>Mann-Whitney U</td>
</tr>
<tr>
<td>Wilcoxon W</td>
</tr>
<tr>
<td>Z</td>
</tr>
<tr>
<td>Asymp. Sig. (2-tailed)</td>
</tr>
<tr>
<td>Exact Sig. ([2^\ast(1-tailed Sig.)])</td>
</tr>
</tbody>
</table>

\(^a\) Grouping Variable: grouping

\(^b\) Not corrected for ties.

Looking at Table 20, the result showed that there is no significant difference between officers and ratings seafarers who took their Maritime training at Powerlink with regards to the relevance of these training programs to them. It should be noted though that the basis for determining the result was based on those similar courses that these officers and ratings seafarer took at Powerlink. This is due to $p$-value of 0.271 is greater than 0.05, so therefore the officers and ratings who took their training at Powerlink do not significantly differ with respect to the...
importance of the training courses in improving their competency level in performing their jobs accordingly.

Chapter 6 Conclusion and Recommendation

This study aimed to underscore the assumption that there is a relationship between relevance of Powerlink Maritime courses and the increase in the competency level among the seafarers who took their training. The researcher also found out that the seafarers found the courses offered by the company very relevant in their profession and that it also made them more competitive in terms of absorbing new knowledge, skills and attitude that enabled them to perform their jobs effectively and efficiently.

With regards to knowing if perceived relevance will result to increase in competency level of seafarers, the researcher observed that there are certain courses that resulted to this situation while other courses do not have any impact between relevance and competency of the seafarers. Those courses offered by Powerlink that resulted to highest relevance rate among the seafarers are from the Stewardship courses and Assessment courses. Probably this is because these are pre-requisite courses required by the manning and government agencies. These are also the same courses that presented that seafarers exhibited the highest level of competency. This might be because they are very eager to learn new methods as part of entering the seafaring industry and the motivation of being promoted to the next level. Another factor maybe because a lot of these seafarers are still very young with around 56% are aged below 30 years. They are still adjusting to a new working environment and a lot of them are eager to learn more. The courses that displayed a lower relevance rate are those belonging in the Safety and Management courses. Probably it’s because those attending the courses are long-time seafarers and have attended already several training programs. Again, these are the same courses that exhibited lower competency level among the seafarers having a mindset that they are already knowledgeable on these topics because of the years of experience they have as seafarers and from attending a lot of Maritime trainings as well from other Training centers.

The Pearson correlation was able to show that there is a significant relationship between the relevance of the Maritime training courses of Powerlink particularly those that belongs to (2) Management, Leadership and Behavioral courses and the perceived increased in competency level and (3) Stewardship courses and the perceived increased in competency level. On the other hand, there was no significant relationship between the relevance of (1) Safety, Firefighting, and Security courses and the perceived increase in competency level and relevance of (4) Assessment courses and the perceived increased in the competency level of the seafarers. The linear regression was used to measure if the relevance of the different courses among the seafarers belonging to the Main course has an impact on the increase competency level of the seafarers who trained at Powerlink Maritime Center. The Mann-Whitney test on the other hand showed that there was no difference on how seafarers perceived these trainings as relevant in their doing their jobs for their respective positions.

First, for future researchers who want to analyze the effect of Maritime training to the actual performance of these seafarers while doing their jobs onboard, they may further explore this research study. The researcher was limited by the fact that he measured the relevance of these training programs as well as the resulting increase in competency level based on the
perception of the seafarers who enrolled at Powerlink which can be subjective or bias. Real or actual results might be necessary to understand the effect of the increase in competency level.

Second, for the company, is the continuous improvement of Powerlink Maritime Training center. The fast changing trend in the delivery of education and the different training programs may encourage Powerlink to regularly access their curriculum to adapt to the changing needs of their seafarers and other stakeholders.

Lastly, for the company, is to further improve the assessment of the Seafarer after their training at Powerlink. The instructors and assessors of Powerlink must ensure that seafarers who attended their maritime trainings were able to understand what was taught to them by their instructors. One way to evaluate the effectiveness of the company is if they were able to improve the competency level of their seafarers. The management must further enhance and develop their capabilities by sponsoring their trainings and letting them attend conventions set forth by the IMO and other Maritime Governing bodies to continuously update themselves as well.

References

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Powerlink Company Employee Manual
Building from Within: An Exploratory Study of Expatriate Roles and Talent Development

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Abstract

This study aimed to investigate the connection between expatriate roles and the development of local talent in the country of deployment. A total of three themes emerged from the semi-structured interviews that were conducted in this qualitative study: (1) Differing expectations as an expatriate, (2) Perception that hiring external talent was easier, and (3) Lack of processes to fully support organic talent growth at a local level. The results showed that while expatriate managers were generally supportive of the idea to develop local talent, there clearly remained to be personal and organizational obstacles that had to be addressed first. These findings help provide valuable insight to HR planners and multinational companies that deploy expatriates, as they can better examine the strategies behind such deployments, and ensure they are able to derive maximum effectiveness from the said programs.

Key Words

Talent management; expatriate deployment; global integration

Introduction

Over the years, more companies have begun to recognize the increased value of doing business beyond their country’s borders. Multinational companies setting up operations here, for example, have largely contributed to helping grow our national economy. Long before even the Business Process Outsourcing (BPO) industry set up shop in the country, various international firms had already established subsidiary offices or satellite locations in the Philippines. The plans for ASEAN integration, once fully implemented, are even another case of how more local companies will be encouraged to become more adept at operating within a global context. One of the ways by which companies typically begin establishing a presence in a foreign country is through the deployment of managers to the country where the business intends to expand, a process called expatriation. A global survey by market research firm Finaccord shows that as of 2016, there are already roughly 50.6 million expats working worldwide, and by 2017 this figure is even expected to grow to 56.8 million (“Global Expatriates: Size, Segmentation”, 2016). This highlights the value of studying this group of executives, and evaluating whether their contributions go beyond not just growing the business from a numbers standpoint, but considering the role played by local talent in this process as well. The present study therefore
looks at this phenomenon and attempts to contribute new knowledge to the existing literature in strategic human resources management. Furthermore, this study aims to add value by examining the concept of expatriation and its relations to talent development from a humanistic perspective, providing managers with better insight as to why the development of local talent is important to any organization.

Background of the Study

With the phenomenon of globalization, multinational companies (MNCs) began looking outward by establishing their business operations overseas and sending expatriates to manage and maintain their subsidiaries abroad (Shay & Tracey, 2009). Expatriates are defined by Edstrom & Galbraith (1977) as individuals who, irrespective of their national origin, are transferred outside their native country to another country specifically for employment purposes. An alternative, and simpler, definition is that expatriates are employees “sent by his or her company in one country to manage operations in a different country” (Noe, 2006, p. 641). Within MNCs, they are considered as key strategic agents in the international transfer of knowledge (Kamoche, 1997), and to make this happen, generally international assignments last between one to five years (Caligiuri, Tarique, & Jacobs, 2009). Expatriates act as a “human link in international trade” (Ward, Bochner, & Furnham, 2001, p.168), as they demonstrate resemblance of parent organizational practices and tacit knowledge over borders (Riusala & Smale, 2007). Further, MNCs send expatriates for knowledge creation and global leadership development, either as a result of excellent prior performance, or to fill an immediate business need (Black & Gregersen, 1999). However, there are many things that need to be considered prior to making that decision whether to deploy a manager to a foreign country. Some of these include considerations around the current market conditions in that country, how much added value there would be by sending the expat to operate there, and even the profile of the expatriate they are considering to send, since special considerations will have to be made if the expat has a family, among other things (Feitosa, Kreutzer, Kramperth, Kramer, & Salas, 2014). It is therefore important to be very clear about what the company wants to achieve before sending in an expat. According to Edstrom & Galbraith (1977), there are three organizational motives for expatriate assignment: 1) fill a position, 2) management development, and 3) organizational development.

First, MNCs transfer expatriates to fill vacancies they cannot staff locally because of a lack of qualified manpower. An example is when MNCs start operations for the first time in a foreign country. If the business of the MNC is highly specialized or requires a very specific body of knowledge, it becomes necessary for the company to send its own managers from abroad to set things up properly. The idea behind this is that a foreign company cannot simply hire its subsidiary’s leadership without knowing whether they truly understand the company’s operations and culture. Thus, the hope is that by sending in someone who has a good understanding of the company, he or she would be able to set things up the same way as is already established in the home country. Other companies also opt to send in expatriates when there is a need to implement major organizational changes in their overseas subsidiaries to ensure that business operations can continue unhindered. Expatriates can also be looked at to fill up the need for transitional management until after local executives can fully assume the expat roles (Edstrom & Galbraith, 1977).
Regardless of the reason, the appointment of expatriates must be agreed upon by all concerned stakeholders, making it doubly important from the beginning that the objectives around the assignment are clear and agreed upon by all concerned parties.

Second, MNCs transfer expatriates for the developmental purposes of their managers. Assigning managers as expatriates can play a role in the development of the manager’s on-the-job competence and people skills, particularly through the exposure to a new work culture and environment. In many cases, one objective of an international assignment is to develop new skills or knowledge among local talent. This is because, though it is inevitable that some jobs will necessitate lengthier assignments, an expatriate role should never be viewed as a permanent post in the long term (Forster, 1997). In some cases, the duration of the assignment is affected by the possibility of finding a new job for the transferred manager, but this can be remedied if the company has good transition plans in place for these kinds of situations. Perhaps lastly, MNCs also transfer expatriates to rationalize an organizational structure (Edstrom & Galbraith, 1977). One of the potential purposes of expatriation is that in the process of doing the assignment, it not only positively affects the manager’s individual behavior, but also provides a good avenue for that change in behavior to impact the organization positively. An example of this would be in cases where a senior level manager is in want of training to be a general manager, with his or her own scope and portfolio. If there is no longer such an opportunity in the company’s main base of operations in a country, one possible option would be to let the said senior manager establish and run the foreign subsidiary or operation of the company. This would allow that person to gain valuable experience in managing his own portfolio, with the idea that he would not have gained the same possible experience if an international assignment had not been considered.

Notwithstanding their personal development, one of the main challenges that expatriates face in the workplace is in the localization process, where their successor is selected and trained (Law, Wong, & Wang, 2004). This is due to the inherent difficulties of successfully transferring knowledge among employees operating within the usually matrix structure of today’s MNC’s (Bonache & Brewster, 2001). Essentially, local managers are trained so that by the time the expatriate managers are due to return to their home countries, the local executive is fully capable of taking over the role. A company therefore becomes fully “localized” once a local workforce has successfully assumed all the duties and responsibilities of the expatriate managers. For one, expatriate assignments tend to be costly endeavors – MNCs that do it have to contend with costs around relocation, housing, travel and visa requirements, provision of additional allowances, and the like. If the expatriate has a family who will accompany him on the assignment, it becomes an even more costly endeavor. Therefore, at the end of the day, the value of expatriation can be manifold for a company, provided that there is a defined end date and clear expectations as to what outcomes there would be at the completion of the assignment. Cognizant that expatriate assignments can easily cost anywhere up to five times the regular cost of a local doing the same job, there is a clear benefit to ensuring that said assignments are not any longer than they should be.

**Research Problem and Objectives**
This study aimed to answer the following questions, which were posed directly to the participants in the study:

1. What is your understanding of your role as an expatriate in the Philippines?
2. Was the development of local talent an objective of your international assignment?
3. Do you currently experience any challenges in developing local talent (i.e. training a local employee who can eventually be your successor in the role)?

The objectives of the study were as follows:

1. To identify how talent development reflected as an outcome of expat assignments.
2. To better understand the challenges around the development of local talent.

Conceptual Framework

This study primarily references the model of Palmer and Varner on the determination of international staffing. According to them, there are three necessary stages to ensuring the success of an international assignment (Palmer & Varner, 1999). The first involves having the clarity around the importance of international operations, as it is important that companies do not expand internationally and send expatriate managers if the benefits of doing such have not yet been clearly identified. Second, companies should classify the nature of the international assignment, understanding the difference between assignments that are project-based versus those that have long-term strategic implications. Lastly, companies need to consider what activities are necessary to prepare the expat accordingly for the assignment, with a view that a short-term assignment would involve less preparation than a long one.

The researchers therefore posit that the said model denotes the criticality of having clear objectives to best position an international assignment for success, and in this study, the focus is on the objective of successfully conducting knowledge transfer to a local employee. With this in mind, the researchers propose a framework for defining the level of support among expatriate contributions to talent development, as shown in Figure 1 below.

Figure 1. The proposed framework of expatriate contributions to talent development
Figure 1 segments the expatriate employees into four different classifications – unaware, unwilling, unsupported, and unhindered. An expat is unaware when at the time of the assignment, the imperative and responsibility to develop local talent was not given or outright stated. This may be the case sometimes since not all expatriate assignments have an end-goal of knowledge transfer – some assignments are purely to diagnose a problem, work on a short-term objective, or deliver one-time operational improvements. Meanwhile, an expatriate is unwilling if that person was aware that knowledge transfer was an objective, but ended up completing an expatriate assignment without having identified a local successor to his role. In cases like these, where the work is ongoing and the expat’s skills continue to be needed, an extension of the assignment is done or another expat is sent in the place of the original. In both cases, the costs to the company remain much higher than if the knowledge transfer had been done. On the other hand, an expatriate is unsupported when there is a genuine expression of support for the goal of knowledge transfer, but believes that he is restricted by current company policies, or the current operating environment is not conducive, either because of the external market or because of internal company forces. An example of this could be if the company is unable to hire local talent with the right set of skills or capabilities that could enable the knowledge transfer to happen, or if the expat’s leaders in headquarters express discomfort with the idea of transferring authority to a local, and thus the expat is limited in what he or she can do. Lastly, an unhindered expatriate is aware of his or her role, is supportive of developing local talent, believes the company has the right systems and support structure in place, and is able to successfully transfer knowledge and responsibility to a local successor. For the purposes of this study, we define the development of local talent to be training an existing employee, and preparing that person to assume the duties and responsibilities of an expatriate role at the end of the international assignment.

Methodology

The study utilized a qualitative, descriptive-exploratory design to generate better insights into the drivers behind expatriate participation in local talent development. In adopting the case study approach, the researchers’ intent was to generate a deeper level of insight on the role expatriates played in local talent development. To accomplish this study, expatriates of a multinational technology company operating in the Philippines were chosen. With offices in 22 countries, including major global hubs in Australia, Singapore, Hong Kong, India, London, and the United States, and over 35,000 employees, the company provided direct services to an estimated 16 million people worldwide and generated an approximate USD 20 billion in total revenue for 2016.

In order to generate the qualitative feedback, the researchers utilized the interview format as a data collection tool. Cognizant of the nature of work and differing schedules of the intended participant pool, the option to do either an actual interview or simply respond to the questions via a Google Forms document was provided. For the latter, the expatriate respondents were provided with the electronic link to a Google Forms document that contained the applicable consent to participate and the questions for the study. All five participants who ultimately responded opted to participate via the Google Forms option, and once these responses were
received, the researchers then proceeded to analyze the data. A thematic analysis was then utilized to extract the general thoughts that could be derived from the total responses.

TABLE 1. Demographic profile of the expatriates

<table>
<thead>
<tr>
<th>Respondent</th>
<th>Age</th>
<th>Gender</th>
<th>Role</th>
<th>Direct Reports</th>
<th>Time in PH</th>
</tr>
</thead>
<tbody>
<tr>
<td>Harry E</td>
<td>36</td>
<td>Male</td>
<td>General Manager for Operations</td>
<td>6</td>
<td>4 years</td>
</tr>
<tr>
<td>Jeremy L</td>
<td>39</td>
<td>Male</td>
<td>General Manager for Networks</td>
<td>8</td>
<td>2 years</td>
</tr>
<tr>
<td>Mark R</td>
<td>34</td>
<td>Male</td>
<td>Project Manager – OPEX</td>
<td>3</td>
<td>2 years</td>
</tr>
<tr>
<td>Michael E</td>
<td>37</td>
<td>Male</td>
<td>General Manager for Sales</td>
<td>2</td>
<td>3 years</td>
</tr>
<tr>
<td>Alicia A</td>
<td>42</td>
<td>Female</td>
<td>General Manager for Analytics</td>
<td>10</td>
<td>1 year</td>
</tr>
</tbody>
</table>

Results and Discussion

The study examined whether the expatriates were aware of the responsibility they had towards local talent development, and whether this was even an expectation given to them to begin with when they started their foreign assignment. Based on the responses given, the following themes emerged:

5. Differing expectations as an expatriate
6. Perception that hiring external talent was easier
7. Lack of processes to fully support organic talent growth at a local level

These thematic streams formed the basis for the discussion of results below.

1) Differing expectations as an expatriate

The intent of the first research question in this study was to establish a baseline as to what the expatriates understood were their responsibilities when they were sent to the Philippines.

Of course, to grow the business. The Philippines is a very strategic location for us and it’s important that we further build our operational capabilities here. (Harry)

When I accepted the role, the direction from headquarters was to look at setting up a networks operation in the PHI, since as a company we were
moving in the direction of diversifying our business through international expansion. Aside from this, I had to look at making sure our current mobiles business in Australia could be adequately supported. (Jeremy)

To look at inefficiencies in our go-to-market processes and ensure operational excellence as we scale. (Mark)

Support our growing Philippines team and bring our ways of working over to see what will work and what won’t. (Michael)

To develop the maturity of our analytics and big data teams and enhance our existing predictive algorithms. (Alicia)

Meanwhile, the second research question in this study focused on determining whether knowledge transfer to a local successor was an objective of their international assignment. After reviewing their responses, it became evident to the researchers that the development of local talent was not a task given to all of them when they began their assignment. Based on the results, majority of the executives answered in the affirmative, but at least two of them stated that it was not something they had been told to consider.

The following affirmed that they were made aware that knowledge transfer to a local employee was the ultimate intent of the assignment:

Yes, definitely. Our investment in the Philippines extends not just to bringing physical infrastructure over, but also in terms of investing in its talent. (Harry)

Yes, since this was only a temporary assignment, at the end of it all, I was told that the expectation was to train someone to eventually fill my shoes. (Mark)

Of course, it’s not the first time I’ve been sent on assignment to a different country and that has always been the expectation. (Alicia)

Others though stated that the discussion with their manager on the assignment just revolved around the need to establish well the current operations in the Philippines, with no mention of having to develop local talent:

Not really, no. However, that hasn’t stopped me from mentoring a couple of members of my team that I see immense potential in. (Jeremy)

No it wasn’t. I have hired though Filipino managers since the time I started. (Michael)

2) Perception that hiring external talent was easier
3) Lack of processes to fully support organic talent growth
For the last research question, the focus was to determine what challenges they saw in developing local talent. This was particularly important as the intent of the study was to better understand what they saw were potential barriers to nurturing local successors. Furthermore, it was important to see if this could be done organically, meaning evaluating whether the processes were already in place within the organization to help make local talent development succeed.

Some expressed that sourcing out the right skill set from external candidates was faster and allowed quicker fulfillment of business outcomes as they already had the experience to hit the ground running, while others felt that developing talent from the local workforce could also be a challenge when one can’t clearly ascertain whether the local employees want a higher role or not:

It takes time. I think it’s great to really be invested into training people, but given the fast-paced and demand-driven portfolio I have, sometimes it’s just easier to hire someone who already has the necessary skillset I’m looking for since they can produce outcomes faster. (Michael)

I sometimes get the feeling that not all the Filipino managers in my team would want my position even if it was offered to them. I’m lucky to have two people now who are high potentials, but they’re currently individual contributors and whether they can replicate the same success as a people leader, and if they even want to be one, is something I can’t tell yet with certainty. I’m still optimistic though, and I have had discussions with them that when my assignment does end, the company would be needing someone local to take over. (Alicia)

It can take a while to develop local talent, not a luxury we always have when pressured by the business to deliver results, but it’s definitely something we try to do. (Harry)

On the other hand, the following said that they needed more support from the company in terms of having more formal programs in place that would allow high-potential local individuals to gain even broader experience outside their current lines of business:

Well, it’s really one thing to be told that the expectation is to find a local successor, and another thing to make it happen. While I certainly want to do it – and I’m of the opinion that it’s better to promote from the inside than get someone from the outside – it’s not easy when we don’t really have a good system in place for upskilling talent. Like in my portfolio, you can’t be good at operational excellence if you haven’t been exposed to a variety of models in the past. If we had a job rotation program of sorts that we could do for our top talent, that would help us greatly. (Mark)

There’s a lot of good talent to come around, but most of them gained it in the BPO space, with little exposure outside of that industry. This can be
troublesome for a tech company like ours, since our model can be quite different. We need to get better at training our people from within if we’re really serious about developing talent. (Jeremy)

Overall, the study aimed to examine the role that expatriates played in the global talent management strategy of a company, particularly when it came to the development of local talent. A total of three major themes emerged from the data, namely that 1) talent development was not a consistently stated outcome for expatriate assignments; 2) a general perception that “buying” external talent was easier; and, 3) that internal processes within the company were not fully in place to support local talent development. On the first observed theme, it can be derived from some of their responses that their reasons for being deployed as an expatriate did not all involve the imperative to develop local talent. Another observed theme was how some of the expats felt that getting people who were already “ready now” was a better approach than having to slowly build someone from within, only because of the pressure the business placed on them to generate results. Lastly, at least two expatriates commented how while they were certainly supportive of the idea for a local to take over once the international assignment ended, they did not think the company had all the proper processes in place to make this a reality. With these, taking a high-level look at the responses of the expatriates will show that in the continuum model that the researchers propose, the expatriate respondents felt mostly unsupported (Harry, Jeremy, Mark, and Michael), with one placing as unhindered (Alicia).

Conclusion and Recommendations

After reviewing the results of the study, it is evident that there remains to be a wealth of opportunity in local talent development within MNCs. The results showed that while all the expatriates were generally willing to engage in the activity, a combination of factors sometimes prevented them from doing so. This could be anything from not being briefed early on that knowledge transfer was a priority, or the belief that while it was a good idea on paper, the company’s current operations do not support such. What this study helps identify are the various challenges that can befall a company, its expat employees, and its talent development programs. Given the high stakes involved in expatriate deployments, it is imperative that companies plan such activities well, and emphasize that these international assignments are, at the core, temporary in nature, and thus someone from the local entity would need to eventually assume the role. From a humanistic perspective, companies that entrust their foreign subsidiaries to locally developed talent also send a message around the people investment that a company is willing to make, which ultimately is the right thing to do. By doing so, not only are companies able to institutionalize an internal development program for its high potentials, but they communicate to external parties that they believe in the local workforce and are willing to give critical business operations to a local to manage and run.

Future researchers who are interested in replicating this study or delving deeper into the mechanisms behind expatriate deployment could consider a wider range of industries and roles to see if similar themes could be generated. Given that many factors can affect expatriate efficiency in talent development, companies need to understand the importance of setting clear objectives and having the right support structure in place to develop local talent and to generate
the best outcome possible. Further research could also look at the quantitative impacts to the company that deployment extensions could have, especially in cases where no local successor was trained and identified, and whether this could potentially negate the financial benefits of having them in the foreign country to begin with.

References


Sustaining Talent in the BPO Industry: A Look at Job Satisfaction Factors

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Abstract

The Philippines is considered as the BPO capital of Asia due to Filipinos’ ability to speak English as a second language. Because of this, BPO has become an industry that contributed to the economic growth for decades. However, the industry is not spared from employee attrition, specifically companies must employ workers during the night shift. It is important for such companies to keep their employees since this is the life-blood of the industry.

The objective of this paper is to look at factors that make employees in the BPO satisfied with their job particularly looking at pay and the work-related tension they experience. Data was gathered through a self-administered survey questionnaire done face to face and google docs. The questionnaire was taken from an existing validated survey. Central limit theorem was employed to gather a sample size of 35 BPO employees from various locations in the National Capital Region. The quantitative approach of the study showed that pay and job induced tension are not the sole indicators of job satisfaction. The study concludes that apart from pay and work station design, ergonomic approaches employed, it is also important to show management support in creating a conducive working environment that are intrinsic to achieve job satisfaction.

Key Words

Business Process Outsourcing; Sustaining Talent; Job Satisfaction; Job Induced Tension

Background of the Study

Every living specie on this planet was given 86,400 seconds a day. From that 86,400 seconds, the Filipino worker spends 8-9 hours in the workplace for five (5) days or in seconds value is around 28,800 to 34,400 seconds. Due to different nature of work from the various industries and different company policies, an average Filipino worker spends for about 40-48 hours in a week or a total of 144,000 to 172,800 working seconds in the workplace, excluding travel time to and from work and the preparation time it entails.

Given that massive figure, it is important that Filipinos are satisfied with their job. Myriad studies made on job satisfaction, where if one would google Job Satisfaction Philippines, one will get 2,200,000 hits in just a matter of seconds. However, looking at this huge amount, most speaks of Job Satisfaction and only a handful spoke of the Philippine setting. The majority of the 2.2M data speaks of job satisfaction in various countries. Job satisfaction (Degracia, Capuyan, & Vizcarra, 2015) has been around since 1930’s in the vocabulary of organizational psychology that is also a discussion in the parameters of economics. Despite its length of time in
the field, the nomenclature and the use of various instruments vary along with the different attitudes about it in society leading to the diverse results in the field.

1.1 Introduction
Since 1992 when the first Business Process Outsourcing company started in the Philippines, it has brought about employment to 1 Million Filipinos not only in the National Capital Region but all the way to the key cities of the country. It contributed to $25B revenue to the economy (Business Mirror, 2015) and is expected to employ 225,000 employees more in the next years (Rappler, 2016).

Given its massive contribution to the Philippine economy, it is inevitable that the industry is here to stay for long. But just like most companies across the globe, sustaining talent will always be the major challenge of the industry, since as a Service Industry it is very much dependent on the workforce to deliver the various goods across the six-sectors (Tullao, et al. 2012).

HRM Practitioners, in the course of the ever-changing landscape of the world of business then evolved from being the “administrative assistants” to Strategic Partners (Bondarouk and Olivas-Lujan, 2014). Because of this imperative, the corporate strategy makes HR a key player in building competitive advantage. By doing so it is ensuring that the firm will have the best and the brightest people in the organization, which gave birth to the concept of Talent Management

1.2 Research Problem:
Since the BPO industry is a distinct business model where clients all over the globe outsourced their work overseas, employees in these firms come to work in various times of the day, mostly during nighttime. The nature of the job demands these employees to be either on the phones throughout the shift, use their computers most of the time and sit on their work stations in the duration of the 8-9 hours of their shift. Given this predicament, it is very fast for these employees to attain burnout due to their nature of their work. What companies do now is that they provide a very competitive package on top of the night differential rate ranging from 10% minimum to as high as 25% night differential rate computed against their basic pay. Thus, this study aims to see if pay is a crucial factor in determining job satisfaction among BPO employees. It will also look at how job induced tension affect job satisfaction, since literature has provided numerous studies particularly in the field of ergonomics that shiftwork as well as prolonged seating caused various workplace ailments. These concepts were later discussed in the review of related literature.

1.3. Objectives
The research problem rose from the conflicting news stories posted by two local online news article and that of a Southeast Asian. In CNN Philippines, (Jiao, 2016) a banner headline speaks of “Filipinos are happiest workers in Asia – Jobstreet. However, a year ago, in another online article (HR in Asia Resource, 2015), it states the Filipino employees less satisfied with their jobs: Survey reveals. Twelve days ago, the same news site claiming in 2016 that Filipinos are happiest workers in Asia, revealed that according to a study in Jobstreet, 70% of Filipinos are ‘happy’ with their jobs (CNN Philippines Business, 2015). With the rising “fake news” seen online, the researchers of this paper would like to really validate as to whether Filipinos are indeed satisfied with their jobs and what are the drivers that speaks of such satisfaction.
Furthermore, the objectives of this study would also encompass the fact that though there were a lot of job satisfaction journals have been made, however they do not focus on the BPO industry focused in the Philippine setting. Apart from the disparity of measuring the level of job satisfaction of Filipinos in the workplace, this paper will also look at the industry which have experienced a very high attrition rate. Thus, the research will focus on two hypotheses as follows:

1.4 Hypotheses

- H01 – Pay is a key factor in achieving Job Satisfaction
- H02 - Job Induced Tensions are the main reason why BPO employees are not satisfied with their jobs

1.5 Significance

The study will highlight the two (2) from the 12 factors that yield job satisfaction. The same instrument was used in measuring the job satisfaction of 30 respondents particularly DLSU Graduate students in a previous paper submitted in Strategic Human Resources subject. This time it focuses on BPO employees in the light of understanding their level of job satisfaction despite literature and reality shows the difficulties these employees are facing. Ultimately, if the national statistics shows a significant turnover rate, this paper will find out what factors contribute to such numbers using a sample size of 35 respondents.

1.6 Scope and Limitations

This paper focuses only on random sampling of BPO employees in the National Capital Region. Due to the limited time constraints, it will not focus on the HR practices of the firm. Also, the method of research was limited to doing online and paper survey. No focus group discussion and top management interviews were conducted as well as it did not have the statistics of exit interviews that contains reasons of why employees leave the company from various firms that the Human Resources keep. Finally, the review of related literature focuses only on the concepts of Talent Management, Job Satisfaction and Work-Related Ailments brought by shiftwork, prolong seating and use of computers for the duration of an 8-9-hour work schedule our BPO employees endure at night.

Further, despite the instrument used which composed of 12 questions of the different job factors, it will only highlight on pay and job induced tension. It will look at the two models using correlation and regression, where Pay and Job Induced Tension are the Dependent Variables and the rest of the demographics of the respondents as Independent Variables.

Literature Review

2.1 Talent Management

The concept Talent Management rose when the McKinsey and Company coined the term War for Talent in 1997 (Michael, et. al, 2001) and concluded that there is indeed a propensity for the war of talent. Lewis and Hackman (2006: 140) further defined Talent Management as “ensuring the right person is in the right job at the right time” and therefore surmised that Talent Management or TM is a collection of HR activities.

Talent Management despite its two-decade existence still is a major concern of companies’ due to the “insufficient pipeline of high potential employees to fill strategic management roles”
Attrition to the BPO has been the major concern of every company particularly the Call Centers. Though there are positive outlook that from 70% turnover rate, it dropped to 50%. (www.sourcefit.com, www.bigoutsour.come). However, according to the Philippine Statistics Authority (2016), the country on the average is experiencing a 7.79% separation rate. On a nationwide scale, attrition is posing a single digit figures whereas BPO is at 50%.

Servicing the other side of the globe during its business hours, employees have changed the landscape as various 24- hour food chains rose, transport systems increased and economic zones were created. Thus, their shiftwork practices are not only confined within the industry of Business Process Outsourcing but also touched the facet of food, transport and information technology.

2.2 Job Satisfaction:

In one article published in the European Journal of Applied Economics (Karyotakis & Moustakis, 2016), the authors presented a conceptual framework where Organizational Factors and Organizational culture leads to job satisfaction that in the end leads to Entrepreneurial Orientation or the mindset of the “owner”, linking their work productivity as if they are the owners of the company. However, in one local study on Job Satisfaction that was published in the DLSU Business & Economics review (Sia & Tan, 2016), the authors argued that job satisfaction is affected by Organizational Justice using its three dimensions (distributive, procedural and interactional) where their study revealed that distributive and interactional positively effects the employees’ job satisfaction. But why bother? Though the two previous journal articles speaks of other factors in job satisfaction, let us look at other articles how job satisfaction benefits the firm. In one study (Hsieh, n.d.) of Taiwanese firms, they looked at the management styles as one variable to achieve job satisfaction and the authors did an extra mile of extending the study on the firm’s performance. It showed that the firm performance improved when levels of job satisfaction is high. In the home front, a similar study of a Japanese firm (Angeles, Saludo, Virtus, & Tun, 2015) conducted and resulted in showing a positive correlation of job satisfaction to employee’s performance. But what factors affect job satisfaction? In the article published in SHRM (Wilkie, 2017) Magazine, 9 out of 10 employees are satisfied with job based on a recent survey conducted by the organization having respect as the top reason. Meanwhile, on a study made for the academe, (Basak & Govender, 2015), citing Luthans (2005) that “pay, promotion, work, supervision and fellow employees are the factors for the university academic, in terms of job satisfaction.

Of the many articles encountered for the purposes of the literature review, the article entitled “Deconstructing Job Satisfaction” (Weiss, 2002) has the most comprehensive definition citing Cranny, Smith and Stone (1992) stating “job satisfaction is an affective reaction to one’s job, resulting from the incumbent’s comparison of actual outcomes with those that are desired.” Weiss (2002) further quoted Locke (1969, p. 317) “job satisfaction as ‘pleasurable or positive emotional state resulting from an appraisal of one’s job or job experiences’”.

2.3 Shiftwork

Shiftwork, as defined by Helander (2006) is “any work done beyond 7pm and before 6am”. He further argued that “the problems of shift work lead to fatigue, health disorders, disruption of social life, decreased productivity and safety”. Kromer, Kromer and Kroemer-
Elbert (2001) added that shift-work is disrupting the normal body rhythms and presented that that certain mental tasks, focus of attention and being alert are jeopardized in the long run. Understanding the concept of shiftwork and effects on performance and productivity is under the discipline of ergonomics. Osborne (1996) further concurred that this is also the discipline using its “person-centered approach” lead to the work and performance of the individual in the workplace. He further argued its importance because the “human operator manages to cope with the environment” and is therefore must resolve its discrepancies.

Apart from shiftwork, Call Center Employees are also exposed to the prolonged sitting leading to body pain and MSDs (Abad, Galarido, Tiu, 2014).

Despite the big shift and economic rewards this industry has contributed to the nation, understanding the rudiments of their work has been the least of the agenda of the government – albeit the very curative measures it placed to ensure protection of the welfare and being of these “night owls.”

2.4 Common ailments in the Call Center

2.4.1 Computer-Related Disorders

A call center is defined as a place where contacts are made and received. It is a work environment in which the primary business is conducted through a telephone/headphone and computers. The call center work is characterized by fewer opportunities for variation in work task and longer work shifts in front of computers lead to long continuous work with slight variation and it has been shown to be associated with musculoskeletal disorders (MSD) (Gujrathi & Sharma, 2014).

Several studies reported that a wide range of physical ailments of call center agents which are backache, shoulder pain, headache due to eye strain, and dryness of eyes. The factors that contribute to the pain and discomfort felt by call center agents include keyboard position, mouse, and ergonomic chair. The body parts that experience the most pain are shoulder, lower back, upper back, neck, and wrists/hands. (Abad, Galarido, Tiu, 2014)

2.4.2. Musculoskeletal Disorders

According to Comcare (2015), one of the typical injuries that can be experienced due to the workplace includes musculoskeletal disorders (MSD) of the neck, back, and upper limbs. It is characterized by discomfort or pain of the tendons, muscles, and other tissues. There are several factors which contribute to the MSDs that the call center agents are experiencing. Listed below are the discussion for each MSD.

2.4.3. Back Pain

Back pain is caused by doing tasks which require repetitive activities like sitting for long hours and slouching, twisting or pulling when lifting an object, and changing of joint and discs with respect to its normal condition (Abad, Galarido, Tiu, 2014). Call center agents experience back pain because they sit for too long often in a static position or slouching. Whenever a call center agent sits in an awkward position, he tends to use additional muscle to support the other body structure.

2.4.4. Long Sitting

Call center agents seat for an extended period while being in the same environment as well as doing repetitive tasks. For the entire duration of their shift, they are seated while
answering calls. Moreover, when an agent is seated for a prolonged period, he/she tends to twist his/her back which adds up to the pain.

2.4.5. Neck Pain

Often making holding the neck in a forward bent posture for a prolonged time, and often working in the same position for a prolonged time were significantly associated with neck pain. Moreover, physical and psychosocial work factor are associated with the frequency of neck pain (Cagnie, et.al., 2007). Call center agents often work for a lengthy period time in a static position while demonstrating an awkward posture which could be a reason as to why they experience neck pain.

2.4.6. Carpal Tunnel Syndrome (CTS)

Carpal Tunnel Syndrome is the numbness, tingling, weakness, and other problems in the hand because of pressure on the median nerve in the wrist. The median nerve controls the movement and feeling in the thumb and first three fingers. When the person feels pain, numbness, and tingling in the three fingers and the thumb, this could be a symptom of CTS (WedMD, n.d.). Since call center agents spend their time in front the computer using their mouse and keyboard, it could affect their fingers which could lead to CTS. The repetitive motion of the hand increases their chance of obtaining CTS (Tecson, 2011).

2.4.7. DeQuervain’s Tenosynovitis

Also known as wrist tendonitis is a painful condition affecting the tendons on the thumb side of the wrist. Having DeQuervain’s Tenosynovitis will hurt when the person turns the wrist, grasps anything, or make a fist. The repetitive motion of the wrist causes De Quervain’s Tenosynovitis (Mayo Clinic, n.d.).

3.3 Impact to Work

Musculoskeletal disorders (MSDs) are the leading cause of work disability, sickness absence from work, ‘presenteeism’ and loss of productivity. This is a major issue that should be addressed because workers should be physically fit to perform their tasks well. If a worker is not fully-conditioned when working, then it may lead to a poor delivery of service and are more prone to error.

Musculoskeletal disorders (MSDs) may even get worse if left unaided may lead to a more serious case. Hence, as a business, it is important to address these kinds of issues most especially to their employees. Otherwise, good to great employees will immediately shift careers when their health is at stake.
Conceptual Framework
After the thorough literature review, this paper came up with a conceptual framework below:

Model 1: Pay as Dependent Variable and all Demographics as Independent Variable

Model 2: Job Induced Tension as Dependent Variable and all Demographics as Independent Variable
At the first part of our discussion, we have introduced Talent Management and how literature discusses its evolution stage that is why it is presented in various perspectives. Talent management, as an HR concept is something that is essential in keeping and sustaining a pool of right people in the organization. However, the nature of the Business Process Outsourcing work – that is where employees are exposed to shiftwork and computer related problems are work hazards that are legitimate excuse for them to leave their respective call center organizations.

This study aims to enlighten various HR practitioners to embrace several factors in keeping employees satisfied in the BPO industry. However, if pay and massive benefits are just the things that management dangle to attract and sustain talent, then the company must be missing something. To achieve job satisfaction and to keep the talents, is a must role of everyone in the organization, starting from the top management. Opportunities such as training programs, HR engagement activities and employee orientation to communicate the seriousness of the organization to ensure the well-being of employees will not only lead to higher employee productivity but also increase in corporate reputation and higher levels of talent attraction. Lewis and Heckman (2006) stressed that Talent Management can be strategic advantage of corporations, however looking at the Theoretical Framework of Abraham Maslow’s Hierarchy of Needs where the Physiological Factors are the fundamental and important thing to address and this is where pay comes in. This is why people work for them to get paid and to bring food to the table and buy their necessities to live a decent life. Pfeffer (2001) on the other hand claims that to win the “War for Talent” requires fixing the culture inside to attract the best talents outside and to keep and further develop the employees within. Bandari & Migiro (2015) in their study of IT Companies in India concluded that factors such as “quality of training received”, “scope of learning” and “work culture” are key factors of keeping their talented IT from going overseas. Moraes, et. al (2015) ultimately proves that preventive measures through training on ergonomics leads to a high reduction of illness rates are work when these are fully adopted by the worker. With these backing of the literature, the researcher concluded that to attract and sustain the talent, companies must ensure in keeping abreast with the factors that make them satisfied and due to the nature of the industry of shiftwork, prolonged seating and long use of the computer thus job induced tension and hours/working conditions are the sole items measured in this study.
Methodology

4.1. Research Locale
The study involved BPO employees coming from the National Capital Region

4.2. Research Design
This study has its foundations on quantitative data as well as descriptive statistics to give the readers a sound analysis based on the resulted generated

4.3. Respondents of the Study
The data gathered from respondents in the various BPO’s in the National Capital Region with the following demographics:

4.3.1. Profile of the Respondents
A total of 35 Call Center Employees participated in the survey. Of the 35, 15 are males or 42.86% and 20 are females or 57.14%. 82.86% or 29 are single while 6 or 17.14% are married. There were 7 or 20% of the respondents who probationary work status. The remaining 28 or 80% are regular or permanent employees. As to the breakdown of their designation, 1 or 2.86% is a member of Top Management; 14 or 40% are middle management; 16 or 45.71% are Rank and File or Associate Level and 4 or 11.43% considered themselves as “Others” – meaning they do consultancy work, Quality assurance or administrative work in the call center but cannot be considered as management member or agent. Finally, as to the tenure, 27 respondents or 77.14% are at a work experience of one to five years in their current employer, 6 or 17.14% are working for more than five but less than 10 years and lastly, 2 or 5.71% are connected with their company for 10 years and beyond.
Table 1: Descriptive Statistics of Respondents

<table>
<thead>
<tr>
<th></th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Male</td>
<td>15</td>
<td>42.86</td>
</tr>
<tr>
<td>• Female</td>
<td>20</td>
<td>57.14</td>
</tr>
<tr>
<td>Marital Status</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Single</td>
<td>29</td>
<td>82.86</td>
</tr>
<tr>
<td>• Married</td>
<td>6</td>
<td>17.14</td>
</tr>
<tr>
<td>Work Status</td>
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<td></td>
</tr>
<tr>
<td>• Regular/Permanent</td>
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<td>20.00</td>
</tr>
<tr>
<td>• Probationary</td>
<td>28</td>
<td>80.00</td>
</tr>
<tr>
<td>Work Experience</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Less than 5 years</td>
<td>27</td>
<td>77.14</td>
</tr>
<tr>
<td>• More than 5 years but less than 10 years</td>
<td>6</td>
<td>17.14</td>
</tr>
<tr>
<td>• 10 years and more</td>
<td>2</td>
<td>5.71</td>
</tr>
<tr>
<td>Job Level</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Top Management</td>
<td>1</td>
<td>2.86</td>
</tr>
<tr>
<td>• Middle Management</td>
<td>14</td>
<td>40.0</td>
</tr>
<tr>
<td>• Rank &amp; File or Associate</td>
<td>16</td>
<td>45.71</td>
</tr>
<tr>
<td>• Others (Consultancy Work)</td>
<td>4</td>
<td>11.43</td>
</tr>
</tbody>
</table>

4.4. Research Instrument:

The research instrument used is a survey questionnaire of developed by Dr. Alfred Dimaano in 2005 during his Statistics for Management Class in DBA. This was an 11-item survey with sub questions that asked of the following Job Satisfaction Factors:

1. Pay (5 sub questions)
2. Job Security (5 sub questions)
3. Social Simulation (5 sub questions)
4. Demographic Factors (5 sub questions)
5. Opportunity for Promotion (6 sub questions)
6. Recognition and Appreciation (5 subquestions)
7. Interpersonal Relationships (4 subquestions)
8. Opportunity to Use One’s Abilities (5 subquestions)
9. Working Hours and Physical Conditions (5 subquestions)
10. Adequate Authority & Sense of Control (5 subquestions)
11. Equal Opportunities Working Environment (5 subquestions)

However, the survey questionnaire of Dr. Dimaano did not consider Job or Work Induced Tension. Thus, the Job Induced Tension Scales were taken from the Handbook of Marketing Scales (pp. 299-300) citing study conducted by House and Rizzo (1972).

The respondents were able to answer the survey through means of google docs, where the researcher posted the link of the survey through crowdsourcing in Social Media. Out of the 35 respondents, 22 answered using the google docs, while 13 respondents did a paper survey due to
the restrictions of the Call Center Office to access sites such as Facebook, Gmail and their personal emails. This used a 4-point Likert Scale from: “1 as Strongly Disagree and 4 as Strongly Agree”

Table 2
Summary of Survey Questions

| Pay | 1 | Pay is the just monetary value (remuneration) given for work done |
| 2 | My salary is competitive with the local market. |
| 3 | My benefits are comparable with those offered by other companies |
| 4 | I am paid fairly for the work I do |
| 5 | Upon being hired, I was informed of the remuneration, due me, all the benefits and all financial concerns of my job or position. |

Job Induced Tension

| 6 | I experience Job Induced Tension which refers to the feeling of pressure, stress, or tension to produce a certain quality or quantity of work can be a workplace stressor |
| 7 | I feel fidgety or nervous because of my job |
| 8 | Problems associated with work have kept me awake all night |
| 9 | My job tends to directly affect my health |
| 10 | If I have a different job, my health would probably have improved |
| 11 | I often “take my job home with me” in the sense that I think about It when doing other things. |
| 13 | I feel nervous before attending meetings in the organization |
| 14 | I sometimes feel weak all over |
Results:

Comparison of Means: Pay as Dependent Variable

Table 3: Pay is the just monetary value (remuneration) given for work done

<table>
<thead>
<tr>
<th></th>
<th>N</th>
<th>Mean</th>
<th>Std. Error</th>
<th>Std. Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Single</td>
<td>29</td>
<td>2.034483</td>
<td>.126362</td>
<td>.6804808</td>
</tr>
<tr>
<td>Married</td>
<td>6</td>
<td>1.83333</td>
<td>.3073181</td>
<td>.7527727</td>
</tr>
<tr>
<td>Combined</td>
<td>35</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Pay is the just monetary value (remuneration) given for work done

95% Confidence Interval of the Difference

<table>
<thead>
<tr>
<th></th>
<th>t</th>
<th>df</th>
<th>Sig (2-tailed)</th>
<th>Mean Difference</th>
<th>Std. Error Difference</th>
<th>Lower</th>
<th>Upper</th>
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<tbody>
<tr>
<td></td>
<td>.6482</td>
<td>33</td>
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<td>.3103239</td>
<td>-.4302092</td>
<td>.8325081</td>
</tr>
</tbody>
</table>

Significant at p < .10

Table 3 shows that Single respondents (M = 2.03, SE = .12) agreed more than married respondents (M = 1.83, SE = .31) on pay is just a monetary value given to the work they do, r(33) = 0.6482, p = 0.7393.

Table 4: My salary is competitive with the local market

<table>
<thead>
<tr>
<th></th>
<th>N</th>
<th>Mean</th>
<th>Std. Error</th>
<th>Std. Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Single</td>
<td>29</td>
<td>3.172414</td>
<td>.1001104</td>
<td>.5391107</td>
</tr>
<tr>
<td>Married</td>
<td>6</td>
<td>2.66667</td>
<td>.421637</td>
<td>1.032796</td>
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<tr>
<td>Combined</td>
<td>35</td>
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</tbody>
</table>

My salary is competitive with the local market

95% Confidence Interval of the Difference

<table>
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<tr>
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<th>df</th>
<th>Sig (2-tailed)</th>
<th>Mean Difference</th>
<th>Std. Error Difference</th>
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<th>Upper</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1.7649</td>
<td>33</td>
<td>0.9566</td>
<td>.5057471</td>
<td>.2865541</td>
<td>-.0772515</td>
<td>1.088746</td>
</tr>
</tbody>
</table>

Significant at p < .10

Table 4 shows that Single respondents (M = 3.17, SE = .10) agreed more than married respondents (M = 2.67, SE = .42) on that their salary is competitive in the local market, r(33) = 1.7649, p = 0.9566. However, this is not statistically significant.
Table 5: My benefits are comparable with those offered by other Companies.

<table>
<thead>
<tr>
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<th>Mean</th>
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<th>Std. Deviation</th>
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<tr>
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<td>3.103448</td>
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<td>2.166667</td>
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<tr>
<td>Combined</td>
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</tbody>
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My benefits are comparable with those offered by other Companies.

<table>
<thead>
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<th>Std. Error Difference</th>
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</thead>
<tbody>
<tr>
<td></td>
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<td>33</td>
<td>0.9987</td>
<td>.9367816</td>
<td>.2871037</td>
<td>.3526648</td>
<td>1.520898</td>
</tr>
</tbody>
</table>

Significant at p < .10

Table 5 shows that single respondents (M = 3.10, SE = .10) agreed more than married respondents (M = 2.16, SE = .40) that their benefits are comparable to other companies, however this is not statistically significant, r(33) = 3.2629, p = 0.9987

Table 6: I am paid fairly for the work I do.

<table>
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<tr>
<th></th>
<th>N</th>
<th>Mean</th>
<th>Std. Error</th>
<th>Std. Deviation</th>
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</thead>
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<tr>
<td>Married</td>
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<td>2.66667</td>
<td>.2108185</td>
<td>.5163978</td>
</tr>
<tr>
<td>Combined</td>
<td>35</td>
<td></td>
<td></td>
<td></td>
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</table>

I am paid fairly for the work I do

<table>
<thead>
<tr>
<th></th>
<th>t</th>
<th>df</th>
<th>Sig (2-tailed)</th>
<th>Mean Difference</th>
<th>Std. Error Difference</th>
<th>Lower</th>
<th>Upper</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>0.7031</td>
<td>33</td>
<td>0.7565</td>
<td>.2643678</td>
<td>.3760135</td>
<td>-.5006373</td>
<td>1.029373</td>
</tr>
</tbody>
</table>

Significant at p < .10

Table 6 shows that single respondents (M = 2.93, SE = .16) agreed that they are paid fairly than married respondents (M = 2.67, SE = .21), however this is not statistically significant, r(33) = 0.7031, p = 0.7565
Table 7: Upon being hired, I was informed of the remuneration, due me, all the benefits and all financial concerns of my job or position.

<table>
<thead>
<tr>
<th></th>
<th>N</th>
<th>Mean</th>
<th>Std. Error</th>
<th>Std. Deviation</th>
</tr>
</thead>
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<tr>
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<td>.8048498</td>
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<tr>
<td>Married</td>
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<td>3.333333</td>
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<td>.5163978</td>
</tr>
<tr>
<td>Combined</td>
<td>35</td>
<td></td>
<td></td>
<td></td>
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</tbody>
</table>

Upon being hired, I was informed of the remuneration, due me, all the benefits and all financial concerns of my job or position.

95% Confidence Interval of the Difference

<table>
<thead>
<tr>
<th>t</th>
<th>df</th>
<th>Sig (2-tailed)</th>
<th>Mean Difference</th>
<th>Std. Error Difference</th>
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<th>Upper</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.7031</td>
<td>33</td>
<td>0.7565</td>
<td>0.2643678</td>
<td>0.3760135</td>
<td>-0.5006373</td>
<td>1.029373</td>
</tr>
</tbody>
</table>

Significant at p < .10

Table 7 shows that married respondents (M = 3.33, SE = .21) agreed more than single respondents (M = 3.17, SE = .14) that they were informed of their benefits and remuneration concerning the job and position. However, this is not statistically significant, r(33) = 0.7031, p = 0.7565.

Table 8: Pay is the just monetary value (remuneration) given for work done

<table>
<thead>
<tr>
<th></th>
<th>N</th>
<th>Mean</th>
<th>Std. Error</th>
<th>Std. Deviation</th>
</tr>
</thead>
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<td>.1428571</td>
<td>.3779645</td>
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<tr>
<td>Probationary Status</td>
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<tr>
<td>Combined</td>
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<td></td>
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<td></td>
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</table>

Pay is the just monetary value (remuneration) given for work done

95% Confidence Interval of the Difference

<table>
<thead>
<tr>
<th>t</th>
<th>df</th>
<th>Sig (2-tailed)</th>
<th>Mean Difference</th>
<th>Std. Error Difference</th>
<th>Lower</th>
<th>Upper</th>
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</thead>
<tbody>
<tr>
<td>0.6103</td>
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<td>0.1785714</td>
<td>0.2925983</td>
<td>-0.4167244</td>
<td>0.7738672</td>
</tr>
</tbody>
</table>

Significant at p < .10

Table 8 shows that regular employees (M = 2.14, SE = .14) agreed more than probationary employee respondents (M = 1.96, SE = .14) that pay is just a monetary value given for their work, however statistically insignificant, r(33) = 0.6103, p = 0.7271
### Table 9: My salary is competitive with the local market.

<table>
<thead>
<tr>
<th></th>
<th>N</th>
<th>Mean</th>
<th>Std. Error</th>
<th>Std. Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Regular Status</td>
<td>7</td>
<td>2.714286</td>
<td>.1844278</td>
<td>.48795</td>
</tr>
<tr>
<td>Probationary Status</td>
<td>28</td>
<td>3.178571</td>
<td>.1265494</td>
<td>.6696362</td>
</tr>
<tr>
<td>Combined</td>
<td>35</td>
<td>3.178571</td>
<td>.1265494</td>
<td>.6696362</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>My salary is competitive with the local market.</th>
<th>t</th>
<th>df</th>
<th>Sig (2-tailed)</th>
<th>Mean Difference</th>
<th>Std. Error Difference</th>
<th>Lower</th>
<th>Upper</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>-1.7155</td>
<td>33</td>
<td>0.0478*</td>
<td>-.4642857</td>
<td>.2706385</td>
<td>-1.014904</td>
<td>.0863325</td>
</tr>
</tbody>
</table>

Significant at p < .10

Table 9 showed that probationary employee respondents agreed (M = 3.17, SE = .12) more than regular employee respondents (M = 2.71, SE = .18) that their salary is competitive in the local market. This data is statistically significant, r(33) = -1.7155, p = 0.0478
Table 10: My benefits are comparable with those offered by other Companies

<table>
<thead>
<tr>
<th></th>
<th>N</th>
<th>Mean</th>
<th>Std. Error</th>
<th>Std. Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Regular Status</td>
<td>7</td>
<td>2.571429</td>
<td>.2020305</td>
<td>.5345225</td>
</tr>
<tr>
<td>Probationary Status</td>
<td>28</td>
<td>3.035714</td>
<td>.1406913</td>
<td>.7444681</td>
</tr>
<tr>
<td>Combined</td>
<td>35</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

My benefits are comparable with those offered by other Companies

<table>
<thead>
<tr>
<th></th>
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<th>df</th>
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</tr>
</thead>
<tbody>
<tr>
<td></td>
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<td>33</td>
<td>0.0659*</td>
<td>-.4642857</td>
<td>.3004197</td>
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</table>

95% Confidence Interval of the Difference

<table>
<thead>
<tr>
<th>Lower</th>
<th>Upper</th>
</tr>
</thead>
<tbody>
<tr>
<td>-1.075494</td>
<td>.1469228</td>
</tr>
</tbody>
</table>

Significant at p <.10

Table 10 showed that probationary employee respondents agree (M = 3.03, SE = .14) agreed more than regular employee respondents (M = 2.57, SE = .20) that their benefits are comparable offered by other companies. This is statistically significant, r(33) = -1.55, p = 0.06.

Table 11: I am paid fairly for the work I do

<table>
<thead>
<tr>
<th></th>
<th>N</th>
<th>Mean</th>
<th>Std. Error</th>
<th>Std. Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Regular Status</td>
<td>7</td>
<td>2.428571</td>
<td>.3688556</td>
<td>.9759001</td>
</tr>
<tr>
<td>Probationary Status</td>
<td>28</td>
<td>3</td>
<td>.1454786</td>
<td>.7698004</td>
</tr>
<tr>
<td>Combined</td>
<td>35</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

I am paid fairly for the work I do

<table>
<thead>
<tr>
<th></th>
<th>t</th>
<th>df</th>
<th>Sig (2-tailed)</th>
<th>Mean Difference</th>
<th>Std. Error Difference</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>-1.6670</td>
<td>33</td>
<td>0.0525</td>
<td>-.5714286</td>
<td>.342785</td>
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</table>

95% Confidence Interval of the Difference

<table>
<thead>
<tr>
<th>Lower</th>
<th>Upper</th>
</tr>
</thead>
<tbody>
<tr>
<td>-1.26683</td>
<td>.1259727</td>
</tr>
</tbody>
</table>

Significant at p <.10

Table 11 showed that probationary employee respondents (M = 3, SE = .14) agreed more than regular employee respondents (M = 2.42, SE = .37) that they are paid fairly in what they do. This is statistically significant, r(33) = -1.67, p = 0.05.
Table 12: Upon being hired, I was informed of the remuneration, due me, all the benefits and all financial concerns of my job or position

<table>
<thead>
<tr>
<th></th>
<th>N</th>
<th>Mean</th>
<th>Std. Error</th>
<th>Std. Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Regular Status</td>
<td>7</td>
<td>2.571429</td>
<td>.4285714</td>
<td>1.133893</td>
</tr>
<tr>
<td>Probationary Status</td>
<td>28</td>
<td>3.357143</td>
<td>.1055884</td>
<td>.5587211</td>
</tr>
<tr>
<td>Combined</td>
<td>35</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Upon being hired, I was informed of the remuneration, due me, all the benefits and all financial concerns of my job or position

<table>
<thead>
<tr>
<th>Upon being hired, I was informed of the remuneration, due me, all the benefits and all financial concerns of my job or position</th>
<th>t</th>
<th>df</th>
<th>Sig (2-tailed)</th>
<th>Mean Difference</th>
<th>Std. Error Difference</th>
<th>Lower</th>
<th>Upper</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>-2.6584</td>
<td>33</td>
<td>0.0060*</td>
<td>-.7857143</td>
<td>.2955556</td>
<td>-1.387027</td>
<td>-.1844019</td>
</tr>
</tbody>
</table>

Significant at p <.10

Table 12 showed that probationary status employee respondents (M = 3.36, SE = .10) agreed more than the regular status employee respondents (M = 2.57, SE = .43) that they were informed of the remuneration benefits and all financial concerns of the job. This is statistically significant, r(33) = -2.65, p = 0.0060
Comparison of Means: Job Induced Tension Dependent Variables:

Table 13: I experience Job Induced Tension which refers to the feeling of pressure, stress, or tension to produce a certain quality or quantity of work can be a workplace stressor

<table>
<thead>
<tr>
<th></th>
<th>N</th>
<th>Mean</th>
<th>Std. Error</th>
<th>Std. Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Single</td>
<td>29</td>
<td>2.241379</td>
<td>.1373139</td>
<td>.7394579</td>
</tr>
<tr>
<td>Married</td>
<td>6</td>
<td>2</td>
<td>.3651484</td>
<td>.8944272</td>
</tr>
<tr>
<td>Combined</td>
<td>35</td>
<td>2</td>
<td>.3651484</td>
<td>.8944272</td>
</tr>
</tbody>
</table>

95% Confidence Interval of the Difference

<table>
<thead>
<tr>
<th></th>
<th>t</th>
<th>df</th>
<th>Sig (2-tailed)</th>
<th>Mean Difference</th>
<th>Std. Error Difference</th>
<th>Lower</th>
<th>Upper</th>
</tr>
</thead>
<tbody>
<tr>
<td>Single</td>
<td>0.7036</td>
<td>33</td>
<td>0.7567</td>
<td>.241379</td>
<td>.3430816</td>
<td>-.4566255</td>
<td>.9393841</td>
</tr>
</tbody>
</table>

Significant at p <.10

Table 13 showed that single respondents (M = 2.24, SE = .13) agreed that they experience more job induced tension than married employee respondents (M = 2, SE = .37). However, this is not statistically significant, r(33) = 0.7036, p = 0.7567.

Table 14: I feel fidgety or nervous because of my job

<table>
<thead>
<tr>
<th></th>
<th>N</th>
<th>Mean</th>
<th>Std. Error</th>
<th>Std. Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Single</td>
<td>29</td>
<td>2.724138</td>
<td>.2040028</td>
<td>1.098588</td>
</tr>
<tr>
<td>Married</td>
<td>6</td>
<td>2.66667</td>
<td>.421637</td>
<td>1.032796</td>
</tr>
<tr>
<td>Combined</td>
<td>35</td>
<td>2</td>
<td>.421637</td>
<td>1.032796</td>
</tr>
</tbody>
</table>

95% Confidence Interval of the Difference

<table>
<thead>
<tr>
<th></th>
<th>t</th>
<th>df</th>
<th>Sig (2-tailed)</th>
<th>Mean Difference</th>
<th>Std. Error Difference</th>
<th>Lower</th>
<th>Upper</th>
</tr>
</thead>
<tbody>
<tr>
<td>Single</td>
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<td>33</td>
<td>0.5465</td>
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<td>.4883572</td>
<td>-.9360989</td>
<td>1.051041</td>
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</tbody>
</table>

Significant at p <.10

Table 14 showed that the single employee respondents (M = 2.72, SE = .20) agreed that they felt nervous more on the job than married respondents (M = 2.67, SE = .42). However, not statistically significant, r(33) = 0.11, p = 0.55
Table 15: Problems associated with work have kept me awake all night

<table>
<thead>
<tr>
<th></th>
<th>N</th>
<th>Mean</th>
<th>Std. Error</th>
<th>Std. Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Single</td>
<td>29</td>
<td>2.862069</td>
<td>.1904373</td>
<td>1.025536</td>
</tr>
<tr>
<td>Married</td>
<td>6</td>
<td>2.66667</td>
<td>.421637</td>
<td>1.032796</td>
</tr>
<tr>
<td>Combined</td>
<td>35</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Problems associated with work have kept me awake all night

<table>
<thead>
<tr>
<th></th>
<th>t</th>
<th>df</th>
<th>Sig (2-tailed)</th>
<th>Mean Difference</th>
<th>Std. Error Difference</th>
<th>Lower</th>
<th>Upper</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>0.4244</td>
<td>33</td>
<td>0.6630</td>
<td>.1954023</td>
<td>.4604445</td>
<td>-.741379</td>
<td>1.132184</td>
</tr>
</tbody>
</table>

Significant at p <.10

Table 15 showed that single employee respondents (M = 2.86, SE = .19) agree more than married employee respondents (M = 2.67, SE = .42) that they are often awake all-night due to the problems associated with work. However, this is not statistically significant, r(33) = 0.42, p = 0.67.

Table 16: My job tends to directly affect my health

<table>
<thead>
<tr>
<th></th>
<th>N</th>
<th>Mean</th>
<th>Std. Error</th>
<th>Std. Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Single</td>
<td>29</td>
<td>2.827586</td>
<td>.1861522</td>
<td>1.00246</td>
</tr>
<tr>
<td>Married</td>
<td>6</td>
<td>3</td>
<td>.3651484</td>
<td>.8944272</td>
</tr>
<tr>
<td>Combined</td>
<td>35</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

My job tends to directly affect my health

<table>
<thead>
<tr>
<th></th>
<th>t</th>
<th>df</th>
<th>Sig (2-tailed)</th>
<th>Mean Difference</th>
<th>Std. Error Difference</th>
<th>Lower</th>
<th>Upper</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>-0.3895</td>
<td>33</td>
<td>0.3497*</td>
<td>-.1724138</td>
<td>.4426</td>
<td>-1.07289</td>
<td>.7280626</td>
</tr>
</tbody>
</table>

Significant at p <.10

Table 16 showed that married employee respondents (M = 3, SE = .36) agree more than single employee respondents (M = 2.92, SE = .18) that their job directly affects their health.

Table 17: If I have a different job, my health would probably have improved

<table>
<thead>
<tr>
<th></th>
<th>N</th>
<th>Mean</th>
<th>Std. Error</th>
<th>Std. Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Single</td>
<td>29</td>
<td>2.896552</td>
<td>.1743731</td>
<td>.9390279</td>
</tr>
<tr>
<td>Married</td>
<td>6</td>
<td>3</td>
<td>.3651484</td>
<td>.8944272</td>
</tr>
<tr>
<td>Combined</td>
<td>35</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

If I have a different job, my health would probably have improved

<table>
<thead>
<tr>
<th></th>
<th>t</th>
<th>df</th>
<th>Sig (2-tailed)</th>
<th>Mean Difference</th>
<th>Std. Error Difference</th>
<th>Lower</th>
<th>Upper</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>-0.2474</td>
<td>33</td>
<td>0.4031</td>
<td>-.1034483</td>
<td>.4181818</td>
<td>-.9542455</td>
<td>.7473489</td>
</tr>
</tbody>
</table>

Significant at p <.10
Table 17 showed that married employee respondents (M = 3, SE = .36) agreed more than single employee respondents (M = 2.89, SE = .17) that if they have a different job, their health would have probably improved. However, this is not statistically significant, r(33) = -0.2474, p = 0.40.

Table 18: I often “take my job home with me” in the sense that I think about It when doing other things

<table>
<thead>
<tr>
<th></th>
<th>N</th>
<th>Mean</th>
<th>Std. Error</th>
<th>Std. Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Single</td>
<td>29</td>
<td>2.793103</td>
<td>.2127657</td>
<td>1.145778</td>
</tr>
<tr>
<td>Married</td>
<td>6</td>
<td>2.833333</td>
<td>.4013865</td>
<td>.9831921</td>
</tr>
<tr>
<td>Combined</td>
<td>35</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

I often “take my job home with me” in the sense that I think about It when doing other things

<table>
<thead>
<tr>
<th></th>
<th>t</th>
<th>df</th>
<th>Sig (2-tailed)</th>
<th>Mean Difference</th>
<th>Std. Error Difference</th>
<th>Lower</th>
<th>Upper</th>
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</thead>
<tbody>
<tr>
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<td>33</td>
<td>0.4684</td>
<td>-0.0402299</td>
<td>.5035088</td>
<td>-1.064626</td>
<td>.9841665</td>
</tr>
</tbody>
</table>

Significant at p <.10

Table 18 provided us the information that married employee respondents (M = 2.83, SE = .40) agree more than single employee respondents (M = 2.79, SE = .21) that they often bring home their work. However, this is not statistically significant, r (33) = -0.08, p = .47.

Table 19: I feel nervous before attending meetings in the organization

<table>
<thead>
<tr>
<th></th>
<th>N</th>
<th>Mean</th>
<th>Std. Error</th>
<th>Std. Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Single</td>
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<td>2.689655</td>
<td>.1991574</td>
<td>1.072495</td>
</tr>
<tr>
<td>Married</td>
<td>6</td>
<td>2.666667</td>
<td>.421637</td>
<td>1.032796</td>
</tr>
<tr>
<td>Combined</td>
<td>35</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

I feel nervous before attending meetings in the organization

<table>
<thead>
<tr>
<th></th>
<th>t</th>
<th>df</th>
<th>Sig (2-tailed)</th>
<th>Mean Difference</th>
<th>Std. Error Difference</th>
<th>Lower</th>
<th>Upper</th>
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</thead>
<tbody>
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<td>33</td>
<td>0.5190</td>
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<td>.4783556</td>
<td>-.9502333</td>
<td>.9962104</td>
</tr>
</tbody>
</table>

Significant at p <.10

Table 19 showed that both single employee respondents (M = 2.68, SE = .19) and married employee respondents (M = 2.67, SE = .42) experience nervousness before attending meetings in the organization. This however is statistically insignificant, r(33) = 0.048, p = 0.52.
Table 20: I sometimes feel weak all over

<table>
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<tr>
<th></th>
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<th>Mean</th>
<th>Std. Error</th>
<th>Std. Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Single</td>
<td>29</td>
<td>2.62069</td>
<td>.1948461</td>
<td>1.049278</td>
</tr>
<tr>
<td>Married</td>
<td>6</td>
<td>2.666667</td>
<td>.421637</td>
<td>1.03</td>
</tr>
<tr>
<td>Combined</td>
<td>35</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>I sometimes feel weak all over</th>
<th>t</th>
<th>df</th>
<th>Sig (2-tailed)</th>
<th>Mean Difference</th>
<th>Std. Error Difference</th>
<th>Lower</th>
<th>Upper</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>-0.0979</td>
<td>33</td>
<td>0.4613</td>
<td>-.045977</td>
<td>.4694855</td>
<td>-1.001152</td>
<td>.9091984</td>
</tr>
</tbody>
</table>

Significant at p < .10

Table 20 showed us that both single employee respondents (M = 2.62, SE = .19) and married employee respondents (M = 2.67, SE = .42) are feeling weak all over in their job. However, this is not statistically significant, r(33) = -0.098, p = 0.46.
Table 21: I experience Job Induced Tension which refers to the feeling of pressure, stress, or tension to produce a certain quality or quantity of work can be a workplace stressor

<table>
<thead>
<tr>
<th></th>
<th>N</th>
<th>Mean</th>
<th>Std. Error</th>
<th>Std. Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Regular Status</td>
<td>7</td>
<td>2</td>
<td>.3086067</td>
<td>.8164966</td>
</tr>
<tr>
<td>Probationary Status</td>
<td>28</td>
<td>2.25</td>
<td>.7515416</td>
<td>.7515416</td>
</tr>
<tr>
<td>Combined</td>
<td>35</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>t</th>
<th>df</th>
<th>Sig (2-tailed)</th>
<th>Mean Difference</th>
<th>Std. Error Difference</th>
<th>Lower</th>
<th>Upper</th>
</tr>
</thead>
<tbody>
<tr>
<td>I experience Job Induced</td>
<td>-0.7746</td>
<td>33</td>
<td>0.2220</td>
<td>- .25</td>
<td>.3227486</td>
<td>-.906637</td>
<td>.406637</td>
</tr>
</tbody>
</table>

Significant at p < .10

Table 21 showed that probationary status employee respondents (M = 2.25, SE = .75) agree more than regular status employee respondents (M = 2, SE = .31) that they experience job induced tension. This is statistically insignificant though, r(33) = -0.7746, p = 0.2220.

Table 22: I feel fidgety or nervous because of my job

<table>
<thead>
<tr>
<th></th>
<th>N</th>
<th>Mean</th>
<th>Std. Error</th>
<th>Std. Deviation</th>
</tr>
</thead>
<tbody>
<tr>
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<td>.340068</td>
<td>.8997354</td>
</tr>
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<td>Probationary Status</td>
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<td>2.607143</td>
<td>.2079077</td>
<td>1.100144</td>
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<tr>
<td>Combined</td>
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<table>
<thead>
<tr>
<th></th>
<th>t</th>
<th>df</th>
<th>Sig (2-tailed)</th>
<th>Mean Difference</th>
<th>Std. Error Difference</th>
<th>Lower</th>
<th>Upper</th>
</tr>
</thead>
<tbody>
<tr>
<td>I feel fidgety or nervous</td>
<td>1.1887</td>
<td>33</td>
<td>0.8785</td>
<td>.5357143</td>
<td>.4506832</td>
<td>-.3812076</td>
<td>1.452636</td>
</tr>
</tbody>
</table>

Significant at p < .10

Table 22 showed that regular status employee respondents (M = 3.14, SE = .34) agree more than the probationary status employee respondents (M = 2.60, SE = .20) that they feel nervous because of the job.
Table 23: Problems associated with work have kept me awake all night

<table>
<thead>
<tr>
<th></th>
<th>N</th>
<th>Mean</th>
<th>Std. Error</th>
<th>Std. Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Regular Status</td>
<td>7</td>
<td>3</td>
<td>.3779645</td>
<td>1</td>
</tr>
<tr>
<td>Probationary Status</td>
<td>28</td>
<td>2.785714</td>
<td>.1948894</td>
<td>1.031258</td>
</tr>
<tr>
<td>Combined</td>
<td>35</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Problems associated with work have kept me awake all night</th>
<th>t</th>
<th>df</th>
<th>Sig (2-tailed)</th>
<th>Mean Difference</th>
<th>Std. Error Difference</th>
<th>Lower</th>
<th>Upper</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>0.4944</td>
<td>33</td>
<td>0.6879</td>
<td>.2142857</td>
<td>.4334142</td>
<td>-.6675021</td>
<td>1.096074</td>
</tr>
</tbody>
</table>

Significant at p < .10

Table 23 showed that regular employee respondents (M = 3, SE = .38) agree more than probationary status respondents (M = 2.78, SE = .19) that they are kept awake at night because of problems associated with the work. However, this is not statistically significant, r(33) = 0.49, p = 0.69.

Table 24: My job tends to directly affect my health

<table>
<thead>
<tr>
<th></th>
<th>N</th>
<th>Mean</th>
<th>Std. Error</th>
<th>Std. Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Regular Status</td>
<td>7</td>
<td>2.857143</td>
<td>.340068</td>
<td>.8997354</td>
</tr>
<tr>
<td>Probationary Status</td>
<td>28</td>
<td>2.857143</td>
<td>.1904762</td>
<td>1.007905</td>
</tr>
<tr>
<td>Combined</td>
<td>35</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>My job tends to directly affect my health</th>
<th>t</th>
<th>df</th>
<th>Sig (2-tailed)</th>
<th>Mean Difference</th>
<th>Std. Error Difference</th>
<th>Lower</th>
<th>Upper</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>0.0000</td>
<td>33</td>
<td>0.5000</td>
<td>0</td>
<td>.4179788</td>
<td>-.850382</td>
<td>.8503842</td>
</tr>
</tbody>
</table>

Significant at p < .10

Table 24 showed that both regular employee (M = 2.86, SE = .34) and probationary employee (M = 2.86, SE = .19) agree that their job is directly affecting their health. This is statistically significant, r(33) = 0.00, p = 0.5 (significant at p = 0.5).
Table 25: If I have a different job, my health would probably have improved

<table>
<thead>
<tr>
<th></th>
<th>N</th>
<th>Mean</th>
<th>Std. Error</th>
<th>Std. Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Regular Status</td>
<td>7</td>
<td>2.857143</td>
<td>.340068</td>
<td>.8997354</td>
</tr>
<tr>
<td>Probationary Status</td>
<td>28</td>
<td>2.928571</td>
<td>.1776431</td>
<td>.9399989</td>
</tr>
<tr>
<td>Combined</td>
<td>35</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>If I have a different job, my health would probably have improved</th>
<th>t</th>
<th>df</th>
<th>Sig (2-tailed)</th>
<th>Mean Difference</th>
<th>Std. Error Difference</th>
<th>95% Confidence Interval of the Difference</th>
<th>Lower</th>
<th>Upper</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>-0.1812</td>
<td>33</td>
<td>0.4287</td>
<td>-.0714286</td>
<td>.3941831</td>
<td>-.8734002 - .730543</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Significant at p < .10

Table 25 showed that probationary employee respondents (M = 2.93, SE = .17) agree more than the regular status respondents (M = 2.85, SE = .34) that their health would have improved if they have a different job. This is not statistically significant though, r(33) = -0.1812, p = 0.43.

Table 26: I often “take my job home with me” in the sense that I think about It when doing other things

<table>
<thead>
<tr>
<th></th>
<th>N</th>
<th>Mean</th>
<th>Std. Error</th>
<th>Std. Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Regular Status</td>
<td>7</td>
<td>2.857143</td>
<td>.340068</td>
<td>.8997354</td>
</tr>
<tr>
<td>Probationary Status</td>
<td>28</td>
<td>2.785714</td>
<td>.2203721</td>
<td>1.1661</td>
</tr>
<tr>
<td>Combined</td>
<td>35</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>I often “take my job home with me” in the sense that I think about It when doing other things</th>
<th>t</th>
<th>df</th>
<th>Sig (2-tailed)</th>
<th>Mean Difference</th>
<th>Std. Error Difference</th>
<th>95% Confidence Interval of the Difference</th>
<th>Lower</th>
<th>Upper</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>0.1506</td>
<td>33</td>
<td>0.5594</td>
<td>.0714286</td>
<td>.4742928</td>
<td>-.8935273 - 1.036384</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Significant at p < .10

Table 26 showed us that regular employee respondents (M = 2.86, SE = .34) agree more than the probationary status respondents (M = 2.78, SE = .22) that they take home their job with hem. This is no statistically significant though, r(33) = 0.15, p = .56.
Table 27: I feel nervous before attending meetings in the organization

<table>
<thead>
<tr>
<th></th>
<th>N</th>
<th>Mean</th>
<th>Std. Error</th>
<th>Std. Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Regular Status</td>
<td>7</td>
<td>3</td>
<td>.3086067</td>
<td>.8164966</td>
</tr>
<tr>
<td>Probationary Status</td>
<td>28</td>
<td>2.607143</td>
<td>.2079077</td>
<td>1.100144</td>
</tr>
<tr>
<td>Combined</td>
<td>35</td>
<td>3.022565</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 27 showed us that regular status employee respondents (M = 3, SE = .30) agree more than probationary status employee respondents (M = 2.60, SE = .20) that they feel nervous when they attend meetings in the organization. This is not statistically significant though, r(33) = .89, p = .81.

Table 28: I sometimes feel weak all over

<table>
<thead>
<tr>
<th></th>
<th>N</th>
<th>Mean</th>
<th>Std. Error</th>
<th>Std. Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Regular Status</td>
<td>7</td>
<td>2.857143</td>
<td>.2608203</td>
<td>.6900656</td>
</tr>
<tr>
<td>Probationary Status</td>
<td>28</td>
<td>2.571429</td>
<td>.208475</td>
<td>1.103146</td>
</tr>
<tr>
<td>Combined</td>
<td>35</td>
<td>2.689286</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 28 showed us that regular status employee respondents (M = 2.86, SE = .26) agree more than the probationary status employee respondents (M = 2.57, SE = .21) that they feel weak all over. This is not statistically significant though, r(33) = 0.65, p = 0.74.
Table 29: Means and Standard Deviation of the Survey Questions on Pay

<table>
<thead>
<tr>
<th>Questions on Pay</th>
<th>Mean</th>
<th>SD</th>
<th>Coefficient</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pay is the just monetary value (remuneration) given for work done</td>
<td>2</td>
<td>.11599542</td>
<td>1.764353</td>
</tr>
<tr>
<td>My salary is competitive with the local market.</td>
<td>3.085714</td>
<td>.1113057</td>
<td>2.859514</td>
</tr>
<tr>
<td>My benefits are comparable with those offered by other Companies.</td>
<td>2.942857</td>
<td>.1225969</td>
<td>2.69371</td>
</tr>
<tr>
<td>I am paid fairly for the work I do</td>
<td>2.885714</td>
<td>.1406553</td>
<td>2.599868</td>
</tr>
<tr>
<td>Upon being hired, I was informed of the remuneration, due me, all the benefits and all financial concerns of my job or position.</td>
<td>3.2</td>
<td>.1283378</td>
<td>2.93918</td>
</tr>
</tbody>
</table>

Table 30: Means and Standard Deviation on the Survey Question on Job Induced Tension

<table>
<thead>
<tr>
<th>Questions on Job Induced Tension which refers to the feeling of pressure, stress, or tension to produce a certain quality or quantity of work can be a workplace stressor</th>
<th>Mean</th>
<th>SD</th>
<th>Coefficient</th>
</tr>
</thead>
<tbody>
<tr>
<td>I experience Job Induced Tension</td>
<td>2.2</td>
<td>.1283378</td>
<td>1.939186</td>
</tr>
<tr>
<td>I feel fidgety or nervous because of my job</td>
<td>2.714286</td>
<td>.1813647</td>
<td>2.345708</td>
</tr>
<tr>
<td>Problems associated with work have kept me awake all night</td>
<td>2.828571</td>
<td>.1714286</td>
<td>2.480187</td>
</tr>
<tr>
<td>My job tends to directly affect my health</td>
<td>2.857143</td>
<td>.1647145</td>
<td>2.522403</td>
</tr>
<tr>
<td>If I have a different job, my health would probably have improved</td>
<td>2.914286</td>
<td>.1554145</td>
<td>2.598445</td>
</tr>
<tr>
<td>I often “take my job home with me” in the sense that I think about it when doing other things.</td>
<td>2.8</td>
<td>.1869705</td>
<td>2.42003</td>
</tr>
<tr>
<td>I feel nervous before attending meetings in the organization</td>
<td>2.685714</td>
<td>.1776193</td>
<td>2.324748</td>
</tr>
<tr>
<td>I sometimes feel weak all over</td>
<td>2.628571</td>
<td>.1743449</td>
<td>2.27426</td>
</tr>
</tbody>
</table>

Descriptive Statistics

Descriptive statistics show that respondents believe that their pay is competitive in the local market and benefits are comparable compared to other companies (M = 3.08, SD = .1113057). Also, another thing to note is that all companies are made clear of the remuneration, benefits and other financial concerns once they were hired (M = 2.942857, SD = .1225969). The lowest mean in the job satisfaction – pay survey is that they only see pay as the monetary value of what they do (M = 2, SD = .1159542).
Meanwhile on the Job Induced Tension Job Satisfaction factor questionnaire, we can see that our respondents believe that if they are in a different industry they agree that their health would have improved (M = 2.914286, SD = .1554145). On the flipside, respondents mean answers on question number 1, which asks whether or not they experience job induced tension, it scored the lowest (M = 2.2, SD = .1283378).

**Correlation Analysis**
Table 31: Correlation of Pay Dependent Variables vs. Independent Variables

<table>
<thead>
<tr>
<th>Dependent Variables</th>
<th>Marital Status</th>
<th>Work Status</th>
<th>Work Experience</th>
<th>Job Level</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pay is the just monetary value (remuneration) given for work done.</td>
<td>-0.1121</td>
<td>-0.1056</td>
<td>-0.0749</td>
<td>0.0591*</td>
</tr>
<tr>
<td>My salary is competitive with the local market.</td>
<td>-0.2937</td>
<td>0.2861</td>
<td>-0.2229</td>
<td>0.4328</td>
</tr>
<tr>
<td>My benefits are comparable with those offered by other Institutions/firms.</td>
<td>-0.4939</td>
<td>0.2598</td>
<td>-0.1720</td>
<td>0.1853</td>
</tr>
<tr>
<td>I am paid fairly for the work I do.</td>
<td>-0.1215</td>
<td>0.2787</td>
<td>-0.1764</td>
<td>0.2256</td>
</tr>
<tr>
<td>Upon being hired, I was informed of the remuneration, due me, all the benefits and all financial concerns of my job or position.</td>
<td>0.0810*</td>
<td>0.4200</td>
<td>-0.0677</td>
<td>0.2884</td>
</tr>
</tbody>
</table>

p > 0.05*

From Table 31, correlation analysis was conducted to determine the relationship of pay to that of other demographics of our BPO employees. This revealed that marital status, four out of five pay survey job satisfaction questionnaire gives us a low to moderate negative correlation, except for Question # 5, which asked of being “informed of their remuneration, benefits and other financial concerns of the job or position.” Work experience also showed comparable results: all negative correlation, however low to that of the pay dependent variable. On the other hand, job level showed low positive correlation to that of the pay dependent variables. Work status showed the same love positive correlation except for Question 1: “Pay is just a monetary value given for work done” which gave us little correlation.
Table 32: Correlation of Job Induced Tension Dependent Variable to the Demographics

<table>
<thead>
<tr>
<th>Dependent Variables</th>
<th>Marital Status</th>
<th>Work Status</th>
<th>Work Experience</th>
<th>Job Level</th>
</tr>
</thead>
<tbody>
<tr>
<td>I experience Job Induced Tension which is defined as feeling of pressure, stress,</td>
<td>0.1216</td>
<td>0.1336</td>
<td>0.2030</td>
<td>-0.2457</td>
</tr>
<tr>
<td>or tension to produce a certain quality or quantity of work can be a workplace</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>stressor.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I feel fidgety or nervous because of my job</td>
<td>-0.0205</td>
<td>-</td>
<td>0.1847</td>
<td>-0.0918</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>0.2026</td>
<td></td>
</tr>
<tr>
<td>Problems associated with work have kept me awake all night</td>
<td>-0.0737</td>
<td>-</td>
<td>0.1882</td>
<td>-0.1222</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>0.0857</td>
<td></td>
</tr>
<tr>
<td>My job tends to directly affect my health</td>
<td>0.0677</td>
<td>0.0000</td>
<td>0.1280</td>
<td>-0.1130</td>
</tr>
<tr>
<td>If I have a different job, my health would probably have improved</td>
<td>0.0430</td>
<td>0.0315</td>
<td>0.2714</td>
<td>-0.1777</td>
</tr>
<tr>
<td>I often “take my job home with me” in the sense that I think about it when doing</td>
<td>0.0139</td>
<td>-</td>
<td>0.2322</td>
<td>-0.2346</td>
</tr>
<tr>
<td>other things.</td>
<td></td>
<td></td>
<td>0.0262</td>
<td></td>
</tr>
<tr>
<td>I feel nervous before attending meetings in the organization.</td>
<td>-0.0084</td>
<td>-</td>
<td>0.0559</td>
<td>-0.1455</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>0.1517</td>
<td></td>
</tr>
<tr>
<td>I sometimes feel weak all over</td>
<td>0.0170</td>
<td>-</td>
<td>0.1352</td>
<td>-0.0180</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>0.1124</td>
<td></td>
</tr>
</tbody>
</table>

p > 0.05

Correlation analysis was conducted to determine the relationship of job induced tension to the different employee demographics (marital status, work status, work experience and job level) and among the demographics, work experience showed a positive correlation however the size of its correlation is very little (.00 to .30). On the other hand, job level shows indication of negative correlation but the size of its correlation is also very little (.00 to -.30).
Regression Analysis

Table 33: Regression Analysis on Pay is the just monetary value (remuneration) given for work done.

<table>
<thead>
<tr>
<th>Variable</th>
<th>Coefficient</th>
<th>Standard Error</th>
<th>Standardized Beta</th>
</tr>
</thead>
<tbody>
<tr>
<td>Marital Status</td>
<td>-.1839312</td>
<td>.3273302</td>
<td>.578</td>
</tr>
<tr>
<td>Work Status</td>
<td>-.2035019</td>
<td>.3186847</td>
<td>.528</td>
</tr>
<tr>
<td>Work Experience</td>
<td>-.0385964</td>
<td>.2227914</td>
<td>.864</td>
</tr>
<tr>
<td>Job Level</td>
<td>.0826897</td>
<td>.1789278</td>
<td>.646</td>
</tr>
</tbody>
</table>

Note: $R^2 = 0.0318$, $F (4,30) = .9096$ $P < 0.05^*$

Table 34: Regression Analysis on My salary is competitive with the local market.

<table>
<thead>
<tr>
<th>Variable</th>
<th>Coefficient</th>
<th>Standard Error</th>
<th>Standardized Beta</th>
</tr>
</thead>
<tbody>
<tr>
<td>Marital Status</td>
<td>-.4754063</td>
<td>.2600622</td>
<td>0.078</td>
</tr>
<tr>
<td>Work Status</td>
<td>.3640004</td>
<td>.2531934</td>
<td>0.161</td>
</tr>
<tr>
<td>Work Experience</td>
<td>-.1883855</td>
<td>.1770067</td>
<td>0.296</td>
</tr>
<tr>
<td>Job Level</td>
<td>.3250249</td>
<td>.1414422</td>
<td>0.029</td>
</tr>
</tbody>
</table>

Note: $R^2 = 0.3367$, $F (4,30) = .0.0128 P < 0.05^*$

Table 35: Regression Analysis on My benefits are comparable with those offered by other Institutions/firms.

<table>
<thead>
<tr>
<th>Variable</th>
<th>Coefficient</th>
<th>Standard Error</th>
<th>Standardized Beta</th>
</tr>
</thead>
<tbody>
<tr>
<td>Marital Status</td>
<td>-.9210894</td>
<td>.2841684</td>
<td>0.003</td>
</tr>
<tr>
<td>Work Status</td>
<td>.472113</td>
<td>.2766629</td>
<td>0.098</td>
</tr>
<tr>
<td>Work Experience</td>
<td>-.1388902</td>
<td>.1934142</td>
<td>0.478</td>
</tr>
<tr>
<td>Job Level</td>
<td>.1074136</td>
<td>.154553</td>
<td>0.492</td>
</tr>
</tbody>
</table>

Note: $R^2 = 0.3472$, $F (4,30) = .0.0103 P < 0.05^*$

Table 36: Regression Analysis on I am paid fairly for the work I do.

<table>
<thead>
<tr>
<th>Variable</th>
<th>Coefficient</th>
<th>Standard Error</th>
<th>Standardized Beta</th>
</tr>
</thead>
<tbody>
<tr>
<td>Marital Status</td>
<td>-.2215799</td>
<td>.3721143</td>
<td>.556</td>
</tr>
<tr>
<td>Work Status</td>
<td>.5528598</td>
<td>.362286</td>
<td>.137</td>
</tr>
<tr>
<td>Work Experience</td>
<td>-.2583933</td>
<td>.253273</td>
<td>0.316</td>
</tr>
<tr>
<td>Job Level</td>
<td>.1564233</td>
<td>.2023849</td>
<td>.446</td>
</tr>
</tbody>
</table>

Note: $R^2 = 0.1496$, $F (4,30) = .0.2853 P < 0.05^*$

Table 37: Regression Analysis on Upon being hired, I was informed of the remuneration, due me, all the benefits and all financial concerns of my job or position.

<table>
<thead>
<tr>
<th>Variable</th>
<th>Coefficient</th>
<th>Standard Error</th>
<th>Standardized Beta</th>
</tr>
</thead>
<tbody>
<tr>
<td>Marital Status</td>
<td>.1680685</td>
<td>.3237504</td>
<td>0.607</td>
</tr>
<tr>
<td>Work Status</td>
<td>.7208928</td>
<td>.3151995</td>
<td>0.029</td>
</tr>
<tr>
<td>Work Experience</td>
<td>-.1479411</td>
<td>.2203549</td>
<td>0.507</td>
</tr>
<tr>
<td>Job Level</td>
<td>.1835876</td>
<td>.1760808</td>
<td>0.305</td>
</tr>
</tbody>
</table>

Note: $R^2 = 0.2268$, $F (4,30) = 0.0929 P < 0.05^*$
Table 38: Regression Analysis on I experience Job Induced Tension which is defined as feeling of pressure, stress, or tension to produce a certain quality or quantity of work can be a workplace stressor

<table>
<thead>
<tr>
<th>Variable</th>
<th>Coefficient</th>
<th>Standard Error</th>
<th>Standardized Beta</th>
</tr>
</thead>
<tbody>
<tr>
<td>Marital Status</td>
<td>-.312574</td>
<td>.3399764</td>
<td>0.365</td>
</tr>
<tr>
<td>Work Status</td>
<td>.3527697</td>
<td>.3309969</td>
<td>0.295</td>
</tr>
<tr>
<td>Work Experience</td>
<td>.2331659</td>
<td>.2313989</td>
<td>0.322</td>
</tr>
<tr>
<td>Job Level</td>
<td>-.2869853</td>
<td>.1849058</td>
<td>0.131</td>
</tr>
</tbody>
</table>

Note: $R^2 = 0.1474$, $F (4,30) = 0.2937$ $P < 0.05^*$

Table 39: Regression Analysis on I feel fidgety or nervous because of my job

<table>
<thead>
<tr>
<th>Variable</th>
<th>Coefficient</th>
<th>Standard Error</th>
<th>Standardized Beta</th>
</tr>
</thead>
<tbody>
<tr>
<td>Marital Status</td>
<td>-.1404184</td>
<td>.4967534</td>
<td>0.779</td>
</tr>
<tr>
<td>Work Status</td>
<td>-.5992276</td>
<td>.4836331</td>
<td>0.225</td>
</tr>
<tr>
<td>Work Experience</td>
<td>.4144671</td>
<td>.3381063</td>
<td>0.230</td>
</tr>
<tr>
<td>Job Level</td>
<td>-.0118111</td>
<td>.2701734</td>
<td>0.965</td>
</tr>
</tbody>
</table>

Note: $R^2 = 0.0885$, $F (4,30) = 0.5796$ $P < 0.05^*$

Table 40: Regression Analysis on Problems associated with work have kept me awake all night

<table>
<thead>
<tr>
<th>Variable</th>
<th>Coefficient</th>
<th>Standard Error</th>
<th>Standardized Beta</th>
</tr>
</thead>
<tbody>
<tr>
<td>Marital Status</td>
<td>-.2811804</td>
<td>.475814</td>
<td>0.559</td>
</tr>
<tr>
<td>Work Status</td>
<td>-.2216036</td>
<td>.4632467</td>
<td>0.636</td>
</tr>
<tr>
<td>Work Experience</td>
<td>.3708241</td>
<td>.3238543</td>
<td>0.261</td>
</tr>
<tr>
<td>Job Level</td>
<td>-.1052339</td>
<td>.2587849</td>
<td>0.687</td>
</tr>
</tbody>
</table>

Note: $R^2 = 0.0640$, $F (4,30) = 0.7268$ $P < 0.05^*$

Table 41: Regression Analysis My job tends to directly affect my health

<table>
<thead>
<tr>
<th>Variable</th>
<th>Coefficient</th>
<th>Standard Error</th>
<th>Standardized Beta</th>
</tr>
</thead>
<tbody>
<tr>
<td>Marital Status</td>
<td>.1260603</td>
<td>.4657031</td>
<td>0.788</td>
</tr>
<tr>
<td>Work Status</td>
<td>.0283372</td>
<td>.4534028</td>
<td>0.951</td>
</tr>
<tr>
<td>Work Experience</td>
<td>.1810643</td>
<td>.3169725</td>
<td>0.572</td>
</tr>
<tr>
<td>Job Level</td>
<td>-.140371</td>
<td>.2532858</td>
<td>0.584</td>
</tr>
</tbody>
</table>

Note: $R^2 = 0.0288$, $F (4,30) = 0.9239$ $P < 0.05^*$

Table 42: Regression Analysis on If I have a different job, my health would probably have improved

<table>
<thead>
<tr>
<th>Variable</th>
<th>Coefficient</th>
<th>Standard Error</th>
<th>Standardized Beta</th>
</tr>
</thead>
<tbody>
<tr>
<td>Marital Status</td>
<td>-.0011491</td>
<td>.4236282</td>
<td>0.998</td>
</tr>
<tr>
<td>Work Status</td>
<td>.0949865</td>
<td>.4124392</td>
<td>0.819</td>
</tr>
<tr>
<td>Work Experience</td>
<td>.3987348</td>
<td>.2883349</td>
<td>0.177</td>
</tr>
<tr>
<td>Job Level</td>
<td>-.2040113</td>
<td>.2304022</td>
<td>0.383</td>
</tr>
</tbody>
</table>

Note: $R^2 = 0.0973$, $F (4,30) = 0.5298$ $P < 0.05^*$
Table 43: Regression Analysis on I often “take my job home with me” in the sense that I think about it when doing other things.

<table>
<thead>
<tr>
<th>Variable</th>
<th>Coefficient</th>
<th>Standard Error</th>
<th>Standardized Beta</th>
</tr>
</thead>
<tbody>
<tr>
<td>Marital Status</td>
<td>-.0623253</td>
<td>.5092913</td>
<td>0.903</td>
</tr>
<tr>
<td>Work Status</td>
<td>.0074634</td>
<td>.4958398</td>
<td>0.988</td>
</tr>
<tr>
<td>Work Experience</td>
<td>.4097285</td>
<td>.34664</td>
<td>0.246</td>
</tr>
<tr>
<td>Job Level</td>
<td>-.3227148</td>
<td>.2769925</td>
<td>0.253</td>
</tr>
</tbody>
</table>

Note: $R^2 = 0.0985$, $F (4,30) = 0.5229$ $P < 0.05^*$

Table 44: Regression Analysis on I feel nervous before attending meetings in the organization.

<table>
<thead>
<tr>
<th>Variable</th>
<th>Coefficient</th>
<th>Standard Error</th>
<th>Standardized Beta</th>
</tr>
</thead>
<tbody>
<tr>
<td>Marital Status</td>
<td>-.0375776</td>
<td>.4995735</td>
<td>0.941</td>
</tr>
<tr>
<td>Work Status</td>
<td>-.3422973</td>
<td>.48673786</td>
<td>0.487</td>
</tr>
<tr>
<td>Work Experience</td>
<td>.1163579</td>
<td>.3400257</td>
<td>0.735</td>
</tr>
<tr>
<td>Job Level</td>
<td>-.1507606</td>
<td>.2717072</td>
<td>0.583</td>
</tr>
</tbody>
</table>

Note: $R^2 = 0.0389$, $F (4,30) = 0.8735$ $P < 0.05^*$

Table 45: Regression Analysis on I sometimes feel weak all over.

<table>
<thead>
<tr>
<th>Variable</th>
<th>Coefficient</th>
<th>Standard Error</th>
<th>Standardized Beta</th>
</tr>
</thead>
<tbody>
<tr>
<td>Marital Status</td>
<td>-.137895</td>
<td>.49095</td>
<td>0.978</td>
</tr>
<tr>
<td>Work Status</td>
<td>-.3601621</td>
<td>.4779829</td>
<td>0.457</td>
</tr>
<tr>
<td>Work Experience</td>
<td>.2848173</td>
<td>.3341563</td>
<td>0.401</td>
</tr>
<tr>
<td>Job Level</td>
<td>.0518647</td>
<td>.267017</td>
<td>0.847</td>
</tr>
</tbody>
</table>

Note: $R^2 = 0.0366$, $F (4,30) = 0.8856$ $P < 0.05^*$

Table 46 Summary of Pay Dependent Variables (Model 1)

<table>
<thead>
<tr>
<th>Pay Variable</th>
<th>Obs</th>
<th>$R^2$</th>
<th>$F$</th>
<th>$P$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pay is the just monetary value (remuneration) given for work done.</td>
<td>35</td>
<td>0.0318</td>
<td>.24693</td>
<td>0.9096</td>
</tr>
<tr>
<td>My salary is competitive with the local market.</td>
<td>35</td>
<td>0.3367</td>
<td>3.807671</td>
<td>0.0128</td>
</tr>
<tr>
<td>My benefits are comparable with those offered by other Institutions/firms.</td>
<td>35</td>
<td>0.3472</td>
<td>3.989485</td>
<td>0.0103</td>
</tr>
<tr>
<td>I am paid fairly for the work I do.</td>
<td>35</td>
<td>0.1496</td>
<td>1.319669</td>
<td>0.2853</td>
</tr>
<tr>
<td>Upon being hired, I was informed of the remuneration, due me, all the benefits and all financial concerns of my job or position.</td>
<td>35</td>
<td>0.2268</td>
<td>2.200215</td>
<td>0.0929</td>
</tr>
</tbody>
</table>

$p < 0.05$

Multiple regression analysis is used to know the impact of the pay variables in relation to job satisfaction on over-all. This shows that 33.67% that there is a linear relationship of having a competitive salary with the local market followed by a good roster of benefits of 34.72% The value of $F = 3.80$ is statistically significant on the competitive salary scale because $P < 0.05$. As to this pay model, we only accept competitiveness of the salary and benefits as good measures of job satisfaction in the BPO.
Table 47 Summary of Job Induced Tension (Model 2)

<table>
<thead>
<tr>
<th>Pay Variable</th>
<th>Obs</th>
<th>( R^2 )</th>
<th>F</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>I experience Job Induced Tension which is defined as feeling of pressure,</td>
<td>35</td>
<td>0.1474</td>
<td>1.296389</td>
<td>0.2937</td>
</tr>
<tr>
<td>stress, or tension to produce a certain quality or quantity of work can be a</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>workplace stressor.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I feel fidgety or nervous because of my job</td>
<td>35</td>
<td>0.0885</td>
<td>0.7284265</td>
<td>0.5796</td>
</tr>
<tr>
<td>Problems associated with work have kept me awake all night</td>
<td>35</td>
<td>0.0640</td>
<td>0.5128109</td>
<td>0.7268</td>
</tr>
<tr>
<td>My job tends to directly affect my health</td>
<td>35</td>
<td>0.0288</td>
<td>0.2221486</td>
<td>0.9239</td>
</tr>
<tr>
<td>If I have a different job, my health would probably have improved</td>
<td>35</td>
<td>0.0973</td>
<td>0.808187</td>
<td>0.5298</td>
</tr>
<tr>
<td>I often “take my job home with me” in the sense that I think about it when</td>
<td>35</td>
<td>0.0985</td>
<td>0.819682</td>
<td>0.5229</td>
</tr>
<tr>
<td>doing other things.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I feel nervous before attending meetings in the organization.</td>
<td>35</td>
<td>0.0389</td>
<td>0.3032329</td>
<td>0.8735</td>
</tr>
<tr>
<td>I sometimes feel weak all over</td>
<td>35</td>
<td>0.0366</td>
<td>0.2846154</td>
<td>0.8856</td>
</tr>
</tbody>
</table>

\( p < 0.05 \)

Multiple regression analysis is used to know the impact of job induced tension in relation to job satisfaction on over-all. This shows that 14.74% that there is a linear relationship of having a job induced tension that is detrimental to achieving job satisfaction. We therefore reject our null hypothesis since the \( p \) values are not \( < 0.05 \). Thus, our model 2 is not a good measurement and indicator of over-all job satisfaction.
Conclusion and Recommendations

6.1 Conclusion

There is a cost for every hire that we put in the workplace. Companies do expect a return of investment for every single individual they ask to join. However, with various “poaching” practices of various industries, not to mention that literature has provided where employees tend not to stay long in companies add to the long concern of talent management of organizations. BPO is not spared in this predicament. To add to this phenomenon, the nature of their job where work related disorders are evident, it is difficult to sustain talent if companies will not change their HR strategies. It can be concluded therefore that as companies would like to achieve their competitiveness, profitability and growth, they would have to look at a job satisfaction factors on keeping their talents. From the results of the survey, it shows that pay and job induced tension are not good measurements alone of job satisfaction of the BPO employees. The industry is very welcoming to diversity, allowing cross dressers, PWDs, senior employees and single parents and those with unique sexual preferences. However, despite the ability to manage diversity, it must be a constant practice of properly educating their Human Resource Department of its rewards & benefits program is just one aspect in achieving job satisfaction. Execution of organizational development programs addressing the top job satisfaction factors will yield to a more informed workplace. Further, companies must also have the initiative and not just wait for labor laws and magna carta for call center employees to really provide the employee value proposition. If employees feel from day 1 that their organization cares for their well-being and provide preventive measures rather than curative means to avoid workplace tension and job-related disorders, then employees will be able to further value the company and no need to seek for greener pastures.

From the regression models presented above, this paper can conclude that pay is just one aspect of the job satisfaction factors and it cuts across marital status, tenure, level in the organization and employment status. Working hours and physical condition apart from job related stress which are the focal point of this paper are other aspects that the model presented that has a significant correlation to ensure job satisfaction. Both models are had proven both hypothesis as null.

6.2. Recommendations
6.2.1 On Sustaining Talent

6.2.1.1. Common Misconceptions

Talent Management, since it is still in its initial stages has been unpopular in some geographical areas and viewed in different perspectives. Some believe that Talent Management is simply the work of people in the Human Resources (Bandari and Migiro, 2015). Krishnan and Scullion (2016) argued that Talent Management is a capability left to the multi-national enterprises (MNE) and small and medium enterprises (SMEs) are an exception. In the light of Sustaining Talent, further misconceptions are evidenced in literature. Allen, Bryant and Vardaman (2010) cited that employee turnover can be summarized into five which are all misconceptions due to the limited view of talent management. According to their journal article, they identified that people quit because of pay, managers can do only a small amount to affect turnover decisions and that there is a cookie-cutter strategy that will be effective in sustaining talent. Based on their research these are all misconceptions because they have argued the existence of evidence-based perspective coming from literature.
A journal article published in Labor Economics (Clark, 1997), the author argued that women are more disenfranchised when it comes to work however the study also showed women are having a high level of job satisfaction. This was taken from the British Household Panel Survey of 1991. This was not seen in this study though, as the data and its interpretations shows that regardless of gender, both men and women have important level of job satisfaction based on our convenient sampling size. This paper suggests that to stay consistent of sustaining the factors that lead to job satisfaction, it will be looked upon not just by Human Resources alone but everyone in the organization including the BPO employees themselves.

6.2.2. Management Efforts
In the light of these common misconceptions on Talent Management we can therefore conclude that such efforts of sustaining talent are not just within the hands of the human resources people, but rather a concerted effort of the various stakeholders of the organization.

6.2.3. Building Reputation
First management effort in sustaining talent is to build reputation. Harvey and Groutsis (2015) argues that reputation is a crucial factor in attracting and retaining talent. However, if the management is not keen on building the safety and welfare of these night workers, high performing employees can just flee from one call center to another and when their health takes toll, they shift careers in the daytime and see call center career as just a “stepping stone or entry to the corporate world”. Thus, this paper proposes the following management efforts in building reputation:

- Do a site assessment. Through analysis and employee interviews a simple site assessment conducted by an occupational healthcare organization will you pinpoint where hazards lie given the nature of the job and the common ailments that comes with it. Even small & medium call centers who can go through an ergonomics checklist and act accordingly can fill any gaps.
- Make workstations adjustable. Having employees move workstations frequently does not have to be a huge ergonomic headache. By simply providing the right ergonomic keyboard, adjustable chairs and desks and a handsfree headset can go a long way to avoid common ailments cited above.
- Vary posture. Encourage employees to move around when they take their breaks. The more movement, the more natural it will become, the greater the reduction in muscle strain, mental fatigue and metabolic disorders
- Make it a management priority. When management makes ergonomics a priority, employees are more likely to adhere to these corporate practices. Managers can make significant role models showing the team that extra care and support for their well-being.
- Check in with workers frequently. It is important to keep to communication lines open, since our call center agents are the front liners and are exposed to the hazards of shiftwork and prolong seating. They are having the greatest insight as to whether interventions are working. The more call centers feel they are involved in these changes the more likely they are changing their behaviors and their attitudes towards the company.

All these simple management efforts in lieu of building reputation were concluded by Sparrow and Makram (2015) as Talent Management initiatives that are value-driven processes. To make such efforts achieve the bottom line of the organization, that is competitiveness, profitability and growth, Lewis and Heckman (2006) argued that Talent Management should be a
strategic decision of the leadership of the enterprise as these leads to meaningful measures to be done in the workplace to improve the quality of employees’ well-being in the organization.

6.2.4. Importance of Training.

Training, though an intervention in the Talent Management also known as “developing talent” requires a separate discussion as proposed by literature.

Moraes, et. al (2015) concurred that telemarketers are exposed to various job induced work tensions due to the nature of their work. Even though their organizations are regulated for a span of eight years, still some of these organizations are guilty of executing the right ergonomic practices. Thus, they argued that training to the various stakeholders are vital and should be mandatory requirement that must be adopted by all companies involving workers. Tornstrom, et. al. (2008) in their study of the company Volvo argues that ergonomics assessments must be in place and the best way to ensure such practices are thriving in the organization is to optimize call center trainings during their downtimes or allotted on their serviced country holidays where there is no work, yet employees are paid and complies to the Philippine work calendar.

Given that the CNN news reported (CNN Philippines Business, 2015) stating that Filipinos are happy in the workplace is deemed true based from the respondent size taken from the central limit theorem (Field, 2009). However, looking at the extensive literature written on job satisfaction and the various forces at play, (Angeles et al., 2015; Basak & Govender, 2015; Karyotakis & Moustakis, 2016; Sia & Tan, 2016) the authors can simply intersperse the concept of Common Good and Humanistic Perspective in the Operational Framework. Meaning, for this study to have contributed to the discipline of Strategic Human Resources, it is imperative for corporations to look at the job satisfaction levels of the employees, since literature has provided that high job satisfaction affects the firm’s bottom line. Doing so, leads to the operationalizing organizational development efforts where every single employee contributes to the sustainability of the firm and its further growth. Growth in productivity which leads to the profitability of the organization that can provide further employment. In management perspective, this profitable firm can look for further ways to empower their associates, making sure that middle managers are knowledgeable in conducting thorough coaching and mentoring to their up and coming leaders. It is with this lens that helps them in their succession planning, making sure that the people will stay since they are focusing on the importance of their personal growth that are addressed in organization.

For the researcher and the academe, this can be a good starting point to further the study on job satisfaction by having more respondents and focusing at one industry at time. Future collaboration on the other discipline to ensure not just HR practices are in play but also in improving the physical work environment by infusing the science of ergonomics.

For the public sector particularly the government, in compliance to the Philippine Constitution and to the Catholic Social Teaching to push for more laws that generate incentives to firms who put employee satisfaction in the forefront of their competitiveness measures and in achieving the Employee of Choice.
References


Session F - Marketing, hospitality, and tourism
Psychographic Segmentation and Profiling of Millennials in Davao City

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Abstract

As there were no millennial psychographic segmentation studies done in Davao City, the researchers embarked on this particular study and focused on the values and purchasing behavior (lifestyle and attitude) of the millennials. The researchers localized the psychographic segmentation study as the culture in Davao City based on values may be different from other cities of the country.

The study was based on the List of Values (LOV) theory by Kahle (Kahle, Beatty, & Homer, 1986). The variables used in the conceptual framework were anchored on the Kahle’s variables: self-respect, security, warm relationships with others, self-fulfillment, sense of accomplishment, being respected, sense of belonging, fun and enjoyment, and excitement. The study was descriptive, exploratory, and correlational in design. It measured the variables using the following multivariate techniques: Factor Analysis and Cluster Analysis. The 280 millennial respondents were randomly selected at the 5 major malls in Davao City, and survey questionnaire was used in collecting the data.

The study manifested major segments of millennials that can be targeted by the marketers. Four segments were formed for psychographic segmentation. Segment 1 is labelled the Contented Millennials who are described as impulsive and spontaneous shoppers. Segment 2 is labelled Utilitarian Millennials, the rational shoppers. Segment 3 is labelled the Humble Millennials who are hedonic shoppers. Segment 4 is labelled the Proud Millennials who are smart and practical shoppers.

The Millennials in Davao City like to buy brand new products that offer most value in terms of services and prestige, and variety of choices (model and features) to choose from. They highly prefer conveniently located stores where they can easily find the needed product. They consider the overall store concept (atmospherics, amenities, merchandise) as very important to enjoy their shopping experience; where the store personnel demonstrate high regard for customers; and other customers’ behavior enhance their overall shopping experience. They do not like to shop in a busy and crowded environment. They like it when friends share with them their best value shopping experience. They shop around for best prices before actually deciding; they get attracted to discounted items, and wouldn’t mind waiting for store sales promotion to enjoy discounts. They do not use credit or debit card in their purchases, but use cash instead.

The researchers offered recommendations for each segment that the mall marketers, retailers and future investors can pursue or consider for their decision making. Moreover, the findings may be
used by the academe to discuss and describe the psychographics of the millennials. Future researchers may also use the findings to develop and deepen any related studies.

**Keywords:**

Psychographic Segmentation; Millennials; Values and Attitudes; Buying Preferences; Purchase behavior.

**Introduction**

People often purchase products for the benefit of value fulfillment (Khale et al., 1998). Further, as ‘the function of marketing is to help consumers fulfill their values’ (Khale & Kennedy, 1998), there is need to do psychographic segmentation to understand what customers value and how these can be fulfilled by marketers.

Values provide clues about how a society operates because values are also central to society. Some scholars view values as the individual's representation of a society's goals. If one wants to understand a culture, investigation of the values of people in that culture provides a promising starting point. Thus, the study was localized on the psychographic segmentation of millennials in Davao City as the culture in Davao City based on values may be different from other parts of the country or other countries.

The study was conducted on the five major malls in Davao City, namely: Abreeza Mall, Gaisano Mall of Davao, NCCC Mall of Davao, SM Mall- Ecoland, and SM-Mall Lanang. The Millennials shoppers aged 18-34 were purposively and randomly selected. About 56 millennial respondents per mall (or a total of 280 for the 5 malls) were intercepted by the interviewers who were positioned at the mall entrance during late afternoon of Friday, Saturday, and Sunday. This was based on the mall study of Te (2007) where the shoppers’ traffic is observed during late afternoon of Fridays, Saturdays and Sundays. Roughly every third incoming millennial shopper queuing at the mall entrance at the specified time was randomly selected.

The survey questionnaire is composed of 3 parts. Part 1 is about values; Part 2 is about buying preferences; and part 3 is about their demographic data. The survey questionnaire was validated by three (3) sociology and psychology experts to minimize the ambiguity of questions used.

**Findings**

**Cluster Analysis**

The main multivariate technique used in the study was hierarchical cluster analysis. The study came up with four major clusters. The clusters formed were cross tabulated with the millennials’ buying preferences and demographic data as basis for profiling them as follows:

The **Contented Millennials** value warm relationship with others, sense of accomplishment, self-respect, self-fulfillment, fun and enjoyment in life, sense of belonging, and being respected. Generally, they share the same buying behavior with the other millennials except that compared
to other segments, they are least attracted to discounted items, least mindful of good customer service, least particular about other customers’ behavior, least value sharing of friends’ best value shopping experience or checking out online friends for latest shopping information and hanging out activities. They do not plan their day and time of shopping and don’t think twice about the price when they really like a product. They are best described as impulsive and spontaneous buyers. The majority of millennials in this segment are female (58%), belonged to the 18-21 years of age bracket (67%), single (94%), college students (64%), and have no income but allowance only (58%). The other millennials in this segment, are in the 22-25 (18%) and 26-30 (16%) age bracket, college graduate (18%), employed by private companies (18%), and earning Php8,001-15,000 (15%) and Php15,001-30,000 (12%) monthly.

The Utilitarian Millennials. They value security and recognition, warm relationships with others, sense of belonging, security, being respected, excitement, self-fulfillment, and self-respect. They exhibit the typical behavior of the millennials in Davao City. However, they are the least demanding among the four (4) segments in terms of buying brand new products and branded products. They plan their day and time of shopping. They respond to store sales promotion and enjoy shopping alone. They are the rational and value shippers. The majority of millennials in this segment are female (60%), belonged to the 18-21 years age bracket (51%), single (92%), most of them are college students (50%), and have no income but allowance only (45%). The other millennials in this segment, are in the 22-25 (29%) and 26-30 (14%) age bracket, college graduate (31%), employed by private companies (23%), and earning Php8,001-15,000 (26%) and Php15,001-30,000 (13%) monthly.

The Humble Millennials value self-respect, however, they feel they do not have much to be proud of yet. This could mean that they need to work on things that they can be proud of to reach that level of healthy self-respect. In contrast to the other segments, they have the least number to prefer cash payment, to shop for best price, to avail of store sales promotion and to shop alone. Half of this segment prefer a small specialty store while the other half prefer the department store. They are not price-conscious. Shopping is a source image-building for them to boost confidence and self-esteem. They can best be described as hedonic shoppers. The majority of millennials in this segment are female (54%), belonged to the 18-21 years of age bracket (64%), single (98%), college students (56%), and have no income but allowance only (59%). The other millennials in this segment, are in the 22-25 (24%) and 26-30 (10%) age bracket, college graduate (28%), employed by private companies (14%), and earning Php8,001-15,000 (15%), Php15,001-30,000 (11%), Php8,000 and below (10%) monthly, respectively.

The Proud Millennials value and enjoy being respected as they do not fear being misunderstood and have not yet experienced being hurt. Among the general buying behavior of the Davao City millennials, they have the most number who prefer convenient location for shopping, consider the overall store concept as very important, and prefer good customer service where personnel regard customers highly. They do not like crowded or busy shops. They are the most demanding customers of a shopping mall or store. They prefer buying branded products, and are most interested with brand new products with variety of choices. They know what they want – quality products. They check out online friends for shopping tips and seek out friends for their best shopping experience, meaning they seek opinion from others. They shop around for best prices, are attracted to discounted items and willing to wait for store sales promotion to enjoy some
discount. They consider price before buying for products that they really like, but **not too price-conscious**. They can be best described as **smart and practical shoppers**. The majority of millennials in this cluster are female (55%), belonged to the 18-21 years of age bracket (58%), all single (100%), college students (42%), and have no income but allowance only (42%). The other millennials in this cluster are in the 22-25 (24%) and 26-30 (12%) age bracket, college graduates (46%), employed by private companies (24%), and earning Php8,001 and below (18%), Php8,001-15,000 and, Php15,001-30,000 (at 12% each), and Php30,001-50,000 and over Php100,000 (at 6% each) monthly.

**The Similarities and Differences of the Identified Segments**

In terms of their values, the Contented and the Utilitarian are very similar in valuing (1) warm relationship with others, (2) self-fulfillment, (3) sense of belonging, (4) self-respect, and (5) being respected. They differ in terms of sense of accomplishment and fun and excitement in life which only the Contented segment values; and security and excitement which only the Utilitarian segment values. The Humble and the Proud segments are similar to the Contented and the Utilitarian, only in terms of self-respect and being respected, respectively.

**Buying Preferences**

When analyzed according to their buying preferences, the identified segments, the Contented, the Utilitarian, the Humble and the Proud segments are similar in their attitude towards shopping. At least 70% of the millennials in Davao City have similar buying preferences. (1) They prefer brand new products (73.9%) and look for products with most value in terms of services and prestige (94.6%). They are more interested with products that offer a variety of choices (model and features) to choose from (86.1%). (2) They prefer conveniently-located store where they can easily find the needed product (92.1%). (3) With regards to stores, they consider overall store concept (atmospherics, amenities, merchandise) as very important for them to enjoy their shopping experience (86.1%); where there is good customer service (78.2%) and other customers’ behavior enhance their overall shopping experience (77.1%). They do not like to shop in a crowded or busy environment (79.3%). (4) They like friends sharing best value shopping experience (86.1%), except the **Contented segment** (67%). Interestingly, the **Proud millennials** indicated that they like it (100%). (5) They usually get attracted to discounted items (84.3%), will respond to sales promotions to enjoy some discount (77.9%), and shop around for best prices (77.9%). They prefer to use cash (78.9%).

The four (4) segments of millennials in Davao City are also similar in that **less than 70%** of them in each segment, enjoy shopping alone (62.1%), check out their online friends for latest information about shopping and hanging out activities (60.4%), prefer a small specialty store than a department store (55.7%), and are willing to pay more for product/brand that will make them look good (52.1%).

Moreover, less than 70% of them plan their day and time of shopping (64.6%), except the Contented who do not plan at all (52.1%); prefer to buy branded products (63.6%), with the Proud highest in number (73%); and don’t think twice about the price when they find a product that they really like (62.5%), with the Contented (76%) also highest in proportion.
However, they vary in their attitude in some areas, such as in terms of sharing their best value shopping experience, at least 85% of each of the millennial segments, except the Contented, agree to that statement. Interestingly, only the Proud millennial with 73% of them, prefer to buy branded products. As to planning their shopping day and time, it was only the Contented millennials who indicated that they do not plan, meaning shopping is spontaneous. The rest of the segments indicated that they plan ahead, with Utilitarian segment at 78% in proportion. Generally, less than 70% of the respondents per segment indicated agreement to the statements that they prefer a small specialty store than a department store, with the Humble millennials split in their preference between a small specialty store and a department store; that they enjoy shopping alone, which means that a significant number of them, across different segments consider shopping with others; that they are willing to pay more for product/brand that will make them look good, which can be an indication that their motive is beyond looking good only; and that they check out online friends’ opinion for shopping and hanging out activities. This last item indicates that, generally, they have a mind of their own, and they know what they want.

Conclusions:

Based on the findings, the following conclusions are arrived at: (1) The majority of the Millennials are female, belonging to the 18-21 age bracket, dominated by single, college students, and relied on allowance for their purchasing power. (2) The millennials in Davao City placed higher importance on the following values and are ranked respectively: a. Fun and Enjoyment in Life b. Sense of Accomplishment, c. Warm Relationship with Others, and d. Self-Fulfillment. However, the other values, Sense of Belonging, Excitement, Security, Self-Respect, and Being Respected, respectively, are still valued, although at a lesser intensity. (3) The Millennials in Davao City like to buy brand new products that offer most value in terms of services and prestige, and variety of choices (model and features) to choose from. They highly prefer conveniently located stores where they can easily find the needed product. They consider the overall store concept (atmospherics, amenities, merchandise) as very important to enjoy their shopping experience; where the store personnel demonstrate high regard for customers; and other customers’ behavior enhance their overall shopping experience. They do not like to shop in a busy and crowded environment. They like it when friends share with them their best value shopping experience. They shop around for best prices before actually deciding; they get attracted to discounted items, and wouldn’t mind waiting for store sales promotion to enjoy discounts. They do not use credit or debit card in their purchases, but use cash instead. And, (4) Four segments were formed for psychographic segmentation. Segment 1 is labelled the Contented Millennials who are described as impulsive and spontaneous shoppers. Segment 2 is labelled Utilitarian Millennials, the rational shoppers. Segment 3 is labelled the Humble Millennials who are hedonic shoppers. Segment 3 is labelled the Proud Millennials who are smart and practical shoppers.

Recommendations

Based on the findings and conclusions, the following are recommended:
Taking the Millennials as a whole in an undifferentiated marketing strategy, mall marketers must be able to satisfy their needs in terms of their values and buying preferences. They should be provided a shopping experience that is not only satisfying but also delighting. a) Every store concept that will be adapted should consistently be fun and joyful. This includes atmospherics and amenities, in-store events, among others. For the atmospherics and amenities, retail management should continue to examine competitors and the industry, as a whole, for latest innovative styles and designs of stores or malls. Activities and events should be offered to sustain their patronage and encourage frequent visits. Marketing researches should be conducted to understand their changing lifestyle and tastes; b) As a corporate strategy, when expansions are considered, serious efforts should be exerted in the market study to determine the most convenient location according to their perception; c) Merchandise management should focus on stocking variety of choices for them. As they value services and prestige, marketers must continue to discover ways to delightfully surprise them, for example, redesigning paper bags, reusable packaging, etc.; d) Customer service should also be continuously improved by ensuring that genuinely friendly and welcoming front liners, e.g. guards, sales people, etc. interact with this type of customers. They should be accorded courteous service because they value good service. Trainings should be regularly conducted for frontline sales personnel; e) Promotional activities should be attractive enough especially those that encourage value shopping. When discounts are offered and sales promotion are advertised, significant savings should be highlighted. More innovative ways should be considered such as online discount coupons redeemable when making purchase should be made available to this target market. Seasonal sales should be advertised more loudly; f) Develop CRM or customer relationship management through loyalty card which will be offered for free exclusively for the millennials. As mentioned, they comprise 35% of the population both at the national and local level. As they will also grow from being a college student relying on allowance only to being gainfully employed, some years from now, their purchasing power over the years would also improve. This will enable the company to keep track of the spending and shopping behavior of this group and respond to their specific needs and wants.

In a differentiated marketing strategy, in which the Contented Millennials are considered as a target market, constituting 11.8% of the millennials, mall marketers should include the following in addition to those recommended in number 1. As they are impulsive and spontaneous shoppers, latent needs and desires should be triggered. a) Stimuli such as music, colors, store smell, lighting and other amenities, and even the attire of the store personnel (i.e. uniform) should be configured such that it matches the desired store atmosphere or ambiance enticing to this group of customers; b) Mall marketers should also ensure that merchandise displays are attractive and strategically located in the store; and point-of-sale areas be filled with attractive displays to trigger impulse buying; c) Promote products with a theme about being contented or being pampered with the amenities in life; and d) Psychological pricing strategy should also be resorted to. Use of effective communication materials, i.e., color, font size and style, etc. should be used.

In a differentiated marketing strategy, in which the Utilitarian Millennials are considered as a target market, constituting 36.4% of the millennials, mall marketers should include the following in addition to those recommended in number 1. As they are rational and value-conscious shoppers, a) Marketers should ensure that there is a wide of variety of merchandises available for them. Effective and efficient inventory management and proper display should be a major
consideration of the store management, such that products are easy to find and always available; and b) As they plan their day and time of shopping, changes in merchandise placement and store layout should be minimized so as not to upset them and waste their time.

In a differentiated marketing strategy, in which the Humble Millennials are considered as a target market, constituting also 38.6% of the millennials, mall marketers should include the following in addition to those recommended in number 1, except recommendation 1.e. As they are hedonic shoppers, who are not price-conscious, and least responsive to store sales promotion. a) Marketers should ensure that promotional efforts be focused on building their desired image and self-esteem. Opinion leaders, ideal personalities and exemplars, and pleasant experiences that they can identify with will be effective advertising and promotional concepts to adapt or to showcase; b) Specialty store operators can focus on them as their target market. They need to align their store image with the desired image of this group of customers to be effective.

In a differentiated marketing strategy, in which the Proud Millennials are considered as a target market, constituting also 11.8% of the millennials, mall marketers should include the following in addition to those recommended in number 1. As they are smart and practical shoppers, who are described as demanding customer, opinion-seeker and not too price-conscious, yet responsive to store sales promotion, a) Marketers should ensure that product availability is guaranteed, and new products are displayed and promoted; b) Store websites should be available for this market segment as they are also checking online for latest trends; and c) Price discounts and store sales promotions should be communicated to them in various media, such as through Facebook, Twitter, etc.

For Further studies: a) A follow-up study should be done to measure their perceptions regarding brands or companies and/or their buying preferences either through multi-dimensional scaling (MDS), multi-dimensional unfolding (MDU) or correspondence analysis; and b) A follow-up study should be done for deeper understanding of the buying preferences with their buying motives through triangulating the results of qualitative and quantitative studies.
References


Performance Analysis of Selected Condominium-Hotels (Condotels) in Metro Manila

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Abstract

The paper examined the efficiency of four (4) condominium-hotels (condotels) in Metro Manila namely: Lancaster Suites and Hotel (Shaw Boulevard, Mandaluyong City), Astoria Plaza (Ortigas, Pasig City), Citadel Inn (Makati City) and Regalia Park Towers (Cubao, Quezon City). The researcher made a previous study examining the efficiency of the mentioned condotels from 2007-2010, but extended the study from the period of 2007-2014 to know whether time will have the effect on the results of the previous study or not.

This study focused on the efficiency and productivity of selected condotels in Metro Manila choosing the years 2007-2014 as test period for efficiency. The condotels selected has a rooming capacity of 60-200 units available for hotel accommodation. The panel data were extracted from the financial statements of the four condotels covering the period of 2007-2014. Input variables tested are: 1) property and equipment as proxy for capital, 2) salaries and other labor costs representing labor, and 3) building and occupancy expenses as proxy for operational costs. The total revenue from operations of the selected condotels was considered as output variable.

The use of Data Envelopment Analysis (DEA) and Stochastic Frontier Analysis (SFA) were applied to measure the efficiency of the condotels.

Based on the analysis of data, as condotels age, they increase their scale by adding more inputs but failed to manage them well and become inefficient in operations. It does not equate in this study that the more inputs, the more output as well. It is recommended that with the increase in inputs, they must also consider the application of marketing strategies such as giving impeccable customer service and good value to customers to maintain their patronage.

Keywords: efficiency; condotel; DEA; Stochastic Frontier Analysis

1.0 Introduction
Condominium-hotels, or aptly known as condotels, are emerging trends of hospitality as well as real estate investments in the Philippines. Investors on this real-estate property were enticed to buy a unit because of the financial returns they can get from renting their property and investments appreciate quickly. Also, the benefit of residing in a building with hotel facilities is a considered an additional perk when owning a unit. A condotel, it is one in which the units—rooms or suites—are owned by individuals and then are rented out on a daily basis to transient guests (Higley, 2005). In some cases, renting to transient guests is mandatory but in others it is voluntary since the owners may want to use the units for themselves and/or their families year-round. From a legal standpoint, the two key attributes of a condo hotel are: ‘‘(1) the ownership by an individual of a separate interest in a discernible space (a condominium unit), and (2) the ownership of a proportional but undivided interest in the common area. The ‘common area’, owned and operated by condo owners as a ‘common interest development’, is where the hotel operator usually comes into play’’ (Waite, 2005).

In broader terms, condotels can be defined as residential condominium buildings offering the same facilities of a hotel and managed by either a hotel chain or the developer itself. Hotel services such as housekeeping, 24-hour telephone operator, laundry, concierge and hotel car services are offered to unit owners and hotel guests. Condotel can be classified into two models: first, there is a mixed-use property model, or a residential condominium, with owners considering their units as primary residences enjoying the same amenities offered by a hotel such as a swimming pool, spa services, food outlets and other units considered as hotel rooms; a second classification is the condominium hotel operations model, wherein individual units are owned but marketed as hotel accommodations. In this model, the condo unit sits empty until rented or occupied. At present, most condotels were being rented on the latter model, where owners let the operators of the condotel managed their properties and remit to them the revenue from rental income after deducting all operating expenses such as garbage fee, real estate tax payments, fire tax and other incidental expenses mandatory to owning a unit.

The condotels are classified by Department of Tourism as “Apartment-hotel” as of June 2012. It shall refer to serviced apartments offering self-contained units that contain access to kitchen and laundry facilities. A number of bedrooms may share one bathroom in the unit.

2.0 Research Objective and Methodology

The researcher previously made a paper in the year 2012 examining the efficiency of four condotels in Metro Manila. These condotels were Lancaster Suites and Hotel (Shaw Boulevard, Mandaluyong City), Astoria Plaza (Ortigas, Pasig City), Citadel Inn (Makati City) and Regalia Park Towers (Cubao, Quezon City). The researcher recommended on the previous study that a longer test period should be done since operations of these establishments might improve over time and efficiency scores will vary. This prompted the researcher to revisit the previous study and include an extended period of 2007 to 2014 (from 2007-2010) focusing on financial performance analysis of the selected condotels so as to know whether the effect of time has change its scale efficiency.
This study focused on the efficiency and productivity of selected condotels in Metro Manila choosing the years 2007-2014 as test period for efficiency. The condotels selected has a rooming capacity of 60-200 units available for hotel accommodation. The panel data came from the financial statements of the four condotels covering the period of 2007-2014. Input variables to be tested are: 1) property and equipment as proxy for capital, 2) salaries and other labor costs representing labor, and 3) building and occupancy expenses as proxy for operational costs. The total revenue from operations of the selected condotels will be considered as output variable.

The use of non-parametric method, Data Envelopment Analysis (DEA) and parametric method, Stochastic Frontier Analysis (SFA) were applied to measure the efficiency of the condotels.

**DEA** is a non-parametric method (i.e. non-statistical) using linear programming technique that computes comparative ratio of multiple outputs to multiple inputs for each decision-making unit, also known as DMU (Avkiran, 2006). An efficiency frontier is being determined by set of points that shows the efficient combination of input and output that can be obtained in the systems examined (Cooper, Lewin and Seiford, 1994). The efficiency scores can range from 1-100%, where a score less than 100% of a certain DMU can be considered as inefficiency rating matching with other DMUs being studied. The upper limit is considered as 1 or 100% indicating that a DMU cannot exceed 100% efficiency rating.

The development of DEA could be attributed to Charnes, Cooper and Rhodes (1978). It is described as a “mathematical programming model applied to observational data that provides a new way of obtaining empirical estimates of relations, such as the production functions and/or efficient production possibility surfaces, that are cornerstones of modern economics”. It is considered as a benchmarking technique to evaluate performance efficiency of selected DMUs. The point of reference in efficiency is the comparison of each DMU with other DMUs and identifying units that are operating efficiently based on a given actual operating results. It also measures the magnitude of inefficiency of the inefficient units as compared to the most efficient unit (Sherman and Zhu, 2006).

**SFA** is also used in the efficiency estimation and this measurement began with Farrel (1997), who defined a simple measure of firm efficiency that could account for multiple inputs. He pioneered in dividing cost efficiency into technical efficiency and allocative efficiency. Technical efficiency evaluates the ability of the firm to obtain maximal output from a given set of inputs and the allocative efficiency evaluates the ability of the firm to use the inputs in optimal proportions, given their respective prices and production technology. The use of a single example involving firms that use two inputs to produce a single output, under the assumption of constant returns to scale, best illustrates his ideas. (J.L. Hu et. al, 2010).

**3.0 Scope and Limitations**

In the previous study, the researcher accounted for nine (9) condotels already operating in various locations in Metro Manila. These are: 1) Millenia Suites, 2) Astoria Plaza, and 3) Malayan Plaza in Ortigas City; 4) Lancaster Suites in Shaw Boulevard, Mandaluyong; 5) Regalia Park Towers, and 6) Gardenheights Condominium in Quezon City; 7) Citadel Inn, 8) BSA
Mansion and 9) A. Venue Suites in Makati City. The researcher accounted for these establishments by searching the internet for possible condotels in different areas of Metro Manila. Out of these condotels, only four (4) of them has the healthiest set of data for the period test period of 2007 to 2010 and the rest were excluded. In the extended test period of 2011 to 2014, Regalia Park Towers was eliminated due to constraints in data. Its financial statements submitted at SEC were up to 2012 only.

The requirement of DEA on the application of the procedure is stated and quoted as:

".....the number of DMUs is expected to be larger than the product of number of inputs and outputs (Darrat et al. 2002; Avkiran 2001) in order to discriminate effectively between efficient and inefficient DMUs. However, there are many examples in the literature where DEA has been used with small sample sizes. The sample size should be at least 2 or 3 times larger than the sum of the number of inputs and outputs."

In the case of this study, the number of DMUs is 3 which equals to the product of 3 input variables multiplied to one input variable. The data clearly met the minimum requirement in the application of DEA. The above cited considerations showed that DEA can be used with small sample sizes because the researcher was forced with the availability of the healthiest set of data. What is important is the number of degrees of freedom (d.f.) to be retained. In this study, 1 output multiplied to 3 inputs equals 3. 3 multiplied to 2 is 6 greater than the number of observations (3 condotels and 8 years = 24 observations). Subtracting K=6 from 24 observations, the degree of freedom obtained is 18. This d.f. is important in determining the t-values in the statistical table during the use of SFA.

The basis of the researcher in classifying the condotels’ operation is based on their rooming capacity. Based on the study of Jan Warnken et. al about multi-titled accommodation complexes (2008), where an establishment or residential complexes is considered large size if it has a building characteristics of more than 60 rooms. These rooms are a mix of serviced rooms, dual and single key apartments and with other facilities such as conferencing. This has become the basis of the researcher in choosing the condotels since the sample respondents has the rooming capacity of 60-200 units. Other establishments mentioned in the study are also excluded since their operations can be considered as small scale in terms of rooms available for hotel operations. Though condotels are not yet classified as high-scale, medium scale and low scale due to its lack of accreditation, the researcher considered the selected condotels as high-scale in operations in terms of their rooming capacity of 60-200 rooms. Lancaster Suites has 200 rooms; Citadel Inn and Astoria Plaza with 110 rooms, respectively; and lastly, Regalia Park Towers with 60 rooms available for hotel operations.

This study mainly focused on the hotel operations of these condotels though they are operating in a “mixed-use property” model, where some unit owners are living in the facility while other units are turned by the owners for rental to hotel operators.

4.0 Performance Efficiency Measurement Practices
Evaluation of efficiency in hotel industry is very vital because of fierce and cut-throat competition. Understanding the factors that affect efficiency in operations could help operators by understanding the combination of resources that will generate greater output. The long-run survival of firms will be greatly affected if managers will not comprehend the measurement of efficiency.

In measurement of efficiency, most managers correlate it with productivity. According to Stevenson and Chuong (2014), productivity is an index that measures output (goods and services) relative to the input (labor, materials, energy, and other resources) used to produce them. By getting the productivity ratio, one can gauge whether inputs of production were effectively used. In assessing a firm’s efficiency, multiplicity of inputs and outputs need to be considered (Wu, 2006; Cook and Sieford, 2009). Several researches studied efficiency measurement and the two methods have been used primarily to estimate this, primarily DEA and SFA.

The study of Jia-Jane Shuai and Wei-Wen Wu (2011) evaluated the hotel’s websites in Taiwan considered inputs such as number of guestrooms in a hotel, number of full-time employees, and operating expenses (employees’ salaries, food and beverage cost, room costs, utilities, maintenance fees and other relevant operating costs). The outputs selected were: (1) total revenues generated from rooms; and (2) total revenues generated from food and beverages. Through DEA analysis, it showed that internet marketing can affect greatly the operating performance of tourist hotels.

The study of Assaf, Barros and Josiassen (2010) mentioned the concept of metafrontier which can “ensure that all heterogeneous firms or groups are assessed based on their distance from a common and identical frontier.” The metafrontier can be simply considered as an envelop of all possible frontiers that might arise from the heterogeneity between firms (Rao etal., 2003). Other studies on hotel efficiency combined small and large hotels leading to inaccurate results of DEA and SFA due to different environmental characteristics such size, location and type of ownership. The metafrontier approach, thus, provide a somewhat standardized boundary for all firms with dissimilar and uncontrollable environmental characteristics. This study considered number of rooms as proxy for capital cost, number of full time equivalent employees in the room division, number of full time employees in food and beverage division, and number of full time equivalent employees in other departments. Outputs are total room revenues, total food and beverage revenues, total of other revenues (revenues from lease of store spaces, laundry, swimming pool, ball courts, barber shop, salons and bookstores), market share for each hotel (percentage of hotel guest out of the total guests received) and employees’ performance (number of guest per employee). The impact of size of a hotel was a clear determinant of hotel efficiency. Large hotels had higher efficiency and it can be hypothesized that large size has a positive relationship with firm profits and firm success.

In 2011, Assaf and Barros analyzed the performance of Gulf hotel industry using Malmquist index with bias correction. This method is also a DEA approach. Inputs considered are: (1) number of outlets as proxy for capital; (2) number of full-time equivalent employees; and (3) other operational costs such as administrative costs, utilities and rent. Two outputs
considered are: operational revenues, and the annual occupancy rate. The paper came up with a result that increase in revenue for lower occupancy rate and other hotels an increase in occupancy rate for lower revenues. The findings showed that in difficult economic times, hotels usually decrease their room rate in order to maintain high occupancy.

The thesis made by Christine Mercado in 2009 measures efficiency of selected deluxe hotels by using DEA and included input variables such as revenue, food and beverage cost and receivables. Output variables considered are net income, inventory and sales. Finding of her study showed that improvements in the output variables and the reduction in the output variables are essential for the efficiency of the hotels.

The study of Jin-Li Hu et. al (2010) employed one-stage stochastic frontier approach (SFA) to simultaneously estimate cost efficiency scores and factors of cost inefficiency of 66 international tourist hotels in Taiwan during 1997-2006. The three inputs considered are the price of labor, price of food and beverage and the price of other operations. The outputs are the room, revenue, food and beverage revenue, and other operations’ revenue. The results showed that Taiwan hotels are 91.15% cost efficient. Chain hotels are more efficient than independent hotels. Location also affects efficiency since those hotels near international airports and conveyance were more cost efficient than hotels located in non-metropolitan area.

Another study in the managerial efficiency of Taiwan hotels by Ching-Fu Chen (2007) uses SFA with three inputs (labor, food and beverage, and materials) and total revenue as output. Findings showed that hotels in Taiwan are 80% efficient in operations. Also, the perspective of product mix and sources of customers revealed that the hotels targeting the leisure market have more advantages than business hotels in effectively utilizing their operations resources and turning into higher managerial efficiency. No difference in efficiency had been found between the large-scale and small-scale hotels.

The review of related journals showed that DEA is extensively used in the study of hotel efficiency and other industries. The use of SFA is not yet widely applied in the hotel industry but rather on other industries. The researcher opted to apply the two methods: DEA, which is a nonparametric, linear programming technique that enables the development of an output-to-input ratio system to handle multiple inputs and outputs (Yu and Lee, 2009); and SFA, on the other measures efficiency in a parametric or statistical method, where deviation from the production frontier is not only accounted by technical inefficiency but also due to measurement errors and statistical noise. Combining the two methods in the evaluation of efficiency will make the study more robust and clear-cut since SFA will validate uncertainties not answered by DEA.

The variables chosen in the study were based on literatures reviewed. Input variables such as “capital,” “salaries,” and “operating expenses” were derived from the studies of Shuai and Wu (2011), and Assaf et al. (2010). Total revenue as output variable was derived from the studies of Hu et al. (2010) and Chen (2207).

5.0 Data Analysis and Discussions
a. Efficiency of condotel operations

Table 1 shows the summary of condotel’s cooperation. The first 4 years (2007 – 2010) showed that the condotels were better off than the last 4 years (2011 – 2014). Astoria Plaza has a better scale condition in the first four years (scale = 1.000) than in the last 4 years (scale = 0.999). Citadel was better off in the last four years (2011 – 2014) of operation than their first four years (2007 – 2010). Its cost inefficiency (crste = 0.904) was caused by bad administration of resource inputs (vrste = 0.905) but maintained an advantageous scale of operation (scale = 1.000).

Lancaster suites was better off during the first four years of operation (2007 – 2010). The last four years (2011 – 2014) indicated a decreasing returns to scale. This means that their total income from operations was declining from 2011 – 2014. It also means that they have increased their level of scale of operation to attract occupancy. Their disadvantageous scale condition was influenced by cost inefficiency and managerial inefficiency in using their inputs. Later on in the succeeding section the inefficient allocation of inputs can be seen.

On the average, the condotels performed better during the first four years than the last four years. Cost inefficiency (crste = 0.953) was caused by inefficient administration of inputs (vrste = 0.959) and disadvantageous scale condition (scale = 0.993), say decreasing returns to scale as represented by increase in overhead costs.

Table 1. Efficiency Summary of the condotel operation

<table>
<thead>
<tr>
<th>Firm</th>
<th>Year</th>
<th>crste</th>
<th>vrste</th>
<th>scale</th>
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<td>2008</td>
<td>1.000</td>
<td>1.000</td>
<td>1.000</td>
<td>-</td>
</tr>
<tr>
<td>ASTORIA PLAZA</td>
<td>2009</td>
<td>0.986</td>
<td>0.986</td>
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<td>-</td>
</tr>
<tr>
<td>ASTORIA PLAZA</td>
<td>2010</td>
<td>0.998</td>
<td>1.000</td>
<td>0.998</td>
<td>drs</td>
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<tr>
<td>2007 - 10</td>
<td>mean</td>
<td>0.987</td>
<td>0.987</td>
<td>1.000</td>
<td></td>
</tr>
<tr>
<td>ASTORIA PLAZA</td>
<td>2011</td>
<td>1.000</td>
<td>1.000</td>
<td>1.000</td>
<td>-</td>
</tr>
<tr>
<td>ASTORIA PLAZA</td>
<td>2012</td>
<td>0.991</td>
<td>0.994</td>
<td>0.997</td>
<td>irs</td>
</tr>
<tr>
<td>ASTORIA PLAZA</td>
<td>2013</td>
<td>0.918</td>
<td>0.918</td>
<td>1.000</td>
<td>-</td>
</tr>
<tr>
<td>ASTORIA PLAZA</td>
<td>2014</td>
<td>0.908</td>
<td>0.908</td>
<td>1.000</td>
<td>-</td>
</tr>
<tr>
<td>2011 - 14</td>
<td>mean</td>
<td>0.954</td>
<td>0.955</td>
<td>0.999</td>
<td></td>
</tr>
</tbody>
</table>
### Resource use of Condotel

The bad performance of condotels can be illustrated by excess input usage in Table 2. Total income from operations was achieved by the condotels from 2007 to 2014. Property and equipment costs were efficiently allocated (with zero slack). However, all of the condotels incurred excessive use of salaries and other labor costs and building and occupancy expense from the last 8 years.

Astoria Plaza have lesser cost incurred during the last four years (2011 – 2014) because of shifting from decreasing return to scale (drs) to increasing return to scale (irs) coupled with...
constant returns to scale (crs or dash line) operation. Building and occupancy expenses also decrease from an average of P13,725.97 to P11,752.14. Property and equipment and salaries and other labor costs were efficiently allocated.

Citadel Inn had a good first four years of operation under constant and increasing return to scale. However, Citadel Inn’s decreasing return to scale (drs) in the last 4 years caused them to have excessive usage of inputs (salaries & other labor costs and building & occupancy expenses). Salaries and related costs increase from P1,351.80 within 2007 – 2010 to P20,076.11 in the last four years. Building and occupancy expense incurred P7,128.54 excess every year.

Table 2. Summary of Output and input slacks for condotels.

<table>
<thead>
<tr>
<th>Firm</th>
<th>Year</th>
<th>Total Income from Operations</th>
<th>Property and Equipment</th>
<th>Salaries and other labor costs</th>
<th>Building and occupancy expenses</th>
</tr>
</thead>
<tbody>
<tr>
<td>ASTORIA PLAZA</td>
<td>2007</td>
<td>0</td>
<td>0</td>
<td>0.00</td>
<td>27460.54</td>
</tr>
<tr>
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<td>0</td>
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<td>ASTORIA PLAZA</td>
<td>2009</td>
<td>0</td>
<td>0</td>
<td>2503.85</td>
<td>27443.32</td>
</tr>
<tr>
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<td>0</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>2007 - 10</td>
<td>mean</td>
<td>0</td>
<td>0</td>
<td>625.96</td>
<td>13725.97</td>
</tr>
<tr>
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</tr>
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<td>0</td>
<td>0.00</td>
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</tr>
<tr>
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<td>0</td>
<td>0.00</td>
<td>14616.00</td>
</tr>
<tr>
<td>ASTORIA PLAZA</td>
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<td>0</td>
<td>0</td>
<td>0.00</td>
<td>13723.83</td>
</tr>
<tr>
<td>2011 - 14</td>
<td>mean</td>
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<td>0</td>
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<tr>
<td>CITADEL INN</td>
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<td>0</td>
<td>814.68</td>
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<tr>
<td>CITADEL INN</td>
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<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>CITADEL INN</td>
<td>2009</td>
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<td>0.00</td>
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</tr>
<tr>
<td>CITADEL INN</td>
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<td>0</td>
<td>0</td>
<td>4592.51</td>
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</tr>
<tr>
<td>2007 - 10</td>
<td>mean</td>
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<td>0</td>
<td>1351.80</td>
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<tr>
<td>CITADEL INN</td>
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<td>0</td>
<td>0</td>
<td>22991.73</td>
<td>22699.52</td>
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<tr>
<td>CITADEL INN</td>
<td>2012</td>
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<td>0</td>
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<tr>
<td>CITADEL INN</td>
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<td>0</td>
<td>0</td>
<td>18894.31</td>
<td>0.00</td>
</tr>
<tr>
<td>CITADEL INN</td>
<td>2014</td>
<td>0</td>
<td>0</td>
<td>20182.89</td>
<td>5814.65</td>
</tr>
<tr>
<td>2011 - 14</td>
<td>mean</td>
<td>0</td>
<td>0</td>
<td>20076.11</td>
<td>7128.54</td>
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<tr>
<td>LANCASTER SUITES</td>
<td>2007</td>
<td>0</td>
<td>0</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>LANCASTER</td>
<td>2008</td>
<td>0</td>
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</tr>
</tbody>
</table>
Lancaster Suites enjoyed efficient operations at constant returns to scale (dash line) during the first four years (2007 – 2010). It has no excesses in the use of inputs and no shortage in attaining the total income from operation. However, At decreasing return to scale operation, salaries & other labor costs and building and occupancy expense increased drastically to P54,348.78 and P23,258.23 per year respectively.

On the average, a condotel incurred excesses in salaries & other labor cost and building and occupancy expense in the amount of P10,781.81 and P10,948.19 every year, respectively. The above findings implied that condotels were better off operating at constant returns to scale (crs) to bring down their operation costs to zero. The findings showed that condotels have had efficient performance during the first four years (2007 – 2010) than the last four years (2011 – 2104).

### 6.0 Conclusions and Recommendations

The above findings indicated that increasing the use of major inputs (property and equipment, salaries & other labor cost, and buildings and occupancy expense) helps increase total income from operation. However, as condotels grow older in the business, the lesser was their income. The declining rate of occupancy/room also represents total income losses per year. The higher scale of operation of the condotel with corresponding excessive allocation of inputs contributed to decline in total income from operation.

It is recommended that condotels to be cost efficient in operations must have a good management of inputs and continue to retain the good condition of their facilities as they age. Also, other factors such as good marketing, service and value to customer must be considered. With this, they can maintain loyalty of customers and achieve better operations.
However, this paper should be used with caution since condotels were chosen purposively and not randomly. The selected condotels may not represent the universe of the sub-industry and should not be used as the basic guide in making decisions. For future research, the study should include other condotels with small scale operations since the samples were operating in high-scale, depending it on the number of rooms available for occupancy.

7.0 References


A Study on the Assessment of Hotel Management and Staff ‘s Perception towards Design Thinking process

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Abstract

This study aims to assess the perception and service quality mindset of hotels’ management and staff using Design Thinking (DT) process. In recent years, Design Thinking has been applied and assessed mostly in manufacturing firms and in academia, but not in the hotel industry. Albeit, literature on quality service can be amassed regarding hotel industry, aligning design thinking and quality service in the hotel industry needs further study. Hence, the interaction of both topics as an area of research, raised interest to pursue this study. This study uses the framework proposed by Brown (2008) and Martin (2009), Gibbon (2016), Geissdoerfer, M., et al (2016) Design Thinking’s process (which were reworded and revised by different authors according to their industry study), namely: 1) Understand/Empathize, 2) Observe/Define, 3) Ideate, 4) Prototype, 5) Test/Implement. The research design of the study is descriptive-causal-exploratory design, with 30 respondents (management and staff) from 5 hotels within Metro Manila. It is descriptive in nature to highlight demographic profile of the respondents which were hotel’s management and staff. While it is also causal-exploratory, to assess the perception level or mindset of hotels’ management and staff and to establish if there were correlation between Service Quality and Design Thinking. Qualitative and quantitative method was used to be able to interpret the correlation of Design Thinking to RATER SERVQUAL via correlation using Stata. The outcome of the survey concludes that there is strong correlation on the perception level on hotels’ management/staff between their mindset on Service Quality and Design Thinking. This means SERV QUAL RATER constructs are highly correlated with the constructs of Design Thinking namely Empathy, Define, Ideation, Prototype and Test. While the respondents may not be aware what Design Thinking process is, definitely they are already performing it on a different perspective through SERV QUAL. Therefore, said hotels can use both constructs for differentiation to achieve competitive advantage.

Key Words

Hotel, Design Thinking, Service Quality; Competitive Advantage
I. INTRODUCTION

I.I Background of the Study

The recent happening in one Casino hotel in Manila, the London Grenfell Tower fire incident, and Las Vegas shoot out, triggered the interest of the author to check if Design Thinking is applied in the conduct of hotel business in enhancing quality service and competitive advantage.

This study hopes to show Design Thinking (DT) as a system of three overlapping spaces, in which viability refers to the business perspective of DT, desirability reflects the user’s perspective, and feasibility encompasses the technology perspective. (Chasanidau, et al 2015)

The nomenclature of “design thinking” first appeared prominently in a book of that title authored by Peter Rowe (1987), a professor of architecture and urban planning at Harvard’s School of Design. A review of that publication’s contents, however, reveals usage of the term primarily oriented to architectural design that does not capture its current meaning as practiced in the business environment. In its current usage, as a thought process, the nomenclature is more appropriately attributed to the innovation consulting firm IDEO and its leadership, founder David Kelley (Kelley and Littman, 2005), and more recently, current chief executive officer Tim Brown (Brown, 2009) (Liedtka 2014).

In the article of Patel and Mehta (2016), they mentioned how design thinking has evolved since Thomas Edison’s application of design thinking in the development of the light bulb, wherein the methodology has been associated with the engineering and product development domain. They further added that Design Thinking has wide and impactful applications outside this domain. In business, Kraft foods used the philosophy of design thinking to restructure its supply chain management operations for more efficient processing (Brown and Katz 2009). On the other hand, Procter & Gamble, Cirque du Soleil and Research In Motion (RIM) are amongst a handful of companies that apply design thinking as a source of inspiration to produce breakthrough innovations (Martin 2009a).

In recent years, Design Thinking has been applied and assessed mostly in manufacturing firms and in academia, but not in the hospitality service sector particularly hotel industry. Albeit, literature on quality service can be amassed regarding hotel industry, aligning design thinking and quality service in the hotel industry needs further study. Hence, the interaction of both topics as an area of research, raised interest to pursue this study.

The study of Geissdoerfer, Bocker, and Hultink (2015), proposed that integration of design thinking into the innovation process helps to create additional forms of value and include formerly undeserved stakeholders in the value proposition. Moreover, design thinking can be part of the value mapping process, which can enhance sustainable business modelling process.
1.1.1 Hospitality Sector and Hotel Industry

In the study of Edralin and Castillo (2001), tourism serves as the main market for hotel and restaurant services (hospitality sector). Increase in visitor traffic in the ‘90s resulted in a corresponding boom in the hotel and restaurant industry. During the last decade, the hotel and restaurant industry have flourished even as it struggled to cope with difficult challenges. New hotels mushroomed in the capital while older hotels have done their best to spruce-up both their interiors and upgrade services. Likewise, the growth of the restaurant sub-sector, the number of players and the variety of services offered, has been notable during the period.

This study adopts the definition of the Philippine Standard Industrial Classification in identifying establishments as belonging to the hospitality sector. According to the PSIC, the industry is disaggregated into two sub-sectors/industry: hotel and restaurant. (Edralin, 2001). However, this study will be limited to the hotel industry only, particularly within Metro Manila.

Hotel is often referred as a “Home away from home” (Na 2010). Considering the cliché “a home away from home,” wherein hotel guests should feel the comfort and warm experience of their own home, ergo, understanding the guests’ wants and needs (to empathize) is a crucial factor in providing quality service for this study.

According to Edralin and Castillo (2001) in general, hotels offer two major types of services: (a) accommodation and (b) dining services. Based on the quality and extent of services provided, location, bedroom, front office/reception, food and beverage, general facilities (service and staff), and special facilities (i.e., business center, limousine services and airport transfers), hotels are further classified as Deluxe, First Class, Standard, and Economy. Hotel guests can expect a room with private bath, telephone, radio, and television, in addition to such customer services such as laundry, valet, cleaning and pressing. Aside from the services mentioned, hotels have other facilities: function rooms, ballrooms, health spas, coffee shops, dining rooms, cocktail lounges or night clubs, gift shops or newsstand-tobacco counters, and business centers for social occasions, health buffs, and business conferences.

1.1.2 What is Design Thinking and its Process?

“Design thinking can be described as a discipline that uses the designer’s sensibility and methods to match people’s needs with what is technologically feasible and what a viable business strategy can convert into customer value and market opportunity.” – Tim Brown CEO, IDEO (Brown 2008)

Basically, design thinking has five core characteristics: 1) a human-centered approach, 2) a strong integration of experimenting with artefacts, 3) collaboration in multidisciplinary teams, 4) an integrative and holistic view on complex problems, and 5) a characteristic six-step process (Waloszek, 2012; Platter et al, 2009), as cited by Geissdoerfer, Bocker, and Hultink (2016).
For simpler terms the design-thinking framework follows an overall process flow of 1) understand, 2) explore, and 3) materialize. Within these larger buckets fall the 6 phases: empathize, define, ideate, prototype, test, and implement. (Gibbons, 2016). It’s original process came from Stanford University’ Design Thinking school which is empathize, define, ideate, prototype and test.

1.1.3 Design Thinking and Service Design

Service design can be considered as an extension of design thinking. Currently, with the “thin line” between hardware and software, behind any innovation of product or solution, hides a service. The combination of available technologies and competition is increasing consumer’s expectation, therefore customer service can be the only competitive differentiator as this is hard to imitate.

The service experience can help in increasing purchase consideration, building loyalty, minimizing attrition, and driving cross and up sales. As a result, when you think about any product or solution, it’s pointless to think about it in isolation, and it’s time to rethink service as a competitive differentiator and strategic asset, and not consider it as a drain on corporate resources.
(Source: http://marketerstouchpoint.com/blog/what-is-the-difference-between-design-thinking-and-service-design-thinking/)

In a nutshell, Design Thinking is a methodology and mindset that is used to innovate and solve complex business problems for competitive advantage. While Service Design Thinking is about applying design thinking and product and interaction design methods for creating the seamless experience and interface to tangible service touchpoints (for example advertising, in-store, website, mobile app & desktop interfaces) and abolish the distinct silos of customer touchpoints.
(Source: http://marketerstouchpoint.com/blog/what-is-the-difference-between-design-thinking-and-service-design-thinking/)

1.2 Statement of the Problem

This study wishes to answer the question “Is there a correlation or significant difference between Design Thinking mindset among Hotels’ management/staff compared to their mindset in rendering Service Quality?”

With the propositions:

$H_0$ – Hotel’s Management and Staff level of perception or mindset on Design thinking has no correlation or no significant difference on their mindset regarding service quality particularly on Reliability, Assurance, Tangible, Empathy, Responsible (RATER)
Ha – Hotel’s Management and Staff level of perception or mindset on Design thinking has high correlation or has significant difference relation on their mindset regarding service quality particularly on Reliability, Assurance, Tangible, Empathy, Responsible (RATER)

1.3 Objectives of the Study

For this study, Specific Objectives have been formulated below:

1. To assess the hotels’ design thinking capability and its relationship to the hotels’ service quality
2. To establish the relationship between Hotel’s design thinking and Hotel’s service quality in achieving competitive advantage.
3. To recommend possible action plans to enhance hotels’ design thinking capability and service quality.

1.4 Scope/Coverage of the Study

The coverage of the study will be limited to the hotel industry with 3 stars to 5 stars rating within Metro Manila. The study consider star ratings because it serves as a general guideline and prove most useful in identifying very poor and very luxurious hotels. A five star-rated hotel will almost certainly have fabulous amenities and have higher profitability. Inclusion of 3-4 star hotels in the study, is to give them chance to elevate their star rating in the future through design thinking. The study will not give discussion on other sector of the hospitality industry such as restaurants, inns, apartelles, etc.

1.5 Significance of the Study

This study aims to contribute to both industrial and academic sector. First, to help hotel industry assess and evaluate, and enhance their Design Thinking ability to match customers’ needs to provide quality service, hence, gaining competitive advantage. Second, to contribute to Philippine academia in the light of K-12 transition. This research paper aspires that it can provide fresh and new knowledge in teaching hotel and tourism courses in the new college curriculum. Third, to foster future research on the interaction of Design Thinking and Service Quality on other Service industry, which still need literature building.

2. REVIEW OF RELATED LITERATURE

2.1 Survey of Literature

This section highlights the theoretical background and illustrates research gap. The theoretical background on which this research encompasses three areas, namely: design thinking concept, service quality and business model innovation for hotel’s competitive advantage. This
is followed by an explanation of the research gap and the resulting need for the research paper, and its outcome.

2.1.1 Design Thinking

Brown, CEO of IDEO, in his article in Harvard Business Review (2008), defined Design Thinking “as a methodology that imbues full spectrum of innovation activities with a human-centered design ethos.” By this, he means that innovation is powered by a thorough understanding, through direct observation of what people want and need in their lives and what they like or dislike about the way particular products are made, packaged, market, sold and supported.

According to Brown, the Design Thinking framework follows an overall flow of 1) understand, 2) explore, and 3) materialize. Within these larger buckets fall the 6 phases: empathize, define, ideate, prototype, test, and implement.

Thomas Lockwood, former president of the Design Management Institute, a leading association of design practitioners working in business, has offered a more detailed definition of design thinking: “a human-centered innovation process that emphasizes observation, collaboration, fast learning, visualization of ideas, rapid concept prototyping, and concurrent business analysis” (Lockwood, 2009).

Martin (2009) in his book, the Design of Business, why Design Thinking is the Next Competitive Advantage, mentioned that “the most successful businesses in the years to come will balance analytical mastery and intuitive originality in a dynamic interplay called design thinking.” He defined Design Thinking as “a form of thought that enables movement along the knowledge funnel, the firms that master it will gain a nearly inexhaustible, long-term business advantage.

Lub et al’s (2015) study explores the use of design thinking as a method to develop scenario for the future of hotels. Using a Dutch case study, this article shows how a new concept for hotels – the Lifestyle Hub – was created using design thinking as methodology. The Lifestyle Hub concept provides ingredients to hotel owners as well as public policymakers to help understand how future guests may expect to make use of individually tailored hospitable facilities in destinations around the world. Moreover, design thinking allows researchers and businesses to generate highly differentiated customer-centred, experience-based business concepts, thus adding to the toolkit of futures researchers. Authors conclude that design thinking provides new insights for hospitality and tourism and presents a valuable alternative to current future scenarios approaches.

Design thinking, as cited by Geissdoerfer, Bocker, and Hultink (2016), is a method for developing innovative solutions for complex problems, by deliberately incorporating the concerns interest and values into the design process (Brown 2009, Meiner and Leifer 2011). Design thinking is deliberately iterative and it aims to rapidly develop and test multiple possible solutions to arrive at an optimal one. (Brown, 2008; Denning 2013). The concept originated
with the company IDEO, which was founded by David Kelley and partner design firms. Kelley further popularized design thinking in academia and design practice by founding the Stanford Design Centre in 2006, and the concept has also gained considerable public attention through successful government projects (Deming, 2013).

Patel and Metha’s (2016) research tried to deconstruct the philosophies of design thinking, entrepreneurial thinking, and systems thinking which have widespread application in diverse fields. However, due to the inherently abstract rhetoric and lack of commonly accepted frameworks, these philosophies are often considered buzzwords and fads. A conceptual framework that captures the differences and convergences between design thinking, entrepreneurial thinking, and systems thinking is presented. The article argues that the emergent integration of these philosophies, as captured in the fundamental tenets, presents the most compelling opportunities for the practical application of these theoretical frameworks.

Patel and Metha (2016) also posit that while it is evident that design thinking is being implemented in many different contexts and sectors, the question is what specific value does design thinking add? As they evaluated case studies of design thinking, the question that arose was whether these solutions emerged from design thinking or the interplay of design thinking, entrepreneurial thinking, and systems thinking. From a theoretical perspective, design thinking is a fundamental component of innovation. It narrows lofty and noble goals into what is technically feasible and has a sustainable business model. They further cited that Design thinking applies the ideas of design as agents of change in order to convert need into demand (Brown and Katz 2009). The rigorous methodology of design thinking works as a mechanism to nurture future leaders, but most importantly, design thinking brings creative techniques to the public for the greater good. This great strength of design thinking is, paradoxically, its biggest fault (Nussbaum 2011). In contrast to efficiency based processes like Six Sigma, design thinking is currently more ambiguous without well defined, goal-oriented frameworks. The ambiguity can make it inherently difficult to apply design thinking; however, design thinking, unlike Six Sigma, has creativity fundamental to its process.

2.1.2 Design Thinking and Service Quality

Zeithaml, Parasuraman, & Berry, L. L. (1985) posit that the attainment of quality in products and services has become a pivotal concern of the 1980s. While quality in tangible goods has been described and measured by marketers, quality in services is largely undefined and unresearched. In their research study, the authors theorized three underlying themes: 1) Service Quality is more difficult to evaluate: Unlike when purchasing goods, the consumers employs many cues to judge quality such as style, hardness, color, label, feel, package and fit. While in purchasing services, fewer tangible cues exist. In most cases, tangible evidence is limited to service provider’s physical facilities, equipment and personnel. 2) Quality is a comparison between expectations and performance. They cited that “Service quality is a measure of how well the service level delivered matches customer expectations. Delivering quality service means conforming to customer expectations on a consistent basis.” (Lewis and Booms 1983). 3) Quality evaluations are not made solely on the outcome of a service; they also involve evaluations of the process of service delivery. They cited Lehtinen and Lehtinen's (1982) basic premise that
service quality is produced in the interaction between a customer and elements in the service organization. They use three quality dimensions: physical quality, which includes the physical aspects of the service (e.g., equipment or building); corporate quality, which involves the company's image or profile; and interactive quality, which derives from the interaction between contact personnel and customers as well as between some customers and other customers. They further differentiate between the quality associated with the process of service delivery and the quality associated with the outcome of the service.

Considering the 3 underlying themes of Zeithaml, Parasuraman, & Berry, L. L.(1985) and Lehtinen and Lehtinen's (1982), this can be aligned to Design Thinking’s framework which follows an overall flow of 1) understand, 2) explore, and 3) materialize. Within these larger buckets fall the 6 phases: empathize, define, ideate, prototype, test, and implement. (Waloszek, 2012; Platter et al, 2009) (Gibbons, 2016) Geissdoerfer, M., Bocken, N.M. P. and Hultink, E.J.’s (2016)

2.1.3 Design Thinking for Competitive Advantage and Business Model for Sustainable development

Tanwar (2013) quoted M. Porter “Competitive advantage grows out of value a firm is able to create for its buyers that exceeds the firm's cost of creating it. Value is what buyers are willing to pay, and superior value stems from offering lower prices than competitors for equivalent benefits or providing unique benefits that more than offset a higher price. There are two basic types of competitive advantage: cost leadership and differentiation.” - Michael Porter.

Further, Tanwar (2013) based on his study on Porter’s Generic Competitive Strategies, wherein he made a case study of three leading retail stores in the U.S. to validate Porter’s Competitive Strategies – cost leadership, differentiation and focus strategy. He concluded that Differentiation is a viable strategy for earning above average returns in a specific business because the resulting brand loyalty lowers customers’ sensitivity to price. Research does suggest that a differentiation strategy is more likely to generate higher profits than is a low cost strategy because differentiation creates a better entry barrier. A low-cost strategy is more likely, however, to generate increases in market share. Focus strategy is most suitable for relatively small firms but can be used by any company. As a focus strategy it may be used to select targets that are less vulnerable to substitutes or where a competition is weakest to earn above-average return on investment. Hence, this is a good basis for the hotel industry in drafting their strategy for competitive advantage.

Alexander (2013) mentioned in his article that amidst the turmoil of global markets in recent years new strategies are sought for engaging stakeholders in new creative ways toward generating sustainable value. Both value chain analysis and design thinking methods have drawn considerable attention in recent years as economies seek to revitalize or reconfigure existing innovation systems in the pursuit of sustainable value. The import of design thinking into value chain processes may further stimulate innovation at intermediate value chain levels, and the value chain as a whole further consolidating the focus on end consumer needs. This consumer
centric characteristic is strongly embedded and common to value chain analysis and design thinking approaches and worthy of inquiry as a melding of two constructs.

Shapira, Ketchie and Nehe (2013) concluded in their journal article “The Integration of Design Thinking and Strategic Sustainable Development (Elsevier), that Design Thinking was identified as a possible approach that could help create such solutions and contribute to Strategic Sustainable Development. They concluded that Design Thinking offers a process and attitude that harness creative problem solving by focusing on root causes and needs, which are beneficial to aid in solving pressing sustainability challenges, encouraging involvement of as many stakeholders as possible to create positive change.

Geissdoerfer, M., Bocken, N.M. P. and Hultink, E.J.’s (2016) article mentioned that sustainable business model innovation is an emerging topic, but only few tools are currently available to assist companies in sustainable business modelling. Their work tried closing this gap by bringing together ‘design thinking’ and ‘sustainable business model innovation’ to refine the creative process of developing sustainable value propositions and improve the overall business modelling process. The resulting ‘Value Ideation’ process comprises value ideation, value opportunity selection, and value proposition prototyping. The integration of design thinking into the innovation process helps to create additional forms of value and include formerly underserved stakeholders in the value proposition. Thus, the Value Ideation process helps companies to improve their performance while becoming more sustainable. Workshop evaluations revealed that the Value Ideation process assists companies in enhancing their value proposition by including positive economic, societal, and environmental value and a wider range of stakeholders’ interests. The ‘design thinking’ elements stimulate the ideation process and help to harmonize often conflicting stakeholder interests.

In the workshop conducted by Geissdoerfer and his team, design thinking was found to be a suitable approach for sustainable business modelling in combination with value mapping. They further encourage research into the use of design thinking (and other design methods) to further stimulate business model innovation.

The design-thinking ideology asserts that a hands-on, user-centric approach to problem solving can lead to innovation, and innovation can lead to differentiation and a competitive advantage. This hands-on, user-centric approach is defined by the design-thinking process and comprises 6 distinct phases, empathize, define, ideate, prototype, test, and implement. (Gibbons, 2016)

3. Framework

3.1.1 Theoretical Framework

Literature on design thinking underpinned that it is a human-centered methodology with an iterative process to problem solving for competitive advantage. Hence, this study uses the framework (Figure 1 &2) proposed by Brown (2008) and Martin (2009), Gibbon (2016), Geissdoerfer, M., et al (2016), both figures show Design Thinking’s process (which were
reworded and revised by different authors according to their industry study), namely: 1) Understand/Empathize, 2) Observe/Define, 3) Ideate, 4) Prototype, 5) Test/Implement. In addition simplified RATER service quality framework (Figure 3) by Zeithaml, Parasuraman, & Berry, L. L.(1985) will be used.

Figure 1 Design Thinking Process/ Framework

Source:https://media.licdn.com/
Albeit Figure 2 is a Serv Qual framework (a.k.a. RATER framework) to measure service quality, it is basically aligned to Design Thinking’s framework. Both framework are comprised of 1) Empathy; 2) ServQual uses Tangibles while it can be associated with Observe or Define in Design Thinking; 3) ServQual has Assurance wherein it is analogous to Ideation and Prototype of Design Thinking; 4) ServQual uses Reliability, while it can be equated to Prototype and Test in Design Thinking; 5) ServQual has Responsiveness, it can be equated with Test and Implement of Design Thinking.
3.1.2 Operational Framework

The Operational Framework of this study aims to show the relationship of Design Thinking as an independent variable (X), in enhancing Hotel’s Service Quality, which is an intervening variable (Y₁), which will foster innovation and competitive advantage, which is considered as dependent variable (Y₂) or the effect of the two variables.

With the following proposition:

H₀ – Hotel’s Management and Staff level of perception or mindset on Design thinking has no correlation or no significant difference on their mindset regarding service quality particularly on Reliability, Assurance, Tangible, Empathy, Responsible (RATER)

H₁ – Hotel’s Management and Staff level of perception or mindset on Design thinking has correlation or has significant difference relation on their mindset regarding service quality particularly on Reliability, Assurance, Tangible, Empathy, Responsible (RATER)

To address the main research problem, sub-questions will be formulated and aligned based on Design Thinking 5 core areas – Empathize, Define, Ideate, Prototype and Test and the simplified Five Areas of RATER of SERVQUAL (Parasuraman, Zeithaml, Berry 1990), which determines the research gap, focusing on differentiating between customer experience and expectation.

Gap 1 Reliability: How do the company provide the promised service consistently, accurately, and on a timely basis?
Gap 2 Assurance: What is the current level of knowledge, skills, and credibility of the employees inspire trust and confidence?
Gap 3 Tangibles: are the physical aspects of the service (offices, equipment, or employees) appealing?
Gap 4 Empathy: How do the company measure good relationship between employees and customers?
Gap 5 Responsiveness: How does the company provide fast, high-quality service to customers?

4. Methodology

4.1 Research Locale and Sampling Design

The study covered hotels with 3-5 star ratings within Metro Manila (2 in Ermita, Manila, 3 in Makati city) due to limited time.

There were 30 respondents, who are management and staff of the hotels namely - General Managers, HR and Training Managers, Food and Beverage Manager, Front Office, House Keeping Managers, Banquet/Sales, and staff members (e.g. waiters, housekeeping), because they have direct interface with hotel guests. They were endorsed by their superiors. With 5-6 respondents per hotel to have a total of 30 respondents.

Said respondents were asked to answer the adopted simplified RATER (Serv Qual adopted from Parasuraman 1985) questionnaire, which has been tested for reliability in previous studies (Parasuraman 1985, Shahin 2012, Rapp and Stroup 2016). Two sets of 25 item were prepared one with qualifier (with Empathy, Define, Ideate, Prototype, and Test, heading as constructs).

Ethical considerations were applied for this research study. Researcher made sure that respondents understood the purpose of the research study and they were not forced in any manner to answer the survey questionnaire. Moreover, no respondents below 18 years old were asked to answer the survey questionnaire. Furthermore, upon the request of hotels’ management, pseudonyms were assigned per hotel for confidentiality.

4.2 Research Design

The research design of the study is descriptive-evaluative. It is descriptive in nature to highlight demographic profile of the respondents). While it is also evaluative, to assess the perception level of hotels’ management and personnel, among Service Quality and Design Thinking and establish if there were significant difference or correlation between the two. Mixed method can also be applied as there is the qualitative criteria and quantitative data to be interpreted especially on the effect or relationship of Design Thinking to RATER SERV QUAL through descriptive statistics or difference of mean, correlation via Stata.
4.3 Research Instrument

A simplified survey questionnaire adopted from SERVQUAL RATER questionnaire was used for this research. Said survey questionnaire has 50 statements which was rated with 5-scale Likert Rating scale with 1 as strongly disagree and 5 as strongly agree. The survey questionnaire highlights the 5 frameworks of Design Thinking with 4-5 statements each framework i.e. Empathize, Define, Ideate, Prototype, and Test (EDIPT), which were aligned with the SERVQUAL with Reliability, Assurance, Tangible, Empathy and Responsiveness (RATER) questionnaire.

4.4 Statistical Treatment of Data

Pearson correlation has been done through Stata to assess the perception and service quality mindset of hotels’ management and staff using Design Thinking (DT) and test the relationship of each construct between Design Thinking and Service Quality. Statistical tool Stata has been used also to conduct such test, and to describe demographic profile e.g. age, gender, no. of years with the company.

5. Results and Discussions

5.1 Demographic Profile

Table 1 shows there were 16 male and 14 female respondents who answered the survey questionnaire. It also shows the ethical consideration mentioned that there are no below 18 years old respondent.

<table>
<thead>
<tr>
<th>Table 1 Gender</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender</td>
</tr>
<tr>
<td>--------</td>
</tr>
<tr>
<td>Male</td>
</tr>
<tr>
<td>Female</td>
</tr>
<tr>
<td>Total</td>
</tr>
</tbody>
</table>
Table 2 shows 63.33% of the respondents have more than 5 years up to 10 years experience in the company, hence, they have already established residency and knows the hotels’ practices and policies well.

### Table 2 Years with company of the respondents

<table>
<thead>
<tr>
<th>yrswdcocode</th>
<th>Freq.</th>
<th>Percent</th>
<th>Cum.</th>
</tr>
</thead>
<tbody>
<tr>
<td>&gt;1 up to 3 years</td>
<td>2</td>
<td>6.67</td>
<td>6.67</td>
</tr>
<tr>
<td>&gt;3 up to 5 years</td>
<td>7</td>
<td>23.33</td>
<td>30.00</td>
</tr>
<tr>
<td>&gt;5 up to 10 years</td>
<td>19</td>
<td>63.33</td>
<td>93.33</td>
</tr>
<tr>
<td>&gt;10 years</td>
<td>2</td>
<td>6.67</td>
<td>100.00</td>
</tr>
<tr>
<td>Total</td>
<td>30</td>
<td>100.00</td>
<td></td>
</tr>
</tbody>
</table>

Table 3 shows the different hotel names which participated in the survey under pseudonyms APH, CGS, JKL, VCH and XYZ. While Department codes were used for Banquet Sales (BS); Food and Beverage (FB); Front Office (FO); General Manager (GM); House Keeping (HK); Human Resource (HR); Operations (OP); Training (TR).

While Table 4 shows there were 26.67% came from Human Resource (HR) department followed by respondents from Food and Beverage (FB) with 23.33%.

### Table 3 Hotel and Department Codes

<table>
<thead>
<tr>
<th>deptcode</th>
<th>APH</th>
<th>CGS</th>
<th>JKL</th>
<th>VCH</th>
<th>XYZ</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>BS</td>
<td>0</td>
<td>1</td>
<td>1</td>
<td>0</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>FB</td>
<td>3</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>7</td>
</tr>
<tr>
<td>FO</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>1</td>
<td>0</td>
<td>4</td>
</tr>
<tr>
<td>GM</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>HK</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>HR</td>
<td>2</td>
<td>0</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>8</td>
</tr>
<tr>
<td>OP</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>TR</td>
<td>0</td>
<td>2</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>Total</td>
<td>6</td>
<td>6</td>
<td>6</td>
<td>5</td>
<td>7</td>
<td>30</td>
</tr>
</tbody>
</table>
5.2 Descriptive Statistics

Using Pearson’s correlation where \( p < .05 \) at significant level shows that every construct is positively correlated with each other. Table 8 shows Design Thinking’s Empathy vs SERVQUAL RATER Empathy’s coefficient is positive \( r \) is at .2271 meaning there is positive correlation between the two constructs, with 0.2275 statistic significant difference between the two variables. With Table 9, where coefficient \( r \) is at 0.7147 meaning there is positive relation between Define and Tangible constructs. With Table 10, coefficient \( r \) is at 0.8064 meaning there is positive relation between Ideate and Assurance construct. With Table 11, coefficient \( r \) is at 0.8769, meaning there is positive relations between Prototype and Reliability construct. Table 12 shows coefficient \( r \) is at 0.8421 meaning there is positive relation between Test and Responsiveness construct.

<table>
<thead>
<tr>
<th>deptcode</th>
<th>Freq.</th>
<th>Percent</th>
<th>Cum.</th>
</tr>
</thead>
<tbody>
<tr>
<td>BS</td>
<td>3</td>
<td>10.00</td>
<td>10.00</td>
</tr>
<tr>
<td>FB</td>
<td>7</td>
<td>23.33</td>
<td>33.33</td>
</tr>
<tr>
<td>FO</td>
<td>4</td>
<td>13.33</td>
<td>46.67</td>
</tr>
<tr>
<td>GM</td>
<td>2</td>
<td>6.67</td>
<td>53.33</td>
</tr>
<tr>
<td>HK</td>
<td>2</td>
<td>6.67</td>
<td>60.00</td>
</tr>
<tr>
<td>HR</td>
<td>8</td>
<td>26.67</td>
<td>86.67</td>
</tr>
<tr>
<td>OP</td>
<td>1</td>
<td>3.33</td>
<td>90.00</td>
</tr>
<tr>
<td>TR</td>
<td>3</td>
<td>10.00</td>
<td>100.00</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>30</strong></td>
<td><strong>100.00</strong></td>
<td></td>
</tr>
</tbody>
</table>
Table 9 Design Thinking’s Define Construct compared to RATER’s Tangible construct

```
.pwcorr EQ SQE, sig star(.05)

       |   EQ   |   SQE   |
-------|--------|--------|
   EQ   | 1.0000 |
  SQE   | 0.2271 | 1.0000 |
      | 0.2275 |
```

Table 10 Design Thinking’s Ideate Construct compared to RATER’s Assurance construct

```
.pwcorr DQ SQT, sig star(.05)

       |   DQ   |   SQT   |
-------|--------|--------|
   DQ   | 1.0000 |
  SQT   | 0.7147*| 1.0000 |
      | 0.0000 |
```

Table 11 Design Thinking’s Prototype Construct compared to RATER’s Reliability construct

```
.pwcorr IQ SQA, sig star(.05)

       |   IQ   |   SQA   |
-------|--------|--------|
   IQ   | 1.0000 |
  SQA   | 0.8064*| 1.0000 |
      | 0.0000 |
```
Table 12  Design Thinking’s Test Construct compared to RATER’s Responsiveness construct

<table>
<thead>
<tr>
<th></th>
<th>PQ</th>
<th>SQ</th>
</tr>
</thead>
<tbody>
<tr>
<td>PQ</td>
<td>1.0000</td>
<td></td>
</tr>
<tr>
<td>SQ</td>
<td>0.8769*</td>
<td>1.0000</td>
</tr>
</tbody>
</table>

Table 13 Summary of Pearson Correlation between Design Thinking and RATER’s constructs

<table>
<thead>
<tr>
<th></th>
<th>PQ</th>
<th>SQ</th>
</tr>
</thead>
<tbody>
<tr>
<td>PQ</td>
<td>1.0000</td>
<td></td>
</tr>
<tr>
<td>SQ</td>
<td>0.8421*</td>
<td>1.0000</td>
</tr>
</tbody>
</table>
Thus, this study rejects the null hypothesis and accepts the alternative hypothesis.

The results showed that Design Thinking constructs and SERV QUAL constructs based on the perception and service quality mindset of hotels’ management and staff using Design Thinking (DT) process are ranging from >.5 which means they have large/strong correlation. Thus, this study rejects the null hypothesis and accepts the alternative hypothesis.
6. CONCLUSIONS

Based on the results of the survey questionnaire, respondents’ mindset on Design Thinking’s constructs and RATER’ have positive relation. Hence, it is concluded, that while the respondents may not be aware what Design Thinking process is, definitely they are already performing it on a different perspective. Hence, researcher recommends, that they just continue what they are doing based on the RATER constructs but must strengthen the Design Thinking constructs (Empathy, Define, Ideate, Prototype and Test) to be embedded in their service. Moreover, based on those constructs, since all hotel respondents are implementing Service Quality they should come up with product or service differentiation to achieve competitive advantage.

Further Research

This research was conducted in a very limited time and small number of respondents. Thus, researcher recommends further research or an iterative study be conducted with more participating hotels and having cross study with hotel guests if possible. Another research may be conducted aligning SERV QUAL (Parasuraman 1985) with Design Thinking to have imperative results that may help the hotel industry and the academe.

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Marketing of Commodities in Adverse Environments in the Upland Ecosystem of Camarines Sur

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ABSTRACT
This paper aims to showcase the marketing practices of major commodities grown under adverse environmental conditions in the upland barangays of Camarines Sur. Of the commodities available in the representative barangays of the (3) chosen municipalities. Each municipality has one representative barangay, which are (1)Odicon, Pasacao, (2)Siba-o Calabanga and (3)Bagong Sirang Pili, Camarines Sur. Their existing commodities were assessed if it introduced right packaging, labeling, pricing and marketing. However, this presents a vivid picture of the developing trade condition of the barangay which aim to involve farmers, associations, cooperatives and the whole community to be known in the local, national and international trade scene by promoting their own One Town- One Product (OTOP) as introduced by the Department of Trade and Industry. This method of inventory would encourage every barangay stakeholders to perform and give their part in the Barangay Administration. The communities are ready to accept new challenges and developments brought about by the interventions of technical experts from government agencies. LGUs will help the participants by reorganizing their cooperatives as well.

INTRODUCTION
Climate change adversely affects ecosystem services, therefore posing development challenges particularly in food production; maintaining a healthy environment; conserving ecological systems, and their associated ecological goods and services. Some ecosystem services in some regions may initially be enhanced by projected climate changes. As climate change becomes more severe, the harmful impacts on ecosystem services will outweigh the benefits in most regions of the world (Reid et al 2005). Conservation of biodiversity and maintenance of ecosystem integrity appear to be imperatives in improving the adaptive capacity of poor groups to cope with climate change.

Livelihood schemes in an adverse environment is necessary in this project to introduce different strategies and techniques in making their farm productive and climate change resistant by adapting the latest technologies, skills and knowledge that will develop and introduce the stakeholder to the advancements in marketing. On the other hand marketing of the commodities
of the farmers is necessary for them to introduce and promote it to the market and likewise be known in the province.

Marketing of Agricultural Commodities and Marketing by Farmer Groups is needed in promotion of a particular commodity (rather than a brand-name product) financed collectively by producers of the commodity. Promotion includes advertising and other activities designed to increase the demand of the commodity. The purpose of promotion is to increase the demand to raise the price of the commodity, or increase the volume that will clear the market at a given price. No single producer can afford to go alone in commodity promotion because the individual benefits will certainly be less than costs.

A commodity marketing system encompasses all the farmers in the production, processing and marketing of an undifferentiated or unbranded farm product (such as banana chips), including farm input suppliers, farmers, storage operators, processors, wholesalers and retailers involved in the flow of the commodity from initial inputs to the final consumer. The commodity marketing system also includes all the institutions and arrangements that affect and coordinate the successive stages of a commodity flow such as the government, trade associations, cooperatives, financial partners, transport groups and educational organizations related to the commodity. The commodity system framework includes the major linkages that hold the system together such as transportation, contractual coordination, vertical integration, joint ventures, tripartite marketing arrangements, and financial arrangements. The systems approach emphasizes the interdependence and interrelatedness of all aspects of agribusiness, namely: from farm input supply to the growing, assembling, storage, processing, distribution and ultimate consumption of the product.

The marketing systems differ widely according to the commodity, the systems of production, the culture and traditions of the producers and the level of development of both the farmers and producers. Poor people are therefore severely affected when the environment is degraded or their access is restricted (Bass et. 2005). Those most vulnerable to climate change are the poorest groups in the poorest countries of the world. This is because they live in areas more prone to flooding, cyclones, droughts etc., and because they have little capacity to adapt to such shocks. They are often heavily dependent on climate-sensitive sectors such as fisheries and agriculture, and the countries they live in have limited financial institution and human capacity to anticipate and respond to the direct and indirect impacts of climate change. (Huq et. al 2003)

Marketing systems are dynamic; they are competitive and involve continuous change and improvement. Businesses that have lower costs, are more efficient, and can deliver quality products, are those that prosper. Those that have high costs, fail to adapt to changes in market demand and provide poorer quality are often forced out of business. Marketing has to be customer-oriented and has to provide the farmer, transporter, trader, processor, etc. with a profit. This requires those involved in marketing chains to understand buyer requirements, both in terms of product and business conditions.

Successful implementation of technologies and measures that can combat desertification or enhance biodiversity often have the additional benefit of creating environments that can better mitigate or adapt to climate change. However, synergies are not easily effected because the different multilateral environmental agreements have separate constituencies, administration arrangement, negotiators and guiding scientific bodies. (Raustiola 2001)

The research was focused on the marketing of the commodities available in the community. There were (3) municipalities with 1 barangay representing each that were identified to be studied. This municipalities are (1) Odicon, Pasacao, (2) Siba-o, Calabanga and (3) Bagong
Sirang Pili, Camarines Sur. The assessment of their existing commodities was done by introducing and teaching them the right packaging, labeling, pricing and marketing of Commodities in Adverse Environments in the Upland Ecosystem as Affected by Climate Change. This however, presents a vivid picture of the development condition of the barangay and it aims to involve farmers, associations, cooperatives and the whole community to be known locally, nationally and even internationally in promoting their product known as the One Town-One Product (OTOP) as introduced by the DTI-Department of Trade and Industry.

**Statement of the Problem**

The project was able to identify and help the beneficiaries to enhance their product, improve their skills, and increase their standard of living.

**Objectives:**

Marketing of Agricultural Commodities and Marketing by Farmer Groups acting jointly, farmers can often benefit economically by working together in groups Generally, groups of producers seek one or more of the following objective:

1. To determine the farming system, institutions, markets in the communities identifies through participatory appraisal approach.

2. To introduce income generating activities in the identified areas

3. To improve competitiveness and efficiency in the marketing channel

4. To gain more channel control and leadership for promotion, marketing cooperatives.

**METHODS**

A participatory rural appraisal was used in the communities identified. Focus group discussions with the LGU-(Local Government Unit), and there are (30) farmers beneficiaries chosen from the (3) municipality which was also used to validate the information’s given. Rapid Market Survey was given to the farmer beneficiaries to answer their needs in knowing what and how to plant during this climate change. Questionnaire was also used to know their commodities, source of supply of raw materials, frequency of purchased, volume of purchased and quality requirements, buying price, preferred mode of procurement and mode of payment. Venn Diagram was used. Training and demonstration trials were also conducted and Process documentation was used.

<table>
<thead>
<tr>
<th>Domain/Concerns</th>
<th>Means</th>
<th>Output</th>
<th>Outcome</th>
</tr>
</thead>
<tbody>
<tr>
<td>Socio – Economic Profile</td>
<td>Demand and supply</td>
<td>Commodity System flow</td>
<td>Improve competitiveness and efficiency in marketing channel and control</td>
</tr>
<tr>
<td>Marketing of commodities</td>
<td>Production Processing packaging promotion</td>
<td>Regulate supply and qualities</td>
<td></td>
</tr>
</tbody>
</table>

9
RESULTS AND DISCUSSION

The main crops that were identified in Bagong Sirang were Rice, Corn, Sugarcane, vegetables and coconut. On the average, the area devoted to their production is 1 hectare except for vegetables which is ½ hectare. Farm yield per hectare of rice is 80 cavans. While corn has 3.5 ton/ha, sugarcane has 8 cav/sugar. 5-10% of their harvest is used for consumption while 90-100% are sold to private individuals like “cosay” and comprada.

It was also revealed that 15-50 percent were spent to paying loans, 10-50 percent for their child schooling, while 25-30 percent were consumed in the household while 10-20 percent in health, other were also given 5-20 percent.

As to the source of raw materials they usually get the seed in DA (Department of Agriculture) JL and sometimes to the seed grower. Coconut is sourced in (PCA). Philippine Coconut Authority and the sugarcane at the PENSUMIL. The frequency of purchase was 4 months to 1 year were they usually purchase by kilos, sack or by truck. Purchase depends upon whether it is peak months or lean month. It was also revealed that the peak month was Aug, Sept, April during which price were higher 4 to 5 pesos from the lean month.

<table>
<thead>
<tr>
<th>Barangay of Pili</th>
<th>Island Group</th>
<th>Luzon</th>
</tr>
</thead>
<tbody>
<tr>
<td>Region</td>
<td>Bicol Region</td>
<td></td>
</tr>
<tr>
<td>Province</td>
<td>Camarines Sur</td>
<td></td>
</tr>
<tr>
<td>Municipality</td>
<td>Pili</td>
<td></td>
</tr>
<tr>
<td>Area</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Population</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Total</td>
<td>2,438</td>
<td></td>
</tr>
<tr>
<td>- Density/km²</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Urbanisation</td>
<td>Rural</td>
<td></td>
</tr>
</tbody>
</table>

Location in the Philippines:
Bagong Sirang

Bagong Sirang is a barangay of the Philippine Municipality Pili in the province Camarines Sur in Bicol Region which is part of the Luzon group of islands.

Bagong Sirang is one of the barangays which are in the outlying area of Municipality Pili.

The municipality Pili with a population of about 76,496 and its 26 barangays belong to the partly urban areas in the Philippines. While some of the barangays developed modern urban structures, some others, especially those which are seated in the outlying areas, remained rural. By the end of 2007 Bagong Sirang had 2,438 residents.

Other barangays of Pili are:

Anayan, Binanwaanan, Binobong, Cadlan, Caroyroyan, Curry, Del Rosario, Himaao, La Purisima, New San Roque, Old San Roque (Pob.), Palestina, Pawili, Sagrada, Sagurong, San Agustin, San Antonio (Pob.), San Isidro (Pob.), San Jose, San Juan (Pob.), San Vicente (Pob.), Santiago (Pob.), Santo Niño, Tagbong, Tinangis

As to the source of raw materials they usually get the seed in DA (Department of Agriculture) JL and sometimes to the seed grower. Coconut is sourced in (PCA). Philippine Coconut Authority and the sugarcane at the PENSUMIL. The frequency of purchase was 4 months to 1 year were they usually purchase by kilos, sack or by truck. Purchase depends upon whether it is peak months or lean month. It was also revealed that the peak month was Aug, Sept, April during which price were higher 4 to 5 pesos from the lean month.

On the other hand as to the vegetables they were able to plant other crops as combination crop such as Beans (sitaw), Ampalaya, Peanut, Talong, malunggay, upo, kamote, kalabasa, sili and luya. It was noted that frequency of purchase of kamatis in 3 months after 3 days harvest. Tomatoes are usually planted/harvested in the entire year. Except luya and petchay. Luya was price 80.00/kg. the preferred mode is CASH basis.

Majority used sacks, canned and plastic for packaging vegetables for the big volumes. Packaging requirements were needed except for the coconut since purchase were made by trucks.

As suggested by the community and farmers they need to plant according to season since the weather condition is the primary problem they encounter. Plants are greatly affected during typhoons and floods which happen usually during September –December . To prevent this kind of situation it was suggested that they have to plant trees with different varieties likewise, waste segregation is also important from bio-degradable and non-biodegradable. The Community decided to take part on the Coco Wine Processing and Coconut Macaroons. While there were also trainings conducted in Organic Agriculture and vermicomposting, rice and Adlai nutria-bar Pigeon Pea Polvoron and Puto cake, Mushroom Production, chicken ham/corned beef and salted production. Majority were interested in the livestock and swine production since this kind of
business is very in-demand and they were able to sustain and considered it as the most easiest way to engage in business.

**Siba-o**

**Siba-o is a barangay of the philippine municipality** Calabanga **in the province Camarines Sur in Bicol Region which is part of the Luzon group of islands.**

Siba-o belongs to the barangays of Municipality Calabanga which are in the outlying area.

The municipality Calabanga with a population of about 73,333 and its 48 barangays belong to the partly urban areas in the Philippines. While some of the barangays developed modern urban structures, some others, especially those which are seated in the outlying areas, remained rural. By the end of 2007 Siba-o had 834 residents.

Other barangays of Calabanga are:

- Balatasan
- Balombon
- Balongay
- Belen
- Bigaas
- Binaliw
- Binanuaanan Grande
- Binanuaanan Pequeño
- Bonot-Santa Rosa
- Burabod
- Cabanbanan
- Cagsao
- Camuning
- Comaguiningking
- Del Carmen (Pob.)
- Dominorog
- Fabrica
- Harobay
- La Purisima
- Lugsad
- Manguiring
- Pagatpat (San Jose)
- Paolbo
- Pinada
- Punta Tarawal
- Quinale
- Sabang
- Salvacion-Baybay
- San Antonio (Quipayo)
- San Antonio Poblacion
- San Bernardino
- San Francisco (Pob.)
- San Isidro
- San Lucas
- San Miguel (Pob.)
- San Pablo (Pob.)
- San Roque
- San Vicente (Pob.)
- Santa Cruz Poblacion
- Santa Cruz Ratay
- Santa Isabel (Pob.)
- Santa Salud (Pob.)
- Santo Domingo
- Santo Niño (Quipayo)
- Sibobo
- Sogod
- Tomagodtod

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The Main crops of Sibao-Calabanga is corn where their area is about 80% while there is 75% of coconut planted combined with other crops like corn, vegetables, sweet potato, cassava, and peanut. The vegetables like ampalaya, eggplant, tomato, string beans and baguio beans were planted about 50% of the area. And around 10% devoted to rice land.
Problems encountered due to climate change were because of typhoon, water system and fungus. Specifically these problems are prone to vegetables. While banana and corn usually the price of the input increases while if sold, prices are very low. It can be noted that rice problem still is pest like kuhol, water system and typhoon where 60% are totally damage during month of October and November. Results of these are effects of floods during these months. It was also reflected that El Nino draught was experienced during June and July were majority of plants are dried.

On the other hand, these problems were addressed to lessen the effect to the barangay/community. As to the ways or strategies given, there were solutions like during typhoon, evacuation center was identified, availability of the barangay official or tanod was there to monitor and the agency that usually help them is DRRMC-Disaster Risk Reduction Management Council- this is also true in times of flood during November-December. The barangay council asked the help of the DPWH to rehabilitate the bridges and road for construction.

Another problem identified was the presence of PEST that occurs in the month of August, they have MAO (Municipal Agrarian Office) who helped them to eradicate the pest. Because of these, the farmer has to use spray to control pest which also will result in affecting the quality of soil in the long term process. So what the LGU or farmers do is to add and put organic fertilizer through the help of Department of Agriculture and Central Bicol State University of Agriculture who assist them in planting and harvesting their commodities.

Among the agencies or institutions that help in their barangay was the LGU Calabanga and the barangay council, where financial assistance where given. While the main focus of governance of the LGU Sibar-0 was on the improvement of educational system and promotion of peaceful and orderly community.

These are being carried & realized by giving financial assistance to volunteer teacher and by mobilizing barangay arbitration committee. While the PCA ensures sufficient coconut supply in the country by providing assistance to coconut farmers in terms of providing seedlings, technical assistance and regulation of coconut Industry. One of their lendable programs is the provision of scholarship grants to children of coconut farmer in order to pursue college education. Lastly the Food security is the top government program spearheaded by the Department of Agriculture. The department monitor the sufficiency of agricultural products by providing technical & financial assistance to farmers, fisher folks and plants growers.
ODICON PASACAO, CAMARINES SUR

Odicon is a barangay of the Philippine municipality of Pasacao in the province Camarines Sur in Bicol Region which is part of the Luzon group of islands.

Odicon is one of the barangays which are in the outlying area of Municipality Pasacao.

The municipality of Pasacao with a population of about 41,533 and its 19 barangays belong to the partly urban areas in the Philippines. While some of the barangays developed modern urban structures, some others, especially those which are seated in the outlying areas, remained rural. By the end of 2007 Odicon had 2,113 residents.

Other barangays of Pasacao are:

Antipolo, Bagong Silang, Bahay, Balogo, Caranan, Cuco, Dalupaon, Hubo, Itulan, Macad (Hebrio Lourdes), Quitang, Salvacion, San Antonio, San Cirilo (Pob.), Santa Rosa Del Norte (Pob.), Santa Rosa Del Sur (Pob.), Tilmac, Tinalmud

In Odicon Pasacao, Camarines Sur farming is the primary source of income. 85% of the land area is devoted to Coconut, with 700 kg/ha as to their production capacity 50% of their production is allocated for consumption while 50% for selling, usually, to wholesaler. 80% of the income from coconut is spent for repaying loans while 50% for their children’s schooling.

It can be noted that 35% of the land is devoted to rice production, second among the main crop with 60 cavans/ha as their production capacity. 30% is allocated for consumption while 70% is sold to traders 3 times a year.

90-100% of the total production of banana, pechay and other vegetables crops were sold while only to 5-10% for consumption. The volume of purchase usually from 1 can to 2 cans except for the papaya with 2 bottles and ginger by 3 sacks. It can also be noted that the price
depends whether it is lean month or peak month. Peak month usually fall during the month of November and lean month during the month of August. Price is higher by PhP.10 increase or half of the price was doubled because normally it is in the month of August where they experience poverty and where they also calamities like floods, typhoons and other natural calamities.

Other source of income were animal raising like swine and goat where production was 90/kilo, these are all being sold and from what they get in selling these are all spent for consumption in the house.

The problems encountered in the farm usually are pests, insects, acidic rain, and if there is a heavy rain usually the tomatoes were affected and eggplant was also damage.

The farm-owner or the management addresses the problem by having spray in the plants, change the variety of seedlings, or either plant the seedling in the right proper timing or season, but this can be done only if there will be further study.

It can also be noted that they experience poverty during August to September because these are the month that raining season and typhoons occur November and December. Likewise, there are also a lot of expenses during May and June since they need to pay their children schooling and school supplies.

Harvest time is in the month of March, June and October where they experience also abundant/more supply of the harvest.

El Nino was also experience during month of March-April where the soil was also affected and usually cannot be planted and worst plants die because drought.

Another problem they encounter is landslide, where plants were destroyed and buried.

While fire month is during March-May, where temperature usually seen from 35-36 degrees.

CONCLUSIONS AND IMPLICATIONS

SIBA-O

This sums up the courses of action which the Barangay has to undertake to address the problematic areas requiring the decisive action on the indicators not complied by the barangay. It was suggested that a livelihood program will be introduced in the barangay. During the FGD (Focused Group Discussion) the community decided that their commodities will be banana chips with flavours like cheese, honey, and garlic, although there are vegetables and fruits present in their areas and considered as their primary source of income. This attempt and initiatives of the community will uplift their standard of living. As to the quality and taste of the banana chips, it will be maintained and monitored by the CBSUA staff. The DTI will help in the packaging as well as in the design and quality of their banana chips specially that the beneficiaries favour to continue the business because it is an added income for their household expenses.

BAGONG SIRANG

The barangay decided to focus on the main crops which are sugarcane, corn, coconut, cassava, banana, mango, rambutan, pili, and guyabano. The products that were accepted and were shown interest by the beneficiaries was the coco wine and coconut macaroons. There were also some who liked the Rice/Adlai Nutribar, Pigeon Pea Polvoran, Pigeon Pea Puto cake, and Mushroom production. One of the training conducted was on salted egg, chicken ham and corned beef production. Because of the climate change, poor quality of soil and drainage problem which affected so much of the plants and production, it was suggested that they can try the livestock and swine production since this is the most in-demand business of the locality.
ODICON

The community identified coconut, rice, banana, pechay and vegetable crops as their commodities. Coconut has the biggest area planted which covered about 85% of land. Problems of farmers in climate change were their biggest challenge since plants and vegetable were affected, lessening the quality of the crops and plants produced. Trainings were conducted on mushroom production, Swine and Poultry raising, Corned beef processing, Processed Meat products, Pigeon Pea Production, Marketing Enterprise, and Vermi culture. Such training conducted will improve and enhance their income and standard of living. Likewise other skills were also taught to improve their skills and knowledge in the livelihood training. Local Government Units at the same time assured the assistance in the lending program and other agencies to help the farmers and to reduce poverty incidence in the barangay. PAR-Participatory Rural Approach was used to identify the product that are available in the community. Product was determined as to what, where and how much they can afford to start their business. While the marketing strategies was implemented after identifying the products. Likewise they also think of income generating project to be introduced for them to form group association and or cooperative.

The Barangay Officials are doing their part to promote better governance, and they adopted a mechanism to keep track of the Barangay’s productivity and performance through the barangay governance performance management system. It is a self-assessment tool to measure the capabilities and limitations of the barangay in the delivery of essential public service to the people. Result of the report shall serve as the guiding reference in addressing the people’s concern along the five(5) Performance areas: Governance, Administration, Social Service, Environmental Management with the corresponding seventeen(17) service areas.

There are a lot of things that the Barangay should do in order to answer the call for good governance, proper administration, the right social services, the delivery of economic services and the protection of environment. Nevertheless, this method of inventory would bring every barangay stakeholder to perform and give their part in the Barangay Administration.

The participants are receptive in accepting the new challenges posed by developments brought about by the interventions of technical experts from government agencies. Likewise, the beneficiaries are willing to be trained in the new strategies and methods introduced by the CBSUA- Central Bicol State University of Agriculture and other agencies like the Department of Agriculture and Department of Trade and Industry. The Local Government Unit will also support and help the participants by assisting them in their financial needs aside from giving them free training and seminars. Some were also encourage to reorganized their cooperative to facilitate strong hold of income and to produced and make their own business.

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Session G - Sustainability, innovation, and governance
Agritourism innovation strategies towards sustainability

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Abstract

This paper explores the concept of innovation strategies for sustainability within the agritourism sector. Agritourism is a hybrid of two highly complex concepts: agriculture and tourism. Both concepts are important to our economic and cultural development. The concept of sustainability used to be measured predominantly in terms of the economic sphere. However, it can be noticed that business, even the small ones, has been increasingly including an environmental criteria in their measure of success and in business strategies. Such heightened recognition of the environmental criterion has been strongly influenced by the vision of sustainable development. From a more pragmatic business perspective, sustainability offer potential for innovations and related business opportunities in terms of the environmental, social and economic push. Within the elements of sustainability, tourism can be sustainable if it is economically viable, promotes conservation of natural resources, supports preservation of local culture, adopts a long-term perspective and is concerned with the well-being of future generations, promotes equity, which means sharing the benefits and risks of tourism, promotes cooperation and partnerships, responsibility and accountability in behavior and relationships, Is marketed responsibly; integrated into planning; upholds respect for others; and emphasizes the importance of education, research, and capability building.

Keywords: agritourism, sustainability strategies

INTRODUCTION

Agriculture and tourism plays a major role in our country’s economic growth and cultural development. The agricultural sector generates the biggest employment in the country with around 12 million Filipinos involved in the sector (Bureau of Agricultural Statistics). On the other hand, as of 2014, tourism directly employed 4.9 million Filipinos which is about 11% of the total work force not counting the indirect workers in the food and drink suppliers to the industry, making tourism the fifth largest employer industry. According to the National Statistical Coordination Board (NSCB), about 10% of the employed segment of the population works in the tourism industry. Thus, it comes as no surprise that the agriculture and tourism sectors were given highest priorities under the Philippine Development Plan (PDP) for 2011 to 2016.
On the other hand, sustainability has become a mantra for the 21st century (Dyllick & Hockerts, 2002) as evident in the increasing sustainable business practices of a growing number of companies and other organizations who want to ensure that their operations are sustainable (GRI, n.d; Shields & Shelleman, 2015). The Global Reporting Initiative (GRI) noted the growing expectations for businesses to match their long-term profitability concerns with an equal concern for social justice and for protecting the environment (GRI, n.d). In a business setting, sustainability can refer to the integration of social, environmental and economic concerns in business operations to create value, ensure long run survival, and incorporate stakeholders’ concerns in business decisions (Bos-Brouwers, 2010; Vilanova & Dettoni, 2011). It focuses on central aspects such as corporate vision, community relations; workplace policies, accountability, and incorporating sustainability in products and services, particularly in terms of research and development and innovation (Vilanova & Dettoni, 2011).

The UN’s Agenda 2030 echoes the same sentiment with its focus on the five principal strands of people, planet, prosperity, peace and partnerships. Agenda 2030 is a global call to action to end poverty, protect the planet, and ensure that all human beings enjoy peace and prosperity. It aims to shift the world to a path of sustainable development to deliver on economic development, social inclusion and environmental sustainability. It aims to promote development oriented policies that support productive activities, decent job creation, entrepreneurship, creativity and innovation, and encourage the formalization and growth of micro, small and medium sized enterprises, including through access to financial services. It recognizes that private business activity, investment and innovation are major drivers of productivity, inclusive economic growth and job creation. It calls upon all businesses to apply their creativity and innovation to solving sustainable development challenges (UNDP, 2015).

Hence, it is perceived that the challenge for the private sector is for them to move towards an inclusive and sustainable business models, beyond philanthropy and voluntary corporate social responsibility, to amend its behavior to reduce their negative impacts and to use its strengths to overcome barriers more effectively than other sectors of society are able to do, without undermining their profitability (Almgren, 2016; Blowfield et al, 2008). The solutions lie in innovation, new business models, and the right leadership combined with better regulatory frameworks, smart public incentives, and changes in consumer demand (Almgren, 2016, UNDP, 2015). It is the realization that sustainability has indeed become innovation’s new frontier (Nidomulu and Prahalad).

Innovation is assumed to be a main driver of economic and social progress at the national level as well as a driver of business success and competitive advantage at the firm level (Bos-Brouwers, 2010; OECD, 2012; Vilanova & Dettoni, 2011). It strengthens the competitiveness of countries as well as sectors and individual companies (Porter, 1985 as cited in Bos-Brouwers, 2010). However, if countries want to move towards a more ecologically sound and prosperous society, it is important to promote specific areas of innovation. It should be the likes of eco-innovation (or green innovation), where new ways of resolving current and future environmental problems and decreasing energy and resource consumption are addressed, while promoting sustainable economic activity (OECD, 2012).
Sustainable innovation has become an indicator of the commitment to the triple P bottom line (Bos-Brouwers, 2010) and is perceived as a key to achieving competitive advantage (Vilanova & Dettoni, 2011). Hence, businesses and government are encouraged to think in terms of sustainability innovation to meet such demands as green technology, energy efficiency, and social enterprise (Blowfield et al, 2008).

It is understood that sustainability may require different approaches to, and perhaps new models of, business. However, there are little empirical analysis on sustainability and whether it does require new ways of thinking about innovation (Blowfield et al, 2008). Moreover, while it is agreed that innovation is crucial to company competitiveness. Vilanova & Dettoni (2011) observed that there is a need to study and understand the different factors that affect innovation.

**Sustainability as a business concept.** The concept of sustainability has evolved from its focus on the responsibilities of managers and corporate officers; to making companies accountable for their impact in social, environmental and economic spheres; to placing sustainability at the core of the company’s identity and business processes. What is interesting about this evolution process of sustainability as a business concept is that while it was initially seen as a way to identify and manage undesired or indirect impacts generated by business activities, today it is understood as a transversal issue that affects different key areas of the company. This means that sustainability is a transversal issue that affects corporate identity and reputation, stakeholder relationships, human resources, communication, business strategy or marketing. Therefore, it is clear that adopting sustainability strategies must have some effect on key business competitiveness factors (Vilanova & Dettoni, 2011).

It is acknowledged that we are living in a changed world where we are faced with a fragile economy, climate change, and scarcity of natural resources (Fisk, 2010). This implies the need to rethink how businesses are done and the reality that environmental issues are now at the core of business and policy decisions. Table 1 emphasizes the transformation in the sustainable agenda from the 50’s up to the present. It illustrates how climate change is and must be addressed by rethinking and redefining how we use our resources.
Table 1. Sustainable agenda: how social and environmental issues have moved from the organization fringes to core business
Source: People, planet, profit by Fisk (2010)

At the farm level, a strategy being encouraged to deal with climate change is the promotion and development of agritourism enterprises. Agri-tourism refers to “the practice of attracting visitors and tourists to areas for production, educational, and recreational purposes. It involves any agricultural or fishery-based activity that brings to farm visitors, tourists, farmers, and fisherfolk who want to be educated and trained on farming and its related activities, and provides a venue for outdoor recreation and accessible family outings. It is a hybrid concept that merges elements of two complex industries—agriculture and travel/tourism—to open up new profitable markets for farm products and services and provide travel experiences for a large regional market (Wicks and Merrett, 2003). Further, based on a national conference sponsored by the Asian Productivity Organization (APO), agritourism is used synonymously with farm tourism, green tourism, or leisure tourism. Based on the same conference, learning points have been generated such as need for collaborations among government, stakeholders, and farmers association; need for government (at the national and local levels) to provide the necessary enabling environment and funds in supporting development of model agritourism parks and marketing platforms; farmers association should be provided education and training, need to develop standards and accreditation system; and marketing platforms; and, importance of farmers in providing education, experience to understand the value of agriculture, and, opportunity for scholars to do research.
Figure 1 shows the central relationship agritourism has to alternative agriculture, value-added production, direct farm marketing, and, ultimately, rural community development. Alternative agriculture refers to the production or harvest of crops and animal products or land uses not in the mainstream of local or regional agricultural production and distribution systems. It is intuitively appealing since it may be suited to the soil and land characteristics while other products may require fewer inputs and yield the same or higher return on investment; more labor intensive and return more to the community in terms of salaries; less polluting and disruptive to the environment; and better suited to the sensibilities of a new generation of land owner/farmer (Wicks and Merrett, 2003).

Value-added production, which is the difference between the price of an agricultural commodity at its source and later in its final processed state at the point of consumption, is important especially if the farmer and landowner can capture much of the value added (Wicks and Merrett, 2003). Direct farm marketing occurs when the grower sells his or her produce to the final consumer at retail prices (Wicks and Merrett, 2003).

Despite the advantages and contribution of agritourism development, it is also acknowledged that there are inherent risks in any agritourism. These risks, according to HB 1147 refers to dangers or conditions that are an integral part of an agritourism activity including surface and subsurface conditions, natural conditions of land, vegetation, and waters, the behavior of wild or domestic animals, and ordinary dangers of structures or equipment ordinarily used in farming and ranching operations. Risks of agritourism may also include the potential of a participant to act in a negligent manner that may contribute to injury to the participant or others, including failing to follow instructions given by the agritourism professional or failing to exercise reasonable caution while engaging in the agritourism activity. Such inherent risks can lead to operational and financial difficulties for any agritourism enterprise and professional.

Figure 1. Tourism and agriculture
In the Philippines, farm tourism or agri-tourism started in the 1990s. Some of the popular agri-tourism destination includes Gawad Kalinga Enchanted Farm in Angat, Bulacan which considers itself as a “farm village university”. Here, communities live together, study technical courses and do farming while encouraging visitors to experience the life in the farm through different activities such as hiking, bird-watching, campfires, “harvest-your-own” fruit and overnight stays. Duran Farm also in Bulacan is another farm tourism destination visited both by local and foreign tourists who want to learn about best practices in vegetable production. Costales Nature Farm in Majayjay, Laguna attracts more than 3,000 local and foreign tourists every month who visit the place for several reasons: farmer visitors who want to learn about organic farming, businessmen looking for possible investment, students on a field trip or families spending special occasions in the farm (Samonte, 2014). There are other popular agri-tourism sites in the country such as the mango farms in Guimaras, strawberry and organic vegetable farms of Benguet, and the pineapple and coffee plantations in Bukidnon.

The move towards sustainability suggests that businesses should be innovative to be profitable while at the same time expanding the traditional frontiers of business to include concern for the environmental and social dimensions (Remmen, Jensen Frydeldal, 2007). In 1986, the United Nations World Commission on Environment and Development studied the dynamics of global environmental degradation and made recommendations to ensure the long-term viability of human society (Cruz, 2003). The commission came up with a report, Our Common Future (1987), which became the benchmark for thinking about the global environment, and first popularized the term sustainable development, which is defined as development that meets the needs of the present without compromising the ability of future generations to meet their own needs.

Based on the Brundtland Commission's definition of sustainable, Tourism Canada (1990) came up with the following definition of sustainable tourism development: tourism development that leads to management of all resources in such a way that economic, social and aesthetic needs can be fulfilled, while maintaining cultural integrity, essential ecological processes, biological diversity and life support systems.

McVey (1993) as cited in Cruz (2003) identified the three core elements of sustainability, which are

- **Economic sustainability**, which refers to maintaining growth rates at manageable levels; promoting tourism while keeping an eye on capacities to handle greater demand in order to avoid consumer dissatisfaction;
- **Social sustainability**, which refers to society's ability to absorb increasing tourist arrivals without adversely affecting or damaging indigenous culture; and
- **Environmental sustainability**, which is related to the capacity of the natural and built environment to handle tourism without damage.

Within the core elements of sustainability, tourism is sustainable if it observes the following: (Cruz, 2003)

- economically viable;
- Promotes conservation of natural resources;
• Supports preservation of local culture;
• Takes long-term perspective and is concerned with the well-being of future generations;
• Promotes equity, which means sharing the benefits and risks of tourism;
• Engages multi-stakeholder participation in decision-making and management;
• Promotes cooperation and partnerships;
• Promotes responsibility and accountability in behavior and relationships;
• Is marketed responsibly;
• Is integrated into planning;
• Upholds respect for others; and,
• Emphasizes the importance of education, research, and capability building.

The above indicators puts emphasis on the concept of sustainability; that it does not take place in a vacuum since it concerns and affects human and natural environments that are always socially constructed (Redclift in Sonino, 2004). At a broader level and in theory, agritourism is a sustainable strategy since it promotes the conservation of a broadly conceived rural development through its socioeconomic development (Sonino, 2004).

Conclusion

As of 2016, industry observers believed that an estimated 14.6 million new jobs could be created if the government adopts various reforms geared towards enhancing the business environment, particularly in the agriculture and tourism sectors (Samonte, 2014). According to the Department of Tourism, tourism is our fourth foreign currency-generating industry. It provides an alternative source of income, especially where there are no manufacturing activities or big retail shops in place (Ramos-Aquino, 2014). Further, tourism is viewed by marketers in the country as a potential driver for growth but they stressed that the right infrastructures has to be in place if the government wants to attain its 10 million tourist goal in 2016. Moreover, the government needs to promote awareness and increased understanding of the benefits and importance of agriculture and encourage sustainable farm practices (Samonte, 2014). The integration of tourism and farming enables more efficient resource utilization which can provide jobs, increase income, open business opportunities, and reduce urban migration.

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A Landfill’s Goldmine: How E-Waste Management Firms Address the Triple Bottom Line

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Abstract

This study looked at how e-waste management firms addressed the challenge of the Triple Bottom Line (TBL) of people, planet and profit coined by John Elkington in 1994 together with the sustainable value framework of Hart and Milstein (2003). The objectives of this research are to ascertain that e-waste management firms address the safety and welfare of their employees, to determine the positive environmental impact of e-waste management businesses, and to know the profitability and viability of e-waste management. To accomplish the research objectives, the researchers opted to do a pattern matching case study on three DENR accredited Treatment Storage and Disposal (TSD) and Waste Electronic and Electrical Equipment (WEEE) facilities. Two of them, HMR Envirocycle Inc. and Southcoast Metal Enterprise specialize in e-waste while Udenna Environmental Services primarily process chemical waste.

The study showed that e-waste management firms are able to generate sustainable value in addressing the triple bottom line. Although all of the companies exhibited the triple bottom line, improvements can be made in the people and profit dimension. For people, the companies need to develop health and wellness beyond the workplace. And, for profit, the researchers saw the need to maximize revenue received from recycling electronics. On the other hand, for planet, the study found that formal recycling facilities, through acquiring certificates and licenses, can already achieve environmentally sustainable operations.

This research will benefit the private sector through understanding the buying and disposing patterns of consumers and how the process of responsible e-waste disposal is done. The government and nonprofit organizations will have information on who should be responsible for recycling electronic devices once bought from the store. Because this will be the first study to analyze e-waste management firms through the TBL and sustainable value framework, these institutions can use the patterns presented as a holistic way to assess a waste management firm’s operations and sustainability. And lastly, this will add to the body of knowledge on e-waste recycling in the field of business.

Key words: Triple bottom line; e-waste management; sustainable value
Introduction

Given the Filipinos’ love affair with new technology, it begs the question: what happens to discarded technology? Hence, the occurrence of e-waste, which is defined by Gutierrez & Agarrado (2011) as “a term commonly used to represent almost all types of electrical and electronic equipment that has entered or could enter the waste stream.” STEP (2016) stated that total e-waste generated in the Philippines for 2014 is at 127 metric kilotons and e-waste generated per inhabitant is at 1.3 kilograms (computed using mathematical equations by the STEP Initiative).

With the rising amount of e-waste generated from different businesses and the growing amount of e-waste being imported by the Philippines from countries such as the U.S., Japan, Korea, and China, the problem of e-waste in the country has escalated. The e-waste being collected stems from all the different technological products being used by households and businesses such as electric fans, refrigerators, and ovens (Alano, 2012). All these products contain components which are toxic to people and the environment such as lead and cadmium embedded inside various parts of the products. According to Gutierrez & Agarrado (2011), the prevalence of e-waste in the country has led to many to resort to informal ways in recycling the products, which could then lead to people being poisoned by these materials, or not being able to properly dispose of said products.

The triple bottom line, coined by John Elkington in 1994, focuses on the economic, social and environmental value they create. This study looked at how e-waste firms addressed the Triple Bottom Line (Henriques, & Richardson 2012) and gained the benefits of recycling through profit and to a greener environment. Business owners will benefit from this study because of the opportunities it may bring to the Philippines. Recycling companies and those who are handling hazardous waste may utilize this through suggestions and recommendations. Consumers will be more aware on what will happen to their old electronics and the risks that it may bring, which help them in deciding on how to properly dispose of it.

As a growing industry, the waste management industry faces challenging opportunities. In establishing the demand for e-waste management, it has become apparent that there are many unaccounted e-waste. And, there is a gap considering that there is lack of knowledge on e-waste management practices and firms in the Philippines. For the purpose of this paper, the researchers want to determine and verify the premise that an e-waste management firm is a profitable, socially responsible, and environmentally responsible enterprise to foster advancement and innovation in the e-waste industry.

Research questions and objectives

What happens to electronics when they are severely outdated? A survey of 2500 people reported that for laptops and personal computers 36% store their laptops and personal computers, 26% do not own these devices, 13% sell them, 10% give them to other family members, 6% recycle them, 5% are thrown and 4% are lost or stolen (Alam, 2016).
According to Pant (2013) the average lifespan of a desktop is at 8–10 years and for a laptop it is at 3–5 years. He also goes on to say that the life expectancy of different items also vary depending upon the way to handle by the owner. The researchers of the study have identified the main problem, which is:

*Do e-waste management firms generate sustainable value in dealing with the triple bottom line: people, planet and profit?* From the main problem presented above, the researchers have arrived at different sub-problems, including:

1. How do e-waste management firms address the welfare of their employees?
2. What are the implications of proper e-waste management of consumer electronics on the environment?
3. How is e-waste management profitable and sustainable?

There is a need to highlight if and how e-waste management firms address the triple bottom line. The main objective of the study, therefore, is *To determine that e-waste management firms generate sustainable value in dealing with the triple bottom line: people, planet and profit.*

From the main objective presented, the researchers have arrived at secondary objectives, which are:

1. To ascertain that e-waste management firms address the safety and welfare of their employees.
2. To determine the positive environmental impact of e-waste management businesses.
3. To know the profitability and viability of e-waste management.

**Propositions of the Study**

Hart and Milstein (2003), e-waste management firms are socially responsible in that they create sustainable value. The researchers were able to draw propositions from their sustainable value framework.

*Proposition 1: E-waste management firms are developing people.*

Hart and Milstein (2003), e-waste management firms should be able to look out for their employees’ welfare as well as have a positive impact on the lives of the people in the communities they operate in. This is done so that the researchers can see whether the people in the company are trained and given proper ways of handling e-waste.

*Proposition 2: E-waste management firms are environmentally responsible.*

Hart and Milstein (2003), e-waste management firms are environmentally responsible as they create sustainable value through their integrating sustainable development in their plans. This is seen in the upper left quadrant which talks about Innovation and Repositioning which then translates to corporations creating / using greener technology to help in solving environmental problems like pollution. This is done through checking the impact of e-waste management firms in lessening e-waste in landfills.
Proposition 3: E-waste management firms are profitable

According to Hart and Milstein (2003), e-waste management firms would be able to show whether or not they create sustainable value through driving shareholder value. This is done through first getting a profit. In relation to the framework made by Hart and Milstein, this is seen in the upper right quadrant stating growth trajectory because it helps to facilitate the goal of a company in terms of profits. This is done through checking the amount of profit gained by the firms.

The triple bottom line (TBL) consists of three Ps: profit, people and planet. It aims to measure the financial, social and environmental performance of the corporation over a period of time. (Henriques, & Richardson 2012). E-waste management businesses should be able to touch on all facets of the TBL framework especially since they deal with the management of a form of waste. The researchers have also encountered the various environmental and health effects of e-waste. These effects are discussed in the literature review.

Brief review of related literature

Definition of E-Waste

According to Battacharya (2016), electronic waste, better known as e-waste, include discarded electronics or electrical goods which are not suitable anymore for their intended purpose or have reached the end of their life. E-waste is known to contain many valuable materials such as copper, silver, gold, and platinum, which can be processed for recovery, but these goods also contain materials which are hazardous to human health.

E-Waste in a Global Context

E-waste has been present all over the world due to the increasing usage of electronic devices. Through the years, quantity has been rapidly increasing due to the speed at which consumers change their electronic devices as well as the decreasing life cycle of these said electronics. Veit and Bernardes (2015) showed that in 1992, the average life cycle of a computer was 4.5 years while in 2005 it decreased to two years.

According to LeBlanc (2016), although 100% of e-waste is recyclable, the world only recycles approximately 15-20%. In the same article, a report by the Electronic Protection Agency (EPA) stated that consumers get rid of 416,000 mobile devices either through recycling or disposing in landfills and incinerators.

Every year, 20 to 50 million tons of e-waste are generated and it is considered that e-waste comprises 70% of hazardous waste disposed in landfills. In this same article by the EPA, it was stated that roughly 80% of e-waste generated comes from the United States and this waste is being exported to Asia due to the lax laws.

E-Waste’s Effects to the Environment

Waste, when poorly managed is a threat to the environment. This is especially true for electronics due to their internal components that contain toxic substances. Seeberger, et
al. (2006) stated that landfills are the dominant e-waste disposal methods in the U.S. “Pb or Lead can leach out of e-waste in the landfill and be absorbed by solids around it, and Pb might eventually end its way into landfill leachates after a long time or under certain environmental conditions such as rain.” (Seeberger, et al., 2016). Having lead leach out into surrounding solids and even the soil and potentially the water in landfill areas and the surrounding areas are harmful and introduce toxic elements into the environment. Pinto (2008) further breaks down four the toxic materials found in E-waste: (1) Cadmium, (2) Polycyclic aromatic hydrocarbons (PAH), (3) Lead, and (4) Mercury.

E-Waste Management Firms and Profit

Krikke (2008) states that because of public pressures, e-waste recycling has become one of the fastest growing industries worldwide as well as being profitable. Through the growth of electronics in almost all countries around the world, obsolescence of these goods is faster than ever which makes recycling more important (Harini & Meenakshi, 2013). An e-waste recycling business is a green business opportunity which aims to not only earn a profit but also to reduce the waste which would otherwise be put in landfills or other areas not safe for the environment.

During 2007 in Europe, recycling garnered $1 billion in turnovers according to the European Electronics Recyclers Association. On that year, the association employed 10,000 people and with the implementation of WEEE, they believe that they will easily pass 25,000 employees. In addition to this, many businesses have started popping up over the years to take advantage of the growing e-waste. An example of this would be the Australia-based Sims group which manages over 20 facilities worldwide and processes 270,000 tons of e-waste annually. In other parts of the world, there are hundreds of small-scale recyclers that deal with various types of e-waste with North America alone garnering approximately $1-3 billion dollars in revenue in 2007 (Krikke, 2008).

E-Waste Management Practices in the Philippines

There are many ways to dispose of e-waste, either it can be thrown away if it is no longer functioning properly or pass it on from one family member to another. According to Alam (2016), Filipinos still store their cellular phones, laptops and personal computers for a long period of time as their way to “dispose” their old gadgets. With the survey conducted, 33% of the respondents keep their old gadgets, 23% give it away to family members, 19% sell it again to other people, 13% throw it out of the trash, 8% have it swapped or traded and the remaining 4% are either undecided, the gadget got stolen or recycled. The reason for storing old cellular phones, are mainly for emergency purposes.

Globe, one of the biggest telecommunications company in the Philippines, has had projects that have helped in managing e-waste in the country. Last 2014, it launched a campaign on letting people know on how to dispose their electronic waste properly and to promote sustainability called P1P (Project 1 Phone).

The DENR has a list of accredited treatment, storage and disposal facilities for hazardous waste. Of the companies listed there, 19 are accredited to deal with e-waste.
Informal E-Waste Management Practices

In many parts of the world, people have started using informal ways of e-waste management as ways of livelihood due to its potential for business. Although this is the case, without the proper capital for formal practices, they are creating harm for both themselves and others. For example, in China, they developed a new waste cottage industry inside the city known as Guiyu, the e-waste capital of the world, as well as a disaster zone. The workers there incinerate printed circuit boards over charcoal to retrieve the useable computer chips, soak the boards in acid to retrieve the gold, and dump the waste in the Lianjiang River. In addition, they also use hammers on cathode-ray tubes to harvest the copper. Through these crude methods, massive quantities of mercury, cadmium, and other chemicals hazardous to humans are sent to the environment, which caused chemical poisoning for many of the children of Guiyu. Furthermore, it was stated by Krikke (2008) that many of the unusable portions such as cartridges are burned in open air or just dumped in landfills.

For both formal and informal recyclers, the allure of the precious metals and valuable components in electronics lead them to venture into E-Waste recycling. Alam & Carandang (2016) assert that these sectors extract precious metals from electronics from profit. Their research stated that, for example, one ton of used cellular phones contain an estimate of 3.5 kg of silver, 340 g of gold, 140 g of palladium, and 130 kg of copper.

Methodology

Theoretical Foundations

The research used both the triple bottom line framework and the sustainable value framework to create a comprehensive analysis of the cases. The TBL framework of Elkington provides the end goal and broad patterns of the 3 Ps (People, Planet and Profit), This is supplemented by the sustainable value framework of Hart & Milstein which expands on how to achieve TBL. Categorized under four quadrants, the sustainable value framework elaborates specific observable measures that will lead to a triple bottom line. Thus, creating sustainable value.

The sustainable value framework can be integrated into the triple bottom line framework. In this case, the profit section of the TBL uses the drivers from quadrant 2 (product stewardship) and 4 (sustainability vision) to obtain brand reputation and growth trajectory. The planet section of the TBL then uses the drivers from quadrant 1 (pollution prevention) and 3 (clean technology) to reduce risks and pollution/waste as well as increasing innovation to be sustainable. Lastly, the people section of the TBL uses the drivers from quadrant 4 (product stewardship) for increased reputation and legitimacy through being transparent and connected.

Operational Framework

For the operational framework, the structure of the research looks into how e-waste companies adhere to the triple bottom line and achieve sustainable value. The study
gauges how the chosen e-waste firms address each of the variables in the triple bottom line and sustainable value framework. Based from the measures presented by Soto-Acosta et al (2016), the researches have devised comprehensive measures to assess each e-waste company’s ability and means of addressing the Triple Bottom Line. The researchers will look to each measure and their corresponding subcategories. The presence of these measures will indicate how well e-waste firms address the triple bottom line and affirm the presence of the patterns discussed.

![Operational Framework](image)

**Figure 1 - Operational Framework**

From the literature, the researchers developed the patterns in which to assess how E-Waste Firms Address the Triple Bottom Line:

- E-Waste firms develop people through ensuring the health, safety and well being of their employees as well as uplift the communities they operate in
- E-Waste Management firms are environmentally responsible
- E-Waste, specifically consumer electronics, recycling as a profitable enterprise

Based on the patterns, a list of measures together with their sub-categories were created to see how well e-waste firms affirm the presence of the patterns discussed above.

**A. People**

- People’s well being included in Management Strategy
  - Mention of developing people in Mission, Vision and Values
  - Mention of social responsibility in Mission, Vision and Values
- Employee empowerment
  - Labor Policies
    - Proper certification and permits for labor
• Presence and/or participation in employee safety programs
• Presence and/or participation in employee Health and Wellness programs
• Presence of employee training programs
• Clear and enacted Employee safety policies
• Inclusive workplace & Community assistance

• Presence of CSR programs /contributions for the community the company operates in
• Job opportunities for members of the community they operate in.
• Equal job and promotion opportunities for all genders
• Diversity and inclusion in the workplace in terms of academic & financial background

B. Planet

• Environmental Sustainability included in management strategy
  o Presence of environmental sustainability in the organization’s Mission
  o Presence of environmental sustainability in the organization’s Vision
  o Presence of environmental sustainability in the organization’s Values

• Environmental Policies
  o Presence of a clear environmental policy
  o Concrete environmental conservation practices
  o Full cooperation and coordination with environmental agencies

• Environmentally Sustainable Operations
  o Proper segregation of waste
  o Proper waste disposal practices
  o Controlled Carbon Footprint
  o Management of e-waste leading to lessening harmful impact on the environment
  o E-Waste recycled does not end up in landfills

C. Profit

• Positive financial bottom line
• Clearly defined profit generating services
• Growing consumer base
• Growth in sales
• Growth in profit
• Efforts for company growth
• Plans for expansion
• Increase in clients
• Increase in donors
• Increasing Opportunities in different markets
• Sale of shredded plastics and metals to smelters.
• Sale of retrieved metals such as copper, lead, nickel, and gold to interested buyers.
• Sale of salvaged usable components such as USB cords, power cords, speakers and other accessories to bargain stores.

Other recycling services

Research Methodology

The researchers used a multiple case study design by Yin (2003). As a nascent study, this qualitative research obtained data and information primarily through in-depth interviews and site visits to the companies. Then, we used case method analysis to interpret the results. The researchers studied three companies: HMR Envirocycle, Southcoast Metal Enterprises, Inc, and Udenna Environmental Services. We examined their business model and operations to identify the observance or non-observance of the three patterns (1) developing people (2) environmentally sustainable operations, and (3) profitability.

Data Collection

Data was collected through interviews with key stakeholders of the three companies. We used open-ended questions to garner better understanding on the topic and not limit the discussion within the context of the questionnaire. Besides personal interview as a main source of information for the study, other sources such as archived records, documents, and observation were also collected to further supplement the information from the interview. Through the use of various sources, the information in the research has become more detailed. This is called as the triangulation of data and helps the results become more reliable (Lauri, 2011). To ensure a comprehensive and holistic perspective on the subject, the researchers also conducted supplementary interviews from the Department of Natural Resources (government), Greenpeace Philippines (non-governmental organization), and United Nations Development Programme (international organization).

Case 1 - HMR Envirocycle Inc.

Company Profile HMR Envirocycle Inc. is an Australian based full service-waste recycling company established in 2003. It’s purpose is to collect surplus items, polyvinyl chloride (also known as PCVs and defined as chlorinated plastic), and precious metals until they are shipped to Australia for further processing. It collected e-waste from HMR group of companies and further expanded to other customers such as BPO (Business Process Outsourcing). Part of its goal is to assure that no potentially polluting electronic equipment will end up in landfills, instead e-waste should be reused or recycled through fully licensed and accredited channels. The company is DENR accredited as a Treatment, Storage and Disposal (TSD) Facility capable of handling not just e-waste but also a variety of other hazardous waste streams including cathode ray tubes (CRT’s), busted
fluorescent lamps (BFL’s), used lead-acid batteries (ULAB’s), ink toners, cartridges, used oil, contaminated containers, etc.

**The Triple Bottom Line  People.** The company strives to work hard to provide for its stakeholders, as it aims to be the major key player in the field of surplus and asset management - including people in management strategy. And in order to achieve this aim, the company identifies values such as integrity, honesty and sincerity in their work that employees must have. It encourages its quality policy, as it is “committed to provide service quality to its customers. It shall continuously improve processes and apply quality practices to meet or exceed client’s requirements resulting in customer satisfaction” which is to have a well-defined quality management, increased sales, a well defined standardization bidding process, concrete safety procedures and improvement and commitment on work.

As part of their corporate social responsibility, the company hires people from nearby communities, and is willing to train its employees. All new hired employees undergo one week training and provide hands-on safety training. The company is compliant with all labor and safety policies as it participates in seminars, orientations and trainings conducted by the DENR which applies to all new and old employees. Safety trainings and seminars are conducted internally as all companies in the area are responsible for any incidents.

The company gives importance to the community as it gives the opportunity to for livelihood. When manpower is needed, information is disseminated directly to the barangay captain. If the employee works nearby, the company believes that he/she will work more effectively knowing their families and homes are nearby. **Planet.** HMR Envirocycle Inc. believes that it is their duty and responsibility to take care of the environment. With its main goal to recycle trash, environmental sustainability is already present. It emphasized handling e-waste in an environmentally sustainable manner and with its current operations on ensuring that everything is segregated properly and by following the 5S (sorting, segregation, shine, standardize and sustain), it is doing its best to protect the environment.

The company is equipped with environmental policies - to conserve and protect the environment, the company commits to continuously improve through reduction and prevention of wastes, comply with all environmental legislations, advocate resource and energy conservation and to promote environmental awareness.

In Silangan Techno Park where HMR Envirocycle’s main operations are located, it is very organized and practices proper segregation of waste. Hazardous waste are separated and concealed in a container, the facility has clean air and no one is in danger. All equipments and containers are well maintained as it is cleaned and checked regularly. The company is controlling its carbon footprint, lessening harmful impacts on the environment, recycling usable components and e-waste is being disposed of properly. **Profit.** The company has expanded since its establishment in 2003. It now offers more services and caters to different kinds of industries. With fast-pacing technology, it has extracted precious metals from new gadgets, expanding its workforce.
from 20 and now 40-50 employees. More jobs are provided and more people are given livelihood. Most of the profit comes from the servicing, data wiping, trucking and scrapping of e-waste.

The company also explores different markets and has also collected furnitures, tables and chairs from HMR Trading Haus and selling it in trade. Business opportunity in the e-waste industry has a huge potential, since electronic gadgets continue to innovate and people will always have the urge for learning new technology. Envirocycle Inc. is planning its expansion to meet the demands of their clients since they are beginning to strain their plant’s capacity. It is also trying to widen its network to reach new clients, increase awareness so that people will voluntarily recycle their e-waste, increase in donors and discover other profit generating services.

**Insight.** HMR Envirocycle Inc. shows a positive impact with regards to the triple bottom line - people, planet and profit. It demonstrates that it addresses the safety of its employees, involves them in management strategy and develops a positive impact on the community. The company also protects and cares for the environment as shown in their mission, vision and environmental policies - it is strictly enforced inside the plant. And lastly, the company has gained profit and viability on its business as it continues to expand to cater to the growing need of the e-waste business and diversify in other recycling businesses which continue to lessen the impact on the environment.

**Case 2 - Southcoast Metal Enterprise**

**Company Profile** Southcoast Metal Enterprise Inc. (SMEi) is a Japanese-administered company engaged in

scrap and hazardous waste management. Situated in the Cavite Economic Zone and registered in the Philippine Economic Zone Authority. SMEi obtains scrap metal and waste electronic and electrical equipment (WEEE) by purchasing them from medium to large scale firms in the electronics and Semiconductor Industry. Duly accredited by the DENR-EMB as a Treatment Storage Disposal (TSD) facility, they have an experienced pollution control team that actively complies and coordinates with environmental agencies. Essentially, SMEI receives a variety of electronics such as printed circuit boards, hard drives, computers, printers, busted fluorescent lamps and others. The procured e-waste undergoes several composite processes. These methods are classification, disassembly, crushing, pressing, compaction and packing. These are done to separate the valuable electronic components that contain precious metals such as gold, silver, platinum, palladium, copper etc. after processing the valuable components are sorted, sold and exported to various offshore smelting and waste treating firms. Most of these firms are situated in Japan while others are in Korea and Taiwan.

**The Triple Bottom Line People.** SMEi exhibited a people-centered culture in their company. Concern for people’s well being, outstanding labor and safety policies, and inclusive workplace and community assistance are present in SMEi. For their concern for the people’s wellbeing, the researchers found that the management acknowledges the importance of people in their operations and company direction. As a result, the
management policy and the company’s values show the duty of their people and their expertise to the organization’s success. Their commitment to people-centered management is not only seen in SMEi’s strategy, it is also applied in their operations. On a compliance level,

the company has all the proper permits and certifications for labor from the Department of Labor and Employment (DOLE).

This means that the company provides the mandatory training, safety programs, and safety policies. In addition to this, SMEi has employee programs that are even beyond what is required. They have enrol their employees to TESDA and conduct mandatory seminars and training programs that would enhance their skills and expertise. For example, they enroll their drivers to TESDA and pay for their certification.

Moreover, SMEi strives to make their workplace inclusive. They do not discriminate based on education. Promotion are usually performance based. For example, one of their messengers got promoted to floor production manager after four years of work with the company. For SMEIs contribution to the society, the company does not have any preference for candidates or job applicants as long as they have the skill set required to do the job. SMEi participates in community projects in their area such as DepEd’s brigada eskwela and encourage employee volunteerism. Planet. SMEi shows management strategy for the environment, environmentally sustainable operations, and environment policies. First, the company includes environmental sustainability to their management strategy. In their vision and mission, SMEi position themselves to become one of the leading and reliable provider of environmental solutions. They view the protection of the environment as everyone’s responsibility and the company is no exception. They believe that support for the environment is a task that the company should always incorporate in their operations. To ensure compliance and observance of this integral belief, SMEi has placed environmental policies.

They have a clear environmental and conservation policy which they update and coordinate with different environment agencies ie DENR. This belief is also translated on how SMEi conduct their operations.

The company segregates e-waste to ensure that they can be properly exported to their clients. And, the waste that are hazardous are properly disposed to their sanitary landfill partners. SMEi makes it a point to control their carbon footprint by utilizing cost saving measure and reducing their consumption of electricity. Profit. SMEi has remained resilient and profitable throughout the years. They consistently maintained a positive financial bottom line, exhibited company growth, and seized opportunities in different markets. Although the researchers were not given the exact financial performance of the company, they stated that they have been experiencing a positive financial bottom line for the past year. They also said that their increase is always incremental because of the nature of their business.

They have never encountered increases above 20%. Despite the gradual increase in their financial performance, the shareholders are happy with the stable returns of SMEi.
Second, due to the stable recurring returns of the business, the company has few efforts for growth. Their business is mainly driven by a strong relationship with their vital few clients who generates majority of their income.

SMEi moved to a larger headquarters and warehouse because of the increase in the supply from their clients. This is a manifestation of an increasing demand and room for growth within the industry which positively affects their bottom line.

**Insight.** Overall, Southcoast Metal Enterprises, Inc. exhibits a triple bottom line framework in their business. The company acknowledges the importance of integrating people and planet in the pursuit of their profitability. They give importance to performance and meritocracy to ensure an inclusive and progressive workplace. Moreover, SMEi understands the urgency to protect the environment which could be found on how they proactively establish processes that will lessen their carbon footprint. In conclusion, SMEi proves that business can be profitable through integrating environmental and social responsibility in their enterprise.

**Case 3 - Udenna Environmental Services**

**Company Profile** Udenna Environmental Services Inc. (UDESI), established in 2010, is a business of the Udenna Group of Companies (mother company of Phoenix Petroleum Philippines Inc.), which provides environmental solutions that address the growing need of industries and communities in waste management. The company offers a wide range of comprehensive environmental services for waste management and disposal.

Udenna offers a wide range of services to its customers catering to different kinds of waste. The company collects A to M waste - hazardous waste, non-hazardous waste, medical waste treatment and also cater to special projects such as asbestos management, remediation, sewage treatment plant, engineering and consultancy. For Udenna, 98% of their business is generated by solid waste management services while the remaining 2% is from e-waste processing.

**The Triple Bottom Line People.** The company believes that employees are vital assets of the company and are important stakeholders in the business model. This belief is demonstrated on thorough HR policies and strict implementation of safety which also extends on empowering them in the workplace.

They adhere to mandatory labor regulations and safety procedure. In initiatives to ensure the wellbeing of their employees, Udenna conducts morning exercises for their employees and empowers them to participate in volunteerism programs. They increase employee morale through creating a culture of meritocracy and openness. They do not discriminate based on ethnicity or gender. In fact, majority of their engineers and administrative staff are women. Corollary to empowering a results-based culture, they promote from within the company.

**Planet.** Important emphasis on environment is observable in the business strategy and management direction of Udenna. Encapsulated in their slogan “Ensuring a green future:,
Udenna understand the long-term effect and role of their business on the environment.

Among the three companies in this thesis, Udenna Environmental services has expertise in the treating of most forms of hazardous and non-hazardous waste of which e-waste is included. As a formal waste management firm, Udenna, through undergoing numerous certification process, qualifies as an environmentally sustainable enterprise.

Udenna Environmental Services, Inc. is using the best technologies and services that can satisfy customers and sustainable environmental management. For example, UDESI is one of two companies in the Philippines that has a thermal oxidation facility. Thermal oxidation is defined by the United States Environmental Protection Agency as “the process of oxidizing combustible materials by raising the temperature of the material above its auto-ignition point in the presence of oxygen, and maintaining it at high temperature for sufficient time to complete combustion to carbon dioxide and water.” This form of waste disposal is a more sustainable form of incineration compliant with the Clean Air Act.

**Profit.** For confidentiality purpose echoed in the two previous companies, the same is also true with Udenna. They did not divulge any financial information but only business transactions of Udenna which could be inferred as signs of growth. They affirmed that they are experiencing a positive financial bottom line. Moreover, this optimistic view on the industry and growth is manifested in their expansion to Bataan. They opened a new facility to cater to more clients and increase their capacity to process waste.

**Insight.** UDESI exhibited a triple bottom line approach in their business operations. From all the companies that were interviewed by the researchers, they have the widest range of services available. For people, the company demonstrated its commitment to create a culture that is employee-centered. Udenna understands the importance of empowered employees who are given authority for decision making. Second, for the planet component of the triple bottom line, UDESI has shown an exemplary process of reducing waste and improving efficiency. Third, for the profit, UDESI has been able to show a continued growth in their profit due to the increased amounts of solid waste and e-waste. In addition to this, the company is able to leverage on the expertise of their people as well as the technology that they have invested in to be able to process the most types of waste out of all three companies.

**Pattern Matching**

**Table 1 - People’s Well Being Included In Management Strategy**

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<thead>
<tr>
<th>Measures</th>
<th>Evidences</th>
<th>Summary of Evidences</th>
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<tbody>
<tr>
<td>Mention of Envirocycle - High</td>
<td></td>
<td>All three companies are able to see their employees</td>
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Development of Employees in Mission, Vision, and Values | SMEI - High | UDENNA - High | as vital to the company’s growth so the companies invest in the growth of their people as well as provide proper training.

Mention of Social Responsibilities in Mission, Vision, and Values | Envirocycle - Med. | SMEI - Med. | UDENNA - High | Both Envirocycle as well as SMEI focus on their environmental impact while UDENNA takes it further by revolving their practices and policies around their commitment to health, safety, security, and the environment.

Employee Empowerment | Envirocycle - High | SMEI - High | UDENNA - High | All three companies see the help their employees bring to create revenue while also seeing them as decision makers as they need to create decisions when there is no supervisor (employees are trained beforehand before being tasked to do anything).

### Table 2 - Labor and Safety Policies

<table>
<thead>
<tr>
<th>Measures</th>
<th>Evidences</th>
<th>Summary of Evidences</th>
</tr>
</thead>
<tbody>
<tr>
<td>Proper certification and permits for labor</td>
<td>Envirocycle - High</td>
<td>All three companies have complete certification and labor accreditation as well as SSS.</td>
</tr>
<tr>
<td>Presence of company provided employee training programs</td>
<td>SMEI - High</td>
<td></td>
</tr>
<tr>
<td>Presence or participation in employee safety programs</td>
<td>UDENNA - High</td>
<td></td>
</tr>
<tr>
<td>Presence participation employee wellness programs</td>
<td>Envirocycle - None</td>
<td>Envirocycle has shown no evidences for having health and wellness programs while UDENNA has minor evidences for these programs by them having morning exercises in the company. SMEI on the other hand, has seminars for their employees who are diabetic or at the risk of hypertension as well as basic first-aid in order to ensure their employee’s well being. Moreover, SMEI stops 100% of operations during training hours.</td>
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<tr>
<td>and or in health &amp;</td>
<td>SMEI - High</td>
<td></td>
</tr>
<tr>
<td></td>
<td>UDENNA - Low</td>
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</tr>
</tbody>
</table>
Clear and enacted safety policies: All three companies have a presence of written and enacted personal and plant safety policies.

Table 3 - Inclusive Workplace and Community Assistance

<table>
<thead>
<tr>
<th>Measures</th>
<th>Evidences</th>
<th>Summary of Evidences</th>
</tr>
</thead>
<tbody>
<tr>
<td>Presence of CSR or any equivalent program / contribution for the community the company</td>
<td>Envirocycle - Med. SMEI - High UDENNA - High</td>
<td>All three companies help their nearby communities as well as provinces by creating job opportunities as this is where the companies get new hires. Although this operates in is the case, SMEI and UDENNA take it further with SMEI helping DEPED with their Brigada Eskwela program as well as having tree planting initiatives while UDENNA conducts industrial sewage cleanup in their area of operation.</td>
</tr>
<tr>
<td>Job opportunities for members of the community they operate in</td>
<td>Envirocycle - High SMEI - High UDENNA - High</td>
<td>Envirocycle hires mainly from their nearby barangays while SMEI hires primarily from Cavite and the surrounding area of operations as well as UDENNA hiring from different provinces.</td>
</tr>
<tr>
<td>Equal job and promotion opportunities for all genders</td>
<td>Envirocycle - High SMEI - High UDENNA - High</td>
<td>All three companies have no job discrimination for all genders.</td>
</tr>
<tr>
<td>Presence of meritocracy in promotion of employees</td>
<td>Envirocycle - High SMEI - High UDENNA - High</td>
<td>All three companies use performance as their basis for promotion rather than external hiring. An example of this would be for SMEI as they have a production supervisor who used to be their messenger as well as an assistant team leader who used to be their truck driver.</td>
</tr>
<tr>
<td>Diversity and inclusion in the workplace in terms of academic and financial background</td>
<td>Envirocycle - High SMEI - High UDENNA - High</td>
<td>All three companies do not judge based on academic and financial background but rather through the performance of the employee.</td>
</tr>
</tbody>
</table>

When checking the people aspect of the triple bottom line of the three companies, the researchers
were able to see that all three companies were able to comply with all the necessary sub-points presented. Although this is the case, the researchers were able to note that HMR Envirocycle, Inc. and Southcoast Metal Enterprise, Inc. were only medium with regards to them mentioning social responsibility in their mission, vision, and value statements. This is because both companies seem only to focus on the environmental impact of the company. In addition, the researchers were also able to note that the companies should improve on their employee participation on health & wellness programs as only Southcoast Metal Enterprise, Inc. actively helps their employees with their participation in these types of programs. On the other hand, Envirocycle does not have any specific health and wellness program while UDENNA only has the daily morning exercise for their employees to be more productive throughout the day. Moreover, although all the companies have CSR programs, the researchers believe that Envirocycle may be able to improve on their CSR program as their CSR is mainly focused on being able to hire their various employees from nearby communities of their operation. This type of CSR is also done by the other two companies in addition to their other CSR programs.

In terms of their effects on the external stakeholders of the company, the company is able to help the people in their areas of operation as well as others from provinces through the creation of jobs because these places are where they recruiting people for various jobs. This then creates sustainable value for these communities as their current and future generations are able to obtain employment from these firms while also being given the chance of promotion when they have good performance. In addition, the participation of SMEI for the brigada eskwela is also able to help students through the creation and fixing of classrooms which will be used by many students both now and in the future. Furthermore, UDENNA helps their community through the sewage cleanup because they are able to prevent the water from being contaminated. In addition, the companies themselves promote the proper management of e-waste which leads to the prevention of harmful chemicals for people in the country.

Table 4 - Environmental Sustainability Included in Management Strategy

<table>
<thead>
<tr>
<th>Measures</th>
<th>Evidences</th>
<th>Summary of Evidences</th>
</tr>
</thead>
<tbody>
<tr>
<td>Presence of environmental sustainability in</td>
<td>Envirocycle - High</td>
<td>All three companies handle excess and obsolete consumer electronics in an environmentally safe manner while UDENNA also promotes and supports waste treatment in areas that need it most.</td>
</tr>
<tr>
<td>the organization’s mission</td>
<td>SMEI - High UDENNA</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- High</td>
<td></td>
</tr>
<tr>
<td>Presence of environmental sustainability in</td>
<td>Envirocycle - High</td>
<td>All three companies aim to be one of the leading providers of sound recycling services utilizing environmentally safe procedures.</td>
</tr>
<tr>
<td>the organization’s vision</td>
<td>SMEI - High UDENNA</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- High</td>
<td></td>
</tr>
<tr>
<td>Presence of environmental sustainability in</td>
<td>Envirocycle - High</td>
<td>All three companies imbibe the value of placing importance towards the environment to their employees as it is one of their top priorities.</td>
</tr>
<tr>
<td>the organization’s values</td>
<td>SMEI - High UDENNA</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- High</td>
<td></td>
</tr>
</tbody>
</table>
Table 5 - Environmental Policies

<table>
<thead>
<tr>
<th>Measures</th>
<th>Evidences</th>
<th>Summary of Evidences</th>
</tr>
</thead>
<tbody>
<tr>
<td>Presence of a clear environmental policy</td>
<td>Envirocycle - High SMEI - High UDENNA - High</td>
<td>All three companies comply with environmental regulations and legislations. In addition, Envirocycle focuses on pollution reduction, environmental awareness, and energy conservation.</td>
</tr>
<tr>
<td>Concrete environmental conservation practices</td>
<td>Envirocycle - High SMEI - High UDENNA - High</td>
<td>All three companies conduct performance reviews as well as monitor the risks arising from their operations. They also do regular emissions testing and maintenance.</td>
</tr>
<tr>
<td>Full cooperation and coordination with environmental agencies</td>
<td>Envirocycle - High SMEI - High UDENNA - High</td>
<td>All three companies have complete and updated accreditations with DENR as well as participates in the training and forums held by the DENR. UDENNA also has permits with handling Mercury and Asbestos.</td>
</tr>
</tbody>
</table>

Table 6 - Environmentally Sustainable Operations

<table>
<thead>
<tr>
<th>Measures</th>
<th>Evidences</th>
<th>Summary of Evidences</th>
</tr>
</thead>
<tbody>
<tr>
<td>Proper segregation of waste</td>
<td>Envirocycle - High SMEI - High UDENNA - High</td>
<td>All three companies have proper waste segregation methods while UDENNA has the expertise in handling the most types of waste.</td>
</tr>
<tr>
<td>Proper waste disposal practices</td>
<td>Envirocycle - High SMEI - High UDENNA - High</td>
<td>All three companies use special containers for hazardous waste and have waste disposal partners.</td>
</tr>
<tr>
<td>Controlled carbon footprint</td>
<td>Envirocycle - High SMEI - High UDENNA - High</td>
<td>All three companies control and monitor their emission levels.</td>
</tr>
<tr>
<td>Management of e-waste leading to lessening harmful impact on the environment</td>
<td>Envirocycle - High SMEI - High UDENNA - High</td>
<td>All three companies lessen the e-waste going to landfills thus reducing the risk for poisoning as well as recycling being good for the environment.</td>
</tr>
</tbody>
</table>
E-waste recycled does not end up in landfills

Envirocycle – High
SMEI - High
UDENNA - High

All three companies are responsible with the e-waste that they manage and send unusable parts to their partners who can close the loop.

For the planet aspect of the triple bottom line, all three companies comply with every sub-point as their companies are very compliant with environmental laws and regulations while also doing their best in order to preserve the environment with their daily activities. In addition to this, the companies all monitor their carbon footprint as well as have very strict waste disposal and segregation practices to prevent any hazardous substances from infecting the communities.

Table 7 - The Financial Bottom Line

<table>
<thead>
<tr>
<th>Measures</th>
<th>Evidences</th>
<th>Summary of Evidences</th>
</tr>
</thead>
<tbody>
<tr>
<td>Positive financial bottom line and continued growth</td>
<td>Envirocycle - High SMEI - High UDENNA - High</td>
<td>All three companies have a positive financial bottom line as they have all expanded or have plans for expansion.</td>
</tr>
<tr>
<td>Clearly defined profit generating services</td>
<td>Envirocycle - High SMEI - High UDENNA - High</td>
<td>Envirocycle and SMEI’s main source of profit come from their dismantling, sorting, exporting, destruction, or refurbishing of used electronics while Udenna’s is their treatment of many different types of waste.</td>
</tr>
<tr>
<td>Growth in consumer base</td>
<td>Envirocycle - Low SMEI - Low UDENNA - High</td>
<td>Envirocycle and SMEI focus on bulk orders to fulfill capacity while Udenna aggressively finds new customers as the e-waste industry is growing.</td>
</tr>
</tbody>
</table>

Table 8 - Efforts for Company Growth

<table>
<thead>
<tr>
<th>Measures</th>
<th>Evidences</th>
<th>Summary of Evidences</th>
</tr>
</thead>
<tbody>
<tr>
<td>Plans to expand</td>
<td>Envirocycle - High SMEI - High UDENNA - High</td>
<td>All three companies have plans to expand or have just expanded. In 2016, SMEI expanded to a location at Cavite to cater the growing demand while Udenna just expanded at Bataan.</td>
</tr>
</tbody>
</table>
Both Envirocycle and SMEI prefer an increase in volume and frequency of transactions rather than increasing their client base while Udenna tries to aggressively gain new clients.

Both SMEI and Udenna are not making active attempts at increasing their amount of donors while Envirocycle has partnerships with schools such as UP-Diliman as well as put up kiosks to discard used electronics.

### Table 9 - Increasing Opportunities in Different Markets

<table>
<thead>
<tr>
<th>Measures</th>
<th>Evidences</th>
<th>Summary of Evidences</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sale of shredded plastics and metals to smelters</td>
<td>Envirocycle - High</td>
<td>All three companies sell shredded plastics to local scrap companies while they sell metals abroad as there are no smelters in the Philippines.</td>
</tr>
<tr>
<td></td>
<td>SMEI - High</td>
<td></td>
</tr>
<tr>
<td></td>
<td>UDENNA - High</td>
<td></td>
</tr>
<tr>
<td>Sale of salvaged usable components to bargain stores / scrap companies</td>
<td>Envirocycle - High</td>
<td>All three companies sell salvaged usable components (such as USB and power cords, speakers, etc.) to local scrap companies but Envirocycle and SMEI does this often while Udenna does this only whenever needed.</td>
</tr>
<tr>
<td></td>
<td>SMEI - High</td>
<td></td>
</tr>
<tr>
<td></td>
<td>UDENNA - Med.</td>
<td></td>
</tr>
<tr>
<td>Other recycling services</td>
<td>Envirocycle - High</td>
<td>Envirocycle recycles furniture and other surplus items while SMEI recycles base metals and Udenna recycles medical and chemical wastes.</td>
</tr>
<tr>
<td></td>
<td>SMEI - High</td>
<td></td>
</tr>
<tr>
<td></td>
<td>UDENNA - High</td>
<td></td>
</tr>
</tbody>
</table>

For the profit aspect of the triple bottom line, it was detailed to us by all three companies that they were able to gain a profit. Although the increase in profit year to year is not very high, there is a sustained growth in their profit. Even with the sustained growth, Envirocycle and Southcoast Metal Enterprises do not actively try to increase their clients and consumer base because they believe that it is not the number of clients that matter but that volume that they are able to process because of these clients. In addition, only Envirocycle is actively seeking donors through creating bins in which people are able to put their used electronics in. This then shows the opportunity for Southcoast and UDENNA to be able to actively look for donors too in order to increase the amount of volume that they process. Moreover, UDENNA less frequently sells
salvaged usable components as they focus more on the other types of processing they do such as medical waste.

Conclusion and Recommendations

Conclusion

The primary objective of the paper is to determine that e-waste management firms generate sustainable value in dealing with the triple bottom line: people, planet and profit. The main objective had secondary objectives:

1. To ascertain that e-waste management firms address the safety and welfare of their employees.
2. To determine the positive environmental impact of e-waste management businesses.
3. To know the profitability and viability of e-waste management.

Through the pattern matching, the primary and secondary objectives were all addressed by the three companies mentioned above with the triple bottom line. For people, the firms addressed the safety and welfare of their employees - achieving organizational success, committed to the employees’ welfare and empowerment in decision making.

For planet, each of the company’s mission, vision and goals highlight the importance of protecting the environment through the recycling and treatment of waste. All three companies have written environmental policies that lead to concrete environmental conservation practices and compliance and full cooperation with environmental agencies.

For profit, all three e-waste management firms showed positive revenue, therefore profitable. Two of the companies are expanding to accommodate demand while the other just expanded last year. To generate profit, Envirocycle and Southcoast Metal engage in the purchase of discarded electronics for dismantling and sale. The second business model observed was by Udenna, which is paid by clients to responsibly dispose of hazardous waste while gaining profit for their recycling.

For e-waste management companies, increasing the number of clients is not necessary for positive profit, rather depending of the volume and frequency of current clients since most are large manufacturing companies that dispose large scale e-waste. For Udenna, it can attract more clients as its services are applicable to many types of industries as long as they generate waste.

Each of the firms has other profit-generating services other than e-waste such as recycling other waste (metals and chemicals), and selling surplus items and data/asset destruction.

Through the presented data in the previous chapters, the researchers were able to prove that e-waste management firms generate sustainable value in dealing with the triple bottom line as these firms are able to touch every aspect of it. The researchers were also able to gather insights from Greenpeace Philippines and the DENR to learn about their stand on e-waste as an issue and to form recommendations.

Recommendations
Currently, e-waste is becoming a global issue especially with the fast pace of technological change in various industries. With people becoming more conscious of the issue, the researchers recommend creating partnerships with e-waste management companies and NGO’s and other organizations. Government agencies such as DepEd and DENR can show how the effects of irresponsible e-waste recycling can affect people’s health, the environment and other stakeholders as well. By working hand in hand, e-waste concerns can be addresses such as closing the loop, better technology for mobile phones and other gadgets to last longer and worker’s safety.

Another recommendation is to allow incineration of metals in the Philippines for segregating the materials and gases, lessening harm to the environment and e-waste facility generates value by conducting environmentally safe incineration of precious metals. In this way, laws can be made in order to control incineration in the county.

Creating partnerships between local e-waste management companies and private companies will help raise awareness in consumers to recycle their electronic gadgets through the help of manufacturing companies by offering discounts for recycling and setting up bins in fast foot traffic locations such as mall.

And lastly improve health and wellness programs of e-waste management companies to improve efficiency and employee’s health. Since dealing with e-wastes are health hazards, e-waste companies should take an extra mile to take care of their employees. Creating a strategic health and wellness program within the company can help protect employees from harm and they may feel safe in working for the company leading to productivity.
References


Research on Collective Corporate Governance for Private Middle Market

Van Japheth M. Ancla
De La Salle University

Introduction
The Securities and Exchange Commission of the Philippines (the SEC) has recently issued the Philippine Corporate Governance Blueprint 2015 (the Code or the Blueprint) with the aim to build a stronger corporate governance framework in the Philippines. According to Mr. Cesar V. Purisima, the Secretary of Finance, the SEC has continuously taken great reforms and initiatives through amendments of the Code and issuance of memorandum circulars, in order to improve and strengthen the corporate governance framework in the Philippines. Mrs. Teresita J. Herbosa, the SEC Chairwoman, added that Blueprint clearly shows SEC’s objective to have all corporations recognize and accept the globally recognized best practices, which, presently, is formally adopted mainly for Publicly Listed Corporations thus admitted that the corporate governance in the Philippines is still a work in progress (SEC, 2015).

The Code, being a collective body of knowledge on corporate governance, serves as a framework or guide by most of the companies doing business in the Philippines, a body of learning which according to Henry Fayol, without this framework or theory, learning is not possible (Sheldrake, 2003). The objectives of the Code are (1) to nurture sustainable transformative corporate performance, which not only optimizes shareholder value but, more importantly, stakeholder value; (2) to ensure the alignment of the Philippine corporate and capital market infrastructure with evolving international standards and best practices on Corporate Governance (CG); (3) to enhance the competitiveness of Philippine corporations in the context of globalization as they compete for capital in regional and global financial markets with an increasing demand for fairness, accountability and transparency; (4) to deepen the relationship of trust and collaboration among Philippine corporations, stakeholders and regulators working towards inclusive national economic progress and social equity transcending favorable business outcomes; and, (5) to improve the functioning of the Philippine financial market and facilitate inclusive national development (SEC, 2015).

Based on the biannual survey made by the Asian Corporate Governance Association1 covering 2010, 2012 and 2014, the Philippines ranked 11th in Asia in terms of effectiveness in corporate governance with Singapore at the highest rank followed by Hongkong. Below the Philippines is Indonesia while above it is China (ACGA, 2015). Most of the studied business firms are the

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1 Asian Corporate Governance Association (ACGA) is an independent, non-profit membership organization dedicated to working with investors, companies and regulators in the implementation of effective corporate governance practices throughout Asia. ACGA was founded in 1999 from a belief that corporate governance is fundamental to the long-term development of Asian economies and capital markets.
ones that are listed due to availability of information as compared to non-listed Small and Medium-sized Entities (SMEs) as well as the Private Middle Markets (PMMs) in the Philippines. According to SRC Rule 68 of the SEC, SMEs are those that have total assets of between P3.00 million to P350.00 million or total liabilities of between P3.00 million to P250 million. In contract, large companies are those with total assets of more than P350.00 million or total liabilities of more than P250 million or are those in the process of filing their financial statements for the purpose of issuing any class of instruments in a public market (SEC, 2015).

According to the Department of Trade and Industry, there are 944,897 business enterprises operating in the Philippines in 2012. Of these, 99.58% (940,886) are micro, small, and medium enterprises (MSMEs) and the remaining 0.42% (4,011) are large enterprises. Of the total number of MSMEs, 89.78% (844,764) are micro enterprises, 9.78% (92,027) are small enterprises, and 0.44% (4,095) are medium enterprises. In terms of sales or value-added, SME sector contributed 35.7% while large entities contributed 64.3%. Within the SME sector, small enterprises accounted for the largest share of 20.5%, medium enterprises followed with a share of 10.3% while micro enterprises registered a share of 4.9% (DTI, 2015).

Statement of the Problem
To be globally competitive, all corporations and other similar business entities must be able to have a level of corporate governance that is acceptable in both the local and global arena which is currently tedious for small firms like the SMEs. The existing frameworks on good governance are embodied in the Sarbanes-Oxley Act which is internationally recognized and Philippine Corporate Governance Blueprint 2015 is locally recognized.

Sarbanes-Oxley Act
The Sarbanes-Oxley Act of 2002 is mandatory for corporations doing business in the United States. All organizations, large and small, must comply to this Act. The following is a summary of the requirements of the Act:

Section 302 requires the periodic statutory financial reports are to include certifications that:
- The signing officers have reviewed the report;
- The report does not contain any material untrue statements or material omission or be considered misleading;
- The financial statements and related information fairly present the financial condition and the results in all material respects;
- The signing officers are responsible for internal controls and have evaluated these internal controls within the previous ninety days and have reported on their findings;
- A list of all deficiencies in the internal controls and information on any fraud that involves employees who are involved with internal activities; and,
- Any significant changes in internal controls or related factors that could have a negative impact on the internal controls (USCongress, 2006).

Further, section 401 requires that the financial statements are published by issuers are required to be accurate and presented in a manner that does not contain incorrect statements or admit to state material information. These financial statements shall also include all material off-balance sheet liabilities, obligations or transactions. In addition, section 404 states that issuers are required to
publish information in their annual reports concerning the scope and adequacy of the internal control structure and procedures for financial reporting. This statement shall also assess the effectiveness of such internal controls and procedures. Also, the registered accounting firm shall, in the same report, attest to and report on the assessment on the effectiveness of the internal control structure and procedures for financial reporting. Moreover, section 409 states that issuers are required to disclose to the public, on an urgent basis, information on material changes in their financial condition or operations. These disclosures are to be presented in terms that are easy to understand supported by trend and qualitative information of graphic presentations as appropriate. Lastly, section 802 imposes penalties of fines and/or up to 20 years imprisonment for altering, destroying, mutilating, concealing, falsifying records, documents or tangible objects with the intent to obstruct, impede or influence a legal investigation. This section also imposes penalties of fines and/or imprisonment up to 10 years on any accountant who knowingly and willfully violates the requirements of maintenance of all audit or review papers for a period of 5 years (USCongress, 2006).

Philippine Corporate Governance Blueprint 2015
The most recent corporate governance framework of the Philippines consists of an 80 pager report which contains guidelines which are similarly structured with that of the Sarbanes-Oxley Act (SEC, 2015).

However, given the limitations in terms of financial resources, human resources and infrastructures to effectively and efficiently comply with the best practices of corporate governance, SMEs finds it burdensome and cost inefficient to apply the above frameworks. As stated by Mrs. Herbosa, the frameworks were formally adopted mainly for Publicly Listed Corporations thus admitted that the corporate governance in the Philippines is still a work in progress (SEC, 2015).

In response to this problem, my study proposes to investigate several options for making the corporate governance framework tailored to SMEs particularly on the Medium enterprises or Private Middle Market. I plan to carry out an all-inclusive participatory investigation into options for creating a framework of corporate governance for SMEs, particularly the Private Middle Market, in the Philippines. I will also consider efficient and effective ways to mitigate some or all of the problems noted above by the SMEs to ensure full compliance and become globally competitive while considering the limited resources that SMEs have.

Objective
The objective of this study is to come up with a framework that is tailored to the available or resources and capabilities of the SMEs particularly on the Private Middle Market while ensuring local and global competitiveness of the sector.

There are a number of factors responsible for the importance of SMEs in a developing country like the Philippines:
1. They are an important vehicle for poverty reduction through employment generation.
2. They foster an entrepreneurial culture and provide resilience in the economy.
3. Sectors dominated by SMEs facilitate learning geographically and across the sectors. The
These sectors tend to generate higher levels of competition and mobility, which in turn forces higher levels of learning among firms. This is useful for diversification of the economy.

4. Their efficiency in resource allocation is higher socially in that they provide more employment at lesser capital costs compared to large enterprises. For instance, SMEs generated a total of 4,930,851 jobs in 2012 versus 2,658,740 for the large enterprises. This indicates that MSMEs contributed almost 64.97% of the total jobs generated by all types of businesses establishments that year. Of these, 47.0% or 2,316,664 jobs were generated by micro enterprises; 41.8% or 2,061,090 by small enterprises; and 11.2% or 553,097 by medium enterprises (DTI, 2015).

5. They contribute to reducing inequalities in the economy by distribution of wealth.

It is, therefore, imperative for the future economic growth of developing countries to create and promote an environment that nurtures and facilitates the SME sector in the Philippines and enables it to realize its true potential.

**Scope and Limitation**

The following are the scopes and limitations of the study:

1. The study is limited to the SMEs, particularly the Medium enterprise or the Private Middle Market (or PMM). According to Ernst and Young (2015), PMMs pertains to companies that are neither large nor small and are not listed. The table below shows the limit of this study.

<table>
<thead>
<tr>
<th>Large</th>
<th>Middle Market</th>
<th>Small</th>
</tr>
</thead>
<tbody>
<tr>
<td>Large listed corporates (revenues &gt; US $3bn)*</td>
<td>Public</td>
<td>Private</td>
</tr>
<tr>
<td>High-growth/SGM</td>
<td>IPO and post-IPO companies</td>
<td>VC-backed</td>
</tr>
<tr>
<td></td>
<td>High-growth entrepreneurs</td>
<td>PE-backed</td>
</tr>
<tr>
<td></td>
<td>Family Business</td>
<td>IPO-bound companies</td>
</tr>
<tr>
<td>Steady growth</td>
<td></td>
<td>Family Business</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Privately owned</td>
</tr>
<tr>
<td></td>
<td></td>
<td>High-growth entrepreneurs</td>
</tr>
</tbody>
</table>

( Ernst and Young, 2015)

According to Republic Act No. 9178, PMMs are synonymous to Medium enterprises with total assets ranging from P15.00 million to P100.00 million. The study is limited to PMMs because most of the smaller SMEs do not have reliable and available financial data which can serve as a basis for research.

2. The study is limited to the Philippine setting. This then becomes an area of further study which is to be able to create a generic corporate governance framework for SMEs.

3. The study covers all SMEs across different industries but focused on PMMs.

4. The study uses the Theory-building model by Christensen et. al. (2012).
Conceptual Framework

Corporate governance is defined as the framework of rules, systems and processes in the corporation that governs the performance by the Board of Directors and Management of their respective duties and responsibilities to the stockholders and other stakeholders, which include, among others, customers, employees, suppliers, financiers, government and the community in which it operates (SEC, 2015).

To ensure the requirements of the existing corporate governance frameworks are effective and efficient for PMMs to apply, I propose the following corporate governance framework which I would call the “Collective Corporate Governance Framework”:

This is how it should work.

Coopetition is the key to the framework. According to Adam Brandenburger and Barry Nalebuff (1996), professors in economics at Harvard and Yale University and specialists in the field of game theory, developed their co-opetition model in the mid-1990’s. Based on case studies across different industries, they argued that cooperation and competition are both necessary and desirable when doing business. Cooperation is required to increase benefits to all players (focus on market growth), and competition is needed to divide the existing benefits among these players (focus on market share). The game theory is the formal study of conflict and cooperation. Game theoretic concepts apply whenever the actions of several agents are interdependent. These agents may be individuals, groups, firms, or any combination of these. The concepts of game theory provide a language to formulate, structure, analyze, and understand strategic scenarios (Noble, 1996).

Middle market players are often in a stage where businesses are homogenous in nature meaning their products or services most likely “singular” in nature as compared to large corporations that mostly would have various business pursuits. Often, objectives of PMMs are simple and are tied to a portion of the value chain of a certain industry. Given this, the above diagram shows as if different PMMs are considered “departments” of a bigger organization that in order to be part of the said “organization”, they should related to a certain portion of the value chain as described by Porter (1985) in order to create a full set of a bigger business enough to reach a level to that of a
large enterprise. The proposed framework is aligned with the management theory proposed by Fritz Schumacher that the fundamental task of management is to achieve smallness within a large organization (Sheldrake, 2003). This means that the framework works as if PMMs are the “departments” of a virtual larger organization. It is also an application of the management theory proposed by Rosebeth Moss Kanter about “integrative thinking” which is defined as the willingness to move beyond received wisdom, to combine ideas from unconnected sources, to embrace change as an opportunity to test limits (Sheldrake, 2003).

The framework starts with the collaboration of PMMs in accordance to the value chain framework of Porter in order to ensure that objectives such as missions and visions of different PMM members are aligned in terms of direction which is later on relevant to the formulation of an integral corporate governance. In an article written by Collins and Porras (1996), these visions and objectives should have core values and core purpose in order for companies to enjoy an enduring success despite changes in their business strategies and practices to endlessly adapt to a changing world. With same visions and objectives, PMMs should not have any problems in creating virtual organization through a creation of a “Collective Board” as evidenced by the theory of “integrative thinking” by Kanter. Accordingly, application of this theory would lead to innovation that can help resolve problems faced by PMMs in complying with the tedious existing corporate governance frameworks because with aligned visions and mission, objectives and purpose of each of the organizations will be met. This is an important input to the management by objectives proposed by Petter Drucker (Sheldrake, 2003).

Once the PMMs are organized in accordance with the above manner, the creation of a “Collective Board” will come next. This board will comprise of representatives of the PMM members and ensure the compliance with the existing corporate governance framework and will serve as controls over the virtual organization created by the PMM members. In this case, oversight on financial reporting and operating controls are done collectively at this level instead of PMMs having separate Boards doing the same function including the protection of trade secrets of a PMM member.

The following are the perceived value on the proposed framework presented above:

1. Centralized and uniform corporate governance to all members of the virtual and bigger organization. This can be proven by the e-culture in Kanter’s proposed management theory (Sheldrake, 2003).
2. Cost efficient way of complying to the existing tedious corporate governance requirement such as those related to financial reporting and control oversight. In an article written by Gerhard Benecke, Willem Schurink and Gert Roodt (2007) regarding the theory of Synergy. According to them, synergy is a concept that describes the systemic processes whereby business units of diverse, complex organizations will generate greater value through working as one system than working as separate entities.
3. Assess to people and new information for improvements of individual member’s corporate governance.

Methodology and its Limitation
The methods used in arriving at the above theories are mere observations at the moment using my skill as an External auditor of various PMM companies for more than 10 years. As such,
above ideas and basis of the Collective Framework, other than the use of different management theories, are limited to my observation including some inquiries made to my PMM clients. In addition, I have employed the theory-building model of Christensen, et.al. (2012) as the method in creating my theory or improving an existing theory on corporate governance. Currently, only one leg has been done due to limited time to finish the research. As such, only a deductive approach has been done so far.

**Planned Methodology**

The mixed-methods design (Zechariadis et al 2013) for critical realism (CR) is unique and different as compared to standard mixed-methods. Whereas quantitative methods are often used for theory testing in conventional methods, statistical tools often fail to make meaningful connections with qualitative methods where active mechanisms are discovered.

Moreover, the earlier concept of retroduction enables the researcher to identify and establish demi-regularities with data patterns which leads to uncover the mechanisms, agencies, and social structures observed. The demi-regularities are the frequently reproduced behaviors / patterns that are seen in human activities which are more than numbers and represent the findings being sought.

Accordingly, CR mixed-methods produce completeness and diversity in combining quantitative and qualitative techniques. This is particularly the case since a CR mixed-method design provides a complete picture on the phenomenon being researched and at the same time provides divergent views on the same phenomena.

Finally, Yin (2003) suggested that doing case study research strategy would be most suitable if it is in situations wherein the research questions focuses mainly on "how" and "why" questions; the researcher has no extent of control or manipulation over behavioral events; and that the research is focused on contemporary events. Therefore, based on the above discussions, this research proposal will partially use case study method for the qualitative research.

**Works Cited**


The Ayala Family and Corporation: Towards Responsible Management and Sustainable Practices

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Abstract:

The Ayala family own and run Ayala Corporation that had been in business in the Philippines for over 183 years. The brothers Jaime Augusto (Jaza) and Fernando jointly manage the Ayala Corporation. Recently they shared their experiences and philosophy in a forum sponsored by Share Phil on August 31, 2017 at Dusit Thani Hotel. Mr. Jaza was first to talk about the Ayala Corporation describing it as a professionally run company that started as a partnership between the Roxas and the Zobel families more than 183 years ago. The partnership became a corporation in 1976 and eventually went public. It started some of the big Philippine conglomerates citing San Miguel Corporation and MERALCO. Running the company involved dichotomizing between the business of family and the business of business with five key points of stewardship and ownership, a strong work ethics as opposed to entitlement, stability and unity to ensure business continuity, strong sense of patriotism, and family governance with a family constitution and frequent interaction and regular family meetings. On the other hand, Mr. Fernando described Ayala when it converted from a partnership into a corporate entity signaled the shift from stewardship into sustainable group and shares his elder brother’s belief in the independent director system to sustain growth and development. He also described his relationship with his elder brother as constructive dissension. Disruption is not necessarily bad but can be a good thing. The points of the two brothers will be discussed using the balance scorecard of Kaplan and Norton (1996) to establish a model or framework of the Ayala management and sustainable practices. There are four points to consider under the balanced scorecard. Lim (2017) former President of the Philippine Stock Exchange and is the President of Share Phil wrote an article in one of the popular broad sheet daily that confirms the points discussed by the two brothers taken up in this paper.

Key Words: Ayala Corporation, Juan Augusto Zobel, Fernando Zobel, Sustainable Management Practices, Balanced Scorecard.

Introduction

Ayala Corporation is seen by the public as synonymous to the Zobel de Ayala family yet in the discourse on August 31 at Dusit Thani Hotel on the 4th Share Phil session given by the two brothers, Juan Augusto and Fernando, they separated the dealings of the Ayala family that they termed as the business of family with the business conglomerate that the family owns and control for 183 years over seven generations that was termed the business of business. Schall (2014) reviewed the audited financials of Ayala Land Inc. with gross revenues of Php 54 billion in 2012, Php 44 billion in 2011 and Php 37 billion in 2010, roughly provided by 55% sale of residential properties, 35% services explained as construction and property management while the rest are
contributed by rentals from commercial, industrial, retail, office properties and revenues from hotels and resorts. The company spent Php 72 billion for project and capital expenditures. The total work force of Ayala Land and its satellite real estate companies of Alveo Land, Avida Land, Amaia Land, Bella Land, Makati Development Corporation, and APMC are around 1400.

The two brothers traced the beginnings of the Ayala Corporation in 1834 and cited that several conglomerates in the Philippines started as Ayala entities and these included San Miguel Corporation and MERALCO. They credited their uncle, Joseph Mc Micking as the one who started the ground works to make them a big conglomerate with his urban planning skills that transformed their properties in Makati and Alabang to what it is right now. Another milestone cited was 1976 and that was the year Ayala became a corporation from a partnership business structure and eventually a publicly listed company. The transformation also transformed the mind frame of the family members into responsible and working rich netizens. The family had to bring into the fold professional managers and even new stockholders that will eventual subject the company into scrutiny with its attendant issues of corporate governance, corporate social responsibility, care given to minority stockholders and lately the important and special role given to independent directors.

The presentation focused on five key points and these are stewardship of the family name and fiduciary role in the corporate set up as professional managers, strong work ethic as opposed to a feeling of entitlement, stability of the business and unity in the family to ensure business continuity, strong sense of patriotism, and family governance through regular family council meetings and the codification of the family constitution.

Framework and Methodology

Kaplan and Norton (1996) defined the balanced scorecard (BSC) as the framework that firms can use to verify that it has established both the strategic and financial controls to assess its performance. Monetary and positive financial outcomes are important and the desired result of any business enterprise but for the BSC it is one of four indicators of business success and failure. The financial performance is combined with customer satisfaction, internal processes, and the company’s innovation and projects to improve the company. The four perspectives include financial that is concerned with growth, profitability and risks; customer with its concern for the perceived value created by the firms product and services; internal business that focus on priorities for various business processes that create customer and shareholders satisfaction; and learning and growth that is concerned with the firm’s effort to create a climate that supports change, innovation and growth. The four perspectives are integrated into the BSC framework as shown below:
Source: Kaplan and Norton (1996) BSC

The financial perspective helps managers that require timely and accurate financial data to manage the business. These can be covered by analysis of the financial ratios. The second perspective is customer service and satisfaction as important issues for the organization. Measuring satisfaction, retention, market and account share provides an insight into how customers perceive the company. Possible indicators are customer profitability, return policy, handling service calls, and claims and complaints handling. The third perspective is internal process indicators that give valuable insights to managers into the effectiveness of their operations such as quality, response and cycle time, costs, new product development, time-to-market as well as break even time realized. The fourth perspective is learning and growth and delves into human resources management covering how successful human resources management and knowledge. Possible indicators are employee satisfaction, retention and attrition, revenue and value added per employee, strategic redundancy in job skills, and new ideas per employee.

There is nothing new about the desire to use non-financial measures but the balanced scorecard gives equal measure to financial and non-financial indicators although nowadays managing a company based on financial indicators is considered inadequate. It is also a challenge to find a correctly balanced set of performance indicators. There should be at least ten to twelve that can be even broken down for specific managers to act on them otherwise there is
that risk that employees will focus only on a few overall goals. The BSC has to be updated regularly to prevent wrong measures being carried out.

Discussion and Analysis

The two brothers explained and outlined the need for strong work ethic and contrast this with a feeling of entitlement. The family members are encouraged to find their place in the world and not necessarily work in the family business. Succession is considered both a governance and ownership issue. The education of the family members is given emphasis and importance but they are likewise encouraged to find independent work outside of the family business. Right now succession is ensured with a pool of Ayala Family members from three generations. Juan Augusto explained that the family members that will form part of the professional managers should do the requisite internship in the Ayala companies. They should have character, contribute to the company and best of all happy to work at the company. They should have the right values and a congenial personality and earn the trust of the professional managers and executives Fernando likened the engagement of Ayala family members into the corporation as that of a marathon with a commitment for an extended period of time rather than a sprint. This is an interesting analogy considering that Fernando is a member of a group of working rich called the Tri hard Ironman that participates in the triad of events such as marathon, cycling and swimming, requiring training, grunt, grit and stamina.

The two brothers had expanded that Ayala Corporation customer base from that of high-end market for its real estate development and properties into a wider base of customers. They wanted to make the company relevant to a broader base instead of just selling high end products. Philanthropy is limited. The amount that you set aside for philanthropic is rather limited and limiting so there is a need to embrace a bigger audience and as business directive, the scale got bigger and the impact much wider. This is the reason for the entry into telecommunications through Globe and into water distribution with Manila Water. It also ushered their entry into education with a partnership with Pearson. This was further explained as the Ayala used to be in the Business Process Outsourcing (BPO) and in that business their insight was that there was a mismatch between education and the need of the industry. In effect, education was not delivering the skills required by the industry so they went into education to ensure that the work force are indeed employable whether in Ayala or elsewhere.

This constant scouting for opportunities to serve for a wider customer base was termed constructive dissension and disruption where Ayala Corporation can make a difference, using technology. Disruption is seen to be good so expect products to be better produced and cheaper. The Internet should be embraced even when it is disruptive. Constant change is also a reality that needs to be embraced as well as transparency. They cited the experience of the automobile industry and the technology that is seen to be disrupting the business and with the advent of new and better technology; they also invested into the automobile industry with Honda and Volkswagen. They emphasized the need to be comfortable with change and keep no adjusting. Their hotel investments made them realize the importance of the tourism industry, particularly medical tourism.
Internal business results in customer and shareholder satisfaction. The Zobel de Ayala brothers emphasized that proper corporate governance translates to greater shareholders value. There are enormous pools of funds available for investment in companies that meet the corporate governance criteria of these funds suppliers. Consequently, Ayala attracts these funds with its corporate governance ideals and its strong adherence to corporate social responsibility fundamentals. The Philippines capital generation process is not fully developed. There are few local investors so there is a need to attract foreign capital and these will only come in with the right combination of CSR and corporate governance.

Juan Augusto cited the role of independent directors as important especially as regards their wealth of experience to guide the decision making process and Fernando looks at their fresh approach and a different point of view as likewise critical for the decision making process. A strong sense of patriotism is equally important as some businessmen and government officials appear shortsighted by looking at their business from one administration to another instead of the long-term view. There must be a sense of urgency and impatience for the government to pursue inclusive growth with the right combination of the strategic plan and a vibrant private sector that is given the right space to pursue their business interests. When asked if either one has thought of a political career, they answered that businessmen do not make good politicians.

The fourth perspective is learning and growth. Schall (2014) mentioned that the Ayala Corporation participates with the Harvard business School for a comprehensive leadership course called Ayala leadership Excellence Acceleration Program. The acronym is Ayala Leap and several senior executives had graduated from that program. The human resource group focuses on a program called Professionals in Development that involves hiring fresh graduates that are deployed in the different departments for a period of five months and undergo training courses with the experienced Ayala managers as their Mentors. The 22 senior management clocked in 320 training hours while the 197 middle management had a total of 2827 hours and finally the 267 staff also had a total of 2504 hours.

Conclusion

The public sees the family and the business as one and the same and yet the two brothers made it a point to separate them into the business of family and the business of business. The business of family is also given structure with its own family constitution and the need for frequent and regular meetings. Care is also given that family members do not put on an attitude of entitlement. Consequently, there is a process for hiring family members as professional managers, citing the need to make their mark in the outside world, as well as a happy attitude and the need to earn the trust and confidence of the professional managers.

The business of business is to look for and transform the business from one that produces high-end products to one that tries to make a difference in the Philippine economy by reaching out to diverse markets where it can make a difference and generate higher impact such as telecommunications, water and power utility, eventually education and medical tourism.

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Schall (2014) Ayala Land Inc.: The Key Success Factor of Ayala Land. A Case Study Presented to the faculty of the BA Program of Entrepreneurs School of Asia in Partial fulfillment of the Requirement of the Degree of Bachelor of Arts in Business Administration.
Session H - Technology and business
Crowdfunding and the Venture Creation Process

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Abstract

This inquiry explores how crowdfunding affects the venture creation process specifically in the Philippine setting. Using a qualitative, intensive, multi-case based approach, the study traces the progress of four Philippine-based entrepreneurial ventures that began as crowdfunding projects. The progression is then compared to the entrepreneurial venture creation process model developed by Bhave [Journal of Business Venturing, 9(3), 223-242 (1994)]. The study finds that crowdfunding modifies the venture creation process in every stage specified in the model.

Key Words

Crowdfunding, Venture Creation, Philippines

Introduction

A. Bhave’s Venture Creation Process Model

Bhave’s (1994) process model of entrepreneurial venture creation is one of the most cited paradigms that discusses and explains how a business venture is organized and develop. The venture creation process described is “iterative, nonlinear, feedback-driven, conceptual, and physical.” The process involves 7 different elements or conceptual categories: opportunity recognition, commitment to physical creation, set up of production technology, organization creation, product creation, linking with markets, and customer feedback. While the entire process is nonlinear, Bhave explains each element as it forms part of three general stages in the process: opportunity stage, technology set-up and organization-creation stage, and exchange stage. The “end” of opportunity recognition is the business or product concept, while product and feedback, aside from payment, are traded in the culminating exchange stage.

Bhave further identifies important transitions points in the venture creation process. To transition from the opportunity stage to the technology set-up and organization-creation stage, entrepreneurs must make the commitment to the physical creation of the venture. While funding was not widely discussed in the Bhave (1994) study, it acknowledges that funding is an essential element in the production technology set-up and organization-creation stage. The first sale, on the other hand, is “the last step in the physical creation of a venture” and “bridges the boundary between the supply side and the demand side.” Furthermore, the first sale establishes the exchange relationship between the venture and the customer, and also the point where the customer provides feedback for the first time.
B. Crowdfunding and the Evolving Role of the Consumer

The Bhave process model of venture creation clearly delineates the supply and demand side of any business transaction, and considers the customer, or the consumer, as an actor that resides only in the demand side. However, a growing body of literature acknowledges the expanding role of the consumer, and contends that consumer interests and activities extend beyond demand.

Von Hippel, Ogawa, and De Jong (2011), for example, contend that consumers are “major sources of product innovation” and take significant roles in the product development process. Beyond merely providing feedback during the exchange stage in the Bhave model, consumers are taking proactive roles in modifying existing products or even innovating new products to suit their own needs. Von Hippel et al (2011) cite that the phenomenon of consumer innovation is brought about by developments in technology, such as 3D printing and outsourcing, which makes it easy for consumers to design and fabricate products for themselves.

Crowdfunding, a novel phenomenon and alternative fundraising scheme that allows consumers, or the “crowd,” to pool small amounts of money to fund a project, has also contributed to the expanding role of consumers. Crowdfunding essentially operates as pre-selling—when a campaign backer pledges support, it is essentially providing the funding for the manufacture of the product. Ordanini, Miceli, Pizzetti, and Parasuraman (2011) contend that by pledging support to or funding a project, the consumer also takes on the role of an investor, a similar assertion made by Belleflamme, Lambert, and Schwienbacher (2014). This essentially extends the consumer purview from the demand side into the supply side.

While the Bhave model acknowledges the important role of consumer feedback in the venture creation process, it maintains that consumer feedback is only given during the exchange stage, which commences when the entrepreneur makes the first sale. Crowdfunding, however, changes the timing of consumer feedback. Essentially, in crowdfunding, the entrepreneur receives product feedback before the production process even begins. Many studies contend that it is this informational advantage that motivates entrepreneurs to participate in crowdfunding (Agrawal, Catalini, & Goldfarb, 2013; Belleflame et al, 2014; Lehner, Grabmann, Ennsgraber, 2015; Mollick & Kuppuswamy, 2014).

One particular advantage crowdfunding provides to entrepreneurs is a venue to test its product, offering a “unique way to validate original ideas in front of a specifically targeted audience” (Belleflame et al, 2014). What this means for the entrepreneur is that it allows their target market to try and evaluate the product. This provides crucial feedback to help the entrepreneur to decide whether the business concept is feasible and profitable.

C. Philippine Crowdfunding and the Bhave Model

Extant literature on the expanding role of consumers suggest that the Bhave process model of venture creation is inadequate in explaining nascent phenomena, particularly with ventures that spring out of crowdfunding. Crowdfunding is essentially a pre-selling scheme (Belleflame et al, 2014), where campaign backers pledge support to a project of their choosing. Essentially, the
campaign backers are funding the production of the products, and wait for the products to be manufactured and delivered to them. Crowdfunding campaigns usually run between 4 and 8 weeks. During the campaign, project owners promote their projects and engage campaign backers through feedback solicitation.

In the Philippines, crowdfunding platforms like The Spark Project follow a keep-what-you-raise model. Unlike the Kickstarter or all-or-nothing model, it allows project owners to collect and keep all of the pledges that they raise, which allows project owners to proceed with the project with or without complete funding. Most project owners receive the full funding only after the campaign ends. In The Spark Project, however, project owners are given the leeway to accept the pledge payments at any point during or after the campaign.

Many projects that began as crowdfunding campaigns on The Spark Project have since become thriving businesses. However, many of these ventures cannot be accurately traced using the Bhave process model of venture creation, particularly in how Bhave’s conceptual categories related to the three stages of the process. The experience of these Philippine ventures raises the question, which is the subject of this inquiry: how does crowdfunding affect the venture creation process?

Framework and Method

To understand the effects of crowdfunding in the venture creation process, the study traced the progress of entrepreneurial ventures that began as crowdfunding campaign projects in the Philippines. To provide focus, the study paid particular attention to three concepts in the Bhave process model of entrepreneurial venture creation in which crowdfunding may affect: (i.) business or product concept development, as identified during opportunity recognition, (ii.) commitment to physical creation, a necessary juncture that transitions the process from the opportunity stage to the technology and organization creation stage, and (iii.) linking to market, which conceptually resides in the exchange stage.

This study used a qualitative, intensive multiple case-based approach to trace the progress of four Philippine-based entrepreneurial ventures that were initially launched as crowdfunding projects. The study employs a purposive sampling method using the following case selection criteria: (1) ventures launched through The Spark Project, a Philippine-based crowdfunding platform that focuses on creative entrepreneurship projects, (2) ventures that launched their crowdfunding campaign prior to January 2016 and have been in operation for more than one year, and (3) ventures that continue to operate as of this writing. The author performed four in-depth interviews with the founders of these ventures as guided by a detailed semi-structured interview guide. To ensure the trustworthiness of this research, the study combined Guba and Lincoln’s (1994) quality framework with Yin’s (2014) quality design tests.

Findings

A. Venture: Camera Bag Venture
This camera bag venture began in 2013, with the co-founder’s need for a replacement camera bag that fit his profession and lifestyle, which was found lacking in the local Philippine market. Instead of ordering one abroad, the co-founders decided to design one themselves upon seeing the opportunity in one of the co-founder’s industrial design training and their proximity to an area renowned for bag manufacturing.

After a meeting with The Spark Project, the co-founders decided to launch a crowdfunding campaign to finance the production of their line of camera bags. Their primary motivation was to see if there was a market of consumers who will buy their unique camera bags and to test whether their project would become a viable business venture. Prior to launching their crowdfunding campaign, both co-founders looked for possible bag manufacturers to produce 30 to 60 bags. They also conducted an informal market research survey, reaching out to photographers in their close personal and professional networks to elicit feedback and insight. They also launched a Facebook Page, which they intended to use as to promote both the crowdfunding campaign and their bags.

The crowdfunding campaign exceeded their funding target. The co-founder attests that participating in crowdfunding provided them with market insight and feedback that they continue to use in their venture. The success of the campaign convinced the co-founders to establish their venture, and soon after obtained a bank loan to expand their operations.

The venture creation process for this business began when the co-founders recognized that there was an opportunity in making camera bags, which supports the Bhave model. Unlike the Bhave model, however, the commitment to physical venture creation, did not proceed immediately after opportunity recognition. It only became apparent closer to the end of the crowdfunding campaign when the co-founders were more confident about the market’s reception of their camera bag concept. In fact, the linking to market, signalled by the first sale, occurred prior to the commitment to the physical venture creation.

Furthermore, crowdfunding changes the chronology of market exchange. In the Bhave model, it is implied that the sale makes the exchange between product, payment, and feedback simultaneous. In crowdfunding, project owners receive pledges and feedback first before any campaign backer receives any product. The linking to market, in this case, happens even before the co-founders made the commitment to create the physical venture.

B. Venture: Designer Wallet Venture

This designer wallet venture began because one of three co-founders, a serial entrepreneur, wanted to establish a product-based business, which he intended to launch through a crowdfunding campaign. The opportunity came when he met the venture’s other co-founder who had the know-how to produce leather goods.

The crowdfunding campaign was launched in August 2015. The co-founders took six months to design the product, find suppliers, and plan for the campaign. Like the co-founders of the camera bag venture, the co-founders of the designer wallet venture intended to use the
crowdfunding campaign as a market test for their product—they wanted to see if the venture will be a feasible and profitable one. The co-founders were also motivated by funding.

Prior to the launch of the crowdfunding campaign, the co-founders organized a pre-campaign launch and invited members of their close personal and professional network to participate in a private backing event. This event aimed to showcase the wallet designs that they will be crowdfunding and encouraged invited guests to pledge even before the official campaign began.

The campaign itself raised over three times their funding target. The campaign provided the co-founders with market feedback, particularly with regard to design preferences. It also encouraged the co-founders to commit to creating the physical venture. Like the camera bag venture, the designer wallet venture followed this pattern: (1) product concept, (2) linking to market, and (3) commitment to venture.

C. Venture: Entrepreneurial Board Game Venture

The founder of the board game venture, a serial entrepreneur, initially intended his board game concept for personal use. However, after playing the board game with his professional partners, recognized that there was a market for his product. It took him more than a year of continual product testing and development before he decided to launch the board game through a crowdfunding campaign. At this point, the founder already made the commitment to create a venture out of this game and considered crowdfunding as a fitting venue to launch the product.

Crowdfunding campaign preparations included sourcing suppliers and organizing offline events that encouraged would-be campaign backers to play and interact with the board game prototype. In the process, game players supplied feedback and insight, which the founder used to further develop the game. The crowdfunding campaign was launched in August 2015, and raised a little over its funding target. At the close of the campaign and once all backer rewards were fulfilled, the founder began preparations for the product’s international launch through Kickstarter.

On the outset, it would seem that this venture follows Bhave’s venture creation process model: founder recognized an opportunity when he developed a product concept, then made a commitment to a venture, and finally, made the first sale through crowdfunding. However, it is important to note that the product concept itself evolved from its original conception throughout the entire crowdfunding campaign. The founder received the game’s first feedback even before it made the commitment to establish a venture, and continued to receive feedback throughout the campaign. The founder admits that the final board game is very different from his original concept, and credits the community that played the game for the final product. The community of backers played an important role in the development of the product. The chronology of these events and the timing of feedback is different from the Bhave model.

D. Venture: River Cleaning Venture

Unlike the first three stages, the river cleaning venture was already an established business prior to launching its crowdfunding campaign. The founder, however, acknowledges that prior to the campaign, venture did not have a profitable revenue model that could sustain the business in
the long run. The founder’s motivation to crowdfund was to raise funding to jumpstart the business and to raise market exposure. While the August 2015 campaign did not raise its target funding, the venture was able to receive market insight and consumer feedback that allowed the venture to develop a feasible revenue model.

The venture followed the Bhave model of venture creation. Prior to crowdfunding, the founder saw an opportunity to use microbial technology to clean rivers and committed to creating a physical venture. However, the venture lacked a profitable revenue model concept, which compelled the founder to crowdfund a project to revitalize the business. In the process, campaign backer feedback and experiences during the project provided crucial information that allowed the founder to develop a feasible and sustainable revenue model.

Discussion

In all of the four cases discussed above, crowdfunding affects the chronology of stages in the venture creation process. In the Bhave model, the commitment to physical venture creation is considered as the transition point from opportunity stage into the technological set-up and organization creation stage. However, in the first two cases, founders committed to the physical venture creation closer to the end of the crowdfunding campaign, when the co-founders were confident that there is a market that will buy their products. The two cases, in particular, regarded their respective crowdfunding campaigns as live market tests, which allow them to get product feedback and ascertain whether their project could be developed into a profitable venture.

Prior to committing, the project is treated as a one-time production of a small batch of goods, which minimizes the risk associated with establishing a business. Founders also need not invest a large amount of money to run the project, since campaign backer pledges finance the production of goods. Further minimizing the risk of associated to venture creation are business trends that allow ventures to manufacture products without investing heavily in technological set-up or organization creation in order to produce their product. In particular, outsourcing made it possible for venture founders to subcontract production to third parties that have the technological know-how and equipment to manufacture their product according to their specifications. Crowdfunding and current business trends, then, allow founders to conduct low-risk market experiments and delay committing to a business venture.

Crowdfunding also changes the process of product development. In the Bhave model, product development and creation is solely associated with the producer and resides only in the supply side. However, as the last two cases have shown, campaign backers, or consumers, are heavily involved in the product development particularly in as far as feedback becomes an important ingredient in the process.

Crowdfunding also advances the linking to market, which, in the Bhave model, only occurs when the venture makes its first sale. Crowdfunding has shown that the demand and supply link can be advanced even during product and business conceptualization, while the expanding role of consumers has been blurring the boundary that separates supply and demand.
Conclusion

Crowdfunding has changed the way demand and supply actors interact, thereby modifying the venture creation process in every stage. The crucial factor is feedback exchange, which, through crowdfunding, may be given by consumers even as far back as the product and business conceptualization stage. It also alters product development, which allows venture founders to create a product that consumers want. Combined with current business trends, such as outsourcing, crowdfunding allows potential entrepreneurs to conduct live market tests and delay committing to the physical creation of venture. Crowdfunding blurs the boundary that separates the demand and supply sides by expanding the role of the consumer—as a co-producer and as an investor.

REFERENCE


Crowdfunding Platform Contributions to Campaign Success: A Two-Case Study of Philippine-Based Platforms

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Abstract

Current literature discussing factors affecting crowdfunding outcomes focus on fundraiser characteristics and behavior, and funder motivations as determinants of success. While literature acknowledges that crowdfunding platforms are stakeholders, literature has yet to fully explore its contributions to crowdfunding campaign outcomes. This inquiry investigates how Philippine crowdfunding platforms contribute to crowdfunding outcomes. It finds that, motivated by perceived incentives and risks, platforms designs policies and protocols—screening, fraud detection, and fundraiser support—that minimizes their risks and maximizes their incentives, which, in turn, impacts crowdfunding campaign outcomes.

Key Words

Crowdfunding; Philippine; incentives; crowdfunding campaign

Introduction

Crowdfunding, an alternative fundraising vehicle that allows a project to raise funding through many small amounts of money from the public, or the “crowd,” usually through a platform found on the Internet. There are three stakeholders in crowdfunding: the fundraiser, the funder, and the crowdfunding platform. The fundraiser launches a campaign on a crowdfunding platform to raise funds for a project, which funders support through the pledging funds.

Belleflame, Omrani and Peitz (2015) identify three major crowdfunding model categories: investment-based, rewards-based, and donation-based crowdfunding models. Investment-based crowdfunding models are further categorized into three: royalty-based, equity-based, and lending-based. In all three models, funders play the role of investors—funders receive an a royalty fee, an equity stake, or interest income in exchange of their investment or loan. In rewards-based models, funders play the role of “prosumers,” (Belleflame et al, 2015; Ordanini, Miceli, Pizzetti & Parasuraman, 2011) and receive a product reward in exchange for their funding. Kickstarter and Indiegogo are two of the most popular examples of rewards-based crowdfunding platforms. In donation-based models, funders act as philanthropists and do not receive anything in return.
In the Philippines, three crowdfunding models exist: rewards-based, donations-based, and lending-based. The Spark Project, which started operations in 2013, and Artiste Connect, which was established in 2011, are two platforms that operate using the rewards-based model. Both platforms operate a flexible funding model, which allows fundraisers to keep any amount of funding they raise, whether or not they achieve their funding target. This is the opposite of the fixed funding model that Kickstarter operates, where fundraisers are required to achieve their funding targets to receive funder pledges. In 2017, The Spark Project also started accepting donations-type of crowdfunding campaigns. Cropital, established in 2015, and FarmOn.PH are examples of lending-based crowdfunding platforms. Both focus on raising loans for agricultural projects. While Cropital currently caters exclusively to rice farmers, FarmOn.PH raises funds for their own farm crops.

There are also hybrid crowdfunding models in the Philippines, such as PhilCrowd and RaisePH, which operate as investment-based crowdfunding platforms and are registered as cooperatives. In this type of model, funders are paid project returns in exchange for their support. This hybrid model is a result of the Philippines’ lack of crowdfunding laws that allow the legitimate operation of equity-based crowdfunding models.

Much of the inquiry on crowdfunding focus on understanding fundraiser-related factors that contribute to project or campaign success (Agrawal, Catalini, & Goldfarb, 2011; Belleflamme, Lambert, & Schvienbacher, 2014; Cordova, Dolci, & Gianfrate, 2015; Etter, Grossglauser, & Thiran, 2013; Koch & Siering, 2015; Mollick, 2014; Ward & Ramachandran, 2010; Yao & Zhang, 2014). On the other hand, some studies focus on understanding fundraiser and funder motivation in participating in crowdfunding campaigns (Gerber & Hui, 2013; Gerber, Hui, & Kuo, 2012; Hui, Gerber, & Greenberg 2012; Ordanini et al, 2011), but still within the context of crowdfunding campaign success. Furthermore, many of these studies focus on fundraisers and funders. While some contend the importance of choosing the right platform to increase the possibility of success (Canadian Media Fund, n.d.; Holm, 2013; Spacetec Capital Partners, 2014) contributions of crowdfunding platforms to campaign success is rarely explored.

Nonetheless, there are studies that illuminate crowdfunding platform behavior by exploring incentives and risks platforms face (Agrawal, Catalini, & Goldfarb, 2013; Belleflamme et al 2015). Agrawal et al (2013) explain that platforms face profit and market exposure incentives. On the other hand, Belleflamme et al (2015) acknowledge risks all stakeholders face in crowdfunding, particularly fraud as a result of asymmetric information, or one stakeholder holding more information than other stakeholders, such as fundraisers knowing more about the quality of the project than the funders do. Campaign backers or funders deal with financial losses when a fundraiser fails to deliver rewards, as a result of fraud, or the failure of a project to materialize due to project owner incompetence risks or project risks (Agrawal et al 2013). All of these incentives and risks influence stakeholder behavior. Specifically, crowdfunding platforms formulate and enforce policies to mitigate these risks and to optimize incentives. Examples of platform rules include stringent screening requirements and fraud detection measures (Agrawal et al 2013 and Belleflame et al 2015) to mitigate fraud. Platforms can also offer fundraiser support, through mentorships, or supplementary information in the form of blogs or crowdfunding tutorial workshops (Gerber & Hui, 2013; Gerber et al, 2012; Hui et al, 2012), to reduce project owner incompetence risks and project risks.
It would seem that these crowdfunding platform measures affect fundraiser performance. Fundraiser performance, in turn and among other things, determines campaign outcomes (Agrawal et al., 2011; Belleflamme et al., 2014; Cordova et al., 2015; Etter et al., 2013; Koch & Siering, 2015; Mollick, 2014; Ward & Ramachandran, 2010; Yao & Zhang, 2014). Thus the research question of this study: how do crowdfunding platforms contribute to campaign success?

Conceptual Framework

How crowdfunding platforms influence campaign outcomes revolves around its perceived risks and incentives, and its behavior that result from these perceptions. Agrawal et al. (2013) believes that platforms are incentivized to participate in the crowdfunding exercise by profit and market exposure incentives. Platforms earn a commission from funded campaigns. Beyond short-term profit, platforms are motivated by long-term effects of a continuous stream of successful campaign outcomes through positive externalities it provides. Successful campaigns increase positive market exposure to platforms. This, in turn, increases funder and fundraiser interests on the platform, which may result in more successful campaigns. In the long term, this continuous stream of successful campaigns will improve the platform’s profits.

On the other hand, failed and fraudulent campaigns produce the opposite effect. Since failed and fraudulent campaigns do not achieve their funding target, platforms do not receive optimum profit. Given fraud and failure produce negative exposure to the platform, funders and fundraisers will be less likely to participate in crowdfunding, which affects the platform’s long-term profitability.

Crowdfunding platforms have an incentive to place measures to encourage successful campaign outcomes and to curb fraud. These measures include platform rules, such as screening and fraud detection systems, and platform support for fundraisers, such as mentorship programs and crowdfunding workshops. These measures may mitigate the risks of negative exposure brought about by failed products, due to project owner incompetence or project risks, or incidents of fraud. These measures may help improve overall crowdfunding campaign outcomes. Thus, to understand crowdfunding contribution to campaign outcomes, this study will explore risks and incentives that platforms perceive, the measures they establish to minimize risks and maximize incentives, and how these affect overall performance of campaigns in the platform.

Figure 1: Conceptual Framework

Methodology
This inquiry employed a qualitative, intensive case-based approach to examine two cases of Philippine-based crowdfunding platforms. The research design sought to achieve analytical generalization by building upon previously developed theory, as detailed in the conceptual framework, with which to compare the results of this empirical study.

This inquiry chose two crowdfunding platforms in the Philippines, The Spark Project and Cropital, using the following selection criteria:

1. Platform must be based in the Philippines.
2. A single entity or individual must not control active projects in the platform.
3. Platform must have an active campaign in June 2017.

Both Artiste Connect and RaisePH did not have active campaigns in June 2017. Artiste Connect, for example, has not had an active campaign since November 2016. While both FarmOn.PH and PhilCrowd have active campaigns, all of these campaigns are controlled by a single entity. It is important that different fundraisers initiate campaigns within the platform, as this provides a nuanced analysis on effects of platform policies, particularly screening policies, on campaign and fundraiser performance.

Data was collected from primary and secondary sources. An intensive desk research yielded data from the crowdfunding platform website, online news sites, blogs, and different social media platforms. A semi-structured interview questionnaire was used to gather data from key informants: co-founders of the two crowdfunding platforms. The secondary data was also used to enhance the interviews with platform-specific probing questions. To ensure the trustworthiness of this research, the study combined Guba and Lincoln’s (1994) quality framework with Yin’s (2014) quality design tests.

Findings

Case 1: The Spark Project, reward-based crowdfunding

According to their website, the Spark Project has hosted 45 crowdfunding campaigns, which has raised about PhP 4.5 million in funding from over 2,000 backers. About 66% of these campaigns have either achieved or exceeded their funding targets. The platform’s CEO and founder contend that the success of the campaigns were a result of careful planning and strategic execution, which includes carrying out effective communication and lead generation strategies, and incorporating crowdfunding best practices, as detailed in current literature (Agrawal et al, 2011; Belleflamme et al, 2014; Cordova et al, 2015; Etter et al, 2013; Koch & Siering, 2015; Mollick, 2014; Ward & Ramachandran, 2010; Yao & Zhang, 2014). He also attests how crowdfunding how fundraisers have benefitted from gaining access to networks through their participation in crowdfunding and how these have formed communities around their brand. These communities have also benefitted the platform. Former fundraisers have willingly provided time and energy to give back to the platform’s crowdfunding community through support for crowdfunding projects, knowledge transfer and mentoring, and the spread of crowdfunding awareness.
The platform charges two sets of fees for its rewards-based model: a standard PhP2,500 set-up fee, and a platform fee. Campaigns that achieve or exceed their funding goal are charged 7% of the total funds raised, while those that fail to reach their goals are charged 10% of total funds raised.

**Perceive incentives and risks.**

The CEO and founder of The Spark Project believes that crowdfunding outcomes affect their reputation—successful campaigns improve their reputation and offers positive market exposure, while failed campaigns negatively impact their reputation. The platform also risks their reputation if and when projects are found to be fraudulent. On the other hand, The Spark Project values community and sees it as an incentive; they believe that their success is a result of the conscious effort to build a community around their platform. They actively engage former fundraisers, through communication and networking events, and draw on their experiences and expertise to help potential fundraisers succeed with their campaigns, through workshops and mentoring.

These incentives, community building and market exposure, and risks, reputation losses affect their long-term sustainability and profitability. Profit is also viewed as an incentive as this affects the platform’s long-term viability. The platform designed their policies and protocols to mitigate risks and optimize incentives.

**Screening.**

Since it launched its first campaign in 2013, The Spark Project has revised its screening process at least three times. In its early stages of its operations, The Spark Project carefully handpicked the campaigns they hosted on site. The screening process included a face-to-face interview with the fundraiser or fundraising team, and required all projects to show a proof-of-concept, either a product prototype, or a detailed service or event plan. The CEO and founder explained that the interview aimed to assess the readiness of potential fundraisers to launch a crowdfunding campaign. This is to ensure that the platform only approved the campaigns of fundraisers who have carefully researched about crowdfunding, thoroughly planned out their campaigns, and are immensely motivated to succeed in their projects. The Spark Project believed at that time that the outcomes of the first several campaigns in the platform would determine that platform’s sustainability and that campaigns’ outcomes will impact their reputation. Favorable campaigns will improve their reputation, while failed campaigns will negatively affect the platform’s reputation and the overall impression on crowdfunding.

To generate more awareness and interest for crowdfunding, the platform also organizes monthly networking events, called meet-ups, to introduce crowdfunding to interested startup entrepreneurs. These meet-ups also served as initial screening for potential fundraisers.

In its succeeding years, The Spark Project altered its screening process. It experimented with the Spark-a-thon, a multi-step protocol wherein potential fundraisers who required to fulfill stipulations within each step before being allowed to launch a campaign. They revamped this process and simplified it into a two-step process that involved an interview and attendance to
a crowdfunding workshop. In 2017, acknowledging that awareness for crowdfunding has increased and that their current screening process was difficult to scale, they automated and streamlined the process further by allowing fundraisers to launch a project online without a stringent application process.

**Fraud detection.**

In its early stages, the intensive interview process and close monitoring of projects serves as the platform’s informal fraud detection system. Close monitoring also addresses a potential leakage in the platform’s profits.

The immature financial system in the Philippines and limited online gateway facilities available in the country has restricted how the platform collects pledges from funders. In the United States, for example, a majority of the population carries credit or debit cards, which allow platforms to conveniently transfer pledges from funder to fundraiser through online payment gateways. In the Philippines, only 3% of the population (15 years and above, in 2014) owns a credit card, according to the latest report from the United Nations Conference on Trade and Development (UNCTAD, 2016), which indicates that not all backers can transact online. To work around this limitation, the platform allows fundraisers to accept pledges from funders on their behalf. However, for the funds to be reflected into The Spark Project’s system, the fundraiser must disclose the funds remitted to them directly.

The scenario above reflects a potential loss in platform revenue and the risk of fraud, both of which The Spark Project acknowledges. They minimize these risks by closely monitoring project progress. Current published guidelines also disclose that the platform “has the right to determine and take down campaigns that are dishonest or fraudulent” (The Spark Project website).

In the platform’s history, there have been no recorded incidents of fundraiser fraud. The CEO and founder, however, disclosed that there was a campaign that experienced supplier difficulties that severely delayed the delivery of rewards. The platform worked closely with the fundraiser and provided options on how to resolve the issue. This issue was eventually resolved.

**Support for fundraisers.**

The Spark Project in its very early stages provided close hands-on campaign support, in the form of crowdfunding tips and advice, to fundraisers. The CEO and founder, for example, acknowledged personally dispensing suggestions on how to improve campaign outcomes to fundraisers who came to him for guidance in the platform’s early years.

In 2015, the platform introduced crowdfunding workshops to fundraisers. In these workshops, the platform introduces key crowdfunding concepts and details how to set up a campaign, prepare marketing messaging and collaterals, launch a campaign, execute strategies, and protocols to observe post-campaign. The workshops also stress fundraiser responsibilities to funders, underscoring the need for transparency through constant communication and integrity through prompt reward delivery. Former crowdfunding project owners, called the Spark Alumni, also attend as guest speakers who share experiences on how they carried out their own crowdfunding campaigns and lessons learned from the exercise. As the number of campaigns
hosted on the platform grew, the workshops also provided a venue for the platform to interact with and nurture close relationships with all fundraisers.

In 2017, the platform introduced a free online crowdfunding bootcamp, an alternative to the crowdfunding workshops. The platform also recently released a crowdfunding checklist detailing the elements required to launch and run a campaign. This document can be freely downloaded by anyone from the website.

**Case 2: Cropital, lending-based crowdfunding model**

Cropital operates a peer-to-peer lending or lending-based crowdfunding model. It was launched in November 2015, and has raised US$120,000 worth of investments (Flores, 2017). In September 2017, its website indicates that it has helped raise and fully fund loans for 84 farm projects. Of the 84 projects, 63 of these have been completed, which means its principal farmers have paid off loans and distributed returns to its investors or funders. In its initial stages, the farm projects consisted of a diverse group of farm crops and livestock. However, in 2017, the platform focused on rice farm projects.

The platform aims to provide low-cost agricultural loans to small farmers. It also aims to “reduce the risks in farming and improve productivity by processing crop insurance, providing a buyer, and giving trainings and access to technology partners” (Cropital website). To achieve these goals, the platform works with several partners, including farm community leaders, direct crop buyers, agriculturists and researchers, and crop protection specialists.

**Perceive incentives and risks.**

Cropital’s goal is to help improve farmer profitability and farm sustainability in the long-term through low-cost funding and technological support. Their advocacy is their primary purpose in developing the crowdfunding model of Cropital and is their core incentive. To successfully achieve their goals, they work to ascertain a farmer’s ability to pay, which is determined by, among other things, farm harvest and the value a farmer places on reputation, or the Filipino value of “hiya,” as this impacts their ability to access funding in succeeding cycles. As farm harvest is affected by many risks factors, such as farmer risks, weather risks, pest risks, and market risks, the platform implements measures to manage these risks through screening, insurance, technological support, and seeking direct crop buyers.

The platform understands that overall repayment rates will affect their ability to sustainably secure funding for farmers. High repayment rates will positively affect their reputation, while low repayment rates may result in reputation losses.

Cropital sees their advocacy and access to networks as incentives, while reputation losses as risks. Like The Spark Project, profit is also an incentive as this affects long-term viability.

**Screening.**
Cropital works with farm communities where their partners have established ties. The platform employs a multi-level vetting process, which includes farmer orientation, documentary requirements that include community-based clearances and local government certifications, community leader vetting, and an interview with Cropital personnel. The platform considers various factors that traditional lending institutions do not, such as stability of agricultural production, community vetting, and other family income sources. Farmers who have successfully paid off their loans are allowed to borrow funding again. The focus of their screening process is to ascertain the farmer’s ability to pay on time.

**Fraud detection.**

The platform integrates checks and balances in their fund disbursement process. “The local community partner disburses resources in the form of inputs and working capital to these farmers. Farmers are provided with the resources only at the time the product is already needed and only when the labor has been finished” (Cropital website). This is to ensure that farmers use the funding only for the farm project.

Each Cropital farm project is provided with a farm plan, which details the project scope from the beginning and the end of the farm cycle, and includes the schedule of activities along with the resources and labor needed. Each farm is managed by a local community partner, which performs farm visits to monitor the progress of each farm project. In its short history, the platform has yet to encounter an incident of fraud. It was, however, confronted by three incidents of repayment difficulties, but which were all resolved through closely working with these farmers. All three farmers were able to repay investors within the specified repayment period.

**Support for fundraisers.**

Cropital provides a holistic approach to farmer support. Aside from financial capital, it provides access to important information resources and farm inputs. It connects farmers with agriculturists and technology partners to help increase farm productivity. The platform also works with authorized crop buyers to assist farmers in the selling of crops.

**Discussion**

The cases above illustrate that both platforms have screening and fraud detection protocols in place, and provide support for fundraisers. The inquiry, however, observes differences in how each platform carries out the protocols and the focus of their protocols. Table 1 provides a comparative matrix comparing the protocols of each platform.

<table>
<thead>
<tr>
<th>Table 1: Platform Behavior: The Spark Project vs. Cropital</th>
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<tr>
<td><strong>The Spark Project</strong></td>
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<tr>
<td>Screening</td>
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<tr>
<td>Platform recently automated process</td>
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<td>------------------------------------</td>
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<tr>
<td>Fraud detection</td>
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<tr>
<td>Fundraisers are encouraged to openly communicate with funders.</td>
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<tr>
<td>Support for fundraiser</td>
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The Spark Project’s screening protocols and fundraiser support are particularly concerned with the fundraiser’s crowdfund campaign readiness—that is, whether fundraisers understand the amount and kind of preparation work, as detailed in Hui et al (2012), required to launch and run a successful crowdfund campaign. There is some effort to mitigate project risks and project owner incompetence by requiring proofs-of-concept from potential fundraisers, and underscoring the importance of post-campaign activities, such as post-campaign communication to backers and rewards delivery, during crowdfund workshops. The platform also provides a venue, through meet-ups and workshops, for fundraisers to network with each other and provide opportunities. This inquiry observes that the key role that The Spark Project plays is to educate fundraisers on how to launch and run successful crowdfund campaigns, as well as to provide fundraisers access to a network of entrepreneurs. Their goal is to help ensure that fundraisers are equipped with the necessary information and have access to networks that will help achieve crowdfund success.

On the other hand, Cropital focuses more on helping farmers carry out and complete farm projects. The objective of Cropital is to ensure that all farmers repay their loans. They do so through enhancing farmer productivity, helping them manage risks, and increasing farmer income. These, in turn, help keep repayment rates at 100% in the short term and boost farm profitability and sustainability in the long term.

Unlike The Spark Project, fundraisers on Cropital are not encouraged to manage a social media campaign to raise funds. Instead, the platform undertakes the role of fundraising campaigner since it directly engages with the funders, through its website and newsletters. Its screening and fraud detection protocols, and fundraiser support revolves around helping farmers
successfully and profitably complete farm projects. It is of note that Cropital also takes on the responsibility of updating funders on the progress of farm projects, a responsibility that fundraisers on The Spark Project undertake. This inquiry observes that the platform’s key roles are certifying a farmer’s ability to complete the project and repay loans, and providing farmers access to farm support services and technology.

This inquiry also observes that the key roles platforms play correspond to the platforms’ perceived risks and incentives. The Spark Project plays the key roles of crowdfunding educator and network connector. They equip fundraisers with crowdfunding knowledge and provide them with access to a network of entrepreneurs to enhance the probability of the crowdfunding success. They do so because they believe that fundraiser success positively impacts their reputation and enhances market exposure, which, in turn, positively affects their profit and long-term viability. Being a network connector also helps build and nurture the community around the platform, which contributes to widening their network, which also positively impacts their fundraisers in the long-term. Performing these key roles also mitigates risks associated with fundraiser crowdfunding failure, which may lead to reputation losses.

Cropital, on the other hand, plays the key roles of project certifier and network connector. By certifying projects through its multi-layered screening process, its stringent monitoring system, and closely working with farmers help mitigate the risks of loan misuse, repayment delays, or non-repayment. In turn, it minimizes reputation losses that it may suffer should any farmer default on loans. As a network connector, it works with local communities, farm technology providers, and agriculture specialists to help manage farm risks and improve productivity to ensure a profitable harvest. This in turn allows them to follow through on their advocacy and maximize profit.

<table>
<thead>
<tr>
<th>Table 2: Platform Risks and Incentives</th>
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<tr>
<td><strong>The Spark Project</strong></td>
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<tr>
<td>Perceived risks</td>
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<td>Perceived incentives</td>
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**Conclusion**
Crowdfunding platforms in the Philippines contribute to crowdfunding campaign outcomes through their screening protocols, fraud detection systems, and support provided to fundraisers. These efforts primarily help mitigate perceived risks platforms face, such as reputation and profit losses. These also help optimize incentives that platforms perceive, such as community, market exposure, advocacy, access to networks and profit. These risks and incentives can impact the platforms’ long-term viability. In turn, these efforts also help mitigate the risks of project failure as a result of project risks, project owner incompetence, or fraud. In doing so, platforms contribute to platform success by equipping resources with knowledge and resources that will help improve the probability of project success.

References


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International Workshop on Design, Influence, and Social Technologies: Techniques, Impacts and Ethics.


Like, comment, and share! Analyzing post types and content categories of selected Philippine social enterprise’s Facebook posts

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Abstract

This study examines the current social media practices of ECHOstore and Human Nature, two social enterprises in the Philippines engaged in retail of organic consumer products with at least 10,000 Facebook Fan Page likes. By assessing the possible effects of the various independent variable groups (specific social enterprise’s fan page, post type, and post content categories), this study intends to understand the characteristics of social media messages that are most likely to facilitate specific customer responses (reactions, comments, and shares).

Inspired by the research design of Kim, Spiller, and Hettche (2015) and the findings of Tafesse and Wien (2017), this paper will analyze all Facebook posts of ECHOstore and Human Nature from April 1, 2017 to June 30, 2017. The data that will be collected and generated from each post include its post type (e.g. link, text/status, photo or video), its content category (e.g. general and specific categories as proposed by Tafesse & Wien, 2017), and the number and type of customer responses (reactions, shares, and comments).

This study is significant because it provides new ways to study how social enterprises can strategically utilize social media towards customer engagement—be it for building the social enterprises’ brands or advocating mission. Moreover, this research fills the gap of understanding how social enterprises use social media in the Philippines as most papers published using this study’s design focus on big corporations and nonprofits over.

Key Words
Social enterprise, Social media marketing, Customer engagement, Marketing communications, Public Relations

Background of the Study

Informally branded as the ‘social networking capital of the world’, the Philippines was featured in a global report published by (WeAreSocial.com, 2017)—showcasing the country as
the worldwide leader in terms of social media usage (Camus, 2017; Rappler.com, 2017). As such, it is no surprise that various organizations have attempted to utilize popular platforms such as Facebook to engage with their target stakeholders.

In a case study research conducted in the country (Habaradas & Aure, 2016), the researchers have observed that social enterprises—organizations that simultaneously pursue both financial and social objectives—capitalize on social media to reach their target customers. Establishing a digital presence is made easier by Facebook through its Fan Page feature, where social enterprises can encourage customers to follow their public profiles and interact with the content they publish. Given the popularity of Facebook as a means to reach customers, it is important to learn which posts tend to generate more user engagement—activities that Facebook tracks as reactions, comments, and shares.

As such, this study aims to uncover the link between Facebook post characteristics (content categorization, post type) and user engagement metrics (reactions, comments, shares). For this paper, the researchers intend to examine two Filipino social enterprises engaged in the retail of consumer goods (ECOstore and Human Nature). While previous studies focused on comparing as many top global brands via a one-month snapshot (Kim et al., 2015; Tafesse & Wien, 2017), this paper prioritizes depth as it intends to explore two social enterprises belonging in the same category covering a three-month period. This research also prioritizes the understanding of nuances brought about by the Philippine social media context—increasing the study’s applicability for practice.

Literature review

Various scholars and practitioners have studied, via content analysis and application, the usefulness of social media for marketing strategy and customer engagement. Social media has also been utilized by social enterprises and nonprofits for the purpose of advocacies and engaging stakeholders to be involved with the organization’s mission. The next tables feature salient findings about these phenomena and how they are researched.

Table 1
Prior literature utilizing social media for research, marketing, and customer engagement

<table>
<thead>
<tr>
<th>Authors</th>
<th>Summary of findings</th>
<th>Methodology</th>
<th>Management implications</th>
<th>Areas for future research</th>
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<tbody>
<tr>
<td>Baird &amp; Parasnis, 2011</td>
<td>Companies are no longer in control of the relationship with customers; the highly influential networks of customers drive conversation.</td>
<td>Two online surveys of (1) 1,056 customers globally across different generations and household incomes and (2) 351 business executives</td>
<td>Organizations should shift their mindset from controlling the conversations to collaborating with customers how online conversations should happen.</td>
<td>There is a need to further study how customers want to engage with social media, given its difference against other media channels.</td>
</tr>
<tr>
<td>De Vries &amp; Carlson, 2014</td>
<td>“The findings show that co-creation value, social value, usage intensity and brand strength</td>
<td>Survey of 404 consumers of various brand pages analyzed through the</td>
<td>The findings are of value to brand managers of social media sites and focus on how managing</td>
<td>Specific product or industry categories should be researched. Larger random sample.</td>
</tr>
<tr>
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<td>Hsu, 2012</td>
<td>Although use of Facebook as an international e-marketing strategy varied among Taiwan hotels, it is successful in allowing organizations to build relationships with regional and global customers.</td>
<td>Qualitative study using observation methods of the organizations’ respective fan pages.</td>
<td>Facebook is a useful tool to communicate with target segments that transcend geographical limitations.</td>
<td>Pursue quantitative and mixed methods research design to explore specifically how Facebook can be better used to engage stakeholders.</td>
</tr>
<tr>
<td>Kang, Tang, &amp; Fiore, 2014</td>
<td>Facebook Fan Pages help organizations establish and maintain consumer-brand relationships. Members tend to visit restaurant fan pages when they receive hedonic and social-psychological benefits.</td>
<td>Survey to explore relationship between four benefit components (functional, social-psychological, hedonic, and monetary benefits)</td>
<td>Managers should develop strategies that deliver hedonic and psychological benefits to customers if the marketing strategy revolves on engaging them online.</td>
<td>Build on findings that Facebook is a useful platform and marketing tool for building online communities and developing brand strategies through other research methods.</td>
</tr>
<tr>
<td>Kosinski, Matz, Gosling, Popov, &amp; Stillwell, 2015</td>
<td>Facebook can be used as an innovative research tool for primary data gathering (surveying respondents with consent) and archival research (mining publicly available data ethically).</td>
<td>Various Facebook-based research, with a cumulative sample of over 10 million participants (collected through snowball sampling), allowed the researchers to synthesize research design.</td>
<td>Scholars and practitioners should consider Facebook as innovative data gathering tool and even a repository of publicly available data to understand stakeholders.</td>
<td>Opportunities and challenges should be explored in utilizing Facebook as a research tool, such as implementation procedures and discussing ethical considerations.</td>
</tr>
<tr>
<td>Ruiz-Mafe, Marti-Parreno, &amp; Sanz-Blas, 2014</td>
<td>“Data analysis shows that attitude appears as a key variable in increasing loyalty to fan pages. The empirical study also found a significant positive influence of perceived usefulness, attitude, trust and dependency on loyalty in fan pages, and an indirect influence of perceived trust.”</td>
<td>“The impact of trust, fan page content dependency, attitude and consumer beliefs on loyalty to fan pages was tested through structural equation modelling techniques. The sample consisted of 691 Spanish Facebook users.”</td>
<td>“This research enables managers to know what aspects to highlight in their communication strategies to increase fan page use and positive word-of-mouth. Research findings show managers that Facebook fan page content should provide valuable information, be fun and foster user interactions in order to increase user engagement.”</td>
<td>There continues to be few papers that study trust and fan page dependency of customers. More research about these fields are desirable.</td>
</tr>
<tr>
<td>Authors</td>
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<td>Areas for future research</td>
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<tr>
<td>---------</td>
<td>---------------------</td>
<td>-------------</td>
<td>------------------------</td>
<td>---------------------------</td>
</tr>
<tr>
<td>Campbell, Lambright, &amp; Wells, 2014</td>
<td>Nonprofits tend to use social media for raising awareness, promoting activities, and conversing with stakeholders. Barriers to usage of managers include stringent institutional policies, concerns about the inappropriateness of using social media, and client confidentiality.</td>
<td>Qualitative design-use of interviews and examination of publicly available data.</td>
<td>Managers should be aware how to navigate through existing policies and processes, get buy-in from leaders regarding the appropriate use of social media, and overcome sensitive issues.</td>
<td>“Future research should investigate not only the different ways organizations use social media but also whether organizations use it strategically to advance organizational goals.”</td>
</tr>
<tr>
<td>Cho, Schweickart, &amp; Haase, 2014</td>
<td>There is high engagement of stakeholders when two-way symmetrical communications was utilized.</td>
<td>Randomly sampled 36 organizations from the “Nonprofit Times 100” list. A total of 678 posts from October 1-20, 2012 were analyzed.</td>
<td>Public organizations should explore crafting social media campaigns capitalizing on two-way symmetrical communications.</td>
<td>Widen sample size and/or timeframe of posts to be analyzed to test findings.</td>
</tr>
<tr>
<td>Hall-Phillips, Park, Chung, Anaza, &amp; Rathod, 2015</td>
<td>“Findings suggest a positive influence of engagement and attractiveness on C-SV identification. Two aspects of consumer social media experience, escapism and educational value, were found to enhance consumer engagement, while identity similarity and identity distinctiveness contributed to the attractiveness of a social venture’s identity.”</td>
<td>Survey of 304 social venture consumers connected to the ventures via social media websites.</td>
<td>“The research provides social ventures with practical knowledge about the strategic use of social media sites as a vehicle for enhancing emotional and behavioral bonds with consumers.”</td>
<td>Research is still limited about social media’s effect on customer identification and customer engagement.</td>
</tr>
<tr>
<td>Satar, John, &amp; Siraj, 2016</td>
<td>Marketing concepts, which can be extended to social media marketing, can be useful for social entrepreneurship.</td>
<td>Qualitative case study methodologies of various social enterprises in western countries</td>
<td>Social marketing can be combined with social media marketing for effecting behavioral change among stakeholders, beneficiaries, and customers.</td>
<td>Explore other marketing strategies that are useful for managing social enterprises.</td>
</tr>
</tbody>
</table>
Table 3

**Literature review matrix on content analysis applied on social media**

<table>
<thead>
<tr>
<th>Authors</th>
<th>Summary of findings</th>
<th>Methodology</th>
<th>Management implications</th>
<th>Areas for future research</th>
</tr>
</thead>
<tbody>
<tr>
<td>Saxton &amp; Waters, 2014</td>
<td>In terms of engagement, stakeholders prefer dialogic posts</td>
<td>1000 updates from organizations on the Nonprofit Times 100 list were analyzed.</td>
<td>For strategies revolving on engaging customers, managers should craft posts that encourage interaction and dialog.</td>
<td>Public relations research can be extended further by researching how social media can be used for engaging customers.</td>
</tr>
<tr>
<td>Čeněk, Smolík, &amp; Svatošová, 2016</td>
<td>“All of the analysed e-shops should increase the frequency of contact with their fans through more frequent posting and modification in the content of the posts”</td>
<td>Quantitative content analysis of Facebook profiles of three Czech electronic shops. Qualitative analysis and explanations were utilized for interesting findings.</td>
<td>Frequency of posts can increase engagement with fans.</td>
<td>Test whether increasing frequency of posts, and increased contact with fans, facilitate better customer engagement.</td>
</tr>
<tr>
<td>Kim, Spiller, &amp; Hettche, 2015</td>
<td>“Research findings reveal that global brands actively utilize social media, posting on average three messages per week and generally use photos (as a media type) and interaction-focused content (as a content orientation) to secure consumer responses. However, differences in consumer responses exist along various product categories, message media type and message content orientation.”</td>
<td>“A content analysis of 1,086 social media posts was conducted from the corporate Facebook pages of 92 global brands during a one-month (snapshot) time horizon in July 2013. The data collected from each individual post include its media type (i.e. text, photo or video), its content orientation (i.e. task, interaction and self-oriented) and the number and type of consumer response it generated (i.e. likes, comments and shares).”</td>
<td>“Findings imply that marketers should not only carefully consider the media type they use to message consumers on social media but should also try to consider the individual consumer’s motive for interaction.”</td>
<td>Find other content categorizations which may be useful for classifying Facebook content. Extend time horizon of studying posts.</td>
</tr>
<tr>
<td>Lai &amp; To, 2015</td>
<td>Social media affects beliefs, attitudes, values, intentions, and behaviors (as evidenced by a systematic study on customer perceptions on Macao as a destination image).</td>
<td>“In this paper, we introduce a grounded theory approach that involves (i) defining the goal and scope of a study; (ii) logically and systematically identifying social media sources, total sample size, and the sample size of every source category; (iii) Social media posts can be analyzed to understand customer perceptions.”</td>
<td>Test the grounded theory and methodology proposed by the authors.</td>
<td></td>
</tr>
</tbody>
</table>
### Synthesis of Literature Review and Significance of the Study

Reconciling the usefulness of social media in enabling social organizations to engage their stakeholders, the researchers intend to build on the results of the literature review with the articles of Kim et al. (2015) and Tafesse and Wien (2017) as the main articles. The research methodology of Kim et al., which used multivariate analysis of covariance in analyzing content, proved to offer explanatory power in understanding the effects of certain independent variables on likes/reactions, comments, and shares in Facebook. However, the researchers intend to utilize the proposed categories of Tafesse and Wien (2017) given its novelty. These two anchor articles, based on my research intentions, prove to be the most appropriate and powerful in finding out what can lead to various social enterprises’ customer engagement.

This study is significant because it provides new ways to study how social enterprises can strategically utilize social media towards customer engagement—be it for building the social enterprises’ brands or advocating mission. By finding out which factors affect customer engagement, operationalized by Facebook reactions, comments, and shares, managers of social
enterprises’ fan pages can craft more pointed strategies and develop compelling content. Moreover, this research fills a local and global gap in terms of understanding how social enterprises use social media in the Philippines as most papers published using this study’s design focus on big corporations and nonprofits all over the world.

**Statement of the Problem and Assumptions (A Priori Beliefs)**

Generally, the research questions and hypotheses were derived from the most salient findings of literature, particularly that of Kim et al. (2015) and Tafesse and Wien (2017). The researchers propose a main research questions and its corresponding hypotheses, which are based on the findings of the literature review as well as logical a priori beliefs.

Research question: What is the effect of the independent variables (post types and content categories) on reactions, comments, and shares?

- **H1.** Post types, as a whole, have a significant effect on reactions, comments, and shares.
  - H1-1. Among the specific post types, photos have a significant effect on reactions, comments, and shares.
  - H1-2. Among the specific post types, videos have a significant effect on reactions, comments, and shares.

- **H2.** General content categories, as a whole, have a significant effect on reactions, comments, and shares.
  - H2-1. Among the general content categories, interactional posts have a significant effect on reactions, comments, and shares.
  - H2-2. Among the general content categories, transformational posts have a significant effect on reactions, comments, and shares.

- **H3.** Specific content categories, as a whole, have a significant effect on reactions, comments, and shares.
  - H3-1. Among the specific content categories, cause-related brand posts have a significant effect on reactions, comments, and shares.
  - H3-2. Among the specific content categories, sales interaction brand posts have a significant effect on reactions, comments, and shares.

**Scope and Limitations**

The scope of the study deliberately focuses on two social enterprises over a three-month period. ECHOstore and Human Nature were chosen due to the following factors: (1) Had at least 10,000 followers in their Facebook Page, (2) having at least three years of experience, and (3) have posted at least 20 times per month during the time period April 1, 2017 to June 30, 2017. The time period was chosen as an improvement to Kim et al.’s limitation of only conducting a one-month snapshot. Moreover, three months corresponds to a quarter of the enterprises’ business cycle, which allows researchers to analyze more posts.
Conceptual Framework

The following conceptual framework guides the study in its analysis. The statistical analysis, which will be multivariate analysis of covariance (MANCOVA), is used based on the research design of Kim et al. (2015). The rationale of using MANCOVA is discussed in the next section.

![Figure 1. Conceptual framework](image)

Methodology

The researchers replicate the methods of Kim et al. (2015) in doing multivariate statistical analyses to infer which independent variables have significant effects on various dependent variables. Quantitative methods are primarily used in this study.

Given the relationship of the various independent and dependent variables the researchers intend to explore, the core statistical analysis tool the researchers use is ANOVA. However, the research design of Kim et al. (2015) overcomes the limitation of multiple univariate ANOVAs—multiplying the error term and lessening the presence of bias. This is why a multivariate analysis of variance is the desirable statistical method. To better understand the relationships of the identified variables and to try lessening the effect of spurious variables, Kim et al. (2015) used multivariate analysis of covariance—with the total number of likes of each Facebook page serving as a constant or the covariate. This method intensifies the ability to analyze the effects of the independent variables to customer engagement.
MANCOVA is a sophisticated statistical method that needs to satisfy various assumptions. Recently, the study of Blanca et al. (2017) showed how ANOVA processes are somewhat robust to violations of its assumptions as long as samples are sufficiently large. Nevertheless, the researchers will do pre-statistical treatments (such as tests of normality on data and residuals, logarithmic transformations of data if needed) to examine whether all MANCOVA assumptions can be met. In case assumptions of univariate ANOVA and MANCOVA will be violated, the researchers will explicitly state them while acknowledging the limitations of the results (Spencer, Lay, & de Lopez, 2017). The researchers conducted post-hoc analyses (Bonferroni method) on significant results from the MANCOVA, which resembles the design of Kim et al. (2015).

The coding procedure for this study is straightforward—the researchers used deductive coding based on the proposals of Tafesse and Wien (2017). As a guide, the following table below shows a summary of general and specific content categories compiled by Tafesse and Wien (2017) based on their studies.

Table 4
General and specific content categorizations (Tafesse & Wien, 2017)

<table>
<thead>
<tr>
<th>General categories</th>
<th>Specific categories</th>
<th>Definition and common message themes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Informational</td>
<td>Functional brand posts</td>
<td>These brand posts highlight the functional attributes of company products and services. Typically, these posts promote the benefits of company products and services according to performance, quality, affordability, design and style criteria. Common themes: product functional claims, product reviews, awards, green credentials, and so forth</td>
</tr>
<tr>
<td>Informational</td>
<td>Educational brand posts</td>
<td>These brand posts educate and inform consumers. These posts help consumers acquire new skills on proper ways of applying products, or discover new information about broader industry trends and developments. Common themes: do it yourself tips, instructions, blog posts, external articles, technical interviews with employees, and so forth</td>
</tr>
<tr>
<td>Informational</td>
<td>Employee brand posts</td>
<td>These are brand posts about employees. Employee brand posts present employees’ perspective on a range of issues, such as employees’ technical expertise, their managerial philosophies, or their personal interests, hobbies and worldviews</td>
</tr>
<tr>
<td>Interactional</td>
<td>Current event</td>
<td>These brand posts comment on themes that capture active talking points in the target audience, such as cultural events, holidays, anniversaries, and the weather/season. These brand posts initiate conversations with consumers using timely and widely talked about events. Common themes: weather, cultural events (i.e. sport, film, TV shows), holiday, special day and anniversaries</td>
</tr>
<tr>
<td>Interactional</td>
<td>Personal brand posts</td>
<td>These brand posts center around consumers’ personal relationships, preferences and/or experiences. These brand posts typically invoke personally meaningful themes, such as family, friendship, personal anecdotes or future plans to initiate deeply personal conversations with consumers. Common themes: friends, family, personal preferences, anecdotes and future</td>
</tr>
<tr>
<td>Category</td>
<td>Brand Posts Description</td>
<td>Common Themes</td>
</tr>
<tr>
<td>------------------</td>
<td>---------------------------------------------------------------------------</td>
<td>-------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Interactional</td>
<td>These brand posts promote and reinforce the brand’s online community.</td>
<td>Encouraging fans to become members of the brand’s online community, acknowledging fans (e.g. mentioning their name, tagging them), using/soliciting user-generated content</td>
</tr>
<tr>
<td></td>
<td>These brand posts foster a sense of community identification and engagement with the community, by recruiting new community members, as well as encouraging participation from existing members</td>
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<td></td>
</tr>
<tr>
<td></td>
<td>These brand posts solicit information and feedback about customers’ needs, expectations and experiences. These brand posts seek to deepen the impact of customer relationships in social media channels by encouraging customer feedback, reviews and testimonies</td>
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</tr>
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<td></td>
</tr>
<tr>
<td></td>
<td>These are brand posts that entice consumers to take actions toward a buying decision. These brand posts often contain transactional details such as price and availability points, as well as concrete promotional offers, such as price discounts, coupons and competitions</td>
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<td></td>
</tr>
<tr>
<td></td>
<td>These brand posts evoke consumers’ emotions. To this end, the posts typically employ emotion-laden language, inspiring stories or humor and jokes to arouse affective responses, such as fun, excitement and wonder</td>
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<td></td>
</tr>
<tr>
<td></td>
<td>These brand posts direct attention to the brand promise and identity of the focal brand. These posts highlight some of the main tropes of brand identity, such as brand image, brand personality, brand association and branded products with the goal of differentiating the brand and favorably influencing consumers’ brand attitude and association</td>
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</tr>
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<td></td>
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<td></td>
</tr>
<tr>
<td></td>
<td>These brand posts evoke consumers’ sensory and behavioral responses. Experiential brand posts highlight the sensory and embodied qualities of the brand and often associate the brand with pleasurable consumer experiences</td>
<td></td>
</tr>
<tr>
<td></td>
<td>These brand posts evoke consumers’ sensory and behavioral responses. Experiential brand posts highlight the sensory and embodied qualities of the brand and often associate the brand with pleasurable consumer experiences</td>
<td></td>
</tr>
<tr>
<td></td>
<td>These brand posts highlight socially responsive programs supported by the focal brand. These brand posts promote worthy social causes and initiatives and encourage customers and fans to support them</td>
<td></td>
</tr>
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<td></td>
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<td></td>
</tr>
</tbody>
</table>

As recommended by Tafesse and Wien (2017), it is useful to code the posts under the three general content categories. However, the specific content categories of each post will also be coded as well to help arrive at context-specific insights that may be unique to the social
enterprises. The authors worked together to categorize each post according to their general and specific categories (Tafesse & Wien, 2017). In cases of difference in categorization among authors, discussion occurred until all authors agreed to the most proper code. While coding, we found out that ECHOstore and Human Nature also used their Facebook page for announcements and news about store hours. These kinds of posts do not properly fit other specific categories in under the informational category. As such, the authors resolved to introduce a specific category called “general announcements and updates” under the informational category. These are posts that only intend to inform followers about website maintenance, store hours, and other miscellaneous updates that do not fall in any other informational subcategories. The limitation of the coding procedure is that it only accounts for the most salient general and specific content categories; the procedure disregards the other general and specific content categories in cases where posts fall under two or more categorizations.

The sampling design (that is, the rationale of choosing social enterprises to be part of the study) is purposive based on two criteria: (1) the social enterprise’s fan page should have at least 10,000 likes (albeit an arbitrary criterion that aims to limit the sample to include only those which have substantial followers); (2) the social enterprise should have been in operation for at least 3 years (also an arbitrary criterion that aims to limit samples to include those who have undergone at least 3 business cycles, indicating that the enterprise has spent some time marketing their brand).

The data source are publicly available Facebook data from the social enterprises’ fan pages. The researchers manually collected the publicly available data and processed them via Excel. SPSS will be used to perform MANCOVA statistical analysis on the data.

Results

The researchers analyzed the post type (link, photo, status, and video) of individual Facebook posts from the pages of ECHOstore and Human Nature. Majority of the posts from both pages were photos (50.6%) and videos (33.1%)—an indicator that these two types are the most frequently used format for the social enterprises. In terms of general content categories, interactional (40.5%) and informational posts (45.1%) comprise majority of the analyzed posts. On the other hand, sales promotion (31.0%), functional brand posts (19.9%), and educational brand posts (16.9%) are the specific categories of the posts.

Table 5
Post types and general content categories studied in the research

<table>
<thead>
<tr>
<th>General categories</th>
<th>Type</th>
<th>Total</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>link</td>
<td>photo</td>
<td>status</td>
</tr>
<tr>
<td>Transformational</td>
<td>12.8%</td>
<td>61.7%</td>
<td>4.3%</td>
</tr>
<tr>
<td>Interactional</td>
<td>6.8%</td>
<td>49.2%</td>
<td>0.8%</td>
</tr>
<tr>
<td>Informational</td>
<td>21.1%</td>
<td>48.3%</td>
<td>2.7%</td>
</tr>
<tr>
<td>Total</td>
<td>14.1%</td>
<td>50.6%</td>
<td>2.1%</td>
</tr>
</tbody>
</table>
Post types and specific content categories studied in the research

<table>
<thead>
<tr>
<th>Specific categories</th>
<th>Type</th>
<th>Total</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>link</td>
<td>photo</td>
<td>status</td>
</tr>
<tr>
<td>Customer relationship</td>
<td>0.0%</td>
<td>50.0%</td>
<td>50.0%</td>
</tr>
<tr>
<td>Personal brand posts</td>
<td>0.0%</td>
<td>50.0%</td>
<td>0.0%</td>
</tr>
<tr>
<td>Experiential brand posts</td>
<td>0.0%</td>
<td>33.3%</td>
<td>0.0%</td>
</tr>
<tr>
<td>Employee brand posts</td>
<td>14.3%</td>
<td>57.1%</td>
<td>0.0%</td>
</tr>
<tr>
<td>Current event</td>
<td>0.0%</td>
<td>55.6%</td>
<td>0.0%</td>
</tr>
<tr>
<td>Brand community</td>
<td>23.5%</td>
<td>70.6%</td>
<td>0.0%</td>
</tr>
<tr>
<td>General announcements and updates</td>
<td>40.0%</td>
<td>35.0%</td>
<td>20.0%</td>
</tr>
<tr>
<td>Cause-related brand posts</td>
<td>13.6%</td>
<td>59.1%</td>
<td>0.0%</td>
</tr>
<tr>
<td>Brand resonance</td>
<td>13.0%</td>
<td>60.9%</td>
<td>8.7%</td>
</tr>
<tr>
<td>Educational brand posts</td>
<td>30.9%</td>
<td>36.4%</td>
<td>0.0%</td>
</tr>
<tr>
<td>Functional brand posts</td>
<td>7.7%</td>
<td>61.5%</td>
<td>0.0%</td>
</tr>
<tr>
<td>Sales promotion</td>
<td>5.0%</td>
<td>46.5%</td>
<td>0.0%</td>
</tr>
<tr>
<td>Total</td>
<td>14.1%</td>
<td>50.6%</td>
<td>2.1%</td>
</tr>
</tbody>
</table>

Comparing the general content categories utilized by ECHOstore and Human Nature, it can be observed that both social enterprises seem to resemble each other, with majority of their posts comprising of informational and interactional categories.

Table 7
Cross-tabulation of general content categories and social enterprises

<table>
<thead>
<tr>
<th>General categories</th>
<th>Social enterprise</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>ECHOstore</td>
<td>Human Nature</td>
</tr>
<tr>
<td>Transformational</td>
<td>14.5%</td>
<td>14.3%</td>
</tr>
<tr>
<td>Interactional</td>
<td>41.4%</td>
<td>37.1%</td>
</tr>
<tr>
<td>Informational</td>
<td>44.1%</td>
<td>48.6%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>100.0%</strong></td>
<td><strong>100.0%</strong></td>
</tr>
</tbody>
</table>

Comparing the specific categories utilized by the two social enterprises shows a more varied approach. ECHOstore’s most prominent specific post categories are sales promotion (34.0%), functional brand posts (23.8%), and educational brand posts (14.1%). On the other hand, Human Nature’s most prominent specific post categories are educational brand posts (27.1%), sales promotion (20.0%), brand community (14.3%), and general announcements (14.3%). No enterprise had a post that is primarily categorized as emotional brand posts; although this does not mean that the two enterprises did not utilize emotional brand posts as a communication strategy. Rather, we found out that most posts of the two enterprises fall into more than one categories. As stated in the limitations of the coding procedure, only the most salient categories are used in the descriptive and inferential statistical methods of this research.

Table 8
Cross-tabulation of specific content categories and social enterprises
Data transformations and covariate

Consistent with the past content analyses examined by Kim et al. (2015) as well as in this paper’s literature review, the dependent variables of this study, which are the individual posts’ number of reactions, comments and shares, are not normally distributed. The distribution of the reactions, comments, and shares was skewed positively, with skewness coefficients of 8.2, 8.4, and 7.3 respectively. Similar to the procedures of Kim et al. (2015), to normalize the distributions while reducing influence of unusual cases, logarithmic transformations were applied to the data. Logarithmic transformations are applied to positively skewed data with nonnegative and non-zero values (Kim et al., 2015). The transformations improved the normality of the data—producing skewness coefficients of 1.2, 2.1, and 1.8. Although the data, strictly speaking, is not normal, the study of Blanca et al. (2017) showed that ANOVA-based statistical methods are generally robust to nonnormality of data, as long as the data analyzed are sufficiently large. With 326 posts analyzed, the researchers contend that the number of posts are sufficiently large to offset the mild violations of normality.

The total number of followers, or the total number of fan page likes in each social enterprises’ Facebook pages, were also transformed and controlled as a covariate. This is to account for the different popularities of the social enterprise’s fan pages in measuring the effects of post types and content categories to the dependent variables. Similar to the findings of Kim et al., the covariate has a very significant effect in all of the statistical analyses performed ($p < 0.001$).

MANCOVA and post-hoc analyses

To answer the research question, it is essential to utilize MANCOVA and perform post-hoc analysis through the Bonferroni method (Kim et al., 2015). To test H1, which expected that post types collectively have a significant effect on reactions, comments, and shares, a MANCOVA was performed through the use of the SPSS software. The MANCOVA’s explanatory power on reactions ($r^2 = .524$; adjusted $r^2 = .468$), comments ($r^2 = .437$; adjusted $r^2 = .382$), and shares ($r^2 = .398$; adjusted $r^2 = .349$).
= .371), and shares ($r^2 = .597$; adjusted $r^2 = .550$) were desirable. The results showed that post type, collectively, has a significant effect on all customer responses ($\text{Pillai's trace} = .103$, $F(9, 873) = 3.46$, $\text{partial } \eta^2 = .034$, $p < .001$; Wilk's $\lambda = .899$, $F(9, 704) = 3.51$, $\text{partial } \eta^2 = .035$, $p < .001$; Hotelling's $\text{trace} = .111$, $F(9, 863) = 3.54$, $\text{partial } \eta^2 = .036$, $p < .001$; Roy's largest root = .086, $F(3, 291) = 8.35$, $\text{partial } \eta^2 = .079$, $p < .001$). A post-hoc analysis utilizing the Bonferroni method showed that photos have more reactions ($p = .018$) and shares ($p = .027$) than videos. Surprisingly, videos have lesser reactions than links ($p < .001$) and photos ($p < .001$); lesser comments than links ($p = .046$); and lesser shares than links ($p < .001$) and photos ($p = .027$). The most surprising result is that links have more reactions than photo ($p < .001$) and video ($p < .001$); have more comments than video ($p = .046$); and have more shares than photo ($p < .001$), status ($p < .001$), and video ($p < .001$).

To test H2, the MANCOVA results showed that collectively, general categories (transformational, interactional, informational posts) do not have a significant effect on the three dependent variables ($\text{Pillai's trace} = .007$, $F(6, 624) = .364$, $\text{partial } \eta^2 = .003$, $p = .902$; Wilk's $\lambda = .993$, $F(6, 622) = .363$, $\text{partial } \eta^2 = .003$, $p = .902$; Hotelling's $\text{trace} = .007$, $F(6, 620) = .363$, $\text{partial } \eta^2 = .003$, $p = .902$; Roy's largest root = .007, $F(3, 312) = .714$, $\text{partial } \eta^2 = .007$, $p = .545$). Since general categories do not have a significant effect on customer responses, no further post-hoc analysis is required.

To test H3, another MANCOVA was performed. Specific categories replaced general categories in the model. The results showed that specific categories collectively have a significant effect on the three dependent variables ($\text{Pillai's trace} = .212$, $F(33, 873) = 2.013$, $\text{partial } \eta^2 = .071$, $p = .001$; Wilk's $\lambda = .800$, $F(33, 852) = 2.026$, $\text{partial } \eta^2 = .071$, $p = .001$; Hotelling's $\text{trace} = .234$, $F(33, 863) = 2.038$, $\text{partial } \eta^2 = .072$, $p = .001$; Roy's largest root = .131, $F(11, 291) = 3.478$, $\text{partial } \eta^2 = .116$, $p < .001$). A post-hoc analysis utilizing the Bonferroni method showed that specific categories have no significant differences with each other on their effect on comments.

In terms of reactions, a post-hoc analysis utilizing the Bonferroni method showed the following results. Brand community posts have a positive significant difference compared to functional brand posts ($p = .016$). Educational brand posts have a positive significant difference compared to functional brand posts ($p = .003$).

In terms of shares, a post-hoc analysis utilizing the Bonferroni method showed the following results. Educational brand posts have a positive significant difference compared to cause-related brand posts ($p = .021$), functional brand posts ($p < .001$), and sales promotion ($p = .006$).

**Discussion of Findings and Conclusions**

This study aspired to build on the research of Kim et al. (2015) by replicating their methodology while using new content categories. The general and specific categories advanced by Tafesse and Wien (2017) have the potential to offer crisper insights about what content categories lead to particular customer responses.
With regards to testing H1, this study validates that photos have significantly more reactions and shares than videos. The findings of Kim et al. (2015) and Tafesse and Wien (2017) surmise that the Facebook browsing habits of customers tend to feature relatively short attention spans; customers may want to wholly consume rich content in an instant. Photos provide the balance between instant consumption of content while still providing rich and visual stimuli. This is not to say videos should not be posted; rather, the lesson from the success of photos is that videos should be crafted in a way that engages customers in the first few seconds of viewing.

Meanwhile, it is a surprise that links have more reactions than photo and video; have more comments than video; and have more shares than photo, status, and video. Given the current trends where Facebook seamlessly works with third-party applications and websites, the finding makes sense. Perhaps customers are engaged when fan pages serve as a curator of content that are still related to the brand. ECHOstore and Human Nature maximize the capability of links by showing product reviews, product tutorials, and other useful content.

With regards to testing H2, the researchers find it interesting that general categories do not have a collective significant effect on the dependent variables. Although a little bit surprising, the finding does make sense because each general category (transformational, interactional, informational) could have many reasons why customers will react, share, or comment on them. For transformational posts, it could have significant customer engagement when a brand is well-known, and customers can be considered as possible loyal fans of a brand. Interactional posts could have significant customer engagement because it encourages fans to participate via contests and online activities. Informational posts could have significant customer engagement especially for brands that are involved with teaching customers new ways to use innovative products, similar to what ECHOstore and Human Nature did in their pages. As such, it makes sense that generally, transformational, interactional, and informational posts have no significant differences from each other on their effects on reactions, comments, and shares.

With regards to testing H3, the specific content categories have a collective significant effect on reactions and shares. However, when digging deeper, there is no significant difference among the specific categories in terms of their effect on comments.

In terms of reactions. Brand community posts have a positive significant difference compared to functional brand posts. This makes sense because brand community posts are interactional in nature and they encourage customers to participate in online activities or even real-life events. On the other hand, functional brand posts only serve to inform customers on the benefits of products.

Educational brand posts have a positive significant difference compared to functional brand posts. Although educational brand posts are informational in nature, these posts engage customers because they are immersed with learning new things about using products and solve existing problems, needs, and wants they might have. Given that ECHOstore and Human Nature continuously introduce new products, educational brand posts allow customers to better understand and be engaged with the brand.
In terms of shares, educational brand posts have a positive significant difference compared to cause-related brand posts, functional brand posts, and sales promotion. The finding that cause-related brand posts have lesser shares compared to educational brand posts is crucial, especially because ECHOstore and Human Nature are social enterprises. The a priori belief of researchers is cause-related brand posts will have significant effects on customer engagement, given the socially-oriented nature of social enterprises. However, this finding emphasizes that social enterprises, in communicating with customers, need to make sure that the brand has real commercial benefits for the customers beyond advocating mission.

The findings on educational brand posts’ positive significant difference compared to functional brand posts on shares is consistent with the findings on reactions. Customers tend to share useful tutorials or new learnings that truly benefit how they patronize the brand. Specific to the case of ECHOstore and Human Nature, customers appreciate the efforts of the brands to teach them varying uses of innovative organic products. When effective, the customers become evangelizers to fellow fans—an effective way for digital word-of-mouth marketing activities.

Sales promotion having a negative significant difference compared to educational brand posts make sense as well, given that customers browse Facebook not to shop, but to be updated with news from friends and even the brands they follow. Similar to real life, customers do not want in-your-face hard selling; and this behavior can be translated to their digital browsing habits. However, one of the key qualitative findings of this research is that ECHOstore and Human Nature combine sales interaction with their more engaging posts. For example, one post may start as educational, but in the end there is a call-to-action for the fans to order online or seek the brands in their retail stores. As such, marketers must find ways to seamlessly reconcile engaging posts with call-to-action (such as sales promotions).

**Recommendations for Future Research**

This study aimed to contribute to the evolving literature of social media engagement, specifically in the field of social entrepreneurship. Utilizing a quantitative method to make sense of ECHOstore and Human Nature’s social media activities, the researchers were able to understand what potentially works in terms of customer engagement. The study can be advanced further by including more social enterprises and expanding the time period, so as to increase the number of posts and make the statistical model of MANCOVA more robust to nonnormality of data.

For further research, the researchers recommend the following:

1. For a more generalizable study, the research can be expanded to including more social enterprises with increased time-period
2. Although analyzing archival data through the different fan page’s posts provide useful quantitative insights, it is limited to what Kosinski et al. (2015) call as digital footprints. As such, it is a good idea to test the findings of this research through replication and even performing an explanatory sequential mixed method approach. A follow-up qualitative research, which can be testing different types of posts in interviews and focus group
discussions, can help explain the behavior of respondents on what causes them to react, comment, or share on a particular post.

3. Experimental designs can also help to isolate specific variables in terms of what causes customer engagement. For example, there are many reasons why customers will react on a particular post – maybe it is the brand name, maybe it is because of one’s certain mood that was influenced by prior posts seen before the brand’s posts. Meanwhile, commenting on posts and sharing them are more deliberate – it takes more conscious effort to share and comment on posts than it is to react on them. Further research that tests these behaviors can lead to better insights.

Acknowledgement

We would like to acknowledge the paper of Camara, Lim, Natanauan, and Pascual (2016), which served as the inspiration for this research project. We would also like to acknowledge Dr. Raymund Habaradas—the research professor of Camara et al. (2016) and also our mentor.

References and Bibliography


Design, development and performance testing of a batch-type mechanical root crops washer/cleaner

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ABSTRACT

Clean produce is required for sale to wholesale markets, and postharvest cleaning and drying practices impact product shelf-life, sales, and food safety.

To reduce the drudgery in the manual washing operation, a simple and efficient washer/cleaning for root crops was designed and constructed. The study offered the advantage of speedy washing/cleaning of root crops before any subsequent processing operations.

Performance test proved that the machine offers a speedy cleaning of root crops before subsequent processing operations. Processors of sweet potatoes and other delicacies will be benefited from the reduction of human resource cost. Only one person is needed to process 833 kg/hr when the machine is used compared to four persons required to manually wash the same quantity of sweet potatoes per hour. The machine had a 99% efficiency with an average cleaning time of 109 sec (1.81 min) and was able to consume electricity calculated at 0.03 kw-hr.

Financial and economic analysis showed that the machine is financially and economically viable. Return on investment, benefit cost ratio and payback period was calculated at 195%, 1.55 and 0.5 years respectively. Partial budget analysis showed an incremental change in income amounting to Php 666,053 when mechanical washing was used.

INTRODUCTION

The production of root crops in the Philippines has gained attention as an important source of food, feed and industrial products because of its adaptability to various system of production under different ecological conditions in the tropics. The major root crops abundantly grown in Bicol are sweet potato, cassava, gabi, yam and ginger. Processed root crops such as cassava flour, chips and other snack products are being developed in response to an expanding demand from urban-based population. In line with the government thrusts to attain food security and poverty alleviation, the production and processing procedures of root crops have to be modified to suit local condition.

Applications of postharvest facilities and equipment for processing root crops should be strengthened and must be given emphasis to reduce drudgery of human labor. Traditional processing of root crops are produced and prepared manually. Manual washing and cleaning is a problem in processing of root crops. The usual practice of cleaning root crops by brushing,
scrubbing and rubbing with hand are laborious and time consuming. This practice is suitable only for processing small quantities of root crops. However, processing large amount of root crops require a more efficient processing equipment that can save time and effort in washing and cleaning operation.

Washing and cleaning is one of the most important operation in processing root crops. Cleaning is important to remove foreign materials or impurities that may affect the quality of the product. Clean produce is required for sale to wholesale markets, and crop-appropriate postharvest cleaning and drying practices impact product shelf-life, sales and food safety. Sales are affected by the visual appearance and quality of produce. Soil and particles that can promote spoilage are removed during cleaning to help maintain the shelf life of the products.

To reduce the drudgery and constraints in manual washing operation, a simple and efficient washer/cleaning for root crops was designed and constructed. This will answer the priority needs of food processors to improve efficiency and productivity, thereby, attaining a higher income. With proper processing technologies and appropriate processing equipment, commodities traditionally produced in Bicol region will be profitable for small and medium enterprises (SMEs).

The study offers the advantage of speedy washing/cleaning of root crops before any subsequent processing operations. Makers of fries, cassava pudding, banana/camote chips, cakes and many other delicacies will be benefited since the primary concern of the study is to reduce labor and save time and effort in processing root crops. The designed machine if found efficient, will contribute to the improvement of production and processing operations of root crops.

**OBJECTIVES**

**General:**

To design and develop a mechanical root crops washer/cleaner relevant to the needs of small, medium and large scale root crops industries in Bicol.

**Specific:**

1. To design and develop a batch type mechanical root crops washer/cleaner to reduce the drudgery of human labor.
2. To test and evaluate the performance of the machine in terms of washing capacity, washing time, efficiency and electric consumption
3. To determine the economic viability of the designed mechanical washer/cleaner

**REVIEW OF LITERATURE**
Food processing is a large industry worldwide consisting of small to medium sized processing plants, and producing several diverse products. These plants utilize several and often specialized processing equipment since the materials being processed are solids or semi-solids sensitive to mechanical and thermal processing (Gould, 1994).

In the food industry, advances in the developing field of food materials science should be considered with respect to the effect of food handling, processing and storage in the structure and quality of food products (Aguilera, 2000). Food quality considerations are very important in the selection of operation of processes. Food materials can be considered as either or non-living plant or animal tissues. In food processing, fresh fruits and vegetables are considered to consist of living tissues. The quality of living tissues is influenced by storage condition of temperature, relative humidity and atmospheric gas. In most food processing operations, the food materials consist mostly of non-living tissues (Farkas, 1980).

Minimizing the change of bacterial contamination by designing equipment for ease of cleaning and produce high quality processed products should be the goal of all processing engineers. Cleaning and sanitizing as well as the selection of materials for construction of food processing equipment should begin before the equipment is constructed as many cleaning problems are the result of improperly designed or manufactured equipment. Food processing equipment which can easily be made sanitary can be designed and fabricated by using good manufacturing practices and selecting appropriate materials (Coady, et. al, 2014).

Majority of small scale food enterprises operate with rudimentary technologies. There is insufficient capacity to acquire or fabricate food processing equipment locally. Capacity to develop prototype food processing equipment is available at the research institutions. This technology however, is not fully utilized efficiently in terms of transferring skills and technology to target clienteles.

A foot operated ginger rotary cleaner/washer was designed by Galvez (1996) of TCA, Tarlac. The machine has a capacity of 3-5 kg of rhizomes per load and 8-10 min are consumed for the operation. The ginger rhizomes were placed inside the rotating cleaning drum partly submerged in the water container filled with water. Rotating the main axle by applying foot power on the pedal wherein the cleaning drum is attached, the rhizomes slides along the periphery of the drum. The continuous rotation of the cleaning drum makes the rhizomes cleaned and washed with the aid of the water placed in the container.

Orias and Tan (1989) of PTRPTC, VSU, Baybay, Leyte. designed, developed and improved a washer/peeler for root crops. The washer/peeler partially performed its function at the rate of 600 to 650 kgs per hour of sweet potato or cassava. This was equivalent to washing or peeling a batch of 20 kgs in 2 min operation. Its major parts include: the washing drum assembly, discharge chute, collection box and the prime mover assembly.

Scientific Basis/Theoretical Framework

The study will be primarily anchored on concepts or theories along technology innovation. These theories have provided the study with its theoretical ground upon which its analytical scheme will be conceived and structured.
New concept such as Good Manufacturing Practices (GMP) have evolved in recent years to become international standards in the context of a rapidly changing and globalizing food economy and as a result of the concerns and commitments of a wide range of stakeholders about food production, food security, food safety and quality, and the environmental sustainability of agriculture. Stakeholders include consumers, governments, food processing and retailing industries and farmers, who seek to meet specific objectives of food security, food quality, production efficiency, livelihoods and environmental benefits in both the medium and long term. GMP offers a means to help reach those objectives. Collective efforts of the government research and extension institutions like SUCs, in collaboration with the private sector and food industries should be mandatory in the sense that it is enforced by the market.

Rogers’ (2008) Innovation-Diffusion Model considers access to information about an innovation to be the key factor in determining adoption decisions. This model suggests that appropriateness of innovation is given by way of communicating information on a given technology to potential end-users. Significant parameters that should be taken into consideration in the fabrication and manufacture of food processing equipment needed by SMEs are: capacity of the machine, operating time, operating speed, fuel consumption, processing efficiency, and quality of products produced. The fabricated equipment should serve the affordable needs of the small, medium and large food processing industries in the region.

Food Processing technologies to be developed should increase productivity by producing high quality processed products with minimum cost thereby, increasing income. The designed/fabricated equipment should perform efficiently to attain higher productivity and income. Likewise the equipment should address environmental, economic and social sustainability. These method or strategies are facilitated by supportive government financial support, policies and programmes.

METHODOLOGY

A. Design

The design was made in Autocad and comprised the following assemblies as shown in Figure 1.

1. Rotating drum cover
2. Rotating drum assembly
3. Main frame assembly
4. Engine mount
5. Pneumatic tire
Figure 1. The Autocad Design of the Mechanical Rootcrops Washer/Cleaner
Construction
The Autocad design served as a guide in the construction of the machine. The machine is composed of a water container made of 25 mm stainless steel which was formed into a semi-cylindrical container. This was constructed using angle bars which were attached and fixed at the edge of the container which act as support. A water/dirt outlet assembly was placed at the bottom side of the cylindrical drum to drain the dirty water after the washing/cleaning operation.

The rotating cleaning drum was formed into a cylindrical container made of round bars connected and fixed to flat bars. The water container and the rotary drum were fixed and attached to the frame made of angle bars. Power transmission assembly such as pulley, shaft, pillow block, bearing and drum assembly was mounted on the left side of the frame. This involves washing operation by batch. The rotary cleaning drum made of round bars were wrapped with 13 mm diameter and 16 mm thick rubberized hose to protect the rootcrops from bruises or from any mechanical damage.

Prior to the start of the test, the machine have undergone running-in period wherein various adjustments of the machine were made according to the design criteria. The mechanical root crops washer/cleaner should be operated at desired setting. After each test trial, the washing area (rotating drum) were cleaned and then prepared for the next trial. Each test trial shall compose one cleaning operation per batch of test materials.

**Performance Testing**

After completion of the assemblies, performance testing was conducted. The speed of the rotating shaft of the major component of the mechanical washer/cleaner was taken using a tachometer.

The following data were taken to determine its actual performance: input capacity, operating speed, volume of water inside the drum, washing time, loading time, unloading time, weight of cleaned samples, weight of soil –impurities removed, washing/cleaning efficiency, and electric consumption.

**Financial and Economic Analysis**

To determine the profitability of the mechanical root crops washer the following profitability indicators were used: Benefit Cost Ratio (BCR), Payback Period (PBP) and Return on investment (ROI).
To determine the economic viability of the designed machine, cost and return analysis and partial budget analysis were used to compare the benefits derived if mechanical method of washing root crops is employed compared to manual washing.

RESULTS AND DISCUSSION

A. Performance Testing

Pre-testing was conducted to test whether the machine will function in accordance with the design. Figure 1 shows the constructed mechanical root crops washer/cleaner.

Figure 1. The Mechanical Root crops Washer (Batch Type)
Results of the actual performance testing is reflected in Table 1.0. Performance test showed that the fabricated machine was able to wash and clean the 25 kgs sweet potato samples.
for 60 seconds (1 min) inside the rotating drum filled with 50 liters of water. The total washing time which included the loading and unloading of the samples was calculated at an average of 109 seconds (1.8 min). It was found out during the performance testing that the amount of soil-impurities removed from the sweet potato samples was 0.38 kg. The weight of the soil-impurities present in the output sample was weighed at 0.29 kg.

No mechanically damaged samples was observed when the samples were unloaded out of the cleaning drum. This can be accounted for the wrapping of the round bars with rubberized hose which protected the sweet potato samples from bruises due to the impact between the samples and the round bars.

Electric consumption using the fabricated mechanical washer/cleaner was computed at an average of 0.03 kw-hr using a one hp electric motor.

Table 2 presents the machine specification which were based from actual performance data gathered during the actual testing of the mechanical root crops washer/cleaner. The machine has an input capacity of 8,064 kg/hr and a washing capacity of 833 kg/hr using sweet potato samples. The fabricated mechanical root crops washer/cleaner was calculated at 99% efficiency.

As indicated in Table 1, washing the twenty five (25) kg sweet potato samples consumed at an average of 109 seconds (1.8 min) which includes the loading and unloading time. This clearly indicates that a speedy/fast washing of 833 kg/hr of sweet potato is possible using the mechanical washer/cleaner which can be operated with only 1 person.

Manual washing of the same quantity of samples took 2,080 sec (35 min) to finish washing the 25 kg samples. Calculations showed that for 833 kg/hr sweet potatoes, it requires 19 persons to wash a total of 6,664 kg of sweet potato per day.

Table 1. Performance Testing of the Mechanical Root crops Washer/Cleaner

<table>
<thead>
<tr>
<th>PARTICULARS</th>
<th>TRIAL 1</th>
<th>TRIAL 2</th>
<th>AVE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Initial Weight of Input sample, kg</td>
<td>25.0</td>
<td>25.0</td>
<td>25.0</td>
</tr>
<tr>
<td>Final Weight of Output sample, kg</td>
<td>24.75</td>
<td>24.80</td>
<td>24.7</td>
</tr>
<tr>
<td>Weight of cleaned output sample, kg</td>
<td>24.25</td>
<td>24.75</td>
<td>24.5</td>
</tr>
<tr>
<td>Weight of partially cleaned sample, kg</td>
<td>0.35</td>
<td>0.28</td>
<td>0.30</td>
</tr>
<tr>
<td>Weight of mechanically damaged output samples, kg</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Weight of soil-impurities removed in the samples, kg</td>
<td>0.42</td>
<td>0.34</td>
<td>0.38</td>
</tr>
<tr>
<td>Weight of soil impurities present in output samples, kg</td>
<td>0.35</td>
<td>0.23</td>
<td>0.29</td>
</tr>
<tr>
<td>Washing time, sec</td>
<td>108</td>
<td>110</td>
<td>109</td>
</tr>
<tr>
<td>Volume of water used , l</td>
<td>50</td>
<td>50</td>
<td>50</td>
</tr>
<tr>
<td>Loading time, sec</td>
<td>50</td>
<td>48</td>
<td>49</td>
</tr>
<tr>
<td>Unloading time, sec</td>
<td>94</td>
<td>75</td>
<td>84.5</td>
</tr>
<tr>
<td>Electric consumption, kw-hr</td>
<td>0.04</td>
<td>0.03</td>
<td>0.03</td>
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Table 2. Machine Specification
### PARTICULARS

<table>
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<th>SPECIFICATION</th>
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<tbody>
<tr>
<td>Length, m</td>
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</tr>
<tr>
<td>Width, m</td>
<td>0.89</td>
</tr>
<tr>
<td>Height, m</td>
<td>1.2</td>
</tr>
<tr>
<td>Weight, kg</td>
<td>70</td>
</tr>
<tr>
<td>Input capacity, kg/hr</td>
<td>8,064</td>
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<tr>
<td>Washing Capacity, kg/hr</td>
<td>833</td>
</tr>
<tr>
<td>Washing time, sec</td>
<td>109</td>
</tr>
<tr>
<td>Machine Efficiency, %</td>
<td>99</td>
</tr>
<tr>
<td>Horsepower requirement, hp</td>
<td>1</td>
</tr>
<tr>
<td>Speed of rotating drum without Load, rpm</td>
<td>75</td>
</tr>
<tr>
<td>Speed of rotating drum with load, rpm</td>
<td>70</td>
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<tr>
<td>Electric consumption, kw-hr</td>
<td>0.03</td>
</tr>
<tr>
<td>Labor requirement, man-day</td>
<td>1</td>
</tr>
<tr>
<td>Machine cost, Php</td>
<td>75,000</td>
</tr>
<tr>
<td>Washing Cost/kg, Php</td>
<td>0.22</td>
</tr>
</tbody>
</table>

### B. FINANCIAL AND ECONOMIC ANALYSIS

Projected income and cash flow analysis in mechanical washing of sweet potato is reflected in Tables 3 and 4 respectively. Result of calculation showed that investing in the mechanical root crops washer/cleaner was found to be financially viable having Benefit Cost Ratio (BCR) of 1.55 which means that for every peso invested a gain of 1.55 can be generated. Payback Period (PBP) and Return on Investment (ROI) was calculated at 0.5 years and 195% respectively.

To determine the economic benefit of the mechanical root crops washer, cost and return analysis (Table 5) and partial budget analysis (Table 6) was used. Calculations showed that with the additional cost in mechanical washing of sweet potatoes amounting to Php 410,425, as reflected in Table 6, there is also a corresponding additional income amounting to Php 1,076,478 that will be generated in mechanical washing. Thus, an incremental change in income amounting to Php 666,053 was calculated.
Results of the financial and economic analysis, therefore, proved that the fabricated machine is profitable and economically viable.

Table 3.0 Projected Income of Mechanical Washing of Sweet Potato
3-Year Period

<table>
<thead>
<tr>
<th>ITEM</th>
<th>Y1</th>
<th>Y2</th>
<th>Y3</th>
<th>AVERAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>A. REVENUE</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sales</td>
<td>4,598,160</td>
<td>5,057,976</td>
<td>5,563,774</td>
<td>5,073,303</td>
</tr>
<tr>
<td><strong>TOTAL REVENUE</strong></td>
<td>4,598,160</td>
<td>5,057,976</td>
<td>5,563,774</td>
<td>5,073,303</td>
</tr>
<tr>
<td><strong>B. COST</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fixed Cost</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Depreciation</td>
<td>13,500</td>
<td>13,500</td>
<td>13,500</td>
<td>13,500</td>
</tr>
<tr>
<td>Building Rental</td>
<td>60,000</td>
<td>60,000</td>
<td>60,000</td>
<td>60,000</td>
</tr>
<tr>
<td>Repair and Maintenance</td>
<td>45,000</td>
<td>49,500</td>
<td>54,450</td>
<td>49,650</td>
</tr>
<tr>
<td>Licenses, Interest</td>
<td>22,050</td>
<td>24,255</td>
<td>26,680</td>
<td>24,328</td>
</tr>
<tr>
<td><strong>Total Fixed Cost</strong></td>
<td>140,550</td>
<td>147,255</td>
<td>154,630</td>
<td>147,478</td>
</tr>
<tr>
<td>Variable Cost</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Raw material Materials</td>
<td>2,070,000</td>
<td>2,277,000</td>
<td>2,504,700</td>
<td>2,283,900</td>
</tr>
<tr>
<td>Supplies</td>
<td>18,000</td>
<td>19,800</td>
<td>21,780</td>
<td>19,860</td>
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<tr>
<td>Labor Cost</td>
<td>82,800</td>
<td>91,080</td>
<td>100,188</td>
<td>10,206</td>
</tr>
<tr>
<td>Transportation</td>
<td>24,000</td>
<td>26,400</td>
<td>29,040</td>
<td>26,480</td>
</tr>
<tr>
<td>Water</td>
<td>19,872</td>
<td>21,859</td>
<td>24,045</td>
<td>21,925</td>
</tr>
<tr>
<td>Electricity</td>
<td>11,385</td>
<td>12,523</td>
<td>13,775</td>
<td>13,561</td>
</tr>
<tr>
<td><strong>Total Variable Cost</strong></td>
<td>2,226,057</td>
<td>2,448,662</td>
<td>2,693,528</td>
<td>2,475,932</td>
</tr>
<tr>
<td><strong>TOTAL COST</strong></td>
<td>2,366,607</td>
<td>2,595,917</td>
<td>2,848,158</td>
<td>2,603,561</td>
</tr>
<tr>
<td><strong>NET INCOME (Before Tax)</strong></td>
<td>2,231,553</td>
<td>2,462,059</td>
<td>2,715,616</td>
<td>2,469,743</td>
</tr>
<tr>
<td>LESS: Income Tax (32%)</td>
<td>714,097</td>
<td>787,859</td>
<td>868,997</td>
<td>790,318</td>
</tr>
<tr>
<td><strong>NET INCOME (After Tax)</strong></td>
<td>1,517,456</td>
<td>1,674,200</td>
<td>1,846,619</td>
<td>1,679,425</td>
</tr>
</tbody>
</table>
### Table 4.0 Projected Cashflow for Mechanical Washing of Sweet Potato
3-Year Period

<table>
<thead>
<tr>
<th>ITEM</th>
<th>Y0</th>
<th>Y1</th>
<th>Y2</th>
<th>Y3</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>A. CASH INFLOW</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sales</td>
<td>-</td>
<td>4,598,160</td>
<td>5,057,976</td>
<td>5,073,303</td>
</tr>
<tr>
<td><strong>TOTAL INFLOW</strong></td>
<td></td>
<td>4,598,160</td>
<td>5,057,976</td>
<td>5,073,303</td>
</tr>
<tr>
<td><strong>B. CASH OUTFLOW</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fixed Cost</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Equipment</td>
<td>75,000</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Building Rental</td>
<td>60,000</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Repair and Maintenance</td>
<td>45,000</td>
<td>49,500</td>
<td>54,450</td>
<td></td>
</tr>
<tr>
<td>Licenses, Interest</td>
<td>22,050</td>
<td>24,255</td>
<td>26,680</td>
<td></td>
</tr>
<tr>
<td><strong>Total Fixed Cost</strong></td>
<td>135,000</td>
<td>67,050</td>
<td>73,755</td>
<td>81,130</td>
</tr>
<tr>
<td>Variable Cost</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Raw Material</td>
<td>2,070,000</td>
<td>2,277,000</td>
<td>2,504,700</td>
<td></td>
</tr>
<tr>
<td>Supplies</td>
<td>18,000</td>
<td>19,800</td>
<td>21,780</td>
<td></td>
</tr>
<tr>
<td>Labor Cost</td>
<td>82,800</td>
<td>91,080</td>
<td>100,188</td>
<td></td>
</tr>
<tr>
<td>Transportation</td>
<td>24,000</td>
<td>26,400</td>
<td>29,040</td>
<td></td>
</tr>
<tr>
<td>Water</td>
<td>19,872</td>
<td>21,859</td>
<td>24,045</td>
<td></td>
</tr>
</tbody>
</table>
### Table 5.0 Cost and Return Analysis of Mechanical Washing of Sweet Potato

<table>
<thead>
<tr>
<th>ITEM</th>
<th>VALUE PER YEAR</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>MANUAL METHOD</td>
</tr>
<tr>
<td><strong>RETURN</strong></td>
<td></td>
</tr>
<tr>
<td>Sales</td>
<td>3,996,825</td>
</tr>
<tr>
<td>Total Sales</td>
<td>3,996,825</td>
</tr>
<tr>
<td><strong>COST</strong></td>
<td></td>
</tr>
<tr>
<td>Fixed Cost</td>
<td></td>
</tr>
<tr>
<td>Depreciation</td>
<td>1,080</td>
</tr>
<tr>
<td>Building Rental</td>
<td>60,000</td>
</tr>
<tr>
<td>Repair and Maintenance</td>
<td>600</td>
</tr>
<tr>
<td>Licenses, Interest</td>
<td>24,328</td>
</tr>
<tr>
<td>Total Fixed Cost</td>
<td>86,008</td>
</tr>
<tr>
<td>Variable Cost</td>
<td></td>
</tr>
<tr>
<td>Raw material Materials</td>
<td>2,283,900</td>
</tr>
<tr>
<td>Supplies</td>
<td>19,860</td>
</tr>
<tr>
<td>Labor Cost</td>
<td>551,034</td>
</tr>
<tr>
<td>Transportation</td>
<td>26,480</td>
</tr>
<tr>
<td>Water</td>
<td>46,704</td>
</tr>
<tr>
<td>Electricity</td>
<td>-</td>
</tr>
<tr>
<td>Total Variable Cost</td>
<td>2,927,978</td>
</tr>
<tr>
<td><strong>TOTAL COST</strong></td>
<td>3,013,986</td>
</tr>
<tr>
<td><strong>NET RETURN BEFORE TAX</strong></td>
<td>982,839</td>
</tr>
<tr>
<td><strong>LESS: INCOME TAX (32%)</strong></td>
<td>314,508</td>
</tr>
<tr>
<td><strong>NET INCOME</strong></td>
<td>668,331</td>
</tr>
</tbody>
</table>

### Table 6.0 Partial budget

Manual Method of Washing Sweet Potato Vs Mechanical Method of Washing

<table>
<thead>
<tr>
<th></th>
<th>A</th>
<th>B</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
**Added Cost** = Php 410,425
**Reduced Return** = 0
**Total** = Php 410,425

**Added Return** = Php 1,076,478
**Reduced Cost** = 0
**Total** = Php 1,076,478

**Incremental Change in Benefit/Income** = Php 666,053

**Profitability Analysis:**

- **Benefit Cost Ratio (BCR)** = 1.55
- **Payback Period (PBP)** = 0.5
- **Return on Investment (ROI)** = 195%

**CONCLUSIONS AND RECOMMENDATIONS**

**Conclusions**

Results of the study proved that the fabricated mechanical root crops washer/cleaner offers speedy washing/cleaning of root crops before subsequent processing operations. Makers of fries, cassava pudding, camote chips, cakes and many other delicacies will be benefited since a great reduction of labor requirement was made possible. Only one person is needed to process 833 kg/hr when the machine was used compared to four persons required in manual washing that will process the same amount of sweet potatoes per hour. Large quantities of root crops can be processed per day since mechanical washing greatly reduced the drudgery of human labor.

The machine had a 99% efficiency with an average washing time of 109 sec (1.81 min) and was able to consume electricity calculated at 0.03 kw-hr.

Financial and economic analysis showed that the fabricated machine is financially and economically viable as reflected in the calculated profitability indicators such as the Return on Investment (195%), Benefit Cost Ratio (1.55), Payback Period (0.5 years) and an incremental change in income amounting to Php 666,053.

**Recommendation**

1. The main frame assembly and engine mount should be made smaller to reduce the overall weight of the machine, thus reducing further the cost of fabrication.
LITERATURE CITED


Orias, R.R., Tan, DL.. Rootcrops Processing Machines, PRCTC, VISCA, Leyte


APPENDIX A
FORMULAE USED IN CALCULATION

Input Capacity, $C_i$, kg/hr

\[ C_i = \frac{W_i}{T_i} \]

Where:
- $C_i$ = input capacity, kg/hr
- $W_i$ = weight of input material, kg
- $T_i$ = input time, hr

Washing capacity, $C_w$, kg/hr

\[ C_w = \frac{W_o}{T_o} \]

Where:
- $C_w$ = washing capacity, kg/hr
- $W_o$ = Total weight of material, kg
- $T_o$ = Total operating time, hr

Mechanically Damaged Sample, $D_m$, %

\[ D_m = \frac{D_n}{W_i} \times 100 \]

Where:
- $D_m$ = Net Damaged samples, %
- $W_i$ = Total weight of sample, kg

Net Damaged samples, $D_n$, kg

\[ D_n = \text{weight of output damaged sample, kg} - \text{weight of input damaged sample} \]

Machine Efficiency, %
\[ E_{\text{ff}} = \frac{M_r}{M_b} \times 100 \]

\[ M_r = M_b - M_a \]

\[ M_b = W_{ii} \times \frac{W_{if}}{W_{ii}} \times 100 \]

\[ M_a = W_{oi} \times \frac{W_{of}}{W_{oi}} \times 100 \]

Where:

- \( E_{\text{ff}} \) = machine efficiency, %
- \( M_r \) = soil impurities removed from samples, %
- \( M_b \) = soil impurities present in the samples, %
- \( W_{ii} \) = initial weight of input sample, kg
- \( W_{if} \) = final weight of input sample after manual washing, kg
- \( M_a \) = soil impurities present in the output sample, %

**Electric Consumption, kw-hr/kg**

\[ E_c = \frac{P_c T_o}{W_o} \]

Where:

- \( E_c \) = electric energy consumption, Kw-hr/kg
- \( P_c \) = power consumption, kw
- \( T_o \) = time of operation, hr
- \( W_o \) = total weight of test material, kg
APPENDIX B
PHOTO DOCUMENTATION

FIELD TESTING AT LIBON, ALBAY
July 5, 2016

The Project Leader explains to the Municipal Mayor of Libon, Albay on how to operate the mechanical rootcrops washer

Performance Testing and Demonstration to the LGU Libon officials and the members of Libon Rootcrops Association
Optimizing the engineering parameters of in-vessel composting equipment for pineapple wastes

Nila Oñate  
Central Bicol State University of Agriculture

INTRODUCTION

An important problem that the modern society has to face is the disposal of increasing quantities of waste. This can be attributed to the rapid increase in population, the declining capacities of landfills and the difficulty of finding new dumping sites.

The increasing problem on waste disposal created by the continuous growth of municipal, agricultural and food processing waste nationwide prompted several researchers, planners and implementers to look for a way in utilizing such wastes into a useful product.

Bio-conversion facilities commercially available in the market provides specification/information about their products or technology, however the evaluation process that identify or define some distinguishing performance or characteristics of the product or technology are not determinative of the overall performance of the product at hand. Thus, for efficient operation of processing systems and unit processes to yield high quality product and high throughput capacity, identifying the parameters and development of models or equations that describes the composting process is deemed necessary.

Modeling the composting process for the operation of an in-vessel composting system can serve as basis in developing the technical evaluation and verification procedure that can guide engineers, researchers, planners, implementers and end users in choosing an appropriate bio-conversion facility specifically suited to a certain condition or locality.

OBJECTIVES

General :

To evaluate the engineering aspects covering the operation of an in-vessel composting system for by-products of pineapple processing centers.

Specific :  

1. To identify the engineering parameters affecting the composting process and develop models or equations that describes the composting process.

2. To establish the optimum condition for the operation of an in-vessel composting equipment utilizing the by-products of pineapple processing centers

3. to determine the economic/financial viability and environmental benefits of producing organic fertilizer from pineapple wastes using an in-vessel composting equipment

METHODOLOGY
Experimental Set-up

The Industrial Technology Development Institute (ITDI)-DOST 1000 Li Pilot Scale Bioreactor (100 kg/day capacity) was used in the study (Figure 1).

Figure 1. The ITDI-DOST 1000 Li Pilot Scale Bioreactor

The bioreactor is a thermophilic in-vessel composting system. It is basically a composting technology designed to hasten the composting process for the rapid stabilization of the organic municipal solid wastes. The ITDI composting technology involved a 3-5day retention time in the bioreactor and a 30-day curing or maturation period.

Parameters Evaluated

Independent variables: Substrate C:N ratio (40:1, 30:1, 20:1)
               Moisture content, % wb (50, 60, 70)

Dependent variables: Temperature, °C, pH, Degradation rate, C:N ratio,
                   Nitrogen, Phosphorous and Potassium Content
Compost Production

Pineapple peelings and crown taken from pineapple processing center were the raw materials used in evaluating the composting equipment. Materials which had undergone initial rotting were discarded. Proper care was observed to ensure that the raw materials used in the experiment had the same composition, as much as possible, to avoid high variability in the initial C:N ratio and moisture content.

Optimization of the Composting Process

To optimize the composting conditions, the Response Surface Methodology (RSM) statistical technique was used. RSM is a statistical tool that uses quantitative data for appropriate experiments to determine and simultaneously solve multi-variant equations.
Optimization

The optimum composting conditions was determined by superimposing the contour plots of relevant and statistically significant responses. An optimum area was generated and calculating the centroid of the area formed the basis of the optimum conditions.

Economic/Financial Analysis

Two types of analysis were used to evaluate the economic viability of the in-vessel bio-conversion facility used in the study.

Cost and return analysis was used to determine the profitability of the bio-conversion facility being evaluated.

Partial budget analysis compared the additional benefits of composting using the developed mechanical technology (ITDI –DOST 1000 Li Pilot Scale Bioreactor) as compared to the traditional method of composting.

RESULTS AND DISCUSSION

A. Engineering parameters affecting the composting process

The cured compost is reflected in Figure 6. The engineering parameters affecting the pineapple wastes composting process using an in-vessel composting equipment is shown in Table 1 which formed the basis for modeling.
Table 2 show the ANOVA table for composting pineapple waste. As shown in this table, the substrate C:N ratio and moisture content were significant factors for temperature, degradation rate, and Phosphorous while there was no significant contribution of C:N in terms of pH, C:N, Nitrogen and Potassium. No significant effect were also observed for pH, C:N, Nitrogen and Potassium in terms of moisture content, however, degradation rate was greatly affected by the moisture content of the substrates during composting.

Table 1. Experimental data gathered from composting pineapple wastes using an in-vessel Composting equipment

<table>
<thead>
<tr>
<th>Factor K</th>
<th>Rep</th>
<th>Subs C:N</th>
<th>Subs MC,%</th>
<th>Sum of Squares</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Temp  °C</td>
</tr>
<tr>
<td>A1B1</td>
<td>1</td>
<td>20</td>
<td>50</td>
<td>38.0</td>
</tr>
<tr>
<td>A1B1</td>
<td>2</td>
<td>20</td>
<td>50</td>
<td>39.8</td>
</tr>
<tr>
<td>A1B2</td>
<td>1</td>
<td>20</td>
<td>50</td>
<td>42.0</td>
</tr>
<tr>
<td>A1B2</td>
<td>2</td>
<td>20</td>
<td>50</td>
<td>41.52</td>
</tr>
<tr>
<td>A1B3</td>
<td>1</td>
<td>20</td>
<td>50</td>
<td>40.02</td>
</tr>
<tr>
<td>A1B3</td>
<td>2</td>
<td>20</td>
<td>50</td>
<td>39.02</td>
</tr>
<tr>
<td>A2B1</td>
<td>1</td>
<td>30</td>
<td>60</td>
<td>142.5</td>
</tr>
</tbody>
</table>
Table 2. ANOVA showing significance of the composting parameters on the response variables

<table>
<thead>
<tr>
<th>Process Variables</th>
<th>Temp °C</th>
<th>Deg Rate kg/day</th>
<th>pH</th>
<th>C:N %</th>
<th>N %</th>
<th>P %</th>
<th>K %</th>
</tr>
</thead>
<tbody>
<tr>
<td>C:N (X₁)</td>
<td>58.62**</td>
<td>1241.84**</td>
<td>2.07**</td>
<td>3356**</td>
<td>2.16*</td>
<td>5.33*</td>
<td>5.11*</td>
</tr>
<tr>
<td>MC (X₂)</td>
<td>40.02**</td>
<td>267.33**</td>
<td>31.2**</td>
<td>911.13*ns</td>
<td>0.17*ns</td>
<td>9.39**</td>
<td>0.70*ns</td>
</tr>
</tbody>
</table>

** Significant at 95% level of confidence  
** Significant at 90% level of confidence  
*ns Not significant

Table 3 show the details of the ANOVA showing independent variables as linear, quadratic or interaction terms for composting pineapple waste.

The proportions of the total variations in the value of the dependent variables, Y as explained by the generated models is expressed by the coefficient of determination ($R^2$). Percent weight recovery yielded the highest $R^2$ value of 0.91. This explains that 91% of the variation in process variable was defined by the model generated.

Variability ($R^2 > 0.85$) for degradation rate and pH appeared to be adequate. The coefficient of variation (CV) which shows the degree of precision with which the treatments were compared resulted a lowest CV value for pH which indicates less variation and more consistent, hence, increasing the reliability of the experiment. On the other hand, the temperature, degradation rate, C:N ratio, Nitrogen, Phosphorous and Potassium polynomial models gave significant lack of fit and high coefficient of variation (CV), indicating that the experimental data were not satisfactory explained.

Table 3. ANOVA table showing independent parameters as linear, quadratic or interaction on each of the response variables
With the information taken from Table 2, a regression analysis as reflected in Table 3 was performed utilizing the RSReg of the SAS Version 6.12. Mathematical models representing the function $f_k$ were derived and using the analysis of variance were tested for adequacy. Table 3 presents the values of the regression coefficients for the second order polynomial (SOP) models that represented the relationships between the indicated response variables ($Y_1$, $Y_2$…$Y_7$) and the independent factor ($X_1$ and $X_2$). The Table shows the statistically significant response models for all terms (linear, quadratic and interaction) and the residual variances for all responses.

The second-order approximating equation was utilized to come with the different models that would fit $f_k$ for the response variables $Y_1$ to $Y_4$. The analysis of variance produced meaningful response surface regression models for temperature ($Y_1$), degradation rate ($Y_2$) and Phosphorous ($Y_6$) at 95% significance levels. These significant values were largely generated by the contributions imparted by the linear components of the response regression models, pH ($Y_3$), C:N ($Y_4$), Nitrogen ($Y_5$) and Potassium ($Y_7$) which appeared to be not significant.

Table 3 also indicated residual variance that is comprised of lack of fit and pure experimental error. Lack of fit represented those variations which were generated from sources other than first order terms, i.e, linear terms. Pure experimental error involves variations between observations randomly run under the same experimental conditions (Myers, 1971).
Degradation rate ($Y_2$) was not vitally affected by the response surface regression model and the treatment variables, yet, the model developed appeared to be very adequate having possessed no lack of fit. Moreover, its insignificant lack of fit suggested fitted y values as having approached close to y values, which would be indicative of a linear regression function (Myers and Montgomery, 1995).

The Second-Order Polynomial equation showing regression coefficient (Table 4) were generated to predict future responses by the models reflected in Table 5 showing the regression analysis of the response variables.

Table 4. Regression coefficients of the second-order polynomials

<table>
<thead>
<tr>
<th>Coefficients</th>
<th>Temp $^0\text{C}$ $Y_1$</th>
<th>Deg Rate kg/day $Y_2$</th>
<th>pH $Y_3$</th>
<th>C:N $Y_4$</th>
<th>N, % $Y_5$</th>
<th>P, % $Y_6$</th>
<th>K, % $Y_7$</th>
</tr>
</thead>
<tbody>
<tr>
<td>$\beta_{k0}$</td>
<td>(13.597) $^{ns}$</td>
<td>(6.202) $^{ns}$</td>
<td>11.989</td>
<td>533.464</td>
<td>1.96 $^{ns}$</td>
<td>8.062 $^{ns}$</td>
<td>11.059 $^{ns}$</td>
</tr>
<tr>
<td>$\beta_{k1}$</td>
<td>0.167 $^{ns}$</td>
<td>(3.662) $^{ns}$</td>
<td>(0.312)</td>
<td>5.693</td>
<td>0.211 $^{ns}$</td>
<td>0.109 $^{ns}$</td>
<td>0.224 $^{ns}$</td>
</tr>
<tr>
<td>$\beta_{k2}$</td>
<td>1.417 $^{ns}$</td>
<td>2.325 $^{ns}$</td>
<td>(0.008)</td>
<td>(14.545)</td>
<td>(0.111) $^{ns}$</td>
<td>(0.126) $^{ns}$</td>
<td>(0.350) $^{ns}$</td>
</tr>
<tr>
<td>$\beta_{k11}$</td>
<td>0.020</td>
<td>0.091</td>
<td>(0.005)</td>
<td>0.161</td>
<td>(0.003) $^{ns}$</td>
<td>(0.008)</td>
<td>(0.004) $^{ns}$</td>
</tr>
<tr>
<td>$\beta_{k21}$</td>
<td>(0.022)</td>
<td>(0.043)</td>
<td>0.000 $^{ns}$</td>
<td>(0.044) $^{ns}$</td>
<td>(0.001) $^{ns}$</td>
<td>(0.006)</td>
<td>(0.002) $^{ns}$</td>
</tr>
<tr>
<td>$\beta_{k22}$</td>
<td>(0.006) $^{ns}$</td>
<td>(0.006) $^{ns}$</td>
<td>0.000 $^{ns}$</td>
<td>0.130</td>
<td>0.001 $^{ns}$</td>
<td>0.001 $^{ns}$</td>
<td>0.003 $^{ns}$</td>
</tr>
</tbody>
</table>

** Significant at 95% level of confidence
* Significant at 90% level of confidence
$^{ns}$ Not significant

Table 5. Regression analysis of the Second Order Polynomials (SOP) for the different response variables

<table>
<thead>
<tr>
<th>Model</th>
<th>Regression Coefficient (R2)</th>
</tr>
</thead>
<tbody>
<tr>
<td>$k_1 = 0.020 \text{CN}_1^2 - 0.022\text{MC}_2\text{C}_1$</td>
<td>0.693</td>
</tr>
<tr>
<td>$k_2 = -2.5883\text{MC}_2 + 0.025\text{MC}_2^2$</td>
<td>0.910</td>
</tr>
<tr>
<td>$k_3 = 11.989 - 0.312\text{CN}_1 - 0.005\text{CN}_1^2$</td>
<td>0.854</td>
</tr>
<tr>
<td>$k_4 = 533.464 + 5.093\text{CN}_1 - 14.545\text{MC}_2 - 0.161\text{CN}_1^2 + 0.130\text{MC}_2^2$</td>
<td>0.712</td>
</tr>
<tr>
<td>$k_6 = -0.008\text{CN}_1^2 - 0.006\text{MC}_2\text{CN}_1$</td>
<td>0.507</td>
</tr>
</tbody>
</table>

C. Optimization of the Composting Process
Response Surface Methodology (RSM) analyzed the optimization of the composting parameters. The methodology determined the factor levels that simultaneously satisfy a set of desired specifications, optimum combination of factors that would yield a desired response and discusses the response near the optimum, and how changes in the level of the factors over the specified levels of interest affected specific responses.

Contour plots were generated using significant parameters for each response. The contour plots of the responses as a function of the independent variables show lines of constant value. Figures 7 – 12 show the surface and contour plots for temperature, degradation rate, pH, C:N ratio, Nitrogen, Phosphorous, Potassium and % Recovery as function of substrate C:N ratio and moisture content.

**Determination of the Optimum Region**

Contour plots (Figures 7-13) which yielded significant responses were then superimposed to generate the optimum region (Figure 14) which shows that the optimum region for moisture content ranges from 48-59%. Calculating the mid point of the highest (59) and lowest (48) value of the process variable corresponds to the optimum value which is 53.5% moisture content. Optimum region for C:N ratio ranged from 27:1-39:1, thus, an optimum value of 33:1 C:N ratio was calculated.
Figure 7. Surface and contour plot for compost production temperature as a function of substrate C:N ratio and moisture content.

Figure 8. Surface and contour plot for degradation rate as a function of substrate C:N ratio and moisture content.

Figure 9. Surface and contour plot for pH as a function of substrate C:N ratio and moisture content.

Figure 10. Surface and contour plot for C:N ratio of cured compost as a function of substrate C:N ratio and moisture content.
Figure 11. Surface and contour plot for Nitrogen as a function of substrate C:N ratio and moisture content.

Figure 12. Surface and contour plot for Phosphorous as a function of substrate C:N ratio and moisture content.

Figure 13. Surface and contour plot for Potassium as a function of substrate C:N ratio and moisture content.
D. Economic/Financial Analysis

Profitability

The ability of the project to generate income is reflected in Table 6. A five (5) year projected income statement shows that producing organic fertilizer utilizing pineapple wastes is profitable. An average income of Php 60,620 was calculated. Return on investment (ROI) was calculated at 49%. This indicates that for every peso invested, an income of 0.49 centavos will be generated.

Liquidity

A 5-year cashflow analysis (Table 7) shows that by the end of the 5-year period, an accumulated sum of Php 189,704 was computed. This value clearly indicates that the project can meet its short term obligation. A payback period of 2.04 was computed. This value indicates that the proponent can recover its investment after 2 years of operation.

Cost and Return and Partial Budget Analysis
Cost and return analysis and partial budget analysis were likewise used to determine the additional benefits as against the added cost using mechanical composting technology as compared to the traditional method.

Traditional method of composting was performed to determine the volume of compost produced and the expenses involved in traditional composting. The same size and capacity as the ITDI Bioreactor was constructed to reflect unbiased assumptions and calculation. Actual volume of output were the basis in computing the returns.

Cost and return analysis (Table 8) showed that composting pineapple waste using the ITDI-DOST bioreactor has a higher net income (Php 23,359) compared to the traditional method of composting.

Partial budget as shown in Table 9 compared the incremental change in benefits of composting using the ITDI-DOST bioreactor as compared to the traditional method of composting. Calculations showed that there is an additional fixed cost amounting to Php 5,705 in mechanical method, there is also a subsequent increase in return of benefit (Php 1,795) and reduction of variable cost (Php 17,418) when mechanical method of composting is employed. This can be attributed to the decrease in manpower requirement and an increase in throughput capacity for mechanical method of composting. Thus, an incremental change in benefit of Php 13,508 was computed and a Benefit Cost Ratio (BCR) of 3.37 was calculated which clearly indicates that mechanical method of composting is economically viable since the calculated value is greater than 1.

Table 8. Cost and return analysis of mechanical and traditional method of composting

<table>
<thead>
<tr>
<th>ITEM</th>
<th>VALUE PER YEAR</th>
<th>MECHANICAL METHOD OF COMPOSTING</th>
<th>TRADITIONAL METHOD OF COMPOSTING</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>144,432</td>
<td>144,432</td>
</tr>
<tr>
<td>RETURN</td>
<td></td>
<td>144,432</td>
<td>144,432</td>
</tr>
<tr>
<td>Sales from fertilizer</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>144,432</td>
<td>144,432</td>
</tr>
<tr>
<td>2.1. COST</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fixed Cost</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Depreciation</td>
<td></td>
<td>5,750</td>
<td>2,070</td>
</tr>
<tr>
<td>Repair and maintenance</td>
<td></td>
<td>4,750</td>
<td>2,725</td>
</tr>
<tr>
<td>Total fixed cost</td>
<td></td>
<td>10,500</td>
<td>4,795</td>
</tr>
<tr>
<td>Variable cost</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Supplies (Inoculant, sawdust, manure)</td>
<td>4,634</td>
<td>4,680</td>
<td></td>
</tr>
<tr>
<td>Labor</td>
<td></td>
<td>72,000</td>
<td>115,200</td>
</tr>
<tr>
<td>Hauling/fuel cost</td>
<td></td>
<td>4,680</td>
<td>4,680</td>
</tr>
<tr>
<td>Electricity</td>
<td></td>
<td>25,782</td>
<td>-</td>
</tr>
<tr>
<td>Miscellaneous</td>
<td></td>
<td>3,000</td>
<td>3,000</td>
</tr>
<tr>
<td>Total variable Cost</td>
<td></td>
<td>110,096</td>
<td>127,514</td>
</tr>
</tbody>
</table>
### Table 9. Partial Budget

**Mechanical Method of Composting Versus Traditional Method**

<table>
<thead>
<tr>
<th></th>
<th>A</th>
<th>B</th>
</tr>
</thead>
<tbody>
<tr>
<td>Added cost</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Equipment</td>
<td>5,705</td>
<td></td>
</tr>
<tr>
<td>Reduced return</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td><strong>Sub-total A</strong></td>
<td><strong>Php 5,705</strong></td>
<td></td>
</tr>
<tr>
<td>Added return</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sales</td>
<td>1,795</td>
<td></td>
</tr>
<tr>
<td>Reduced cost</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Variable cost</td>
<td>17,418</td>
<td></td>
</tr>
<tr>
<td><strong>Sub-total B</strong></td>
<td><strong>Php 19,213</strong></td>
<td></td>
</tr>
</tbody>
</table>

Incremental Change in benefit = Sub-total B − Sub-total A = Php 13,508

Benefit Cost Ratio (BCR) = 3.3

---

**SOCIAL AND ENVIRONMENTAL IMPACT**

Composting rarely generates profit on its own if not properly managed. However, when viewed as a component of an Integrated Solid Waste management Program, composting can provide economic benefits on a much larger scale. The cost of composting includes raw materials, production, marketing and environmental costs, whereas, the benefits involve the market value of the compost, savings from avoided waste disposal costs, as well as environmental impacts.

Government can save money by reducing the amount of waste requiring collection, transport and disposal. The extent of these savings are dependent on how the waste management system incorporates composting initiatives, including the elimination of temporary dumping sites, rerouting of collection vehicles and the redirection of labor.

There are other benefits which may not directly impact the operation of the composting facility but do affect the overall health and well being of society. Water contamination can occur from leachate infiltration or from disposing of waste into open water bodies. Poor quality water has been linked to various human infections and diseases.

Composting pineapple wastes will have a positive effect that would increase economic activities in the community. With the increase in economic activities, employment generation is likewise increased. The production of organic fertilizer using pineapple wastes will create additional income and benefits to the local government by providing additional revenues in the form of taxes. More money will be circulated within the because of the salaries of the
laborers/workers which in turn increase the income of the businesses, thus, generating more taxes for the government.

This major activity is expected to play significant role in reducing production inputs on the part of the farmers because of the availability of organic fertilizer commercially produced in the project area. Likewise, people in the community have more or less contribution to the climate stabilization since CO₂ are sequestered back when the compost is added to the soil.

CONCLUSION

The study identified significant physical, chemical and environmental parameters affecting the composting process. The study determined important input factors of composting process and the factor combinations which would optimize the responses in terms of temperature (Y₁), degradation rate (Y₂), pH (Y₃), C:N (Y₄), Nitrogen (Y₅), Phosphorous (Y₆) and Potassium Y₇) content. These responses are important parameters affecting the composting process.

Mathematical models or equation described the process of composting pineapple waste. The degradation rate model, \( k = -2.583 \ MC^2 + 0.025 \ MC^2 \) described the relationships of independent variables (Y) to initial substrate C:N and MC.

The generated model will guide the designers, agricultural and bio-process engineers in the application of processes involving composting. Statistical analysis showed that C:N ratio and moisture content significantly affected compost temperature, degradation rate and Phosphorous content.

The significant parameters were considered in generating the contour plots for the optimization analysis for each of the responses. Superimposing the four significant parameters generated the optimum condition. Thus, an optimum condition of substrates C:N ratio was 33:1 and a moisture content of 53.5.

Optimizing the composting process should be performed in order to recommend best condition for composting resulting to the production of high quality organic fertilizer from pineapple waste as well as maximizing throughput capacity and reducing processing cost.

Utilizing an in-vessel composting equipment yielded high quality compost as reflected in the result of the laboratory analysis for NPK content. Likewise, cost and return analysis and partial budget analysis proved that composting pineapple waste using the ITDI-DOST bioreactor is economically viable.

RECOMMENDATIONS

Evaluating the performance of an in-vessel composting equipment using pineapple waste resulted to the following recommendations:

Evaluation of the response values suggest that composting pineapple waste with an initial C:N of 33:1 with 53.5% moisture content is highly recommended;

Other composting equipments and other forms of wastes can be evaluated to determine appropriate combinations;

Different levels of composting retention time and curing period can be evaluated;
Validation tests should be performed to determine the adequacy of the Second Order Polynomial models generated; bioassay test should be conducted to determine the growth performance of the crops using the organic fertilizer produced from the experiment. Data generated will form the basis for recommendation to the different stakeholders.

**IMPACT OF THE STUDY**

The most significant impact of this study is the solution to problem on pineapple waste disposal in pineapple processing centers. A clean environment is expected since these wastes are converted into a useful form of product which is environment-friendly and needed by farmers to maintain soil fertilizer thereby increasing farm income. Air pollution and the hazardous effects of wastes due to foul odor during decomposition in an open area is likewise minimized.

Composting pineapple wastes does not only have agricultural benefits, but it also combats climate change. When plant waste are sent to landfill, they turn into carbon dioxide (CO$_2$) and ammonia (NH$_4$), two of the most common greenhouse gases. When the waste is composted in an open field, they lock up Carbon from the atmosphere, thus, contributing to global warming and ozone depletion. Global warming is one if not the greatest environmental threat currently facing our society caused by elevated emission of gases (CO$_2$ and NH$_4$) that trap the atmosphere. Eliminating NH$_4$ emissions from municipal and agricultural solid wastes can substantially lower the greenhouse gases emissions.

When pineapple wastes are converted to organic fertilizer using an in-vessel composting equipment and added to the soil, additional CO$_2$ are sequestered.

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Session I - Women and business
Women Entrepreneurs in Nueva Vizcaya: Issues and Prospects

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ABSTRACT

This study was initiated with the aim of focusing on the empowerment of women, especially in the field of trade and industry. It sought to profile the women in Nueva Vizcaya who were immersed in the field of entrepreneurship, to have a glimpse of how they started in the business they manage or own, and their concerns as well as their prospective views thereof. Findings reveal that the women-entrepreneurs’ age ranges from 26 to 66, with most of them senior citizens; most of them were married and with children. Their highest educational attainments were not inclined towards the business they are engaged in, but their trainings from government and non-government agencies compensated for this seeming career imbalance, allowing them to be recognized for their dedication in their new-found craft. The businesses were primarily involved in manufacturing/processing, and most of them were classified as associations, while others were sole proprietorships, with one respondent a cooperative. Initial capitalization was below PHP 100,000 to PHP 500,000 sourced out either from personal funds or government subsidy; with the largest asset size being PHP 3M. Customers were tourists, locals, or institutions. The women established their businesses driven by personal, economic, and social factors such as to improve family income, as well as inspiration from relatives, government and private institutions. Issues confronting them included problems on manpower, funding, (raw) materials, equipment, proximity to the market and clients, and lack of avenues to showcase their products. The respondents envision their respective enterprises to expand in the future in terms of marketability, additional manpower, and more financial and skills support from public and private institutions. The researchers recommend the sustainability of their advocacies through further research and development, benchmarking from other similarly-situated ventures, and continuing education to perfect their craft, thereby showcasing the strength and acumen of a Nueva Vizcaya woman entrepreneur for the whole world to see.

Keywords: great women; entrepreneurial drive; women empowerment

INTRODUCTION

In recent years, the term “empowerment” has taken a slightly different stride. While it has always been understood as the vesting of power upon someone, the term has also come to be understood as to embolden those who were not primarily bold enough to speak or act with the end of the previously dis-empowered to take responsibility for their actions and be accountable for their successes and/or failures.

World Bank’s World Development Report (WDR) enumerates several synonyms for empowerment: “self-strength, control, self-power, self-reliance, own choice, life of dignity in
accordance with one’s values, capable of fighting for one’s rights, independence, own decision making, being free, awakening, and capability (WDR, 2000/2001).”

It (WDR) further describes empowerment as the increase of freedom of choice and action. It means extending one’s authority and control over the resources and decisions that affect one’s circumstances. As real choice is exercised, increased control over life is expected.

While stereotypical observations would claim that among those (formerly) disempowered belonged to the sectors of women, indigenous communities, LGBT, as well as the youth, recent developments prove otherwise.

The United Nations, through the United Nations Population Information Network (POPIN) explicitly enumerated five elements of women empowerment, to wit: “(1) women's sense of self-worth; (2) their right to have and to determine choices; (3) their right to have access to opportunities and resources; (4) their right to have the power to control their own lives, both within and outside the home; and (5) their ability to influence the direction of social change to create a more just social and economic order, nationally and internationally” (http://www.un.org).

These components of women empowerment can be seen in the various fields where women are involved: in politics, in the academe, as well as in business.

The recognition of women as prominent members of the business world (Palaniappan, Ramanigopal, and Mani, 2012) has shown an impressive number of women who are considered power movers across all segments in the business industry making women empowerment an inevitable part of economic discourse in the development undertaking of any country. Women empowerment includes taking part in various development undertakings, making the involvement of women in various entrepreneurial activities empowering along the lines of social, economic, and cultural fields (Jahed, Kulsum, and Akther, 2011).

World Bank states investing more in the business of women rather than in that of men would lead to the greater development of a nation. Empowering women in entrepreneurship leads to break concerns in inequality and to reduce the rate of poverty. Entrepreneurship plays a vital role in developing society. Time and again, it has been proven that enterprising women can be transformed from “job-seekers” to job-givers” (Palaniappan, Ramanigopal, and Mani, 2012).

The Philippines is not lost in this scenario. Filipino women are trying to prove that they, too, shape their own household economics. GE Money Bank Philippines, an advocate of entrepreneurial growth among women in the country, claims that the Philippines has the second highest percentage of women in business next to Peru (gemoneybank.com.ph). The Women’s Business Council in the Philippines revealed that most women owner-managers of small and medium-scale enterprises are into manufacturing (41%), garments, jewelry, and furniture (37%), marketing (9%), and real estate (7%) (goodnewsdaily.com/show-story). In 1997, the Institute of Small Scale Industries (UPISSI) of the University of the Philippines conducted a study revealing that most women entrepreneurs were engaged in food processing, garment-making, jewelry-
making, shoes and bags-manufacturing, handicraft, and weaving. These data show the women’s participation in business and in the economy.

A 2006 survey initiated by Global Economic Monitor showed that Filipino women owned 45% of business enterprises; women were more active in starting a new business (69%), and in running the business within the first 3.5 years (51%). Thirty four of women entrepreneurs owned established businesses (womenentrepreneurship.org).

Palabrica, a columnist of the Philippine Daily Inquirer, in discussing the case of Rodriguez v. PAL and NLRC (G.R. No. 178510), stated in his February 15, 2016 column that the aforementioned case again brings to attention issues like discrimination against women on account of their sex or gender. If legislation and politics were to be used as criteria, it can be claimed that the Philippines is the “most gender-free country in the world in terms of treatment of women in government and the workplace” (https://business.inquirer.net/207110/gender-discrimination).

Republic Act No. 10644, also known as the “Go Negosyo Act”, seeks to strengthen micro, small, and medium enterprises (MSMEs) to generate more jobs in the country. The basic policy of the Philippine law is to foster national development, to promote inclusive growth, and to reduce poverty by encouraging the establishments of SMESs to facilitate local job-creation, production, and trade in the country. One of its functions is to encourage women entrepreneurship by providing them access to information, support, training, and credit facilities (dti.gov.ph).

The ten-point agenda of the Duterte administration allow for “investing in human capital development, including health and education systems, as well as matching skills and training to meet the demands of businesses and the private sector…” (newsinfo.inquirer.net).

It is in this light that this research was conducted giving due credence to the first article of the United Nations Charter: “To achieve international co-operation … in promoting and encouraging respect for human rights and for fundamental freedoms for all without distinction as to race, sex, language, or religion” (un.org); and marrying it off with the State affirmation of the role of women in nation building as stated in the Magna Carta for Women (gov.ph).

The Great Women Project 2 is a project of the Philippine Commission on Women with DTI, DOST, DA, DOLE, and ECHOSI Foundation (as lead in the private sector) as project partners. It supports women’s economic empowerment in the Philippines. GREAT stands for Gender Responsiveness Economic Actions for the Transformation of Women. It highlighted the importance of building capacity of women as entrepreneurs, providing assistance to improve their products to target specific market needs and facilitate improvements in competitiveness of their business. GWP likewise intends to promote women’s economic leadership and empowerment so that women realize the benefits from entrepreneurship.

In Nueva Vizcaya, there are a few number of women-managed/women-owned enterprises enrolled in the said project. Among these entrepreneurs, there were only nine (9) successful as identified by the Department of Trade and Industry because of their continuous production.
(except for seasonal production), continuous marketing, quality and competitive products, and competent leaders/managers. Therefore, this study was intended to reach out to the local women entrepreneurs of Nueva Vizcaya, to know their personal and business profiles, their motivations, their problems, and their prospects.

METHODODOLOGY

The main mode of gathering data employed in this study was the conduct of interviews where the researchers directed questions upon the informants based on a prepared interview guide duly reviewed and approved by the designated data analyst. Data gathered were triangulated or corroborated by information gathered from document-scanning (Women Micro-Entrepreneur (WME) Forms, DTI Business Profile Management System (DTI-BPMS Forms) and by observation at the work site of each informant.

This study employed the case study method described by Yin (1984), as quoted by Zainal, to be the mode of investigating data that involves current circumstances through descriptive analysis of a bounded or specific (number of) phenomena which may include but is not limited to only establishing relationships as well as comparisons and contracts.

The study was conducted within the province of Nueva Vizcaya, which is composed of fifteen municipalities. Among these fifteen, the researchers conducted their study in the towns of Bagabag, Bayombong, Aritao, Santa Fe, Kayapa, and Alfonso Castaneda where the women entrepreneur-informants are located.

Purposive sampling was the method of choice in the identification of research informants. The local office of the Department of Trade and Industry identified the list of informants whom they considered as successful. There were nine informants who were interviewed by the researchers.

Principally, data from the informants were gathered through the conduct of individual interviews, using questions specifically crafted to match the objectives of this research. Information gleaned from the interviews was corroborated via ocular inspection or observation of the actual business area (production area) of the informant concerned. Document-scanning and additional interviews with previously identified parties of interest (Department of Trade and Industry, employees, clients/customers, among others) were also employed.

After the interviews, the data gathered were tabulated to determine common or similar responses from among the informants. The responses, similarly placed, were labeled appropriately. Generalizations were gleaned from the analyses and discussions.
RESULTS AND DISCUSSIONS

The researchers identified enterprises that are founded, established and/or managed by women. The Provincial Office of the Department of Trade and Industry (DTI) purposively identified nine establishments from across all the 15 municipalities of Nueva Vizcaya to be the informants of the study. Appointments were set and agreed upon between the researchers and the informants, the interviews were recorded as agreed upon by both parties, and ocular inspections were conducted in the work areas of the businesses.

By virtue of Executive Order No. 2, s. 2016 operationalizing in the Executive Branch the people’s constitutional right to information and the state policies to full public disclosure and transparency in the public service and providing guidelines therefore issued by President Rodrigo Duterte on July 23, 2016, the researchers deemed it permissible to mention the information mentioned in the Women Micro-Entrepreneur (WME) Forms as well as in the Business Profile Management System (DTI-BPMS) Forms culled from the Department of Trade and Industry (DTI).

Profile of the Women-Entrepreneurs

Of the nine women-respondents, their average age was 51.55 years old, with the oldest woman-entrepreneur being 66 years old, and the youngest at 26 years old. A report released in 2013 by Kaufman Foundation showed that people aged 45 to 54 started more companies than any other age bracket. In 2013, 30% of new entrepreneurs were in this age bracket, up from 25.2% in 2003. On the other hand, people aged 20 to 34 started the least number of companies in 2013, at 22.7%, down from 26.4% in 2003. Giang (2015) observed that women who open businesses in their forties to fifties were a force to be reckoned with, debunking the general misconception that successful companies are established by men in their twenties (https://www.fastcompany.com/3043115/strong-female-lead). A report issued by the Asian Development Bank in 2013 showed that 55% of businesses that have just opened in 2010 can be attributed to women.

Seven (77.78%) were married while two (22.22%) were single. Given this, all the married women were with children, with the most numbering to five, and the least to one; the average number of children is three per respondent. Patrick (2016), in a University of Georgia-commissioned study, concluded that among women entrepreneurs, single women are on the start-up as far as entrepreneurial advancement is concerned (http://news.gsu.edu/2016/02/11/more-married-women-are-entrepreneurs-but-single-women-lead-entrepreneurial-growth-study-shows/).

Another research conducted by Patrick, Stephens, and Weinstein (2016) revealed that married women with children under five are usually driven to become self-employed. This is for them to continue to be employed or to support the family with some extra income, and they do not need to work outside of the home.

For their highest educational attainment, seven of the women-respondents reached college education, while two had high school education. It is to be noted that none of the respondents had any formal educational background related or connected to business
administration, commerce, or entrepreneurial management. It is noted, however, that despite the lack of formal baccalaureate training in the aligned or allied disciplines relative to their respective business undertakings, the respondents were not in want of the trainings to prepare themselves for entrepreneurship. Government and non-government agencies, as well as academic institutions and foreign foundations have been willing to provide coaching to the women-respondents. In this case, the researchers noted a strong connection between the specialty of the trainings undergone and the nature of the businesses managed or owned.

While it is true that entrepreneurial education encourages women to pursue entrepreneurship as a career (Bhardwaj, 2014), it cannot be disputed that a degree in business or entrepreneurship a successful business does not assure. The Great Women Project (GWP), of which the respondents are part, have linked partnerships with government institutions that shall provide trainings to the beneficiaries, which (trainings) the researchers presume are to compensate for the seemingly lack of technical background among the women entrepreneurs. The Philippine Commission on Women (PCW), under whose aegis is the GWP, enumerates these instrumentalities in its website (http://www.pcw.gov.ph/gwp/national-partners). The Department of Labor and Employment (DOLE) - Occupational Health and Safety Center (OHSC) is concerned with the promotion of work safety and health for women workers in small enterprises. The Department of Science and Technology (DOST) involves itself in discussing gender-responsive impact evaluation of transfer and diffusion services that women enterprise may need. The University of the Philippines - Institute for Small Scale Industries (UP-ISSI) regularly conducts trainings for entrepreneurial advancement and for development catalysts. The Technical Education and Skills Development Agency (TESDA) Women Center provides free training to women based on their needs, and assessments and conducted thereafter, allowing the women-trainees to be granted National Certificates (NCs) once they pass the assessments based on TESDA standards. The Technology Resource Center (TRC) runs sessions on technologies pertinent to women issues and entrepreneurship. Trainings under the aforementioned agencies do not preclude the respondents from undergoing other sessions with (other) non-governmental institutions (local or international) to further their particular crafts.

Hence, there would be a logical conclusion that the disparity between the highest educational attainment of the individual respondents and the nature of business the women-entrepreneurs are currently involved in is addressed by the trainings provided. Given these trainings and other contributory factors leading to the success of their enterprise, the respondents (individual and collective) were able to garner awards and recognitions from government instrumentalities as well as from private agencies for their exemplary performance. As far as the respondents are concerned, the local government units, as well as national agencies (DAR, DTI, TESDA) have been profuse in granting them awards and recognitions for their exemplary performance in the various fields or industries they are immersed in.

Profile of the Women-Managed Enterprises
All of the businesses were up-to-date in their registration with the Bureau of Internal Revenue (BIR) and the Department of Trade and Industry (DTI). Aside from their registration with the DTI and BIR, five of the businesses were enlisted with the Securities and Exchange Commission (SEC), two with the Department of Labor and Employment (DOLE), and one with the Cooperative Development Authority (CDA).
Mode of Business Ownership

An association happens when a number of individual natural persons unite for a particular intention or business. It is also a coalition of persons aimed to transact specific acts or attain a mutually agreed-upon end. From the sociological point of view, an association is born when a group of persons organize themselves purposely to pursue certain interests jointly on a collaborative endeavor. Ginsberg defines an association to be a group of social beings connected to each other by the very fact that they have established a group with the objective to secure an explicit end (http://www.sociologyguide.com). Usually for the respondent-businesses, they start first as an association, and eventually end up enlisted as an incorporation at the SEC. Among the nine respondent-enterprises, there were six (66.67%) associations.

A sole proprietorship (also single proprietorship) is the simplest mode of business and the easiest to register, through the DTI. Ownership is by an individual person who has full control/authority of its own, who owns all the assets, as well as personally is liable for all its movements, losses inclusive. It is not burdened by the rigorous laws and rules exacted upon corporations and partnerships (http://www.chanrobles.com). Three (33.33%) of the nine businesses who served as respondents in this study were sole proprietorships.

Major Business Activities and Main Products of the Respondents

The nine respondent-businesses were involved in either processing, manufacturing, or agri-production. Processing refers to the performance of a set of mechanical or chemical procedure on something in order to change or preserve it. Notable in the above table is the fact that four (44.44%) of the establishments were involved in processing, and that of these four, all of them are into processing food products, mostly fruit-based merchandise.

Another four (44.44%) were involved in manufacturing, which is understood as the process of transforming raw materials, other components, or parts into finished products. Those involved in manufacturing produced fashion bags/backpacks from cloth/fabrics, woodworks, home furnishings, woven fabrics, and home and fashion accessories.

Only one (11.11%) respondent was involved in agri-production, where the final product is either plant or animal to be used for human consumption like food and clothing.

Sources of Fund, Initial Capitalization, and Asset Size

Table 1. Sources of Fund, Initial Capitalization, and Asset Size

<table>
<thead>
<tr>
<th>Respondent Establishment</th>
<th>Source/s of Fund</th>
<th>Initial Capitalization in pesos</th>
<th>Asset Size in pesos</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Darapidad Auto Savings Group</td>
<td>Share capital and DOLE</td>
<td>&lt;100K</td>
<td>&lt;100K</td>
</tr>
<tr>
<td>• Alfonso Castañeda Processors’</td>
<td>LGU fund</td>
<td>&lt;100K</td>
<td>&lt;100K</td>
</tr>
</tbody>
</table>
Source of funds vary across the respondents’ business profiles. Six (66.67%) of the businesses sourced out their a substantial amount of their initial capitalization from government agencies. Three (33.33%) shelled out personal funds to finance their business.

Initial capitalization (in pesos) refers to the amount used as the starting investment in a business. The DTI-BPMS Form places the range of initial capitalization from below PHP 100,000.00 to above PHP 15 to 100 million. Capitalization, according to the form from the DTI, excludes land, building, and equipment of the company. Six (66.67%) of the nine respondent businesses had an initial capitalization of less than PHP 100,000.00. Three (33.33%) started their enterprise with a higher capitalization, ranging from PHP 100,000.00 to PHP 500,000.00.

Various scenarios are seen in the discussion of asset size (in pesos). Of the nine respondent-businesses, four (44.44%) have an asset size of less than PHP 100,000.00; all of them with the same amount of initial capitalization. Two respondents (22.22%) have the same amount of initial capitalization and asset size range of PHP 100,000.00 to PHP 500,000.00.

Three (33.33%) respondents indicated a notable increase in funds insofar as initial capitalization vis-à-vis asset size are concerned. One had an a starting amount of less than PHP100,000.00, and now has an asset size ranging between PHP 100,000.00 and PHP 500,000.00. Another commenced business with funds stretching between PHP 100,000.00 and PHP 500,000.00, and currently claiming an asset size between PHP 500,000.00 and PHP 1,500,000.00. A more prominent figure is seen in another company which began operations with less than PHP 100,000.00, but has between PHP 1,500,000.00 and PHP 3,000,000.00 in assets.
This indicates that not all businesses managed or owned by women result to a significant gain in terms of asset size. However, there are also some businesses that show an impressive performance in terms of (current) asset size, when compared to initial capitalization. The major business activities of the respondents do not suggest any connection between initial capitalization and asset size, since among the six respondents with the same range of start-up capital and current asset size, two are involved in processing, two in manufacturing, and one in agri-production. Of the three businesses with a noteworthy difference/increase in asset size, two are into processing, and one in manufacturing.

There is likewise no connection between the sources of fund when placed alongside start-up capital and current asset size.

**Customers of Respondent-Establishments**

In terms of customers, there is a wide variety of them as revealed by the respondents. While most of the clients were travellers and tourists, the local community also became the customers as word of mouth marketing is prevalent in the areas. Trade fairs were also a source of customers for them. Clients can easily and immediately avail of products on display in the respective showrooms and selling areas, except for one which accepts clients on a per-order basis.

**Motivational Factors**

Motivation is that which is dependent on the fulfillment of fundamental, innate psychological needs for competence, relatedness, and autonomy (Thijs, 2011). In this study, two categories of motivation are involved: intrinsic and extrinsic, where the former refers to an inner drive, one that emanates from the being of the individual without any outside coercion or influence. Extrinsic motivation is that which is propelled by factors separate from the being of the party being motivated. This may be influenced by people, places, groups, and/or circumstances separate and distinct from the motivated subject. These two types of motivation (intrinsic and extrinsic) are separate and distinct from the psychological treatment of the same, where intrinsic motivation is the self-propelled desire to seek out things and challenges, to probe one's abilities, to perceive and to gain information; and where extrinsic motivation emanates from influences outside of the person (Ryan, 2000).

A thorough review of the interviews conducted reveal a wide array of motivations as to why a particular business was established. As far as intrinsic motivation is concerned, only one business was established for such, considering that the respondent-individual was “mahilig sa designing” (fond of designing); hence, the enterprise was an avenue for her to develop or advance her prolific inclination towards the arts, in this sense expressing her creativity through the design of home furnishings.

External motivation appeared to be the main factor that pushed the women-entrepreneurs to establish their respective industries. Economic or financial welfare is the overarching reason behind the business. One respondent said: “... tapno maaddaan ti trabaho dagiti mothers, ken manteed ti kanayunan a pagkwartaan kadagiti agdadait ken agraraep” (to provide work for the mothers, and augment the income of the dressmakers and the farmers). Another business was put up to provide for the needs of the family.
Another said, “pinadas ko ag process ti kamatis” (I tried processing tomatoes). The respondent’s election as president of the Rural Improvement Club (RIC) encouraged her to explore and make the association a source of pride within as well as outside of her hometown.

The support of government agencies came to the fore, as in the case of a business that was formally recognized as an association upon the proddings of the DTI.

In another case, it was not a government entity that encouraged the association to be formed. It was upon the support of a certain church group which organized a turmeric tea processing training.

Aside from groups (government and church) that urge groups to formalize into associations, a business was created out of the inspiration from another operation that has become a showcase of a successful entrepreneurial acumen. The respondent happened to be related to the owners of a well-known and multi-awarded business. She sought some advice from them, from which she was encouraged to start her business as a sole proprietor.

Availability of materials and equipment is another justification why some businesses were founded. The aftermath of a strong typhoon in the locality resulted to uprooted acacia trees which were later transformed into furniture and wood products, stirring the passion for woodworks. Another respondent answered that the availability of (looming) equipment prodded them to start an association to maximize the use of said materials plus the skills accompanying such convenience.

In sum, most of the businesses were established as an avenue to augment (family) income, to provide for employment, or to be a source of pride and prestige. Other motivations include support and encouragement from the church and government, as well as from an already-established business. Availability of (raw) materials, equipment, and skills or manpower also counted as reasons why a business was founded.

Problems and Challenges encountered while running the Business

Fallon (2014) enumerated seven challenges faced by female entrepreneurs: utilizing connections, being decisive, access to funding, lack of role models, the expectation to succeed at everything, time management, fear of success.

In a study conducted by The Center for an Urban Future in 2016, five challenges were forwarded: (1) struggle to raise capital, (2) limited access to industry networks and connections, (3) lack of business and financial skills, (4) lack of role models and mentors, and (5) lack of confidence.

In the case of the women respondents, these abovementioned problems did not seem to be the case as the following issues were gleaned from the interviews with the respondents: materials, marketing and sales, manpower, space, logistics, finances.
Materials. The list of materials accomplished by the respondents and filed with the DTI reveals a varying range of raw materials: tamarind, coconut, tropical fruits, fabrics, roots, wood, roots, wood, cotton thread, polyester, dates, seeds, mushroom, and turmeric among others. While the claim of Lancion (1995) is true that agriculture is the main industry in Nueva Vizcaya (producing rice, corn, fruits and vegetables), still the foregoing information does not discount the fact that the fluctuating prices of these items affect the quantity purchased for processing and eventual sale.

Marketing and Sales. While it would be ideal to discuss both concepts separately, the researchers recognize the inter-connection between the two, where marketing is the act of promoting and selling products or services, and sales is the act of purchasing a service or a product, presumably after some point of marketing, advertising, or promotion.

From the respondents come the following concerns on marketing and sales: competition, seasonal sales, lack of exposures to trade fairs and festival exhibits, as well as haggling by the clients/customers.

Competition is understood as rivalry between companies offering like products and services with the common end of selling what is offered, earning profit from the sale, and creating a following among the consumers.

Since the respondents do not claim originality for the products they offer, and given that some businesses may have entered the market earlier than they did, the struggle is real for the respondents as to how to create a substantial market share from among the consumers. Also, there is a problem about how the products are often in demand only during particular seasons. Trade fairs and exhibits are a few of the mainstream methods that the merchandises of the businesses are exposed to the buying public. However, not all of them are able to attend these exhibits, even if endorsed by the DTI or DOT, due to concerns on manpower, finances, and distance.

Haggling happens when the prospective buyer asks the seller to offer a price lower than what was earlier quoted. At times, haggling becomes an art that if it does not form part of any buying transaction, the encounter would be incomplete. The respondents told stories of how bargaining with buyers almost always ended up with them (sellers) at the losing end, since they (sellers) were not given much choice especially during lean season. Other respondents also recounted how miserly some buyers were, especially with high-end and costly products like furniture.

Manpower. This refers to the people employed in the business who help in the production, marketing, and sales of the goods or products offered by the respondents. Bearing in mind the humble asset sizes of the companies, it is a foregone conclusion that the number of workers hired does not reach to many. However, problems arise when the employee leaves the business to seek greener pasture. Worse is the ethical issue when the employee leaves the association after having undergone training, and would start his/her own business using the skills learned in training, thereby resulting to another competitor in the market. Another ethical concern is when the employee leaves after having taken his/her salary in advance.
Space. Limited space is one of the major concerns of the enterprises visited. This refers to space in the production line and space in the display of products. Even if they did not require so much space as in a manufacturing plant, there was always a need for more space to accommodate the (additional) equipment, the workers, as well as the (raw) materials that need to be put into storage. The respondents also lamented the want for space to show their finished products - be they through exhibits, trade fairs, or a more or less permanent showroom.

Though not strictly classified as a space concern, the transportation or distance between the milling place (Aritao) and the main work area (Sta. Fe) was raised by a respondent-establishment, since the distance between both towns is 33 kilometers.

Logistics. Problems on processing, packaging, storage, and delivery were forwarded. Acid stored in plastics easily cause the damage to the containers, or difficulty in securing seals for their products were some observations made by the respondents. Also mentioned were problems of delivery and difficulty in production of hand-made products, as machines could facilitate faster production.

Finance. The main problem in finance is the high cost of the finished product, which is difficult to sell because of haggling; thereby also making it difficult to recoup the expenses incurred in production. Mention was also made of minimal profits at the early stages of the business, and the perennial issue on the lack of capital despite financial support from national and local governmental agencies.

Prospects
Collectively, the respondents envision their respective endeavors to expand in the future, to have additional funding, for the employees to undergo trainings in related skills, to explore the possibility of exporting products, to establish linkages with other public and private agencies, to acquire land, buildings, and equipment as part of the effort to expand, and to involve themselves into further product research and development.

Noble dreams from humble beginnings. The respondents appeared optimistic in their discussion of their plans for their respective businesses. These prospects, however, also reminded them that they have to keep on striving to either maintain or even surpass the performance showing of the past years. They remained realistic of the fact that there is a need for them to maintain a good command of their people and their market.

Recommendations
The researchers recommend that the women-entrepreneurs explore the possibility of federating as a general association of women-entrepreneurs so as to further their respective goals, notwithstanding the possibility of competition among them. Also, they need to inform the government agencies of their concerns as far as raw materials, financial support, and exposure are concerned. Linkages with other private agencies would also allow them to expand their connections. Trainings in bookkeeping, project proposal-making, and the strengthening of their work skills are also suggested.
The researchers recommend the sustainability of their advocacies through further research and development, benchmarking from other similarly-situated ventures, and continuing education to perfect their craft, thereby showcasing the strength and acumen of a Nueva Vizcaya woman entrepreneur for the whole world to see.

Implications to Community Development

Saint Mary’s University is an educational institution that involves itself profoundly in reaching out to persons, juridical or natural, in order to know how it (SMU) can be of service to them. This study revealed the need of the respondents and their employees for trainings in bookkeeping, packaging, project proposal-making, and logo-making. The university’s instructors and students may be tapped to be of assistance to these respondents, upon the endorsement of the Community Extension Services arm of the school. Further, the university’s external affairs office may look into the possibility of inviting experts from partner universities and organizations to provide trainings for these businesses, all with the goal of making this world a better place to live in, where every person, man or woman, is mission-oriented, compassionate, globally-enterprising, socially-committed, and ethically engaged.

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Research on Women Entrepreneurs: Challenges to (and from) the Broader Entrepreneurship Literature?


World Bank’s World Development Report (WDR)

Gender Differences in Sustainable Transport Service Perception: The Case of Pedicabs In and Around DLSU Taft Manila

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Abstract

Gender and mobility is a hot topic as scholars and policy makers across the globe endeavor to align knowledge generation with the UN SDGs. Studies have shown that there is a gender bias towards males in the experience of daily mobility and accessibility as males were leading transportation policymakers, therefore the general experience of moving from point a to point b has favored men all this time. This gender blindness is now unacceptable in a postmodernist world, where liberal feminism has become quite mainstream in the contemporary zeitgeist. An exploratory case study of 104 college students in a campus community, who ride pedicabs abundant in Taft-Manila, shows the oppression of female passengers, not only by infrastructure but by culture as well. Hopefully, this study will give significant insight to the academe, transportation experts, lawmakers, and the general public, to collectively strive for a more sustainable and inclusive urban community.

Key Words

Gender; mobility; transportation policy; non-motorized transport; sustainable development

I. Background of the Study

Gender and Mobility

Gender and mobility cannot be discussed outside of lifestyle, culture, and context. Feminist geographer Susan Hanson (2010) argues that gender and mobility are inseparable because “it is impossible to think about mobility without simultaneously considering social, cultural and geographical context – the specifics of place, time and people” (p.8). Context considers a person’s household, family and community; transportation infrastructure within a built environment, which includes perceptions of safety and accessibility; governing bodies which issue permits, property ownership, and oversee the design and development of transportation infrastructure; access to information technology; and cultural norms (Hanson, 2010).

Mobility is “the movement of people from one place to another in the course of everyday life…[The] concern here is primarily with the personal travel of people’s participating in the daily round of activities such as paid and unpaid work, leisure, socializing and shopping” (Hanson, 2010, p.7). Furthermore, “linking specific elements of context to specific aspects of spatial mobility and of gender is a way to improve our understanding of the role of context in
shaping both. Synthesizing the diversity of findings in the literature by making context central to the analysis…would also put us in a far better position to think about how gender and mobility studies might inform sustainable transportation policies.” (Hanson, 2010, p. 18)

Gender mobility history highlights the experience of American suffragist Frances Willard in 1892, when at age 53, she decided to learn how to bike. At that time, the implications of an elderly woman riding a bike were profuse and resonant with feminism. Biking as a ‘freedom of movement’ determined her manner of dressing and it embodied her love for adventure. “Willard saw women’s physical prowess on the bicycle as challenge to male dominance, a means of improving on prevailing norms of masculinity and an impetus for transforming gender relations” (Hanson, 2010, p. 6).

**Transportation Policy and Inclusive Mobility**

Modern transport policy and infrastructure is biased towards men because “traffic and transport systems are shaped by male users and masculine norms. In only a few countries do women actively influence or work in the transport sector” (Thynell, 2016, p.77). Transport service should be about providing access to all, without favoring one gender over the other.

The 11th UN Sustainable Development Goal, to “Make cities inclusive, safe, resilient and sustainable” includes as a target, “by 2030, provide access to safe, affordable, accessible and sustainable transport systems for all, improving road safety, notably by expanding public transport, with special attention to the needs of those in vulnerable situations, women and children, persons with disabilities and older person” (UN, 2015).

CIVITAS, the European Commission’s transport policy network, claims that the nexus of gender, mobility and sustainable development has come to the fore only recently, due to the shortage of gender differentiated statistics which would provide for a better understanding of mobility factors such as, “reasons for making journeys, journey frequencies, distance travelled, or mobility-related problems in accessing services and employment” (CIVITAS, 2013, p.9). “Achieving the target of sustainability in urban mobility also means considering the needs of different users and thereby offering equal levels of accessibility to transport to all different groups. The need to adopt a gender-sensitive perspective is emerging as a challenging and impending task for urban mobility policy makers and planners. In this sense, to be effective, urban mobility policy action needs to be more gender-sensitive.” (p.6)

In teeming urban centers of developing Asian countries, the current focus on sustainable development presents an opportunity to address transport equality, amidst the many issues surrounding rapid urbanization, which include climate change and growing inequality. Transport equality pertains to mobility factors which affect women such as road safety and security, but essentially, “achieving transport equality involves ensuring that the perceptions, interests, needs and priorities of both women and men are given equal weight in planning and decision making (SIDA, 2005 as cited in Thynell, 2016, p. 73).

CIVITAS (2013) then proposes that such deliberations can produce gender-sensitive policy recommendations such as: “the support of women’s participation in decision-making, the
improvement in accessibility, safety and comfort of transport modes and the planning of transport services in response to gender needs.” (p.6) These “equal mobility opportunities are attained by optimising foot and bicycle traffic, by providing convenient access to surrounding areas and the public transportation network, as well as by designing a safe network of paths for pedestrians and cyclists.” (p. 7)

Sustainable Mobility and Sustainable Transport

Giorgi (2003) defines sustainable mobility as

a term that summarises what is at stake in contemporary attempts to redress the balance of costs and benefits in the transport sector. It marks a shift away from the traditional transport planning approach, which conceptualised transport as a derived demand and as a support infrastructure for economic growth, towards a policy approach that is informed by evidence and risk assessment and which recognises the pitfalls of unconstrained growth. (p. 179)

Sustainable transport is defined as “meeting the current transportation and mobility needs without shearing the next generation of these opportunities”, based on the sustainability definition in the 1987 Brundtland (common future) report (Black 2003, as mentioned in Eryigit, S. and Ter, U., 2014, p. 148).

In 2016, Filipina Senator Pia Cayetano, introduced the Sustainable Transportation Act or House Bill No. 582 (2016):

An Act promoting sustainable and alternative modes of transportation and other mobility options to improve air quality, increase efficiency, reduce congestion and contribute to positive health impacts in our society. (p.1)

Through this Act, she “proposes that a “sustainable transport action plan” be devised to promote walking, cycling and the use of improved public transport systems to go to and from school and the workplace.” (“Pia Cayetano’s bill”, 2014). In addition, the Inclusive Mobility Network, a local alliance of 20 plus inclusive mobility groups and agencies, have specified ten principles of inclusive mobility, one of which advocates for increased non-motorized transport use: “A walkable, bike-able, accessible city. To move the city, every person should be able to carry himself, if not all the way, then part of the way. Everyone who can, must walk, bike, commute, and only as a last resort, take the car.” (“Traffic and inclusive”, 2015)

Sustainable mobility also includes climate change mitigation it includes environmental, economic and social scopes. As mentioned by Senator Cayetano in the Sustainable Transportation Act (2016),

Transport is a vital part of the activities, goods, and services required to support and improve people’s lives. At the same time, however, it also consumes resources and imposes negative side effects. Carbon monoxide, a type of toxic gas emitted by cars and other motor vehicles, is largely responsible for the smog and air pollution in the country as well as respiratory diseases, headaches and other ailments. The fuel used to run cars and motor vehicles is
costing the Philippines more than One Billion Pesos a day. Our dependence on imported fossil fuels has a multiplier effect in the process of basic commodities, goods and services. (p.1)

Senator Cayetano is indeed proof that women are slowly becoming central to the implementation of sustainable transportation policy.

“…suppose everyone were to agree that sustainable mobility were necessary entail reducing VMT or vehicle miles traveled. Among the many and varied approaches to achieving this goal are to: increase vehicle occupancy, reduce number and/or length of trips, shift travel to transit or non-motorized modes, use information technology instead of traveling or change land use patterns to bring destinations closer together. How might each of these options affect understandings and practices of gender? How does social and geographic context affect these processes? And how might gender affect the viability of any of these options in various contexts? At present, we have no idea.” (Hanson, 2010)

Apart from gender, inclusive mobility also covers the right of the poor to transportation. “The Inclusive Mobility Network envisions the impact of inclusive mobility to be “a safe, seamless, well-connected, accessible, and user-friendly Metro Manila sustainable urban transport system that works for all Metro Manilans, especially the poor, the vulnerable, the disadvantaged, and the marginalized.” (“Traffic and inclusive”, 2015)

**Poverty and Urbanization**

The first sustainable development goal of ‘ending poverty in all its forms everywhere’ is still a tall one even if the initial objective of reducing the number of extremely impoverished in half was achieved since it was first proposed in 2000 (UN, 2015). According to the National Statistical Coordination Board (NSCB) of the Philippines, there was no significant change in measured poverty incidence between 2012 at 27.9% and 2009 at 28.6% (www.nscb.gov.ph).

In his seminal book, *The End of Poverty*, Sachs (2005) states that modern economic growth is inevitably accompanied by urbanization, or ”a rising share of a nation’s population living in urban areas” (p.36). Two reasons behind why economic growth and urbanization are correlated are “rising agricultural productivity [in rural areas, and]...the advantage of high density urban life for most non-farm economic activities” (Sachs, 2005, p.36). Wirtz and Volkmann (2015) mention that in 2014, “54 percent of the world population lived in cities…and by 2050, 66 percent of the world’s population are expected to live in cities (United Nations, 2014)” (p. 158).

Apart from cities being dynamic hubs of culture, business, and life, “they’re also often centers of extreme poverty. To make cities sustainable for all…We can invest in public transport, create green spaces and get a broader range of people involved in urban planning decisions. That way, we can keep the things we love about cities and change the things we don’t” (UN, 2015). One way of investing in and developing sustainable public transport is the standardization of informal transit providers such as pedicabs.
II. Literature Review

Pedicabs as Informal Transit and Sustainable Urban Transport

Urban centers in developing nations tend to experience many challenges in the transport sector. Gozun & Guillen (n.d.) expound:

…from congestion to environmental degradation – and the Philippines is no exception. Heavy traffic has become a “normal” occurrence for people and this has definitely lead to higher opportunity costs related to the movement of people, goods and services. The physical environment has greatly deteriorated given the huge amount of vehicles on the roads in spite of soaring fuel prices. Such transportation scenario in the Philippines lends credence to the application of sustainable transport schemes that can alleviate transportation-related problems in the country (p. 2).

Cervero (2001) determined that transit systems are exceptionally versatile due to the manner in which transport providers have to adapt to “emerging markets and technology…[in which they] are keenly aware of the slightest changes in market conditions and accommodate to them” (p.16). This dynamic market behavior propels innovation which caters to travelers needs so that “one finds a kaleidoscope of transit services, marked by vehicles of different sizes, operating speeds, service coverage, seating capacities, and levels of comfort. Fares vary accordingly” (Cervero, 2001, p. 16).

This type of ‘entrepreneurial transit’ allows for a match between driver and passenger in that “those who are willing to pay for transport services hook up with those who are willing to provide them. Many carriers are not licensed; hence “informal” (Cervero, 2001, p. 16). An example of unlicensed and informal transit providers are “public non-motorized transportation (NMT) in the form of pedicabs or bicycles with attached side-cab is commonly found in most cities and towns of the Philippines. This type of pedal-driven, public transport service employs a large number of people living below the low-income bracket” (Gozun & Guillen, n.d., p. 4).

Pedicabs fall under informal transport services because they operate in the absence of official endorsement. Cervero & Golub (2007) offer: “…this means vehicles and operators do not have appropriate licenses, permits or registration papers from public authorities to provide collective-ride services to the general public. The absence of official endorsement also means that most do not meet driver or vehicle fitness standards and are not properly insured or indemnified” (p.446).

Megacities such as Metro Manila are crawling with pedicabs which have become an ancillary form of transport to “the Philippine Utility Jeepneys (PUJs), especially for those requiring a change in travel mode along the way to complete their trip. It provides a convenient means of transport from the main highway to tributaries such as the barangay (the smallest political-geographical unit of the Philippines) roads leading to prominent subdivisions or local markets” (Gozun & Guillen, n.d., p. 4).
Groups of moderately impoverished, typically male, pedicab drivers in Manila have been in business for some time now. “Most drivers are low-skilled younger men who migrated to cities from the countryside. An overabundance of idle labor...make informal transport an attractive employment opportunity” (Cervero & Golub, 2007, p. 446). Furthermore, pedicabs “are mostly characterized by the presence of associations, an informal but well organized association of pedicab operators and drivers which were formed in order to settle issues of terminals, queuing systems and fare rates” (Gozun & Guillen, n.d., p. 5).

General issues that plague pedicabs in Manila include:

(1) The Metro Manila Ordinance in 1990 which banned them from plying highways and major thoroughfares because of traffic congestion caused;
(2) Pedicabs do not “fit the standard classification for public transport, and hence, does not really fall under any form of regulations form the government’s Land Transportation Office (LTO). The agency is technically only in control of vehicles with motors”; 
(3) Pedicabs are perceived as representing economic underdevelopment; and
(4) Absence of soft (actual policies) and hard infrastructure (such as bicycle lanes and facilities) because current ordinances “only have specifications on the route that pedicab drivers could use. Survey among pedicab drivers showed that they follow local government policies specifically, the zone where they are allowed to operate” (Gozun & Guillen, n.d., p.5).

Repogle (1998) concludes that pedicab driving is not only innovative means of livelihood, but also demonstrates “that the transport sector can be done in an economical and environmentally sustainable way” (as cited in Gozun & Guillen, n.d., p. 5). Peria (1997) as cited by Gozun & Guillen (n.d.) enumerates what sustainable transportation entails:

(1) expansion of levels of service; (2) diversification of transportation modes; (3) a balanced land use plan; (4) more efficient use of energy and low-polluting technologies; (5) reduction of health and safety risks; (6) reduction of negative environmental impacts; (7) concept of social equity; and, (7) citizen participation. Clearly NMT permeates through all these factors which would lead towards a sustainable transportation environment. (p. 2)

Now that it has been established that pedicabs are a major component of sustainable megacities, SDG number 8 now comes to the fore, as it aims to “promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all” (UN, 2015). Despite the expansion of the middleclass globally, the gap between rich and poor has likewise been increasing, coupled with the inability to provide jobs to the mounting labor force (UN, 2015). Enterprising freelance pedicab transport providers “own and operate most of the vehicles, serving populations that are largely poor—many of them very poor. And yet operators are able to earn enough to cover costs and make a living, while charging fares their customers can afford” (Cervero, 2001, p. 16).

This adaptability and spontaneity in innovation matches the level of dynamism of hyper industrialized urbanized areas (Cervero, 2001). Apart from providing sustainable transport, it is also a source of livelihood, which benefits many marginalized communities, “given the
unemployment issues in the Philippines, the role of pedicab operations in this aspect should be considered especially in residential areas” (Gozun & Guillen, n.d., p. 7).

Strategic alliances can be formed to address the need to develop sustainable transportation which is already being advocated by “development agencies, transport planners and academics. This is a strategy that focuses on the importance of non-motorized transport, achieving strategies on self-sustaining economic growth, use of mass public transport and the integration to urban development efforts” (Gozun & Guillen, n.d., p. 7).

**Feminism in the Philippines**

According to dela Cruz and Peracullo (2011), “the term ‘feminista’ conveys the origins of the critique of gender in the oppression of women and the marginalization of all things feminized.” P. x ‘This study takes the perspective of liberal feminism, which focuses on individual rights and on the concepts of equality, justice, and equal opportunities.” (p. x)

In DLSU philosophy professor Rosallia domingo’s essay, she offers, that

Women’s oppression may be rooted in culture. Women tend to accept their inferior position in society because it is part of their culture…In Filipino culture for example…Patriarchal societies condemn the act of subordination of men by women, but encourage the subordination of women by men, without recognizing that either way is pernicious…Indeed, socio-cultural gender expectations are predominantly determined by the patriarchal view of sexual difference that exalts the male and marginalizes the female.” (see dela Cruz & Peracullo, 2011, pp. 39-40)

A study on urban mobility and gender done in Jakarta, puts forth the obligation to generate more awareness of gender bias in transportation experience and policy, as this can enable positive social change towards equality and even empowerment.

Because both megacities and transport are relevant to possible modernization processes, urban transport is of particular significance with regard to improving the position of women and their empowerment…[in so far as] the perception of transport problems and the establishment of priorities when designing a transport system are concerned, the most severe gender-related difficulties have occurred. In addition, it also addresses those areas where – apart from decreasing traffic generation – transport measures can make the greatest contributions to reducing gender inequality. (Spitzner, Weiler, Andi, & Turner, 2007, p. 2)

**The City of Manila, Taft Avenue, and Pablo Ocampo Street**

Pre-colonial Manila was a port settlement by the bay, which later became known as the Kingdom of Tondo. Maynilad soon developed into a melting pot of indios, mestizos, and Chinese merchants, co-existing in the bustling hub (http://cityofmanila.com.ph/page/2/). When Spanish conquistador Miguel Lopez de Legaspi noticed its strategic position as a trading center and military outpost, he promptly declared the vicinity as the capital of Spain’s new colonies on June 24, 1571. Manila seemed destined to become the busy asphalt jungle it is today.
One of the first major road thoroughfares to be completed in Manila was Taft Avenue. Originally opened in 1899 as Calle Rizal, it was renamed in 1984 after the former Governor-General of the Philippines and U.S. President William Howard Taft. This main artery cuts through the three major cities of Manila, Pasay, and Parañaque. The first LRT or Light Rail Transit Line was built over Taft Avenue, and opened in 1984 as well.

Cutting through Taft Avenue, is Pablo Ocampo Street (formerly known as Vito Cruz), renamed in 1989 after Manila native and statesman Pablo Ocampo. This inner city main road spans 3.4 km west-east, linking Malate and San Andres with Makati City. At west end is the famous Roxas Boulevard which spans historical landmarks such as the Walled City of Intramuros, the Cultural Center of the Philippines Complex, Chinatown in Binondo, and the Bangko Sentral ng Pilipinas.

Near Rizal Memorial Coliseum, a block down from the corner of Pablo Ocampo and Taft, and the Vito Cruz LRT Station are the campuses of De La Salle University (DLSU) and the College of St. Benilde (CSB-DLSU). Further down Pablo Ocampo Street, going towards Osmeña Highway are St. Scholastica’s College and the CSB School of Design and Arts (CSB-SDA), while along Estrada Street is the CSB-School of Hotel, Restaurant and Institution Management (CSB-SHRM) and the Angelo King International Center.

Due to the clustering of educational institutions in the area, a number of high-rise residential establishments have emerged such as Cityland, Torre Lorenzo, EGI and One Archer’s Place. To further service the student population, malls such as Harrison Plaza and University Mall also located in the neighborhood.

Demographics

According to the 2015 Census of Population, as of August 1, 2015, the population of the Philippines was 100,981,437, with an annual growth rate of 1.72% from 2010-2015. (Philippine Statistics Authority, 2016)

With a land area of 24.98 square kilometers, population density of the City of Manila registered at 66,140 persons per square kilometer in 2010. The population density of the City of Manila was more than three times that of the NCR, making it the most densely populated city in the entire country. (Philippine Statistics Authority, 2016)

In 2006, it was estimated that Manila’s population due to an influx of 150,000 migrants a year, and city daytime population “is about a million more because of transients and those who work in the city” (Welcome to the City of Manila, 2001.). In terms of age structure, the 15-24 range make-up 19.17% of the total population wherein there are 10,042,520 males and 9,629,762 females. As for population per age range, 15 to 19 year olds amounted to 166,391 and 20-24 year olds amounted to 175,310. (indexmundi, 2014) In 2010, gender ratio in the City of Manila was 96 males for every 100 females.

Manila is home to over 40 universities and colleges including the DLSU Taft campus, which is the largest in the De La Salle University Philippines system (10,000-14,999 enrollment range);
De La Salle-College of St. Benilde (8,000-8,999 enrollment range); and St. Scholastica’s College (2,000-2,999 enrollment range) which are all located in and around Taft Avenue corner Pablo Ocampo Street (World Universities Search Engine, 2016).

Since this paper aims to understand the difference in passenger perception of males and females of pedicabs, as sustainable transport service, it is important to look into the role of the passengers in service delivery. Bitner, Faranda, Hubbert and Zeithaml (1997) proposed that taking the customer’s point of view by recognizing their contributions to the delivery of services, increases the quality of service experience they receive.

**Transportation as an Act of Service**

C. H. Lovelock (1983) claims that understanding the nature of service act is essential in effective services marketing strategy formulation. Using his five-classification scheme of services characteristics, we can further analyze pedicab paratransit as an act of service. Passenger transportation is a tangible action directed at people’s bodies, as it allows for them to get from one point to another. Zeithaml, Bitner and Gremler (2013) define tangibles as “the appearance of physical facilities, equipment, personnel, and communication materials. Tangibles provide physical representations or images of the service that customers, particularly new customers, will use to evaluate quality” (p.91).

Passenger transportation is an informal transaction and discrete act “where each usage involves a payment to the service supplier by an essentially "anonymous" consumer” (p.14, Lovelock, 1983). Unlike products, services are not purchased ‘off the shelf’ and therefore, consumers post-purchase of a tangible product, can use them as they deem appropriate. Services on the other hand, “are created as they are consumed, and because the customer is often actually involved in the production process, there is far more scope for tailoring the service to meet the needs of individual customers” (p. 15, Lovelock, 1983). Furthermore, informal transport is not as organized as formal modes so “service production quite often lies at the hands of a single individual – the owner-operator” (Cervero & Golub, 2007, p. 449).

When evaluating customization and judgement in service delivery, pedicabs can be likened to taxi services in that they address the same need of individual passengers to travel to a particular destination, wherein there is freedom to choose routes. Therefore, there is a high extent to which service characteristics are customized, as compared to mass transport modes which follow fixed routes adhering to a predetermined schedule. Lovelock (1983) expounds:

Deliverers of such services as taxi drivers, beauticians and plumbers are also found in this category. Their work is customized to the situation at hand and in each instance, the customer purchases the expertise required to devise a tailor-made solution…However, there is a class of services that not only involves a high degree of customization but also requires customer contact personnel to exercise judgment concerning the characteristics of the service and how it is delivered to each customer. Far from being reactive in their dealings with customers, these service personnel are often prescriptive: users (or clients) look to them for advice as well as for customized execution. In this category the locus of control shifts from the user to the supplier—a situation that some customers may find disconcerting. (pp. 15-16)
As for the nature of demand and supply of services, supply cannot be inventoried for finished services due to the characteristics of intangibility and perishability. Potential income is lost forever when passengers do not avail of the transport service at the moment it is available. Conversely, if the demand for a service exceeds supply on a particular day, the excess business may be lost” (Lovelock, 1983, p.17). Cervero and Golub (2007) mention that there is indeed a lack of capacity in that “system of small operators, even well organized, operating in crowded line-haul type corridors, many times cannot meet all of the peak demand for some of the lines. (p. 448)

In terms of the method of service delivery, pedicabs require direct physical contact for passengers to avail of the transport benefits as against other kinds of services that can be experienced off-site or ‘at arm’s length’. The customer must go to the site of service, in this case, the pedicab station. Lovelock (1983) elaborates:

The convenience of receiving service is presumably lowest when a customer has to come to the service organization and must use a specific outlet. Offering service through several outlets increases the convenience of access for customers but may start to raise problems of quality control as convenience of access relates to the consistency of the service product delivered (p. 18).

III. Research Problem

To gain an understanding of the perception of male and female students of pedicab transport service, open-ended research questions such as the following were asked:

1. Give some pedicab driver qualities and characteristics that you have observed.
2. What discourages you from riding a pedicab?
3. Give suggestions and comments regarding pedicabs operating in this area.

IV. Objective of the Study

This exploratory case study aims to shed light on the unique experience of women as pedicab passengers in a gender biased context, in light of their inadvertent contribution to national and global sustainable mobility efforts. This study aims to explain the gender differences in pedicab transport service perception between males and females in and around DLSU-Taft Manila.

V. Theoretical Framework

Customer Perception vs. Customer Expectation

Zeithaml et al (2013) proposed the Customer Gap model that has two main factors namely, customer expectations and customer perceptions.
Customer expectations are standards or reference points that customers bring into the service experience, whereas customer perceptions are subjective assessments of actual service experiences…Customer expectations often consist of what a customer believes should or will happen. (p.35)

The purpose of this model is to identify factors that will close the gap “between what customers expect and what they perceive [as] it is critical to delivering quality service” (Zeithaml et al, 2013, p. 35). Furthermore, “expectations serve as standards or reference points for customers. In evaluating service quality, customers compare what they perceive they get in a service encounter with their expectations of that encounter” (Zeithaml et al, 2013, p. 117). Perceptions therefore “are always considered relative to expectations. Because expectations are dynamic, evaluations may also shift over time – from person to person and from culture to culture” (Zeithaml et al, 2013, p. 79). Essentially, the goal of services marketing is to close the gap between customer perceptions and expectations.

**Passenger Perception of Pedicabs**

Zeithaml et al’s (2013) theoretical model called The Zone of Tolerance is, “the extent to which customers recognize and are willing to accept this variation” (p. 54) in their highest expectation of desired service versus what they perceive is the ‘minimum tolerable expectation’ of adequate service. Since pedicabs are an unstandardized, unrecognized, and informal mode of paratransit, then it is safe to start with passenger perception first, which is to say, a definition of adequate service for passengers in and around DLSU Taft-Manila.

Barabino & Deiana (2013) highlight the importance of measuring customer perception of transport services which “implies to have a detailed understanding of what end-users require, and accordingly, redirect quality based policies towards the improvement of those elements more influential in ensuring customers retention whilst promoting new riders acquisition” (p.19). A study on Perceived Service Quality of Youth Public Transport by Yarmen, M. & Sumaedi, S. (2016) support the former by defining service quality as “an abstract and elusive concept [which should be] viewed using the perception of the service business’s customer” (p.100). Furthermore, the study differentiates the attitudes of young passengers from those of adults.
VI. Research Methodology

This exploratory case study employed the face-to-face intercept sampling method, in which 105 pedicab users were surveyed. We aimed to gain insight on the riding experience of passengers from four pedicab stations in and around the De La Salle University, Taft Avenue, Manila campus. Data gathered along with an extensive review of related literature will contribute to local government policy on these pedicab entrepreneurs, so that positive social and environmental outcomes will be realized as well as empower women towards gender equality not only in the realm of transportation but in iconology as well. The perspective taken is via a liberal feminist lens which allows for a radical humanist foundation.

VII. Significance of the Study

This study will significantly contribute to the knowledge on the pedicab service sector as sustainable transport, in the following aspects:

a. Improve the service quality of pedicabs.
b. Standardize passenger experience of pedicab transport service.
c. Contribute to proper formalization of pedicabs as mass paratransit.
d. Help in poverty alleviation.
e. Contribute to climate change adaptation & mitigation.

In terms of challenging gender bias in the transportation experience, this study can enlighten policy makers to emulate efforts in other countries. Efforts in creating policies that are gender neutral and inclusive will slowly turnaround the living conditions of Metro Manila towards that of a true sustainable city.

VIII. Results and Discussion

A total of 105 respondents were interviewed via mall-intercept method, in 5 pedicab stations surrounding the De La Salle University campus. Most of the respondents are students aged 17-21 and female. Based on the data in table 1 below, even if respondents’ frequency of pedicab use mostly leans towards once a month to once a week, almost half or 47.62% of the respondents found pedicabs to be generally useful.

Table 1
The Respondents' Demographic and Psychographic Profile

<table>
<thead>
<tr>
<th>Variable</th>
<th>Category</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender</td>
<td>Male</td>
<td>44.80%</td>
</tr>
<tr>
<td></td>
<td>Female</td>
<td>55.20%</td>
</tr>
<tr>
<td>Profession</td>
<td>Student</td>
<td>82.90%</td>
</tr>
<tr>
<td></td>
<td>Professional</td>
<td>13.30%</td>
</tr>
<tr>
<td></td>
<td>Unemployed</td>
<td>3.80%</td>
</tr>
</tbody>
</table>
Marital Status | Single | 92.40% | Married | 7.60%
--- | --- | --- | --- | ---
Age | 17 - 21 years old | 77.10% | 22- 26 years old | 11.50% | 27 and above | 11.40%
Usefulness of Pedicab | Definitely Not Useful | 3.81% | Generally Not Useful | 12.38% | Neither Useful nor Not Useful | 26.67% | Generally Useful | 47.62% | Definitely Useful | 9.52%
Frequency of Pedicab Use | Not Often (Once a month) | 37.14% | Somewhat Often (twice a month) | 21.91% | Neither often nor not often (once a week) | 24.76% | Often (at least 3x a week) | 11.43% | Always (everyday) | 4.76%

Based on the most mentioned passenger routes used by students interviewed, 14 out of 105 respondents mentioned these five pedicab stations, lined up on Taft Avenue nearest the DLSU Manila campus: (1) across Torre Lorenzo on Pablo Ocampo Street; (2) across or beside Jollibee on Pablo Ocampo Street; (3) between Torre Lorenzo and Pablo Ocampo LRT Station on Taft Avenue; (4) beside Tropical Hut on Estrada Street; and (5) beside One Archer’s Place on Castro Street. See figure 3 below:

Figure 2. Informal pedicab stations on Taft Avenue, nearest DLSU Manila Campus

Five informal pedicab stations have inadvertently situated themselves at least 100 meters from each other on Taft Avenue, spanning from the corner of Pablo Ocampo Sr. Street to One Archer’s Place, which is only 550 meters apart. Based on the data, most of the student
passengers interviewed paid an average of Php 30 to get from any point in this 550 m distance. Comparing this price point with other prices given, such as a 3.2 km ride between St. Peter the Apostle School on Quirino Avenue to Mendiola priced at Php 40-70, depending on the number of passengers, clearly shows the unstandardized and inequitable nature of fare rates.

**RQ1: Give some pedicab driver qualities and characteristics that you have observed.**

For female top of mind and most frequently mentioned pedicab driver attributes had to do with the perception of safety the pedicab drivers can provide. According to them, they service providers who do not look shady and are kind and friendly (but not too friendly) are the ones they feel more comfortable with, as one mentions, “Kadalasan pumipili kasi ako ng pedicab driver na maayos tingnan. Di ko na iniisip kung madumi sila tingnan, basta maramdaman ko lang na mapagkakatiwalaan ko sila.” (I choose a pedicab driver who looks decent. I do not really consider their level of hygiene, as long as I feel that they are trustworthy enough to ride with.)

Concerns about convenience took precedence for the males, over safety. Some respondents mentioned the importance of skilled driver who are knowledgeable of alternative routes to avoid getting caught in traffic.

**RQ2: What discourages you from riding a pedicab?**

The most frequently mentioned reason by female respondents was the “shady, suspicious, and untrustworthy character” of the pedicab drivers. Most were negative perceptions of the drivers in that they seemed capable of kidnapping, robbery, murder, and rape. One mentioned: “[I have] a fear of getting robbed or being deceived.” Another said, “Dangerous, the pedicab driver might rape me.” And still another revealed, “I might have a chance to ride with a sketchy looking driver and there are a lot of modus operandi that involves pedicabs.” Another negative perception had to do with the behavior of catcalling by some service providers. Comments such as, “Another thing that would discourage me is that the pedicab drivers look like they are going to do something bad to you or if they start catcalling.” were recorded. Some male respondents shared the same sentiments, one even said, “when they look at my friend in a bad way.” Though this was the second most frequent answer given by males, their biggest complaint being, price.

Price was the second most commonly mentioned reason why female passengers are discouraged to take pedicabs. They find it unfair that prices are noticeably higher in the area, compared to other stations in the city. The high price variability is most annoying to them, shown by comments such as,”Pagwala kang kilalang [driver], tapos di tama maniningil, minsan magagalit pa.” (If you don’t know the driver, there is a tendency for them to charge high and if you don’t agree, they get angry.)

Third came the lack of maintenance of the pedicab. Females and males notice the state of degradation most vehicles are in, and they find this discouraging. The ‘flimsy, dirty, old, smelly pedicabs’ do not provide an inviting experience. Aside from that, because of its structure of being too low or close to the street, with little headroom, makes for an uncomfortable ride.
especially in the flood or over potholes; while the cab itself provided little protection from rain, CO2 and smog.

Other attributes mentioned, that discourage both males and females from riding pedicabs, have to do with how they see drivers treat each other or other passengers. Sometimes they witness rudeness and disrespect, which makes them dislike pedicabs. They also think that pedicabs are useless in traffic jams as they would rather walk instead; and that some drivers look like unhygienic drug addict-reckless drivers.

**RQ3: Give suggestions and comments regarding pedicabs operating in this area.**

Respondents had very helpful comments about the pedicabs as a transport service provider in the Taft Avenue-Pablo Ocampo area:

- Have better terminals to reduce traffic, like HK and Singapore.
- Apply pedicab laws to provide a better flow of traffic, have a pedicab license.
- Improve structure of cabs for safety reasons, and keep them clean and well-maintained.
- Follow rules, just like everyone else.
- Standard pick-up/drop-off points.
- Price standardization and fare matrix, senior citizen and student discounts
- Better health and hygiene practices of drivers, and provide them with uniforms.
- Instill a better service culture for delightful customer service for all passengers.

**IX. Conclusion and Recommendation**

This study aims to help fill the gap in data about gender and mobility, which feeds transportation policy, and hopefully positive social change. Many issues are put forth by the feminist lens, as cultural norms of female oppression are apparent in the interface of some female passengers and pedicab drivers. Catcalling was a major contention of both female and male passengers, apart from the appearance of the drivers.

The use of the service marketing Customer Gap model in discerning differences in service perception between genders was a practical way of discovering the gender bias experienced by females in the city, as paratransit users. This exploratory case study sheds light on the reality of pedicab drivers and pedicab passengers as they inadvertently save the planet through non-motorized transport use.

Considering pedicab drivers are from indigent communities, the value system disconnect with the respondents is stark in the observations about behavior, appearance, hygiene practices, and the pedicab itself. Despite this gap, it is optimistic that transportation unites people from different income strata through the daily transportation experience.

It is our hope that gender inclusivity in the daily travel experience of both males and females can be realized through papers such as this.
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National Statistics Commission Board. Poverty incidence unchanged, as of first semester


Influence of Online Community Characteristics on Consumer Engagement and Brand Loyalty

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Abstract

The increase of global economic competition, digital media usage became a great tool for firms to innovate towards sustainable relationship marketing strategy. Among the strategy is using social media platform for online brand engagement to encourage brand loyalty. Thus, this study investigated the key characteristics of online brand communities on Facebook. Characteristics identified are: systems quality of the platform, information quality provided by the fellow community members through the webpage, virtual interaction within the community members and rewards given by the company to encourage the consumers engage in communities. These characteristics were investigated to know if it translates to brand loyalty of community members. The study adopted a survey questionnaire from various authors who studied the similar scope of this study. The instrument has been pretested to see how the respondents adopt to the instrument. It was also tested for validity and reliability using a computed Cronbach alpha. Confirmatory factor analysis was used to measure how well the adopted variables represent the constructs. Regression was used to test the hypotheses and analyze the hypothesis. Results showed that these characteristics of online brand community significantly influences consumer engagement and towards brand loyalty. However, system quality, information quality and virtual interaction showed to have shared characteristics and rewards had been separated towards consumer engagement. It has been concluded from the results of this study that to maintain online consumer engagement, active involvement with brand community page and constant offering of rewards is an effective tool to encourage sustainable brand loyalty. It was recommended that firms should take advantage of the social media to capture brand loyalty of the online market, and focus on enhancing virtual interactivity of consumers, use to information and offer rewards.

Key Words

Online marketing; brand loyalty; relationship marketing
Background of the study

In this era of information age, technologies have advances the interaction and communication of the society which gave birth to social media platforms (Jang, Olfman, Ko, Koh, & Kim, 2008). These platforms such as the Facebook gave the people the opportunity and power to express and define themselves in many ways that satisfy their social life. Groups and communities has emerge online and these has been taken advantage by firms in marketing their product (Ul Islam & Rahman, 2017). It has been seen that frequent interaction on these online community had been very effective and efficient avenue to market products because of its flexibility and the capacity to influence customers thus creating brand loyalty of the (Brodie, Ilic, Juric, & Hollebeek, 2013a). Managing communities is in a form of customer relation management that firms invest on.

To enhance the understanding of online consumers’ interaction with online communities, and its’ capacity to affect brand loyalty, studies have been made however scanty in number. This failed to make generalization. Thus, study seeks to fill the gap by investigating this aspect in a different environment.

Objectives of the study

Mainly, the objective of the study is to identify what key characteristic of online brand communities significantly influences consumer engagement. These key characteristics specifically are information quality, system quality, virtual interactivity, and rewards. Other objective of this study is to determine how significant does customer engagement influences brand loyalty. Finally, this study seeks to formulate recommendations to company’s marketing managers to improve the use of online social media platforms.

Scope of the study

This study on the characteristics of online community brand engagement by consumers focuses on ungraduated BS Tourism students in a university which are believed to be active in online activities. These group of students ages between 10 to 29 years old who have active social media accounts and has engaged in online brand communities. The key characteristics of online brand community, the information quality, system quality, virtual interactivity, and rewards in for this study were adopted from previous studies of (Brodie et al., 2013a; Chan, Zheng, Cheung, Lee, & Lee, 2014; Jang et al., 2008; Ul Islam & Rahman, 2017).

The data for this study used both primary and secondary data. Primary data was collection utilized an instrument adopted from (Ul Islam & Rahman, 2017) and modified to suit to the level of the respondents. Secondary data were from credible sources such as books and published journal articles to assist the researcher to achieve the objectives.

Review of Literature

Information Quality
In online engagement by consumers, information quality is the most influential construct (Ul Islam & Rahman, 2017). It is described as the content and format of data that is relevant, accurate, complete, well-represented and understandable (Gorla, Somers, & Wong, 2010) and provided through the community (Jang et al., 2008).

Recent study shows that when the content is updated and members are actively discussing, it is more likely to entice other consumers to participate in conversations (Baldus, Voorhees, & Calantone, 2015b). Results from the research conducted by (Jang et al., 2008), the quality of information given by community members did not show significant variance because the information provided by the brand itself is already sufficient. However, information about the brand that directly addresses to the specific members’ needs which is provided by another member are recognized to be more objective and useful than from other sources by the member (Zaglia, 2013).

System Quality

A well-structure, design and implemented system is necessary to entice engagement by the consumers. System quality refers to the speed and convenience in searching for an information in a community site (Jang et al., 2008). It is also a measure of the characteristic of a website that is being user-friendly, understandable, updated system, efficient and effective to use (Gorla et al., 2010)

Participation by members in online community discussions about a brand is influenced by the quality of the system. Studies shows that the degree of interaction in online communities is influenced by the systems’ ability to provide real-time updates that can entice members to react and give an active conversation. Moreover, ability of the system to provide members to embed inputs such as texts, photos, audio and video promotes greater interactivity (Algesheimer, Dholakia, & Herrmann, 2005).

System quality influences customer engagement and commitment. (Chan et al., 2014), presented that a high system quality supported by the members of the online community showed to significantly influence customer engagements because it provides direction and ease of communication. However, when there is a fast internet connection, system quality and information quality do not affect community commitment (Jang et al., 2008).

Virtual Interactivity

Virtual interactivity refers to the degree of information exchanges among the members of the community and the page manager (Jang et al., 2008). Previous studies shows that virtual interactivity strongly affects customer engagement (Barreda, Bilgihan, Nusair, & Okumus, 2015; Mpinganjira, 2016; Ul Islam & Rahman, 2017). Community members are most likely to engage in discussions when they are looking for assistance from other members of the community that expresses their knowledge and experience on the product (Baldus, Voorhees, & Calantone, 2015a). Thus, successful online brand communities allow their members to freely express their sentiments, connect with each other, post reviews, contribute and update information (Chan et al., 2014; Ul Islam & Rahman, 2017). Common discussions are about their personal experiences.
in using the product, price, quality in terms of safety and benefits and suggestions for product innovation. This has been supported by another study of (Brodie et al., 2013a) where they proposed three dimensions of consumer brand engagement: the cognitive, affection, and activation. Their results showed that affection for the brand attracts the consumers to participate in community discussions.

**Rewards**

Consumers are motivated participate in online community platforms because of benefits such as the rewards and entertainment they receive (Gummerus, Liljander, Weman, & Pihlström, 2012; Zheng, Cheung, Lee, & Liang, 2015). There are two types of rewards. One is hedonic which refers to monetary rewards, prizes, incentives, and products expected to acquire. While the other is utilitarian (psychological) which refers to a reward of having fun, enjoyment, friendly environment, and possession of a social status (Baldus et al., 2015a; Jang et al., 2008).

Previews study showed that rewards and recognitions significantly affects customer engagement because they feel necessitated to participate and express more determination to the community (Chan et al., 2014).

**Customer Engagement and Brand Loyalty**

Brand loyalty is a consequence from community engagement according to (Harrigan, Evers, Miles, & Daly, 2017). For instance, (Laroche, Habibi, Richard, & Sankaranarayanan, 2012) who studied effects of social media based brand community on brand loyalty. They found out that online brand communities influence brand loyalty when members use the product and provide positive feedback about the brand. Members who frequently participate in online brand communities do not only show loyalty to the brand but are more likely to purchase the product and endorse the same (Chan et al., 2014). These users showed to place their position on using the product and maintained long-term commitment on it which then resulted to increase brand loyalty (Dessart et al., 2015; Zheng et al., 2015). Meanwhile, (Brodie et al., 2013a) identified five specific consumer engagement sub-processes that generates consumer loyalty, the learning, sharing, advocating, socializing and co-developing.

However, in another study, there are active members who possess multiple community membership. They argued that their attitudes and behaviors cannot predict positive recommendations about the brand (Hammedi, Kandampully, Zhang, & Bouquiaux, 2015).

**Theoretical framework**

The theoretical framework for this study is adopted from the research of (Ul Islam & Rahman, 2017). They applied the stimuli-response-organism paradigm in investigating online brand community characteristics, consumer engagement and brand loyalty and included gender as a moderating variable to consumer engagement. The framework indicates that each key characteristics the information quality, system quality, virtual interactivity, and rewards are the stimulus to respond or engage in online brand communities which then translate to brand loyalty.
as shown in figure 1 below. The same is applied to this study except for the gender. Still, I expect that the independent variables would influence the dependent variables.

![Theoretical framework of Ul Islam & Rahman, (2017).](image)

Based from the framework above and reviewed literatures, the following hypothesis were made.

- **H1:** System quality in an online brand community negatively influences customer engagement.
- **H2:** Information quality in an online brand community negatively influences customer engagement.
- **H3:** Virtual interaction in an online brand community negatively influences customer engagement.
- **H4:** Rewards in an online brand community negatively influences customer engagement.
- **H5:** Customer engagement in an online brand community negatively influences brand loyalty.

**Method(s) of Data Collection and Analysis:**

The locale of the study was conducted in a big university in Metro Manila who have a total of 450 BS Tourism students. The study selected these group for respondents for they have the highest population on social media and notably to more active on in community engagements (Nusair, Bilgihan, Okumus, & Cobanoglu, 2013; Ul Islam & Rahman, 2017). This study used the Facebook as the social media platform for it serves as an effective website to establish online community for brands and maintain customer relations.(Ul Islam & Rahman, 2017).
During July 2017, 250 questionnaires were distributed. Before conducting the survey, students were brief about online brand communities and only those who liked or followed a brand page were taken as respondents. However, there were only 241 completed and returned questionnaires. Due to the lack of integrity of some responses, 10 responses were rejected which resulted to an actual sample size of 231 for analysis. There were 125 students under 10-19 years old and 106 respondents under 20-29 years old. Respondents comprises mostly of 144 females while there were only 87 males.

The questionnaire contained 31 items and all of them were answerable by a 7 point Likert-scale based on a scale form “Strongly Agree” to “Strongly disagree”. Other information asked for demographics and qualifying questions. All the information used in this analysis was derived from the questionnaire data. The questionnaire has been adopted from (Brodie et al., 2013; Jang et al., 2008; Ul Islam & Rahman, 2017).

The instrument has been sent for pretesting to respondents who has the same characteristics as the main respondents of the study. Preliminary data analysis where first performed where in normality and test for multicollinearity was checked. Then, confirmatory factor analysis (CFA) was used to check the psychometric characteristic of the scales used by testing the concurrent and convergent validity using STATA 11. However, results from initial factor analysis with 6 factors showed to have mostly weak (<.5) factor loadings. The data was further run using factor analysis to 4 factors then results showed to be more satisfactory as showed in figure 2. Then, 7 items were deleted which had weak (<0.5) factor loadings in addition to the content validity of the data. As shown in table 1 below, factor1 consist of the three dimensions of online brand communities, the system quality, information quality and virtual interaction; this means that for this particular study, these constructs share the same characteristics. Interestingly, rewards came out to have a different factor as in factor 4. Factors 2 and 3 represented customer engagement and brand loyalty respectively.

However, the computed Cronbach $\alpha$ from the new factors showed to be very poor (<0.5) because the factors used to compute differs from the adopted questionnaire.

<table>
<thead>
<tr>
<th>Construct</th>
<th>Items</th>
<th>Factor1</th>
<th>Factor2</th>
<th>Factor3</th>
<th>Factor4</th>
<th>Cronbach $\alpha$</th>
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Then, regression was used to test the model and assess the relationships between the constructs in this study.

**Results and Discussion**

The factors generated were then used for regression analysis to test the hypothesis.

*Table 2 Regression results of consumer engagement with the characteristics of online brand community*

|     | factor2 | \( \beta \) | Std. Error | t  | \( P>|t| \) |
|-----|---------|-------------|------------|----|-----------|
| factor1 | 0.0299 | 0.0669 | 0.45 | 0.656 |
| factor4 | 0.0163 | 0.0761 | 0.21 | 0.83  |
| _cons  | 7.94E-11 | 0.0626 | 0 | 1 |

Table 2 represents the regression analysis of factor1 (system quality, information quality and virtual interaction), factor4 (rewards) with factor2 (consumer engagement). It indicated the two predictors (\( R^2=0.0012, F (2,222) = 0.13, p<.05 \)) from the model and predicted consumer engagement as equal to 7.94E-11 - 0.0299 (factor1) + 0.0164 (factor2). Factor2’s engagement activity increases for each level of activity increase of factor1 by 0.0299 and for each increase in the activity level of factor4 by 0.0164. However, both factor1 and factor4 showed to be insignificant predictors of factor2 therefore hypothesis 1, 2, 3 and 4 are rejected.

The results could imply that for the sample selected, the key characteristics of online brand communities significantly influence the engagement of the respondents to the community.
Table 3 Regression results of brand loyalty with the consumer engagement

| factor | $\beta$ | Std. Error | t     | P>|t| |
|--------|--------|------------|-------|-----|
| factor1 | 0.0214 | 0.0629 | 0.34 | 0.734 |
| factor2 | 0.1055 | 0.0630 | 1.67 | 0.096 |
| factor4 | 0.0569 | 0.0715 | 0.8  | 0.427 |
| _cons  | -2.25E-09 | 0.0588 | 0 | 1 |

Moreover, table 3 represents the regression analysis of factor1 (system quality, information quality and virtual interaction), factor4 (rewards), and factor2 (consumer engagement) with factor3 (brand loyalty). It indicated three predictors ($R^2= .0165, F (3, 221) = 1.23, p<.05$) from the model that predicted brand loyalty as equal to -2.25E-09- 0.0299 (factor1) + 0.1055 (factor2) + 0.0569 (factor4). Factor3s’ engagement activity increases for each level of activity increase in factor2 by 0.1056 and for each increase in the activity level of factor1 by 0.0214222 and increase in activity level of factor4 by 0.0569. However, all factor1, factor2 and factor4 showed to be insignificant predictors of factor3. Therefore hypothesis 5 is rejected. This implies that from the sample selected, consumer engagement influences brand loyalty.

Conclusion

The findings from the study are quite confirms from earlier studies which contend that system quality, information quality, virtual interaction and rewards influences customer engagement and customer engagement influences brand loyalty. Interestingly results showed to contradict that system quality, information quality and virtual interaction showed to have shared characteristics and rewards had been separated towards consumer engagement. These construct are related in the sense that when there is a good quality of the system, information update and quality is enhance thus attracting more interactions (Brodie et al., 2013). Internet speed according to (Jang et al., 2008) is another factor that can affect the engage activity of members. These factors are said to be useless when there is slow internet connection or unavailable to target consumers. However, for the marketing personnel it would be helpful to use social media as a tool for the consumer to engage about the brand, resources and availability of the internet should be considered.

Recommendation for Further Study

Given the results of this study, firms should utilize actively the digital social media to capture brand loyalty of online consumers. Page managers are suggested to frequently update their page to attract consumers to interact as well as offer rewards constantly. Recommendations for further studies may include stable internet connection and its availability as a antecedent to the influence of the key characteristics of online consumer engagement. The study could be replicated to a wider number of respondents and of different characteristics.
References


The role of interactivity, 1–11.


