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ITAM15 (IT APPLICATION AND MANAGEMENT)

International IT Applications
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(IITAMS)



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MAISON DES
SCIENCES
DE L'HOMME
DE DIJON
FRANCE

Mobilité, culture et tourisme dans le monde numérique

15th International Conference on IT Applications and Management

Theme: Mobility, Culture and Tourism in the Digitalized World

January 27 ~ 30, 2016

Host and venue: Universite de Paris Sud, Paris, France & Bourgogne University, Dijon, France

Supported by Korea Database Society, Korea Database Agency

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15th International Conference on IT Applications and Management

Mobility, Culture and Tourism in the Digitalized World

January 27 ~ 30, 2016

Host and venue: Universite de Paris, Sud & Bourgogne University, Dijon, France

Co-host: Korea Database Society, International ITAM Society

Supported by: Korea Database Agency, Hanyang University

[PROGRAM]

I. Symposium: Future of Asia (Universite de Paris, Sud, January 27 WED)

Time	Program
10:00~10:30	Opening Announcement & Welcoming Speech, (Room: Georges Vedel) -Ahmed Bounfour (Prof. University of Paris, Sud, France) -Namjae Cho (Conference General Chair, Hanyang U., S. Korea)
10:30~12:30	Symposia on Europe-Asia Collaboration (Room: Georges Vedel) Mehmet Ali Gurol (Turkey) Today and Tomorrow of Collaboration Between Asia and Europe in Research, Education and Business: Tries and Ends Adisak Chotitumtara(Thailand) Benoît Pigé(France) Multinational firms and territories: integrating local expectations, the case of Thailand
12:30~18:00	Lunch and Move to Dijon
19:00~	Welcome Dinner and Greeting

II. Conference ITAM (Bourgogne University, January 28 THR)

Time	Program
8:00~9:00	Registration
9:00~10:30	Inauguration Session
	1) Opening Announcement -Anne-Marie Lebrun (Chair of Organizing Committee, Bourgogne U., France) 2) Greeting -Jaehoon Whang (Conference General Chair, Yonsei U., S. Korea) Welcoming Remarks -Alain Bonnin (President, Bourgogne University) -Dean, MSH School, Bourgogne University Software Donation Ceremony 3) Keynote Speech Mobility, Culture and Tourism in the Digitalized World - Namjae Cho (Conference General Chair, Hanyang U., S. Korea)

Time	Track A	Track B	Track C
10:30 ~12:00	Session A1 Financial Application	Session B1 IT and Tourism	Session C1 Information Behavior.
	Chairperson: Uthai Tanlamai (Chulalongkorn U., Thailand) Effect of Graph Orientation and Trend on Perception of Financial Data, Jitsama Kurusakdapon and Uthai Tanlamai (Chulalongkorn U., Thailand) Quality Types of Crowdfunding to Intention to Use, JiHyun Lee and DongBack Seo (Chungbuk National U., Korea)	Chairperson: Jeonghoon Lee (Hoseo U., Korea) Individual Dispositions, Resistance Change and Organizational empathy in the Hospitality Industry: When Change means Implementation of a New IS, Soo Kyung Kim(Dankook U., Korea) Jeonghoon Lee(Hoseo U., Korea) Startup-City, Reinventing Paris: Tourism Business incubator “Welcome city lab”, Hyo Dan Cho(U. Paris 1 Panthéon-Sorbonne, France) User Generated Content (UGC) and Travel Planning, Bidur Raj Joshi(Career Point U., India)	Chairperson: Sean Watts (RMIT U., Vietnam & Yonsei U., Korea) Descriptive Analysis of Internet Deviance in Indonesian Workplace, Yanki Hartijasti(U. of Indonesia, Indonesia) The use of digital technologies in designers’ information activities--Beneficial or not?, Sung Kun Kim(Chung-Ang U., Korea) Nam Young Im(Osan U., Korea) Eugene D. Kim(Pratt Institute, USA)
12:00~1:30	Lunch		
1:30 ~3:00	Session A2: Cyber Community	Session B2 Tech. & Business Design	Session C2: Mobile Application
	Chairperson: Nanthawan Leamprecha (Naresuan U. Thailand) Virtual Self: Who are you? Are you a part of me?, Eden Lee, DongBack Seo (Chungbuk National U., Korea) Sharing of Telecommunication Data in Nepal, Pratima Pradhan (Singhanian U., India) Forest Resource Mobilization for Sustainable livelihood: a Community Approach to Local Governance, Sateesh Kumar Ojha (TU Nepal) Dwarika Upreti(Singhanian U., India)	Chairperson: Yanki Hartijasti (Universitas Indonesia, Indonesia) Experimental Analysis of the Effect of a New Approach to Creative Product Idea Generation, Namjae Cho, SeungHee Oh, Dae-Kyung Ko (Hanyang U., Korea) Comparing Usability between Native and Web Application for Tablet Computer, Anirut Asawasakulsorn(Naresuan U., Thailand) A Case Study of New Competitive Dynamics of Transient Advantage in the Korea Cosmetic Industry, Soora Kwon(Hanyang U., Korea) Suhyoung Christine Park(U. of Southern California, USA)	Chairperson: Kijoo Kim (Konyang U., Korea) A Classification of Car-related Mobile Apps, Chao Zhang(Korea University, Korea), Lili Wan(Hankuk U. of Foreign Studies, Korea), Daihwan Min(Korea U., Korea) Culture, Technology, and Design Preferences’ for Increased Chinese, Korean, & Vietnamese Adoption of Mobile Online Educational Resources, Sean Watts and Hoa Pham (RMIT U., Vietnam)
3:00 ~3:30	Coffee Break		

3:30 ~5:00	Session A3 Marketing Application	Session B3 Industry and Government	Session C3 Innovation and Personnel
	Chairperson: Patrick Bouchet (Bourgogne U., France) Customer Perceived Value and Satisfaction in Shopping at Thai Market, Nanthawan Leamprecha (Naresuan U., Thailand) Social Media Impact on Electronics Related Brand Communities in Korean College Students, Sean Watts(RMIT U., Vietnam & Yonsei U., Korea)	Chairperson: Pratima Pradhan (Singhanian U., India) Multinational firms and territories: integrating local expectations, the case of Thailand, Adisak Chotitumtara (Naresuan U. Thailand) Benoît Pigé(Cerego- U. of Franche-Comté, France) Use of ICT in Management of Voters Registration in Nepalese Context, Amar Bahadur Lama (Singhanian University, India)	Chairperson: DongBack Seo (Chungbuk Nat'l U., Korea) Consequences of Government Support in Innovations and Technology for Improvement and Sustainability of SMEs: The Case of Turkey, Mehmet Ali Gurol(Turkey) A Critical Review on ISO/IEC 25000SQuaRE Model, SeokhaKoh(Chungbuk National U., Korea) Jaehoon Whang(Yonsei U., Korea) Designing the Right Route to Market for Competitive Advantage, KailashPatendraAmatya (TU Nepal) Pratap Rawal(Career Point U., India)
5:00 ~5:30	Valedictory Session (Room 101)		
	1) Announcement of the Next Conference - Namjae Cho (Conference General Chair, Hanyang U., S. Korea) 2) Closing Address - Anne-Marie Lebrun (Chair of Organizing Committee, Bourgogne U., France)		
6:00 ~9:00	Banquet		

III. Conference Field Trip

January 29 FRI,	Dijon City and Museum Tour With lecture on Bourgogne Wine: Construction of the wine region of Burgundy, Jean-Pierre Garcia (Université de Bourgogne) Tourism and regional images with commercial usage for wine in Burgundy Olivier Jacquet Chaire Unesco (Université de Bourgogne)
January 30, SAT	Bonus Winery and Museum Industry Tour

Comparing Usability between Native and Web Application for Tablet Computer

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Abstract

Native and web application are two main types of tablet computer application nowadays. There is some doubt about usability of native and web application. This study compared usability between native and web application. This study used experiment as research method and chose within-subjects design which each subject exposed to both experimental native and web application. This study used 56 undergraduate students as subjects. The results showed that there is no statistically significant difference in usability between native and web application. According to the result, developers should firstly develop web application and then develop native application.

Keywords

Native Application, Web Application, Usability

Introduction

According to Gardner [1], 216 million tablet computers were sold worldwide in 2014, and about 233 million units are estimated to be sold in 2015. With the growing popularity of tablet computer, worldwide developers have developed millions of tablet computer applications to serve a variety of purposes.

There are two main types of tablet computer application including native and web application. Choosing between native and web application is the initial task of tablet computer application's development. Web application is superior to native application in that it is a cross-platform application and there is no need to install or download the web applications onto tablet computers while native application can run only on its specific platform. Native application is superior to web application in that it can access devices' functionality such as GPS, local storage, camera, etc.

Usability is a concept which has been widely studied in Human-computer Interaction (HCI). It was defined as effectiveness, efficiency, and satisfaction with which users can achieve goals [2]. One of the goals of developers is to develop applications with high usability. In the past, native application seems to have higher usability than web application. However, web application has been increasing its usability especially with the coming of HTML5. There is some doubt about usability of native and web application currently. Thus, this study aims to compare usability between native and web application.

Literature review

Types of tablet computer applications

There are two main types of applications for tablet computers: web applications and native applications [3]. Web applications are on a server. Thus, there is no need to install or download the applications onto tablet computers. Web applications can be developed using HTML, JavaScript and CSS. Native applications, on the other hand, are applications that are developed specifically for the type of tablet computer. Native applications can take advantage of tablet computers' functionality such as GPS, local hand-held storage, local database, camera etc. They can be downloaded, installed and sold in application stores. Unlike web applications, native applications need to be developed separately for each hand-held device's platform.

Furthermore, applications for tablet computers can be classified into five categories: (1) broadcast, (2) information, (3) transaction, (4) operation, and (5) collaboration [3]. The experimental applications in this study are inventory management which is in the operation category and are quite complex so only a few have been developed for tablet computers so far. Unlike inventory management in desktop versions which can carry out a number of functions, the experimental application in this study will be developed as a lite version to do only basic functions comprising search and display information.

Tablet Computer Platforms of Native Application
Although web application is a cross-platform application, native application can run only on its specific platform. There are many platforms for tablet computer nowadays such as IOS, Android, etc. In each platform, the programming language and development environment are different from each other [3]. For the Android platform, application development is done in the Java programming language using the Android SDK. For IOS, programming is done using the COCOA programming environment and, Objective C is used as the programming language. Among all tablet computer platforms, Android is the most popular platform, according to IDC [4]. Thus, this study chose Android as platform of native application.

Usability

Usability was defined as effectiveness, efficiency, and satisfaction with which users can achieve goals

in particular environments [2]. This concept has been widely investigated in Human-computer Interaction (HCI). The ultimate goal of any information system development is to maximize usability. Based on the definition, there are three dimensions of usability measures comprising satisfaction, effectiveness, and efficiency [5].

Satisfaction can be divided into a number of sub dimensions. Ease-of-use [6], satisfying to use [5], and want to use again [5] were chosen to measure satisfaction in this study. Effectiveness and efficiency are excluded in this study. For effectiveness, functions of both native and web experimental applications are the same to control extraneous variables. Thus, effectiveness of native and web application is expected to be the same. For efficiency, it can be measured by time, input rate, mental effort, communication effort, learning, etc. [5]. Since the experimental applications are quite simple application, efficiency is expected not to be much different between native and web application. Thus, efficiency is excluded in this study.

Research design

This study used experiment as research method. To compare usability between native and web application, two versions of inventory management application for tablet computer comprising native application and web application were implemented as experimental systems. These two versions of tablet computer application are the same except that one is native application while the other is web application. The developmental tool for native application was Android Studio version 1.5 (targetSdkVersion = 15). The developmental tool for web application was Komodo edit 8. The web application was developed in HTML5 to make mobile-ready webpage.

Both versions are simple inventory management with only one screen. In the screen, there are initially two drop-down menus comprising menu of product names and menu of product brands and a search button. When pressing the search button, the screen shows a simple list of search result. Figure 1 and 2 illustrates screenshots of native and web application respectively.

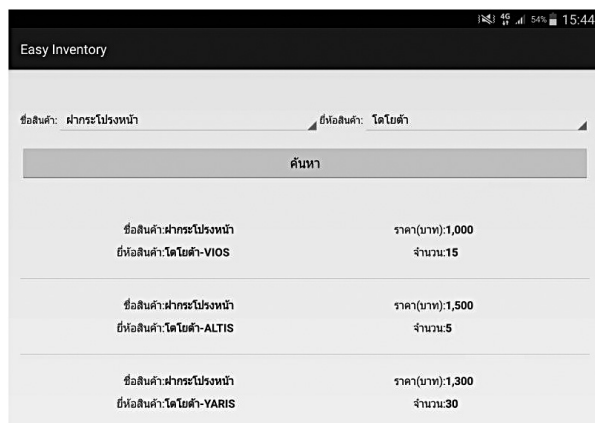


Figure 1 - Screenshot of Native Application.

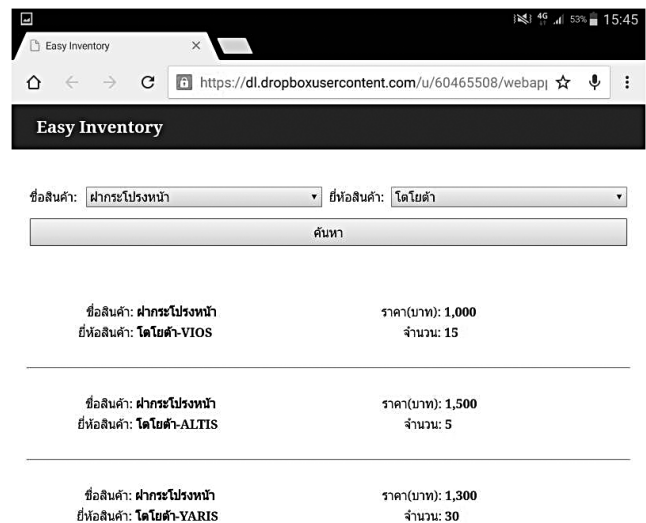


Figure 2 - Screenshot of Web Application.

This study used 56 undergraduate students majoring in Business Computer as subjects. Although this study used students as subjects, these subjects are quite suitable because they have studied IT and business and thus they are able to represent employees who would be responsible for using such system as inventory management on tablet computers. This study chose within-subjects design which investigated the effects of manipulations by exposing each subject to both versions of the application. Exposure to a version of the experimental system at different sequences may affect subjects differently. This study handled this effect by counterbalancing the order of manipulations.

Each subject was randomly assigned to two groups. With counterbalancing, subjects in the first group firstly used native application and then used web application while subjects in the second group firstly used web application and then used native application.

Since there are 3 tablet computers including (1) Samsung GALAXY Note 10.1 (2) Samsung GALAXY Tab 10.1 and (3) Samsung GALAXY Tab S 8.4, the maximum number of subjects to come to the experimental lab together is 3. Thus, there are 22 different times sessions (there are only 2 subjects in the last four session). Each session was given about 5 minutes duration. The experiment began by subjects did the experiment by using the version of application according to their group. Next, they completed the questionnaire for usability of the version of application they've just used. Finally, they used the other version and the questionnaire for the according version.

Research results and discussion

The descriptive statistics of usability comprising ease-of-use, satisfying to use and want to use again were reported below in Table 1, 2, and 3 respectively. Furthermore, usability comprising ease-of-use, satisfying to use and want to use again between native application and web application were depicted graphically in Figure 3.

Table 1 - Descriptive Statistics of Ease-of-use

	N	Mean	STD
Native Application	56	4.57	0.535
Web Application	56	4.39	0.679

Table 2 - Descriptive Statistics of Satisfying to Use

	N	Mean	STD
Native Application	56	4.07	0.759
Web Application	56	4.09	0.695

Table 3 - Descriptive Statistics of Want to Use Again

	N	Mean	STD
Native Application	56	4.36	0.645
Web Application	56	4.26	0.624

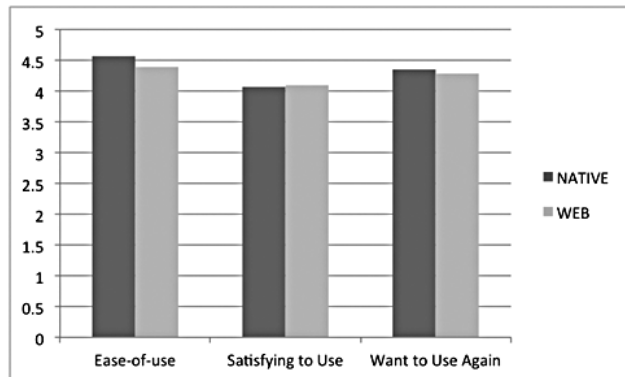


Figure 3 - Chart of Usability comprising Ease-of-use, Satisfying to Use and Want to Use Again between Native Application and Web Application

Ease-of-use and want to use again are higher in native application while satisfying to use is higher in web application. However, there is no statistically significant difference between native and web application in all usability measure (ease-of-use ($t(110) = 0.18$, $p = 0.13$), satisfying to use ($t(110) = -0.20$, $p = 0.90$), and want to use again ($t(110) = -0.07$, $p = 0.55$)).

Conclusion

This study empirically compared usability between native and web application. There is no statistically significant difference in usability between native and web application.

According to the result, usability of web application is not much different from usability of native application. Moreover, web application has advantages over native application on that it can run on cross-platform. Thus, it is suggested that developers should firstly develop web application and then develop native application.

There are some limitations in this study that should be addressed in future studies. First, the experimental applications are quite simple that they are only one screen applications with drop-down menu, button, and list of search results. Moreover, experimental native and web application are only Android application and HTML5 website. Thus, there is a limitation in generalizing the results. Finally, since this study selected only satisfaction to measure usability, future study should include all usability measurement to make a comparison of usability complete.

Acknowledgments

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Startup-City, Reinventing Paris: Tourism Business incubator “Welcome city lab”

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Abstract

As the first world tourist destination, the city of Paris has developed a business incubator “Welcome city lab” to align new digital demands and supplies with other major actors and institutions of French tourism industry. In the digital age of tourism, to create a business incubator becomes a critical issue for globalized cities not only to promote smart tourism tools but also to ensure smart services for tourists. Although it is relatively young aged, the business incubators sector has generated a strong interest of both theoreticians and practitioners in tourism, emerging as an innovative tool to support effectively the entrepreneurial approach. This paper aims to analyze the first business incubator dedicated to tourism industry of Paris ‘Welcome City Lab’ to define its characterizing variables and operational mechanism.

Keywords

Business incubator, tourism, start-up city, Paris, Welcome city lab

Introduction

Over the decades, tourism has experienced continued growth and deepening diversification to become one of the fastest growing economic sectors in the world. Despite occasional shocks, tourism has shown virtually uninterrupted growth. International tourist arrivals have increased from 25 million globally in 1950, to 278 million in 1980, 527 million in 1995, and 1133 million in 2014 (UNWTO, 2015). UNWTO expects an increase in terms of the number of international tourists to 1.8 billion within 20 years. Likewise, international tourism receipts earned by destinations worldwide have surged from US\$ 2 billion in 1950 to US\$ 104 billion in 1980, US\$ 415 billion in 1995 and US\$ 1245 billion in 2014 [20]. Ahead of the United States, China and Spain, France is the first world tourist destination with 84.7 million international visitors in 2013. More than 83% of foreign tourists visiting France from Europe, and there are more and more tourists from emerging countries, particularly BRIC; Chinese customers has increased by 23.3% and Brazilian customers by 21%. Tourism has become a key sector of French economy, accounting for more than 7% of GDP. Nearly 275,000 companies operate in the tourism sector, creating 1.1 million direct jobs and 1 million indirect jobs. Tourism is definitely an important locomotive of the economy of France but also local economy of Paris. Nowadays, the critical issue of French tourism is to maintain the first position as tourism destination with digital

challenges. The changes brought by digital technology to tourist behaviors are significant. The tourists become more and more actors of tourism products and their behavior changes accordingly to digital information. Any tourist can access a wide range of choices, receive the ample information according to optional choices, search the best price and give his own opinion through online, a posteriori, on consumed services. From the supply side, new opportunities have emerged to enhance the tourism industry especially on the marketing and distribution chain. The downstream of the new digital players in the tourism ecosystem (online travel agencies, reservation centers, search engines, guides and comparators), closer to the consumer, results in a creation of new business values. Traditional players of French tourism react to the digital challenge but traditional tourism intermediaries, travel agencies and tour operators are struggling to adapt digital tools, to re-evaluate their business models and to create new intermediation form (Assemblée Nationale, 2015). Unfortunately, the large groups in the tourism sector are also struggling to innovate, refusing young entrepreneurs who could bring innovations. A leading player like Amadeus, that now wants to diversify activities by fully integrating the challenges of travel intelligence, is obviously well aware but regrets that the culture of innovation is still struggling to enter the traditional world of tourism. The tourism ecosystem has confronted digital technology challenges since fifteen years but the junction between the different players was not obvious. Besides, innovative young people had no chance to be evaluated so far.

To maintain the leadership position in the world tourism industry, to create not only new services but also innovation tools on existing services, and to prepare the future digital demands, the City of Paris has developed a business incubator, which is only dedicated to tourism industry, called ‘Welcome City Lab (WCL)’. WCL has created with the support of BpiFrance (Investment Public Bank), Convention and Visitors Bureau of Paris and Direction General des Entreprises (DGE, governmental organization under the authority of the Minister for the Economy, Industry and Digital Affairs). The founder members are key actors of tourism industry in Paris like Airports of Paris, Air France, Amadeus, Carlson Wagonlit Travel, Galeries Lafayette, RATP, Skyboard, Sodexo Prestige (Lido, Eiffel Tower restaurants), and Viparis. WCL is expected to bring a mindset and a culture of innovation to

the Parisian tourism industry and to encourage innovative start-ups on the field of tourism to raise awareness about the opportunities that tourism can bring and to bridging the gap between tourism players and start-ups. Even though the concepts of business incubator and start-up are relatively young aged, it has been globally booming with the large utilization of smartphone and has generated a strong interest of both theoreticians and practitioners of tourism, emerging as an innovative tool to support effectively the entrepreneurial approach. Particularly, a tourism business incubator is considered as a strategy or tool of local collectivities to prepare the global transition to digital tourism. In this paper, we analyze the first tourism business incubator made by local initiatives, Welcome City Lab to define its characterizing variables and operational mechanism.

Business incubator, based on territorial synergy for tourism

As start-ups (young companies with high growth potential) have been dramatically increased, the role of a business incubator becomes more significant in terms of producing successful start-ups that will leave the program financially viable and self-supporting, firm with potential to create jobs, invigorate neighborhoods, and commercialize new technologies or even advance original business models (National Business Incubation Association [15]). According to NBIA [14], business incubator is an economic development tool which is designed to accelerate the growth and success of entrepreneurial companies through an array of business support resources and services, elaborated or arranged by incubator management, and offered both on the premises and through its network of contacts. As a generic term for any organization that provides access to inexpensive office space and shared administrative services, we use the term of business incubator [4]. And Şchiopu, A.F., Vasile, D.C. and Țuclea, C.E. [18] define a business incubator as one of the most important and successful tools for SME business development and supports to get through the threats and obstacles encountered. [4,18]

According to Bollingtoft and Ulhoi [4], the growth of incubators went through two stages: the first during the 1980s and 1990s, which can be portrayed as the launch phase of a local economic development tool and the second from 2000, entitled the growth and diversification phase. For both stages, a business incubator collaborates with the community in which it operates to provide business assistance programs [18]. In some communities, business incubators are perceived as an anchoring economic institution [17]. This concept designates a new way of thinking about the role of institutions located (anchored) in some areas by answering to the problems of community in which they are inserted [19]. And they promote an entrepreneurial spirit in the community as well as increase retention of more established businesses [18]. Business incubators serve a local community, generating jobs and sustaining local business and prosperity based on territorial synergy.

Although the most of business incubators have been established for manufacturing firms, especially technological ones, since the beginning of the 1990s the incubator model has been widely accepted and adopted in the tourism industry [10]. Because the tourism sector can have significant impacts through some institutional mechanism such as the governmental agencies or financial bodies or other organizations like incubators designed to promote new venture creation and better performance with economic development objectives. According to Elliot (1997) and Krakover and Gradus [10], it is rather difficult to quantify the impact of the governmental and institutional support in a particular region, but their role is crucial and should not be overlooked [18]. Gatewood, Ogden, and Hoy (1985, 1986) also insist that incubators may serve as a tool for developing local tourism businesses both in peripheral areas and in cities, offering a hospitable environment for entrepreneurs by providing access to low-cost facilities and services, such as consultants, experts, government officials, bankers, or venture capitalists.

Recently, Schiopu, A.F., Vasile, D.C. and Țuclea, C.E. [18] divided business incubators of tourism in three categories; nature-based tourism incubator, the ecotourism incubator, and the networked incubator. The first form of incubator is a specialized instrument for supporting SMEs to booster the growth of nature tourism in a region where the private sector is underdeveloped and a high potential exists for nature-based tourism [7]. The ecotourism incubator, directly connected with the nature-based one, strengthens new strategic businesses in ecotourism and related industries. An understanding of the social dynamics of the networked incubator needs to take into account both personal and business networks, as well as the organizational and social environment, incubated clients being enabled to utilize two kinds of networks: internal and external [4]. Today, many local economic development agencies, government and other public institutions have adopted incubators as a tool to reduce the probability of failure and to speed up the process of business creation [9]. In particular, public and institutional operators with economic development objectives, traditionally using public resources Autio and Klofsten, [3]; Cooper, [6]; Mian, [13]; Marrieff, [12], get supports from not only public resources but also private funds and the fees for the services. Reinforcing the partnership with local communities and private business actors, the objectives of incubators are not only providing logistical service but also increasing local visibility for emerging business. Also, the attentions for business incubators in a tourism sector are not limited to nature-based, ecotourism, and networked incubator, but more extensive to intangible and high-value services (knowledge, sharing experiences, synergies, etc.) of diversified forms of tourism. This shift makes local government and agencies ensure smart tourism services through developing a business incubator that creates and exploits synergy for incubatees by combining different resources, services, and skills.

Paris, a capital of tourism innovation?

The city of Paris and the Ile-de-France region developed 'Paris Region Lab', which become the largest incubator in Europe. This association designed to incubating young and innovative companies, testing innovative concepts, organization events for start-ups, and putting start-ups in touch with big business. Paris Region Lab has twenty incubation programs (welcome city lab, design, e-health, video games, new media, finance, social entrepreneurial, digital technology, etc.). Those programs are designed to select projects of start-ups at the entrance, to accompany them, to seek funding arrangements, to create a network and to host them in workspaces. Specially, as a fundamental function of Paris Region Lab, the experimentation helps start-ups test products in real situations to be able to adapt to the market by incorporating remarks and consumer feedback. Through a project 'Intelligent Street Mobility', Paris Region Lab functioned as a mediator to make an agreement with the City of Paris and to regulate all complex issues related to various experimental projects in the Parisian public space (interactive travelers' shelter, billboards offering real-time information, safety light posts, etc.). After 14 years of operation, the rate of survival of a start-up incubated by Paris Region Lab is 80%, even though only 20% of start-ups generally survive after 5 years of existence. Paris Region Lab incubates 400 start-ups including 200 permanently, and generated 400 million dollar of sales revenue and 4300 jobs with 40 million euros of investment in 2012(Paris Region Lab, 2015). The city of Paris is developing strategically several forms of incubating programs to be the European capital with the highest concentration of start-up, which turns out a major asset to the economy.

In the City of Paris, there are more than 3000 start-ups, 36 incubators, and 100 000m² spaces dedicated for incubators)

In the city of Paris with 2 million habitants, more than 50,3 millions tourists per year come and two third are repeaters. Average expenditure per day per tourist is approximate 160 euros and it creates 500,000 employees and generates 13 billion euros of economic benefits. As a capital of the first tourism destination country, Paris is a city not only for Parisians but also for international and national tourists. The city of Paris created Welcome City Lab, a business incubator of tourism industry, one of incubating programs of Paris Region Lab, with strong initiatives to invent the future tourism and make Paris the capital of tourism innovation. The tourism innovations can signify the implementation of creation tools for customized travels that allow promote tangible and intangible heritages of a destination. It is more related to explore the potential of existing services through innovations tailored to sociological changes (new ways to visit, to capture new customers, and to provide individualized experiences) than to create new technologies or new products.

Welcome The City Lab advises start-ups on their marketing strategy, business development, tax issues, management, and recruitment to make them grow faster in their sector. The key to success of this type of initiative is the osmosis between the public sector and the private sector. To define the incubation model of WCL, we use the 10 characterizing variables of an incubator defined by Grimald & Grandi [9] such as institutional mission/ strategy, industrial sector, location, market, origin of ideas, phase of intervention, incubation period, sources of revenue, services offered, management teams.



Figure 1. Paris, European capital of innovation
(Source: www.paris.fr)

(Comments: Yellow circles show the existing incubators and Gray circles show the incubators of developing stage.

Institutional mission/ strategy

- Welcome City Lab has six objectives like following:
- Creating an innovation culture in the field of tourism in Paris. The idea is to support and to educate traditional professional's interests about a business incubator.
- Encourage the world of innovation and pushing young people to enter the field of tourism.
- Bridging the gap between large companies and start-ups.
- Allow large groups to boost their own internal innovation.
- Allow the meeting and exchange of start-ups to discuss all their innovation issues
- Give a dynamic image in a world of tourism and keep ahead of the tourism competition.

According to Grimald & Grandi [9], on the basis of the institutional mission, it becomes possible to distinguish between non-profit and profit-oriented incubators. WCL is a non-profit orientated incubator as it has been set up by local authorities with the objectives of promoting tourism industry rather than generating a profit.

Industrial sector

Welcome City Lab focus on tourism industry and develop capabilities to attract start-ups in the same sector. According to Von Zedtwitz [21], the more clearly an incubator defines the incoming new venture profile, the better this incubator will be able to leverage his given competencies as well as create potential synergy effects among already resident start-ups.

Location

The physical location of Welcome City Lab is in the center of the City of Paris. The location of the incubator tells something about their objectives and mission (Grimald & Grandi, 2005). The center of Paris signifies the implication of Paris city as objects of business (That means incubated Start-ups must promote and integrate the destination 'Paris' to their business plan).

Market

The start-ups incubated by Welcome City Lab deal with tourism industry of Paris. That means it has important implications for not only local but also international tourism market related to the destination of Paris.

Origin of ideas

To create this new incubator only dedicated to urban tourism of Paris, Laurent Queige, general director of WCL has interviewed and visited various types of incubators located in abroad to observe how they functioned. Afterwards, he discovered that there was no incubator only for tourism sector in anywhere. According to him, it wasn't took time to persuade Anne Hidalgo, the mayor of the City of Paris to realize such an innovation idea. Welcome City Lab is oriented mainly towards the valorization and exploitation of competencies and knowledge of the City of Paris regarding tourism innovation.

Phase of intervention

Welcome City Lab provides assistances from the first phase of business concept definition to the last phase of independence, including concept definition, early growth, acceleration, etc. They develop specific skills and competencies at each phase of the business development life cycle.

Incubation period

Incubation period means a period of time that the incubator is willing to host its start-ups. For Welcome City Lab, it depends on strategies, life cycles, and targeted markets of start-ups. Sources of revenue

The public and private operation gives an operation budget to Welcome City Lab. It has 1/3 financing from municipal subsidies of the City of Paris, another 1/3 comes from start-ups members' memberships and the last one third is comes from the private partners with financial

contributions. This incubator helps start-ups with funds and loans from €30,000 to €100,000. The model features low rental fees and free or subsidized access to general services (lawyers, accountants and sector experts), but the incubator will not take equity in the hosted start-ups.

Services offered

Incubating: Welcome City Lab helps and supports start-ups to enter the tourism market to create the way to travel in the future. The accompanying services offered by the Welcome City Lab aim to work on accelerating the business and the development of start-ups while providing accommodation in an exchanging environment with financing. To achieve these objectives the incubator has set up two options of payment to meet the needs of start-ups based on their development. For the Start-ups that are in their early years of existence, the challenge is to validate their business models and validate their first customers. They have a public subsidy of €30,000 that allows them to join the incubator. The Start-ups in their second or third year can have a 0% loan of €100,000. This is a larger sum to meet various problems. The objective is to assist them in their investment since they have already approved a business plan and their customers. These companies then pay back to the Welcome City Lab €7,000 per year and an accompanying rent for 2 years, an amount between €15,000 -€20,000. **Academy:** this action is to organize training courses, workshops, conferences and debate sessions that give concrete answers to problems and questions that daily arise.

Experimentation: like the Paris Region Lab, Welcome City Lab sets up projects for tourism innovation.]

Ensure: this is to identify trends of tourism innovation and ensure a future mission of tourism. This requires the development of research projects on innovation, identification of competitors' strategies, and customer needs in the future. Also observing international tendency on future products, technology services and practices of innovation in tourism is needed.

Management teams

Management teams of Welcome City Lab acts as intermediaries between start-ups and different external entities that are supposed to provide the resources and competencies that management teams do not have in-house. And they are directly involved in the new ventures with the provision of personal: capital, knowledge, management skills, day-by-day support.

This Welcome City Lab model is exported to not only international cities like Mexico City, Budapest, Montreal, Québec, Dakar, Shanghai but also local authorities of French regions including Aquitaine, Rhône-Alpes, Nîmes, Strasbourg, Clermont-Ferrand. The City of Paris supports those cities to set up the

WCL model through establishing a partnership. Innovative Start-ups in Tourism.

The term start-up is born in the United States along with the Internet development, and then has been democratized in the world. In general, a start-up means an innovative company with strong growth potential and an efficient business model. It is also early stage in the life cycle of an enterprise where the entrepreneur moves from the idea stage to securing financing, laying down the basis structure of the business, and initiating operations. A start-up seeks to capture the value of a market in any sector like digital, transportation, collaborative economy, etc. As digital technologies have rapidly and largely influenced tourist behaviors, innovation made by start-ups becomes a strategic success factor to adapt, satisfy and retain tourists. The total number of start-ups, which has increased dramatically, shows worldwide interests. Between 2005 and 2014, PhocusWright [16] studied 993 innovative start-ups of the World in connection with tourism. These have generated US\$ 12.2 billion of revenue. Start-ups are mainly located in Asia Pacific (27%), Europe (26%) and North America (40%). 96% of the financing obtained came from the same geographical areas and investment. Between 2005 and 2014, investment rose from US\$ 5 million to US\$ 2363 million, an increase of +79%. This increase is further accentuated since between 2013 and 2014 there were investments doubled.

At the forefront of the most profitable start-ups, Uber Technologies Inc. which reported US\$ 2.7 billion followed by Didi Dache with US\$ 817 million and Airbnb, US\$ 801 million. Uber Technologies Inc. develops and operates the Uber mobile application that allows consumers with smartphones to submit a trip request, which is then routed to Uber drivers who use their own cars (Goode, 2011). Didi Dache that means literally Didi Taxi Calling is a mobile platform taxi-calling application developed by Chinese mobile application company Beijing Xiaoju Keji Co., Ltd. [5]. Airbnb, a website for tourist to list, find and rent lodging has more than 1,500,000 listings in 34,000 cities and 192 countries [1]. BlaBlaCar with 3 million members in Europe, have contributed to making the most independent tourists and thus forced large people to change their practices. It connects drivers and passengers willing to travel together between cities and share the cost of the journey. Drivy, created in 2010, is also a platform for car sharing and attracted 600,000 members with 38,000 cars in France and Germany. The interesting point is that those start-ups have contributed to the emergence of a new form of tourism based on the collaborative economy: loan, gift, exchange, lease and sale of used goods. This form of collaborative tourism will be developed continuously and the savings incurred on accommodation and car sharing help develop new activities and tourism practices.

The forms of collaborative tourism have influenced to the start-ups housed by Welcome City Lab and they offer a wide variety of innovative products and services. Marins d'eau douce(<http://www.marindeaudouce.fr>), a company set up by two sailing enthusiasts in 2014, owns a fleet of 17 electric boats on which tourists can sail without a license along the 40km of navigable waterways of the Bassin de la Villette, the Saint Martin canal and the Ourcq canal. The company Evanela(<http://www.evanela.com>) organizes visits to prestigious workshops of jewelers, designers and couturiers that are usually closed to the public. And the global success of smartphones has also encouraged certain Parisian entrepreneurs to launch applications for tourists. With Mobilytrip (<http://fr.mobilytrip.com>), visitors can create a travel journal by adding photos, videos and notes that can be shared day by day with their friends and family. SmArtapps(<https://smartapps.fr>), offers audioguides and interactive guides, including interactive maps, a 360° panorama and synchronized feeds for the capital's main museums and monuments. For those seeking culinary authenticity, Cookening(<https://www.cookening.com>) allows foreigners to be treated to a meal at someone's home. Sejourning(<https://www.sejourning.com>) is a more traditional platform on which property owners can rent out their home for short periods. Amateur filmmakers inspired by the capital can post their films about Paris online via the platform Crop the block (<http://www.croptheblock.com>). Parisianist(www.parisianist.com) created in December 2013 has a concept that shows information like a blog. The website also comes in the form of a mobile application, available on Offline, thus makes it more accessible to foreign tourists without connection. To enable tourists to discover the city from another perspective, places are listed and highlighted which are atypical and few tourists. Parisianist already has 320,000 visitors per month and 4,000,000 page views per month. Pad in Paris (www.parisinpadd.com), created in 2012, helps professionals of tourism (hotels, travel agencies, museums, tourist offices, amusement parks, airlines) prepare the new digital challenges of tourism. Start-ups contribute to improve the supply and quality of information and make change tourism practices and trends through new concepts.

Conclusion

Based on territorial synergy, a business incubator in tourism sector has become significant challenges for metropolitans and cities to prepare the digital age of tourism. The intelligence of digital technology can modify tourist behaviors in smarter ways and numerous technical services created for other industries can make great applications in the travel sector. It makes metropolitan cities prepare this global transition by developing business incubators. With millions of global visitors and the world's best attractions, Paris is arguably an ideal playground to pilot and measure

results for any travel start-up. To incubate strategically competitive start-ups of regional and international levels, the city of Paris firstly created Welcome City Lab, the tourism business incubator, to identify high-potential tourism projects and to support these start-ups in terms of development strategies with tips and funding. This WCL model is widely exported to other global cities as one of the future-oriented territorial strategies for tourism and a form par excellence of innovation entrepreneurship.

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Experimental Analysis of the Effect of a New Approach to Creative Product Idea Generation

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Abstract

There is an increasing need for seeking an improved method to generate creative ideas especially at the early stages of a new product development. This study examined the effect of a newly suggested idea combination method on the generation of creative product ideas in a team. The new method is experimentally tested against existing association method. We also examined the optimality of association distance. The results show that the suggested ABIG (Attribute Based Idea Generation) method is more effective than the traditional approach and there is an empirical evidence that an optimal conceptual distance between two objects to combine to draw ideas does exist.

Keywords

Method for Creative Ideation, Forced Association, Attribute Based Idea Generation

Introduction

Fast changes of market preferences, fierce and dynamic competition, and rapid emergence of new technologies have become the reality of corporate life. These environments lead a rapid shortening of product life cycle. Companies are forced to continue to develop innovative new products to survive in such a turbulent environment. New products provide a new meaning to consumers and practically considered as the ones released within late 3-5 years (Seheuing, 1989; Wind, 1990).

The development of innovative new product creates competitive advantage in a dynamic competition environment. Product uniqueness is also considered as one of the most important source of differential advantage (Cooper 1983; Song and Parry, 1997). For this reason, considerable effort has been dedicated to study the determinants of the success of new product initiative (Cooper, 1996). Cooper (1986), Calantone (1997) and Mishra (1996) have identified 13 stages of new product development: excavation of ideas, idea screening, pre-market assessment, advance technology assessment, pre-production evaluation, prior financial assessment, market research, in-house product reviews,

customer testing, market testing, product evaluations before commercialization, and commercialization.

Although new conceptualizations of product innovation has expanded to such approaches as disruptive innovation, open innovation, and user-led innovation Markides [18], one common aspect of all innovation is their relationship to creative ideation.

Searching for creative ideas is important especially in the early stages as one primary determinant of new product success is the extent to which the product is different from competing alternatives in a way that is valued by customers. New product creativity is correlated to the novelty of ideas (Moorman and Miner, 1997). Thus, companies have been looking for effective methods and guidelines to excavate creative ideas for new products.

Companies tend to operate a special team for the development of new products. In this vein, Sethie (2001) emphasized the degree of team-level creativity in the process of design and ideation [26].

The purpose of this study is to suggest an approach that can help develop new ideas by a team and verify the effects of the new approach.

Research background: Creative methods

The concept of creativity as a general construct has long been studied in the fields of psychology and organizational behavior [16]. However, academic knowledge on creativity is still considered very limited. Garfield [12] investigated how individual differences, group-based creativity techniques, and inflow of ideas from others influenced the type of ideas generated. The result showed that individual characteristics, groupware-based creativity techniques, and stimuli from others all affect idea generation. The use of creative techniques in the generation of creative ideas is specifically emphasized. [Table 1] summarizes some of the selected major research on creativity in business contexts.

Table 1 : Selected Studies on Creativity

Authors	Primary Focus	Comments and Findings
Amabile [1]	Organizational factors influencing individual creativity	A model of individual creativity is integrated into a model of organizational innovation.
Amabile and colleagues [2,3]	Development of the climate for creativity	Five work environment dimensions (challenge, organizational encouragement, work group supports, supervisory encouragement, and organizational impediments) influence creative behavior in an Organization.
Sethi, Smith, and Park [26]	Determinants of Creativity in NP team context	New Product creativity is related to team characteristics and contextual influence.
Rosso, B. D. [23]	Freedom and constraint in the creative process	The research investigate the ways in which constraint both inhibits and enhances work team creativity. The results challenge the assumption that constraints kill creativity and demonstrate that for teams to accept and embrace new ideas, there should be freedom in constraint.
Blauth M., Rene M., and Malte B. [5]	Importance of employees' individual entrepreneurial decision making for innovation.	The use of entrepreneurial decision making. They find indicators that the use of causal decision making logic negatively influences creativity.

The use of creativity method is considered to contribute to elicit creativity [27]. Although numerous methods to exploit human creativity have been suggested many of the techniques are similar. Overall, creativity methods can be divided into two groups: method for divergent thinking and method for convergent thinking. Divergent thinking aims to create ideas and convergent thinking focus on arriving at a conclusion.

The most widely known technique for divergent thinking is brainstorming [22]. In a typical brainstorming session a problem is posted and a group session is repeatedly administered where ideas are proposed and recorded but not evaluated critically. After each round ideas are evaluated and the less promising ones are culled out. The idea generation phase is completely unstructured (Felder, 1988). SCAMPER procedure was developed by extending Osborn's brainstorming recommendations, and convolves them into an extended ideation technique [20]. SCAMPER is an acronym of the following set of actions: (S) Substitute, (C) Combine, (A) Adapt, (M) Modify/Magnify/Minimize, (P) Put to other uses, (E) Eliminate, and (R) Reverse/Rearrange. The method presents users with a set of possible action categories to generate ideas that may be used to develop solutions to a design problem ([Table 2]). Stimulus comes from attempting to answer questions that redirect analogical search to solve a problem [25].

Table 2: Guide to the SCAMPER Technique

Substitute	Think about substituting part of the product or process for something else.
Combine	Think about combining two or more parts of the product or process to make something new or to enhance synergy.
Adapt	Think about which parts of the product or process could be adapted or how you might change the nature of the product or process.
Magnify Modify	Think about changing part or all of the product or process, or distorting it in an unusual way.
Put to Other Uses	Think of how you might put the product or process to another use or how you might reuse something from somewhere else.
Eliminate	Think of what might happen if you eliminated parts of the product or process and consider what you might do in that situation.

(Source: Serrat, 2010)

There are studies in product-related domains that show the application of SCAMPER resulting in a quantity of novelty results with a higher utility than those obtained employing directed methods such as TRIZ [8]. Studies comparing SCAMPER (sentential stimuli) against images (graphical stimuli) found that teams using SCAMPER adopted strategies to reframe a given problem and dedicated efforts to develop generated ideas further [17]. Among all, one of the most used techniques of creative idea generation is to ask team members to combine two objects or concepts

to create a new modified idea. The method called ‘forced association technique’ was pioneered by Whiting (1958). In this approach, subjects are presented two objects and asked forcibly generate product ideas by combining the two objects that do not seem to have a clear relationship.

Research hypothesis and method

Research hypothesis

We suggest a modified ‘forced association technique (FAT)’ as a new creativity method, which we entitled attribute-based idea generation (ABIG) approach. Attribute s are the dimensions of an objects. For example, such dimensions as color, taste, smell, size are the attributes of an apple. By listing the attributes and the corresponding values we can systematically review the characteristics of an object. ABIG process ask subjects to list attributes and value of each object before attempting to generate ideas by combining two objects. Attribute listing was first used as an approach for a systematic search for variations on the characteristics of a design (Crawford, 1954). Attribute listing in problem solving can make subjects focus on the basic characteristics of a problem at hand [28]. After developing a compilation of various components of an idea, object, or process, the subjects can examine the list of components in terms of how they impact the overall process [19]. Together with attribute listing, a provocation process to challenge existing views can be used to facilitate the creation of solutions and propositions (De Bono, 1992). Attribute listing technique can be employed in two steps. First, major attributes of an idea, device, product, system, or principal parts of a given problem are listed. Second, all listed attributes are reviewed to be changed or modified. Attribute listing can be used together with rational checklist method for concept generation [28]. Similarly, the ABIG process is composed of processes to present two objects, to ask subjects to list attributes of the two objects given, to ask subjects to list values of each attribute for each of the two objects, and to ask subjects to produce new product ideas by combining the attribute values in all possible ways that make sense. Basically, ABIG gives a structure to ‘forced association technique’ by combining this technique with the advantages of attribute listing technique. ABIG can help subjects to systematically observe and review the nature of objects before generating ideas. It also gives structure to intuitive trials of making ideas rather than relying only on unstructured trial without any guideline an direction. We expect such guided idea generation (ABIG) would help subjects produce larger number of product ideas and more creative ideas than helpless trials (typical FAT). [Table3] summarizes the suggested ABIG(Attribute Based Idea Generation) procedure.

Table 3: Attribute Based Idea Generation procedure

Step 1	two objects are given to the subjects. The relationship between these two objects does not have to be clear. (e.g. apple and pencil)
Step 2	list attributes of each objects (e.g. size, color, function, shape, smell, etc.)
Step 3	evaluate each objects according to each of the attributes (e.g. small, red, cleaning function, triangular shape, etc.)
Step 4	generate new product ideas by combining the values of the two objects.

We further suggest that the conceptual distance between the two objects given to the subjects matters. If the conceptual distance between two objects is too close, the level of stimuli should be minimal because the integrative boundary of the images of the two objects is also small in scope. This minimal level of stimuli will limit the diversity of imagination and thus, both the level of creativity and the number of ideas will also be limited. On the other hand, if the conceptual distance between two objects is too distant, the level of stimuli should again become problematic because images of the two objects are digressed and associations will be difficult to grasp.

Based on the conjecture and review we propose the following hypotheses

- H1: The results of ABIG(attribute based idea generation) approach will be higher in creativity score than the results from traditional forced-association technique (FAT) without attribute listing.
- H2: ABIG approach will produce more ideas than FAT.
- H3: The result from medium conceptual distance test will be higher in creativity score than the results from short or long conceptual distance test.
- H4: Medium conceptual distance test will produce more ideas compared to either close or distant conceptual distance test.

Research method

Subjects and experimental procedure

A pre-test was performed using 120 high school students. Through the pre-test we checked whether the experimental context and instructions were clear and understandable, and whether the subjects performed the experimental task without confusion and as appeared in the instruction sheet. In the actual test, 180 business school students of Hanyang University served as research subjects.

The experiment was administered as part of in-class activities. The subjects were randomly divided into two groups: one for traditional FAT and the other for ABIG. The subjects were again randomly assigned to a team of 3 members. The techniques corresponding to each group were explained

along with the experimental task. The written task instruction was prepared and provided to the subjects and was read aloud by the experimenter. Fixed time limits were given per each test. Each team performed the experimental task three times, each corresponding to 3 levels conceptual distances of the two objects given: vacuum cleaner and coffee, vacuum cleaner and watch, vacuum cleaners and air cleaner ([Table 4]).

Table 4: 3 levels of distance in object conceptscedure

1.	Step long distance: vacuum cleaner and coffee
2.	Medium distance: vacuum cleaner and watch
3.	Short distance: vacuum cleaner and air cleaner

Instruments to measure outcomes

We used diffuse thinking method of Guilford [14] and Con-sensual Assessment Technique (CAT) of Amabile [1,2 & 3] to measure the originality and uniqueness quality of outcomes. Three panels evaluated the answer. In terms of diversity, the total number of ideas were counted.

Research result

Creativity score and method by concept distance (Hypothesis 1)

Test 1: short conceptual distance

Table 5a, summarizes the means and standard deviations of the creativity score in Test 1, where the conceptual distance between two objects was short. [Table 5b] summarizes result of the t-test that compares the two methods: ABIG and FAT. The creativity score of ABIG was significantly high then that of FAT, so Hypothesis 1 is supported on Test 1.

Table 5a: Test 1 (short distance) creativity score

Test 1		N	Mean	Standard deviation	Standard Error of Mean
method	ABIG	30	28.90	4.436	.810
	FAT	30	25.37	3.557	.649

Table 5b: Result of t-test in Test 1

	Levene equal variance		t-test		
	F	p-value	t	the degree of freedom	p-value

T1	assumption of equal variance	.847	.361	3.403	58	.001
	without assuming equal variances			3.403	55.385	.001

Test 2: medium conceptual distance

Table 6a summarizes the means and standard deviations of the creativity score in Test 2, where the conceptual distance between two objects was medium. [Table 6b] summarizes result of the t-test that compares the two methods: ABIG and FAT. The creativity score of ABIG was significantly high then that of FAT, so Hypothesis 1 is supported on Test 2.

Table 6a: Test 2 (medium distance) creativity score

Test 1		N	Mean	Standard deviation	Standard Error of Mean
method	ABIG	30	31.57	3.339	.610
	FAT	30	27.17	4.878	.891

Table 6b: Result of t-test in test 2

		Levene equal variance		t-test		
		F	p-value	t	the degree of freedom	p-value
T1	assumption of equal variance	9.192	.004	4.077	58	.000
	without assuming equal variances			4.077	51.283	.000

Test 3: long conceptual distance

Table 7a: summarizes the means and standard deviations of the creativity score in Test 3, where the conceptual distance between two objects was long. [Table 7b] summarizes result of the t-test that compares the two methods: ABIG and FAT. The creativity score of ABIG was significantly high then that of FAT, so Hypothesis 1 is supported on Test 3.

Table 7a: Test 3 (long distance) creativity score

Test 1		N	Mean	Standard deviation	Standard Error of Mean
Use of method	Yes	30	26.50	5.782	1.056
	No	30	23.30	4.070	.743

Table 7b: Result of t-test in test 3

		Levene equal variance		t-test		
		F	p-value	t	the degree of freedom	p-value
T1	assumption of equal variance	.053	.819	2.479	58	.016
	without assuming equal variances			2.479	52.071	.016

Idea diversity and creativity method (Hypothesis 2)

Test 1: short conceptual distance

Table 8a summarizes the means and standard deviations of the number of ideas in Test 1, where the conceptual distance between two objects was short. [Table 8b] summarizes result of the t-test that compares the two methods: ABIG and FAT. There was no significant difference between ABIG and FAT in number of ideas ($p=0.678>0.01$), so Hypothesis 2 is not supported on Test 1.

Table 8a Test 1 (short distance) idea diversity

Test 1		N	Mean	Standard deviation	Standard Error of Mean
Use of method	Yes	30	4.50	1.480	.270
	No	30	4.70	2.168	.396

Table 8b: Result of t-test in Test 1 diversity

		Levene equal variance		t-test		
		F	p-value	t	the degree of freedom	p-value
T1	assumption of equal variance	5.095	.028	-4.17	58	.678
	without assuming equal variances			-4.17	51.202	.678

Test 2: medium conceptual distance

Table 9a summarizes the means and standard deviations of the number of ideas in Test 2, where the conceptual distance between two objects was short. [Table 8b] summarizes result of the t-test that compares the two methods: ABIG and FAT. There was no significant difference between ABIG and FAT in number of ideas ($p=0.312>0.01$), so Hypothesis 2 is not supported on Test 2.

Table 9a: Test 2 (medium distance) idea diversity

Test 2		N	Mean	Standard deviation	Standard Error of Mean
Use of method	Yes	30	5.67	1.971	.360
	No	30	5.13	2.080	.380

Table 9bP: Result of t-test in Test2 diversity

		Levene equal variance		t-test		
		F	p-value	t	the degree of freedom	p-value
T2	assumption of equal variance	.126	.724	1.019	58	.312
	without assuming equal variances			1.019	57.833	.312

Test 3: long conceptual distance

Table 10a summarizes the means and standard deviations of the number of ideas in Test 3, where the conceptual distance between two objects was short. [Table 10b] summarizes result of the t-test that compares the two methods: ABIG and FAT. There was no significant difference between ABIG and FAT in number of ideas ($p=0.161>0.01$), so Hypothesis 2 is not supported on Test 3.

Table 10a: Test 3 (long distance) idea diversity

Test 3		N	Mean	Standard deviation	Standard Error of Mean
Use of method	Yes	30	3.93	1.507	.275
	No	30	3.37	1.586	.290

Table 10b: Result of t-test in test 3 diversity

		Levene equal variance		t-test		
		F	p-value	t	the degree of freedom	p-value
T3	assumption of equal variance	1.318	.256	1.419	58	.161
	without assuming equal variances				57.849	.161

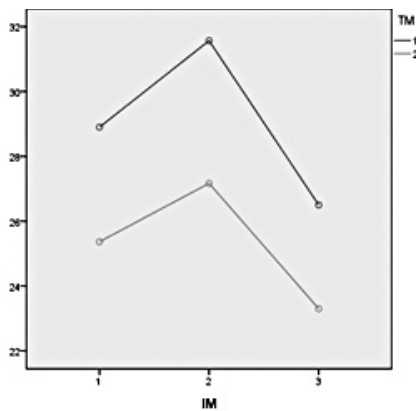
Effect of conceptual distance

Table 11 shows the posteriori test of Hypothesis 3. As shown in [Table 11], the differences in 1-2, 2-3, 3-1 are statistically significant ($p<0.05$). Thus Hypothesis 3 is supported. [Figure

1] is a profile chart on creativity by conceptual distance and clearly shows that the creativity score of medium conceptual distance is highest among all.

Table 11: Posteriori tests of H3

	IIM	IM	mean difference	Standard Error	p-value	95% mean difference	
						lower bound	lower bound
Tukey HSD	1	2	-2.23	.807	.017	-4.14	-.33
		3	2.23	.807	.017	.33	4.14
	2	1	2.23	.807	.017	.33	4.14
		3	4.47	.807	.000	2.56	6.37
	3	1	-2.23	.807	.017	-4.14	-.33
		2	-4.47	.807	.000	-6.37	-2.56



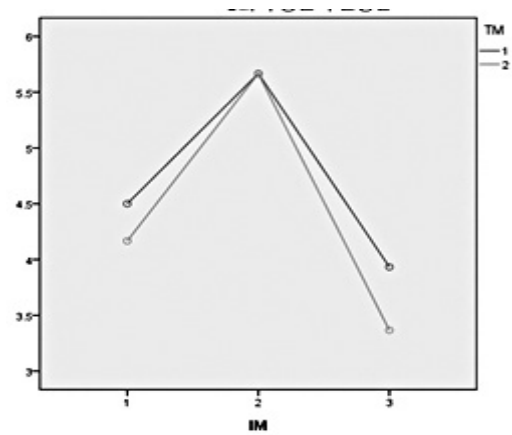
[Figure 1] Creativity score by conceptual distance

Effect of application of the number of idea and conceptual distance

Table 12 shows the posteriori test of Hypothesis 4. As shown in Table 12, the difference in 1-2, 2-3 are statistically significant. Thus Hypothesis 4 is supported. [Figure 2] is a profile chart on the number of creative idea by conceptual distance. As can be seen from the figure, the number of idea of medium conceptual distance is higher than the other two cases.

Table 12: Posteriori tests of H3

	IIM	IM	mean difference	Standard Error	p-value	95% mean difference	
						lower bound	lower bound
Tukey HSD	1	2	-1.33	.304	.000	-2.05	-.62
		3	.68	.304	.066	-.03	1.40
	2	1	1.33	.304	.000	.62	2.05
		3	2.02	.304	.000	1.30	2.73
	3	1	-.68	.304	.066	-1.40	.03
		2	-2.02	.304	.000	-2.73	-1.30



[Figure 2] The number of idea by conceptual distance

Conclusion

This study focused on the development of a creative method for new product ideas. We suggested a creative method (Attribute Based Idea Generation) on the generation of creative ideas by modifying forced association technique(FAT). We also focused on the creativity task by team, which is considered more practical than individual task tests as companies largely rely on team activities in the development of new products.

The study produced several interesting findings on creativity method. The experimental results showed that appropriate conceptual distance help to produce best creative output and that ABIG approach is proved to be more effective than traditional association. However, we could not find significant differences in the number of creative ideas between ABIG and FAT.

Our findings imply that when we use appropriate creative method we can generate more creative ideas in several important ways. Creativity varies depending on the conceptual distance of key objects. In other words, both technique and selection of key objects are important for improved creativity result. The results open promising avenues for future research and allow the derivation of valuable guidelines for practitioners.

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Multinational Firms and Territories: Integrating Local Expectations: the Case of Thailand

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Abstract

Our model integrates both the global strategy of multinational firms and the local expectations of stakeholders. We assume that the territory is the place where both converge. While modern academic thinking emphasizes the importance of networks and the possibility to enact remote contacts [1] and contracts, our model underlies the necessity of interactions in a territory which is strongly defined by historical and geographical considerations. Since territory is the place of a community, it is also a place where human beings can accomplish themselves, by developing simultaneously their selves and their lasting relationships with others. Our model suggests that this ontological dimension of human beings cannot be underrated by multinational. But territories are also the place of specific institutions [2]. As such, the action of multinationals cannot be exactly duplicated through all the territories where they are present. To respond to their local stakeholder expectations, multinationals have to adapt their local actions to the specificities of local institutions. For instance, observance and compliance with global injunctions linked to the climate global warming have to be mediated with territories and communities. Therefore, we conclude that international reporting standards should focus on principles without intending to regulate in the details the actions in specific countries or territories. While detailed regulation is necessary, it should be locally enacted to both comply with the global principles and be coherent with local institutions.

Keywords

Corporate Governance, Territories, Stakeholders, Sustainability

Introduction

Multinational firms are addressing global concerns on economy, society and environment. Global institutions promote international standards to facilitate the contribution of multinational firms to the global welfare of the world. IFRS (International Financial Reporting Standards), GRI (Global Reporting Initiative), etc., are set to regulate the reporting of multinationals' performance. However, welfare is meaningless when it is not grounded in local territories. We propose to define a territory as both a place where a community exists and develops

and as a set of specific institutions [3], that regulate the living together (including the relationships with other communities and territories). We focus on Thailand as our territory of investigation. Through the interviews of executives and employees of public companies, and interviews of political leaders, we intend to synthesize the expectations of local stakeholders in Thailand as regard the contribution of multinationals to the sustainable development of their territory and to the satisfaction of their needs. A previous work has been done on other territories such as Vietnam, Togo, and Cameroon. It benefited from the support of the French Authority for Accounting Standards (ANC: Autorité des Normes Comptables).

Literature review

Globalization and territories

Economic welfare that derives from capitalism seems to induce accumulation and globalization. Competitive economics and public markets, which were supposed to be the invisible hand that drives the allocation of resources [4], have paved the place for multinational firms that intent to benefit from scale economies and competitive advantages.

While the 1960s growth has made the firms bigger, it also made them more bureaucratic and less efficient. With the turning point of the 1990s, multinational firms tried to keep their competitive advantages due to the control of their markets while alleviating their inefficiencies due to their organizational size. The key word seemed to be the network, the ability to establish close links with specific customers or suppliers, to develop formal and informal contractual relationships that could not be easily duplicated, while simultaneously alleviating all the activities that could be externalized.

Performant firms are supposed to have the ability to adapt quickly to their environment, to a shift in the demand, to the new fashions. This adaptation ability seems to be more important and the wealth concentration. As was already observed by Sen [5], capabilities are more important than possessions when they offer the possibility to exist and

to develop personal aspirations. In the globalized world, the capacity to shift resources quickly from one place to another, from one process to another one, is the guarantee to be efficient, i.e. to adapt almost instantaneously to a change in the relative worldwide market prices of services, goods and resources. The capacity to move is the prime marker of the winners in the globalized economic world [6]. However, the observation of multinational firms seems to reveal an evolution since five or ten years. While mobility is still a competitive advantage, it is not sufficient if the firm does not dispose of loyalty and commitment from its stakeholders that are entrenched in a territory. Firms have both to be able to shift their resources and to offer a commitment to the owners of these resources. Sustainability seems to translate this dilemma between economic performance and long-term development.

The complex dimensions of territories

By contrast with the networking approach, the territorial approach emphasizes the geographical static dimension. A territory exists since people and natural environment offer a kind of permanency. A territory where people are always moving and bypassing the frontiers cannot exist and develop [7]. In the globalized world, territories seem to be a losing place. People who do not want, or who cannot, move are therefore losers that cannot adapt to the permanently changing environment [1]. We suggest that the picture is more complex if we introduce other dimensions than the only economic dimension. Since people do not live only for the satisfaction of their material desires, since they also enjoy relationships with their relatives, and since they also gain deep welfare by interacting with their natural environment, social and environmental dimensions are key factors to grasp the real welfare of human people. The territorial approach offers the possibility to integrate these dimensions and to offer a more complex framework to deal with the consequences of economic globalization. It also opens the possibility to conceive a different approach of corporate governance that could encompass sustainability and the specific and often conflicting expectations of the various stakeholder groups. To define the concept of territory, we rely on a three dimensional approach:

- A territory is a figure to grasp a set of institutions. Some of them can be universal while other is typically local.
- A territory is a place of incarnation of a human community, where real interactions occur between human persons (usually grasped as human resources for the processes of the organization) and the organization itself.
- A territory is a dynamic space that allows to integrate both static concepts (institutions and standards that define and constrain processes and human activities) and dynamic concepts (the game of the actors). The concept of territory makes it possible to reintroduce time in the strategic management of the organizations and in the mechanisms of corporate governance.

In fact, the territory concept opposes and completes the dominating network approach not only on the geographical dimension but also on the temporal approach. While networks are not constrained by the space, and while they can last in the time, the essential measure of their relevance is their contribution to the present time or to a future time that will be a definite time. By opposition, the territory poses the human actors in their durability. As opposed to a virtual interaction, a physical interaction lasts in the time; it involves the entire being of the human persons. Therefore, territories are the place where human people can live in the duration.

The territory as a framework to grasp the stakeholders The dominating academic model of corporate governance is the shareholding model based on the agency theory [8; 9]. This model does not rely on territorial assumptions. The relationship between the firm and its stakeholders is deprived of any concrete human relationships. Human resources are similar to other resources that can be replaced if they offer similar characteristics. Territorial specificities are grasped as independent variables that allow the betterment of the model but that do not affect the model itself. Whether a firm is European, American or Thai is considered to be not relevant as regard the general construction of the model. Its only consequence is the definition of a new variable to better the prediction capability of the model. For instance, if a territory is supposed to lack of efficient institutions (i.e. institutions that promote the concept of fewer constraints on capital and employment but more enforcement on the respect of contractual obligations), the academic model will consider that it explains the inefficiencies of the local firms. In the same way, specificities of the various stakeholder groups are recognized to explain the variation in the predicting capability of the academic model. But the specificities of the stakeholders are not supposed to affect the model itself. For instance, if a local group of villagers is opposed to the exploitation of their ancestral territory, the academic model can only integrate their demand as a pressure to get a higher price for their resources. If non-economic dimensions are associated to some stakeholder demands, the dominating academic model cannot integrate them. With the development of sustainability and corporate social responsibility, firms are increasingly confronted to demands that bypass the economic dimension (and its translation in market prices) to integrate environmental or social dimensions. For instance, some natural resources can encompass religious or ancestral signification for some communities that interact with the firm. A key concept of our research project is that only by explicitly introducing the various dimensions of a territory, can we develop a model that can deal with the specific demands of the various stakeholders that are deeply entrenched in their communities, in their natural environment and, therefore, in their territory.

Empirical investigations in Thailand

We apply this theoretical analysis to the specific case of Thailand.

The interviewing methodology

We used the methodology proposed by Tran Vu et al. [10]. Therefore, we rely on a main question:

- Whether corporate sustainable performance includes addressing the concerns of all stakeholders, and particularly employees, clients, suppliers and local communities (shareholders' expectations were usually not directly addressed in our interviews).

Interviews have been realized in July and October 2015 in Thailand by the Thai author of this paper. He used a framework designed by Pige et al. [11]. Interviews were realized in Thai speaking but they were later translated and written in English. Two firms were investigated: one in the cement industry (table 1) and the other in the media & publishing industry. They were complemented with interviews with two leading figures of the political Thai life. It appeared that interviews with members of the cement industry contained more information and were therefore easier to use and analyze. Moreover, this investigation with a Thai cement group could be compared with a former investigation with a leading international cement group in Vietnam [11]. Therefore, we only present our results for the Thai cement firm.

Table 1: interviews with a Thai firm in the cement industry and four of its suppliers

Position	Symbol	Date	Recording
Corporate Secretary Director and Company Secretary of SCG	CEM-Ex1	13/10/2015	1h15
Head of HR Customers Support Corporate Human Resources Division	CEM-Ex2	15/10/2015	0h48
Sustainable Development Manager Center of Excellence and Sustainable Development	CEM-Ex3	15/10/2015	1h23

Head of Accounting Professional Standards	CEM-Employ1	15/10/2015	0h35
Internal Audit Officer	CEM-Employ2	13/10/2015	0h26
Supplier : Public Relation Manager	CEM-Supply1	15/10/2015	1h00
Supplier : Sale manager	CEM-Supply2	15/10/2015	1h00
Supplier : Head of Production Department	CEM-Supply3	12/10/2015	0h20
Supplier : Executive Editor of Production Department	CEM-Supply4	09/10/2015	0h53

Interviews

In the study of Pige et al. [11], on a multinational firm in the cement industry in Vietnam, it appears that sustainability can be transformed from a constraint to a key strategic factor. In the case investigated in Thailand, we also observe the same process of appropriation of the sustainability concern for the excellence in the activity. Sustainability appears to be a growing concern since 5-6 years. According to the interviews, sustainability is closely related to the concept of territory:

We are a listed company in the Stock Exchange of Thailand. We have shareholders who own our company. So we have to make profit to satisfy them first but, for the long run, we need to deal business with care of our society, our environment, and our employees (CEM-Employ1).

As regard Sustainable Development (SD), we run our business by balancing 3 parts: Economics, Environment, and Society. (...) We cannot say that we treat all stakeholder groups equally. Customer is our first priority to concern of. (...) Some customers are not concerned about environment or societies such as whether our processing is green or not? It may not be all green. But we know that customer's behavior changes to more concern of environment or society, so we must move on. (...) At factory site, the priority of stakeholder is the community. We must talk to the community and find out how our processing affects them. (...) We realized that they don't concern about their belonging of what we gave them. They still thought that all things we gave to them belonged to us. So we had

to change their attitudes. Therefore, we talked to them about what we could do together for that. (CEM-Ex3) At a locality, villagers have filed two major petitions to the Court about pollution. In the end, the efforts of the villagers were successful, and on 2009, the Administrative Court issued a verdict ordering the National Environment Board to declare the locality and nearby areas as a Pollution Control Zone. According to the lawyer of the villagers, the reason for the delay in declaring the zone a pollution area is the lobbying of the firms that gave monetary support. Some 5-6 years ago, we followed the law and regulation but it was not enough in that time. Law and regulation do not cover all the needs, so we were sued by the community about pollution. After that, we arranged a seminar of Environmental Impact Assessment (EIA) with the community. If our factory did not pass the EIA, we sent an expert to fix it. If the factory still not passed the EIA, we could not operate it. (...) After that event, we organized a forum including our CEO. At the meeting, representatives of NGO (non-governmental organization) said that "what the firm has done is good for us. However, if pollution still happens, they have to response for that". At first, we were confused. Finally, we discussed and found that we are in a community (an industrial estate). If pollution occurs, it will affect all the community. We have to solve it together for our community sake (our competitors; our factory neighborhoods; the same industry group). (...) Our CEO said "I am willing to do it. We started at zero experience about SD. We will advance by trial and error until we find the solution." (...) We started sharing with 2-3 organizations first and then expand it as much as we could. Finally, everyone did a good job to our community. Our community will change to be a good community. (CEM-Ex3). According to the cement firm's 2014 sustainability report, the firm established a learning center to report on partnership with some communities in building check dams to resolve a variety of problems gripping the communities. Partnerships focus on reviving the community forest that serves multiple practical needs including livelihoods and natural defense against forest fire. The process of check dam's construction provided opportunities for community members to unite for a clear purpose. We spend 0.1% of our total turnover for community projects and between 0.2 and 0.4% for environmental projects. (...) At our factory site, we focus on community, temple, and school. What can we do to improve the quality of life in the community? A dam project is an example. We also created a playground. (CEM-Ex3)

The cement firm also supports staff's engagement in voluntary work for communities. Through this program, SCG employees are encouraged to carry out projects that truly respond to community's needs in a number of ways. Throughout 8 years of implementation, several thousand staff members have participated in working for community-based projects in almost all provinces across Thailand. This sort of engagement contributes to strengthening the bond among workforce while fostering good ties with communities. The cement firm is also engaged in training its employees to better the service to their customers. Various slogans

are supposed to incite employees to pursue the excellence:

- "Our employees dare to think": We have to express our opinions sincerely and get to the point in the meeting (CEM-Employ2). Usually, in the Thai culture, we don't like to express our opinion. If one expresses his or her opinion at a meeting, other people will see him or her as an aggressive person. Usually, a quiet person will get more easily promotion to the management team than a talkative person.
- "Dedication to excellence": it means to develop our employees to be well educated in their jobs so our employees can offer good services to our clients. My boss is coaching me in routine jobs and also coaching me in developing my personality. (CEM-Employ2).

Training seems to be widely used for administrative jobs: For accounting field, we offer foundation, middle and advance accounting courses. We also offer operational courses such as accounting standard, taxes and so on. (...) Employees at managerial level with 10 or more years work experience will take part in the Management Development Program (MDP) organized by the prestigious Wharton Business School, University of Pennsylvania. Employees at mid-managerial level are offered the Executive Development Program (EDP) organized by Columbia University. The 5-weeks program is conducted in the USA. (CEM-Employ1). This information is confirmed by information reported on internet.

Analysis and conclusion

Interviews and reading of the public reports confirm that sustainability is becoming a key concern for multinational firms. While globalization cannot be neglected, for instance as regard the training of employees or the expectation of the customers, sustainability implies a focus on communities. Therefore, multinational firms have to intent to reconcile globalization and localization. Sustainability seems to implicate for multinational managers a dedication to employees and communities that supposes the recognition of the specificities of each community and each employee. Resources cannot be assumed to be perfectly exchangeable; they become unique even if they can substitute. To offer a new model of corporate governance that integrates all the firms' stakeholders suggests that the current approach focused on the standardization of natural and human resources is inadequate. Therefore, we propose to conceive a new corporate governance approach that would integrate the territorial concept that permits to consider each resource as both unique and substitutable.

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Quality Types of Crowd funding to Intention to Use

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Abstract

Borrowing money from a financial institute is not an easy task. As various types of Internet platforms have been developed, people can bypass financial institutes and raise a fund using a crowdfunding platform, which enables to collect a fund from individuals. A crowdfunding market has been growing fast. Additionally, this phenomenon impacts on a role of a financial institution. In this circumstance, many crowdfunding platforms have been developed and various types of platforms are competing to attract people to fund through their platforms. The purpose of this study is identifying the relationship between intention to use crowdfunding and information quality as well as platform quality. After online and offline survey on 30 people, the research shows that intention to use crowdfunding has more positive correlation with platform quality than information quality.

Keywords

Crowd funding, Internet platform, Information quality, Platform quality

Introduction

According to report from crowdsourcing.org, the global crowdfunding market has been expanded by 167 percent to reach \$16.2 billion in 2014 from \$6.1 billion in 2013. The crowdfunding market is expected to grow up more than double once again to \$34.4 billion in 2015 [1]. The reason why the crowdfunding market grows up fast and receives attention are that people can raise funds while traditional lending institutions reject them. Although people have a low credit rating, they can secure finance to establish or extend business and small investment through crowdfunding [2]. With crowdfunding, borrowers can have lower interest rates loan on their loans and lenders can have higher returns on their investments [3]. There are much research regarding crowdfunding and different definitions of crowdfunding are shown. We can find the meaning of crowdfunding from crowdsourcing. Klemann et al [4] showed concept of crowdsourcing

as “crowdsourcing is the idea that a crowd of people collaboratively (or at least simultaneously) contributes to an aspect of the production process or a solution of a design issue or other problems” and Reichwald and Piller [5] suggested the concept of crowdsourcing as “open innovation”. Definitions of crowdsourcing provided by Klemann et al. [4], Lambert and Schwenbacher [6] extend the definition of crowdfunding as “an open call, essentially through the internet, for the provision of financial resources either in form of donation or in exchange for some forms of reward and/or voting rights in order to support initiatives for specific purposes”. In order to make successful crowdfunding, many of researchers have studied about crowdfunding. They studied people’s perspective of crowdfunding, for example motivation of people who participate in crowdfunding [2, 7, 8, 9, 10, 11], success factors of crowdfunding regarding people who use crowdfunding [12, 13, 14, 15, 16] and project characters of crowdfunding. [15, 17, 18, 19]

These studies focused on only one perspective such as investor (or lender), entrepreneur (or borrower) or project. We need to think about all together including crowdfunding platform. Before investors invest in a project, they often assess relevant kinds of qualities with information provided on a crowdfunding platform, such as credit evaluation and financial information of a project [21].

In this research, we try to find out crowdfunding investors’ participation intentions. Why they want to participate in crowdfunding? Is this because they get enough information from a platform or are they satisfied with a crowdfunding platform quality? We investigated about these questions using information quality and platform quality of crowdfunding. Information quality can be divided into borrower’s information quality and project information quality. In order to investigate three kinds of qualities, we survey crowdfunding users, and then statistical analysis is performed. Each quality has a positive correlation with participation intention of and investor in a crowdfunding website.

Theoretical development

Information quality

We find different ways of measurement of information quality. One of the ways to measure information quality was proposed by Wang and Strong. [22]

They show a list of dimensions or elements used in assessing Information Quality is: Intrinsic IQ (Accuracy, Objectivity, Believability, Reputation), Contextual IQ (Relevancy, Value-Added, Timeliness, Completeness, Amount of information), Representational IQ (Interpretability, Format, Coherence, Compatibility) and Accessibility IQ (Accessibility, Access security). Intrinsic IQ means that information has quality in its own right. Contextual IQ emphasizes the requirement that IQ must be considered within the context of the task at hand. Representational and accessibility IQ emphasize the importance of computer systems that store and provide access to information [22]. Other researchers propose different list of dimensions or elements regarding information quality [22, 23, 24, 25, 26, 27, 28].

We bring the concept and measurement way of information quality from Wixom and Todd [29]. They divided information quality by four dimensions: “completeness represents the degree to which the system provides all necessary information; accuracy represents the user’s perception that the information is correct; format represents the user’s perception of how well the information is presented; and currency represents the user’s perception of the degree to which the information is up to date” [29].

Platform quality

According to Iansiti and Levien [31] and Eisenmann et al. [31], “a platform is a system with well-defined access points and rules on which other parties can build applications or services” [32]. As this definition, we consider a platform as a system. To measure system quality, we apply Wixom and Todd’s concept [29]. They suggested four dimensions of system quality as reliability, flexibility, integration and accessibility. Reliability indicates the dependability of system operation. Flexibility means the way the system adapts to changing demands of the user. Integration signifies the way the system allows data to be integrated from various sources. Accessibility refers to which information can easily be accessed or extracted from the system. Timeliness indicates the degree to which the system offers timely responses to requests for information or action [29].

Methods

Instrument development

Survey question and measurement

We develop survey questions based on Wixom and Todd’s survey questions [22] to measure each dimensions. Each

hypothesis of 1 and 2 has three questions to see project (and project founder) information quality. Also, we make three questions of each composite of project information quality, project founder information quality, and platform quality to measure correlation with platform quality. We use 7-point Likert-type scale, ranging from 1 (strongly disagree) to 7 (strongly agree) to examine closely each question.

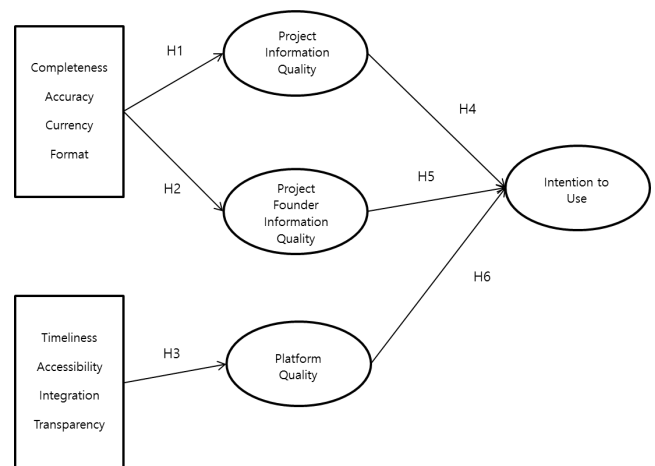
2. Participants

We solicited to university students to participate in our research. Many students were not familiar with crowdfuting and had not heard about crowdfunding. As these reasons we made tasks for them. Before they participated in the survey, they had to perform the tasks. We gave the tasks and surveyed them online or offline. 30 respondents answered to the survey and their age varies from 20 to 39.

The data was analyzed with SmartPLS 2.0

Overall research model

Figure 1 – Overall Research Model



Hypothesis and Variable Concepts

Project Information Quality

- Hypothesis 1-1: information completeness of project will affect information quality of project
- Hypothesis 1-2: information format of project will affect information quality of project
- Hypothesis 1-3: information accuracy of project will affect information quality of project
- Hypothesis 1-4: information currency of project will affect information quality of project

Hypothesis 1-4: information currency of project will affect information quality of project

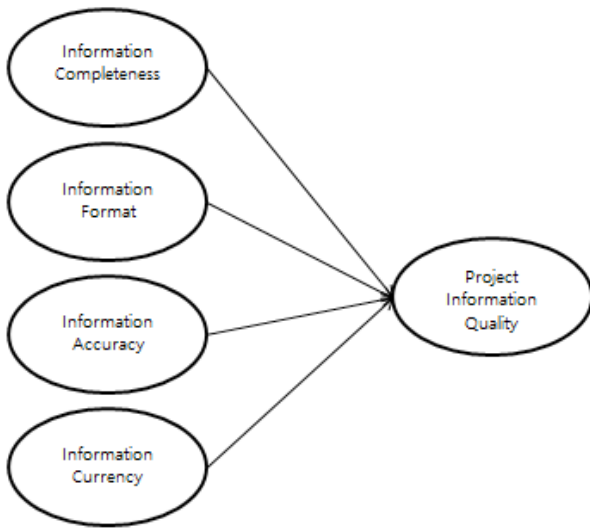


Figure 2 – Hypothesis 1

Project Founder Information quality

Hypothesis 2-1: information completeness of project funder will affect information quality of project founder

Hypothesis 2-2: information format of project funder will affect information quality of project founder

Hypothesis 2-3: information accuracy of project funder will affect information quality of project founder

Hypothesis 2-4: information currency of project funder will affect information quality of project founder

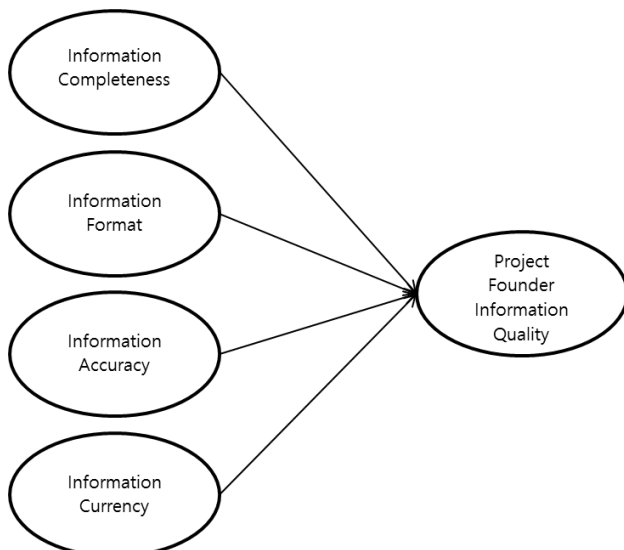


Figure 3 – Hypothesis 2

3.3. Platform quality

Hypothesis 3-1: timeliness of crowdfunding platform will affect platform quality

Hypothesis 3-2: integration of crowdfunding platform will affect platform quality

Hypothesis 3-3: accessibility of crowdfunding platform will affect platform quality

Hypothesis 3-4: transparency of crowdfunding platform will affect platform quality

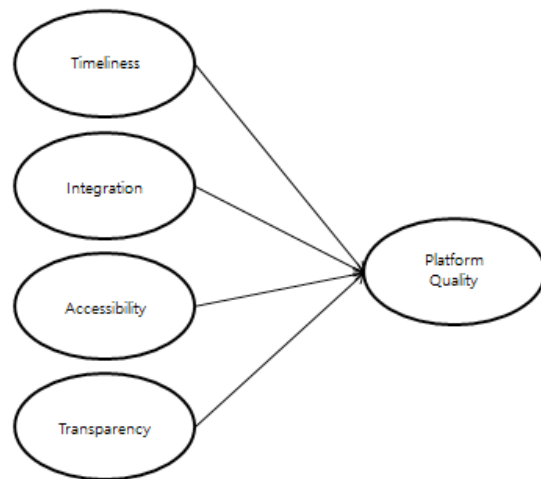


Figure 4 – Hypothesis 3

3.4. Project Information Quality and Intention to Use

Hypothesis 4: project information quality will affect intention to use



Figure 5 – Hypothesis 4

3.5. Project Founder Information Quality and Intention to Use

Hypothesis 5: project funder information quality will affect intention to use

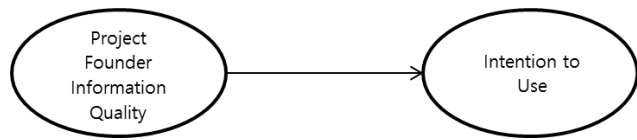


Figure 6 – Hypothesis 5

3.6. Platform Quality and Intention to Use

Hypothesis 6: platform quality will affect intention to use

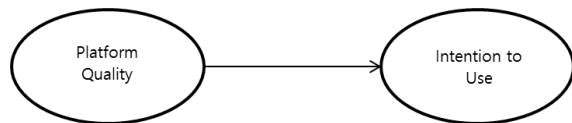


Figure 7 – Hypothesis 6

Result

1. Path Coefficient

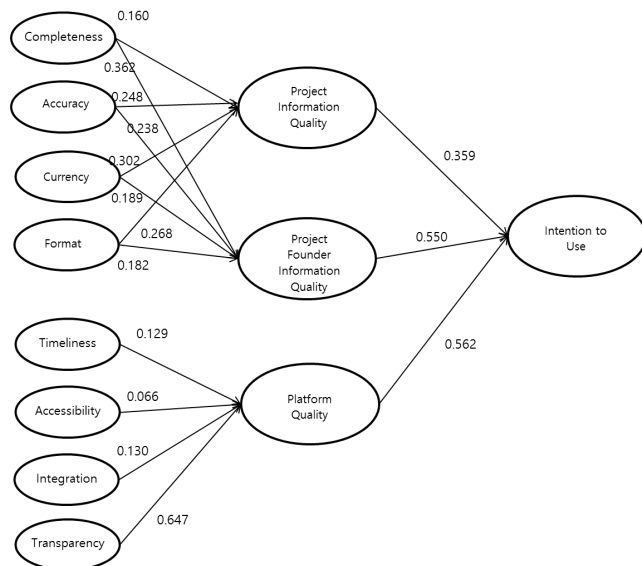


Figure 8 – Path coefficient overview

2. PLS Internal consistency

PLS analysis is required internal consistency. Using Fornell and Larcker's composite reliability, we verified significant composite reliability value [33]. The significant composite reliability value is over 0.7 and all of composite reliabilities are passed. Also, Fornell and Larcker [33] and Chin [34] proposed significant AVE (average variance extracted) value. The significant AVE value is over 0.5, so in this research all of AVE are passed.

Table 1 – PLS Reliability

		AVE	Composite Reliability	R Square	Cronbachs Alpha
Project Information Quality	Completeness	.7811	.9144	-	.9144
	Accuracy	.8504	.9478		.9170
	Currency	.9483	.9735	-	.9461
	Format	.8666	.9512	-	.9245
	Project Information Quality	.8402	.9403	-	.9044
Project Founder Information	Completeness	.8114	.9277	-	.9277
	Accuracy	.8263	.9345	-	.8948
	Currency	.7857	.8796	-	.7404
	Format	.8962	.9628	-	.9421
	Project Founder Information	.8896	.9603	.6986	.9379
	Timeliness	.9095	.9526	.6349	.9022
	Accessibility	.7544	.9016	-	.8418
	Integration	.6370	.8399	-	.7143
	Transparency	.7976	.9220	-	.8729
	Platform Quality	.8335	.9374	.7466	.8991
	Intention	.8550	.9465	.5269	.9154

3. PLS Discriminant validity

We tested discriminant validity. The test supposes that between concepts and measurements are unrelated. To verify discriminant validity, we calculated the square root of the AVE value. [33] The smallest of square root of AVE value is greater than the largest correlation coefficient. Therefore, we verified discriminant validities of the constructs in this model.

Table 2 – Latent Variable Correlations (Project Information Quality)

		PIQ_A	PIQ_CO	PIQ_F	PIQ_CU	PIQ
Project Information Quality	Accuracy	.926				
	Completeness	.793	.884			
	Format	.756	.796	.931		
	Currency	.487	.425	.654	.974	
	Project Information Quality	.723	.698	.654	.488	.917

Table 2-2 – Latent Variable Correlations (Project Founder Information Quality)

		PFIQ_A	PFIQ_CO	PFIQ_F	PFIQ_CU	PFIQ
Project Founder Information Quality	Accuracy	.909				
	Completeness	.741	.901			
	Format	.712	.701	.947		
	Currency	.599	.590	.381	.886	
	Project Founder Information Quality	.748	.776	.674	.610	.943

Table 2-3 – Latent Variable Correlations (Platform Quality)

		PQ_TI	PQ_I	PQ_A	PQ_TR	PQ
Platform Quality	Timeliness	.954				
	Integration	.328	.798			
	Accessibility	.567	.178	.869		
	Transparency	.684	.456	.660	.892	
	Platform Quality	.663	.444	.641	.846	.912

4. Hypothesis Evaluations

4.1 Hypothesis 1

4.1.1 Hypothesis 1-1

The information completeness has a significant relationship with information quality of project. However, comparing with other relationships, the coefficient is lower.

4.1.2 Hypothesis 1-2

The information accuracy has a significant relationship with information quality of project.

4.1.3 Hypothesis 1-3

The information currency has the strongest significant relationship with information quality of project. When investors get the newest information of a project, they award high marks of information quality of project.

4.1.4 Hypothesis 1-4

The information format has a significant relationship with information quality of project.

4.2 Hypothesis 2

4.2.1 Hypothesis 2-1

In comparison with a significant relationship of project information quality, the information completeness of project founder has the strongest significant relationship with information quality of a project founder. It implies that investors want to have information about a project founder as much they can.

4.2.2 Hypothesis 2-2

The information accuracy of project founder takes second strongest significant relationship with information quality of a project founder. When investors have accuracy information about a project founder, they award high marks too.

4.2.3 Hypothesis 2-3

The information currency of a project founder has a significant relationship with information quality of a project founder.

4.2.4 Hypothesis 2-4

The information format of a project founder has a significant relationship with information quality of a project founder. However, comparing with others, its coefficient is low.

4.3 Hypothesis 3

4.3.1 Hypothesis 3-1

The platform timeliness has significant relationship with platform quality. It means that investors want to interact with a crowdfunding website in a timely manner .

4.3.2 Hypothesis 3-2

Interestingly, the platform accessibility does not have a significant relationship with platform quality. The survey questions to measure platform accessibility are: it is easy to make account in the crowdfunding website; it is easy to participate in projects; and overall, the website is well made to use.

4.3.3 Hypothesis 3-3

Platform integration has a significant relationship with platform quality.

4.3.4 Hypothesis 3-4

Platform transparency is not included in dimensions of system quality that is suggested by Wang and Strong [22]. However, it is important for investors whether a crowdfunding platform is transparent or not. Thus, this dimension is developed to measure platform transparency. Platform transparency has the strongest significant relationship with platform quality. The survey questions of platform transparency are: the website provides all information what I need; the website provides information of project's progress and result; and the website gives all information regarding their policy, method of compensation.

4.4 Hypothesis 4 and Hypothesis 5

Project information quality and project founder information quality have significant relationships with intention to use of crowdfunding. However, project founder information quality has the more significant relationship than project information quality. It shows that investors consider project founder quality more than project information quality when they invest a project.

4.5 Hypothesis 5 and Hypothesis 6

Platform quality has the most significant relationship with intention to use of crowdfunding. Platform quality play an important role to make investors participate in crowdfunding.

5. Hypothesis overview

Table 3 – Hypothesis overview

Hypothesis	Relationship	Result
H1-1	COMP → PIQ	Supported
H1-2	ACU → PIQ	Supported
H1-3	CUR → PIQ	Supported
H1-4	FOR → PIQ	Supported
H2-1	COMP → PIQ	Supported
H2-2	ACU → PIQ	Supported
H2-3	CUR → PIQ	Supported
H2-4	FOR → PIQ	Supported
H3-1	TIM → PQ	supported
H3-2	ACE → PQ	not supported
H3-3	INTE → PQ	supported
H3-4	TRA → PQ	supported
H4	PIQ → IU	supported
H5	IIQ → IU	supported
H6	PQ → IU	supported

Conclusion

According to existing research, investors tend to make decisions based on information about projects on crowdfunding websites. In this research, we divided information types as project information and project founder information to see whether which information has more significant relationship with intentions to use a crowdfunding website. As a result, the project founder information plays the more important role for investors than the project information. Moreover, we show the result that platform quality has the most significant relationship with intention to use for investors. It means that not only providing information to investors is important but also providing high quality crowdfunding platform plays the more important role for investors to participate in projects. Therefore, crowdfunding website operators need to pay extra attentions to their platforms.

This research has following limitations. First, the sample size is rather small. Second, the respondents are young students who have limited financial source to invest.

Nevertheless, as an explorative research, this study opens an avenue to research crowdfunding by introducing quality types of crowdfunding.

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Consequences of Government Support in Innovations and Technology for Improvement and Sustainability of Smes: The Case of Turkey

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Abstract

The paper focuses on the role of Turkish government in supporting technological development of SMEs, stressing on the impact of state policies and action in that case. While some targeted ends reached to time, attempts in backing such enterprises that are highest in number and labor despite commonly lacking financial and intellectual resources in providing and implementing advanced technologies in R&D applications, additional ICT usage and innovative efforts beyond financial aid there still are much to be done in strengthening the technological capacities of those in face of the mass worldwide competition. Based on the sui generis system of Turkey and hence these group of businesses, outcomes and future planning of national policies on SMEs are discussed in paper. Through this paper, it is hoped to maintain a helpful discussion/benchmarking/comparison of current stand and problems of Turkish SMEs with those of other countries.

Keywords: SMEs, Technological Advancement, ICT Use and Innovation, Government Support.

Introduction

The support of small and medium-sized enterprises as the main drivers of economies in order to persist and survive with their limited workforce and financial stocks in a the constantly changing domestic and global environment shows to be an inevitable must for governments and other forms of organizations that have a role at that. Being the employers of highest number of workforce and accordingly a setback for unemployment and thus social disorder/unrest such responsible bodies should be able to create right and suitable policies and action plans that need to be constantly revised with the ever changing conditions of the nation and the globe.

Concerning with the technological development of the SMEs, new technologies emerging in shortening time between periods today resemble blades both sides sharp. While a single side promises progress and vitality in case successfully implemented to the system of an enterprise, other could be detrimental to the one who don't or couldn't be able to do that. Despite the strong position of larger entities in market benefiting from vast capital, qualified workforce, creditors and a public image (preferably good) having the advantage in gaining genuine technologies, same

could not be worded for small and medium-sized others limited in inputs.

Much like other global players Turkey beyond her policies and efforts in creating healthier grounds for her SMEs to time in all means particularly strives to improve their technological development targeting to furnish those with even higher competitive powers and viability. This necessitates supporting SME growth through encouraging those in technological innovation, patent applications, higher computers and internet usage, R&D, and increasing numbers of ICT usage where such technological advance will additionally be requiring a qualified workforce than that of earlier.

A brief global outlook on the adoption of new technologies by SMEs

Despite there is no globally agreed standard definition for such group of enterprises at present, "considered in most government definitions", there still are "a small group of key variables [including] independence and legal status, sector, employment, turnover, capital investment and balance sheet totals" [1]. Functioning in varied fields of concern thus segmenting in areas as trade, service, farming and manufacturing "SMEs, by number, dominate the world business stage. Although precise, up-to-date data are difficult to obtain, estimates suggest that more than 95% of enterprises across the world are SMEs, accounting for approximately 60% of private sector employment." SMEs in European Union countries and Japan successively constituting 99.8% and 99.0% of the total enterprises are champions of all. In EU case shares of micro, small and medium sized businesses sequentially are 92.2%, 6.5%, 1.1%, employment shares for each being 28.5%, 20.6% and 17.1% [10].

"Both scale economies and research and development have become more important instruments for competitiveness in the global economy. Since SMEs seem to be at a disadvantage for both these factors, many experts predicted the demise of SME competitiveness as globalisation increased. While many SMEs have indeed succumbed to a deterioration of competitiveness, others have found ways to actually enhance their positions in global markets"

[23]. Accordingly, the importance of their presence in economic systems for employing greatest number of workforce (thus being a vital panacea for unemployment) and comprising largest number of enterprises makes their backing and encouragement a sine qua non where fostering those in entrepreneurship, innovations and implementation of new technologies being critical concerns between all development efforts. "Primarily governments, stakeholders, and SMEs themselves are expected to have a vital role in "implement[ing] sound macroeconomic policies, develop[ing] conducive microeconomic business environments... good governance, abundant and accessible finance, suitable infrastructure, supportive education, sufficiently healthy and flexibly skilled labour" beyond enabling "capable public and private institutions, and [fostering] the ability of SMEs to implement competitive operating practices and business strategies." For such purpose "SME development strategy must be integrated in the broader national development strategy and/or poverty reduction and growth strategy of transition and developing countries." In order to strengthen the competitiveness of SMEs in countries of transition among others one major issue is "The ability to innovate to improve technology and organization and thus improve efficiency and effectiveness" [26].

Concerning with the adoption and use of IT within their systems in SMEs "there is an increasing consciousness of the necessity to drive profit through investment" for trusting such investing "significantly assist" to maintain "the required infrastructure which is necessary for providing appropriate types of information at the right time" beyond "competitiveness through integration between supply chain partners and inter-organizational functions, as well as by providing critical information." Despite the limited number of studies on the "adoption and use of IT in SMEs" research indicates "that in spite of the exponential growth of IT within SMEs, the rate of IT adoption in these businesses has remained relatively low, and large organizations have noticeably profited more than SMEs in both IT-enabled improved sale and cost savings" [16].

Innovation and entrepreneurship are also substantial concerns for SMEs relating their success and sustainability in market. Innovation being an interactive process that could be incremental or radical for SMEs. While those of hi-tech "also engage actively in radical innovation" SMEs indicate to innovate incrementally, Such enterprises being "crucial in introducing radical new technologies if the technology gap is large" required to have the absorptive capacity meaning "the ability to exploit the acquiring knowledge" relating businesses' potential in innovating, responding and realizing their potential. "Absorptive capacity is determined by entrepreneurship and firm-level attributes... Entrepreneurship is widely seen as the most important determinant of absorptive capacity in SME's" [15]. "Small firms lack[ing] the required internal resources and technical capabilities... therefore must collaborate with

external partners to innovate successfully to develop new sources of income, and to reach more profitable positions in the competitive landscape." For such reason SMEs need to take the necessary steps to open innovation [an application/concept] "described as the use of purposive inflows and outflows of knowledge to accelerate internal innovation, and expand the markets for external use of innovation, respectively." However that shows to be "receive much less attention" by SMEs compared to large enterprises where "Current research on open innovation in SMEs is still very limited and not yet revealing the creative use of open innovation that many innovating SMEs around the globe are implementing" [33].

Additionally needing to be supported in research and development SMEs are required to translate their activities at that to innovation, "i.e. value creation from novelty", for profiting purposes. "Great ideas need to be picked by users, customers and the market, before they can really transform society" [9]. As given in an [25] conference paper "While it is true that a number of empirical studies relating R&D to firm size show that large firms undertake considerably more R&D, more recent evidence suggests that SMEs play an important role in R&D activity. Investment in innovative activities seems to be on the rise in SMEs." where in the United States case those are almost tripled within the ten year period among 1985-1995. In a similar publication by OECD (2009) it is commented that within OECD countries "the share of R&D performed by SMEs... is generally greater than in larger economies. In 2007, SMEs accounted for a large share of business R&D in New Zealand (73%), Greece (60%), The Slovak Republic (57%), Norway (50%), Spain (49%) and Ireland (46%)" despite among OECD the shares of large EU countries, US and Japan being far less than that consecutively being 20%, 15% and 6.4% (OECD, 2009). Increasing R&D expenses of SMEs result in higher employment indicating a considerable positive correlation between the two variables (Kim, 2015: 6).

Finally, relating the "The reliance of SMEs on patents greatly varies by sector... firms active in the biotech, pharmaceutical, medical devices sectors and some areas of ICTs display a much higher propensity to patent than firms in other sectors of the economy." SMEs seem to be less effective in use of patents for possible major reasons such like the higher costs of those "as a source of competitive advantage" compared to larger enterprises, their insufficiencies in "internal competence to manage effectively" hindering their "ability to recognize and develop an efficient level of protection through patenting," other than their "substantial disadvantage in enforcing" patents even if to be "able to recognise the importance of patenting and put in place appropriate patents" [17]. "Not all SMEs need to enter "patenting or licensing game" but all must be aware of the opportunities and constraints created by the intellectual property system" [26].

Organizational and legal background in developing the technological potentials and competencies of domestic SMEs

Developing the technological potentials of domestic small and medium-sized enterprises that “have seen extraordinary growth over previous years... establishing themselves as a powerful force in Turkish economy” (Dyson & Wyatt, 2015), accounting 99% of all enterprises, having a vast part in domestic employment (78%), exports (62%), and total value added in economy (57%) “is crucial in fostering entrepreneurship, innovation and growth in Turkey as they represent the backbone of Turkish economy” [3]. In national standards domestic SMEs are classified according to number of employees and annual net sales as given below:

Table1. Description of SMEs in Turkey

Number of Employees	Size	Annual Net Sales (TLs)
0-9	Micro	1.000.000
10-49	Small	8.000.000
50-249	Medium	40.000.000

Source: Small and Medium Scale Industry Development Organization website (KOSGEB). <http://www.kosgeb.gov.tr/Pages/UI/KOBIMiyim.aspx> (November 13, 2015).

KOSGEB (Small and Medium Sized Enterprises Development Organization) is the major national organization [tied to the Ministry of Industry and Trade] responsible functioning of SMEs in Turkey. The organization’s finance instruments include SME Venture Capital Trust Inc. Co., IVCI, Istanbul Venture Capital Investment Trust Inc. Co. (IVCI), G43 Anatolian Venture Capital Fund, Istanbul Stock Exchange, Emerging Companies Market SME Support Program 18 and Credit Guarantee Fund [19].

“KOSGEB supports SMEs mainly in consultancy and training, technology development and innovation, quality improvement, and export orientation... Main priorities of KGF [Credit Guarantee Fund] are to support young and woman entrepreneurs, to promote innovative investments and high-tech SME's, to support export and employment and to contribute regional development.” Following global crisis [in 2008] KGF “guarantee around 10 billion TL of credit to SMEs” through the counter-guarantees provided to that organization by the Turkish Treasury amounting to one Billion TLs.” SME Venture Capital Investment Trust (KOBİ A.Ş.), Istanbul Venture Capital Initiative (IVCI) and G-43 Anatolian Venture Capital Fund are organizations mainly involving with the financing of these enterprises through a variety of fiscal instruments. “Business angels are seen as an important mechanism to ease access to finance as well as expertise for those companies at their early development stages and having funding difficulties.” Through a “very recently” law enacted to encourage investments of angels in Turkey, a licensing process beyond an accreditation process

for their networks is initiated. “Under the new legislation, licensed angel investors can deduct 75% of the capital that they invest in certain SMEs from their annual tax base. In case of business angels’ investments for R&D and innovation, this ratio goes up to 100 %.” Several legislative amendments through ECM are “aimed at decreasing the costs of issuers and making the capital markets more accessible and a viable alternative for SMEs.” Within the last ten years Treasury Guarantee programs also became a considerable instrument for SME credit guarantees [3].

Congruent with the current vital role of R&D implementations on innovation thus economic growth, the first regulation (Law No. 4691) targeting to encourage Technology Development Regions in R&D became effective in 2001. In 2004, R&D reduction regime was added to the Corporate Tax Code (Law no. 5746) to support R&D activities through “R&D deduction, income tax withholding incentive, social security premium support, and stamp duty exemptions.” Types of incentives available at present are cash grants, reduced social security contributions, tax deductions (including super deductions), tax exemptions, income tax withholding incentives, qualifies for Horizon 2020 funding [13]. In order to support SMEs “in the field of innovative entrepreneurship/SME innovation” technology based companies are created “in KOSGEB incubators (called Technology Development Centers-TEKMERS and Virtual Technology Incubators-DTIs)” via the Support Programme for R&D and Technological Innovation created for such purpose. “Initiated in 1991, provides a mixture of grants and a soft loan to entrepreneurs/SMEs having new technological ideas and innovations, so as to improve these ideas by developing prototypes, start production and market products at the national and international levels. TEKMERs are established in cooperation with the technical universities and industrial chambers.” Industrial Thesis Support Programme (SAN-TEZ) is a similar arrangement initiated by the Ministry of Industry also targeting to “develop the R&D and technological culture of SMEs”, aside other aims as to “increase the innovative and R&D capacity of Turkish industry, strengthen university-industry collaboration, and commercialize academic knowledge” (OECD, 2010: 102). R&D and innovation supports by KOSGEB are provided through two “specialized Collaboration Protocols” entitled “TEKMER Collaboration Protocol” and “R&D and Innovation Collaboration Protocol” based on an agreement “between KOSGEB and universities, chamber[s] of commerce[s], technoparks, etc.” While involving with the “TEKMER Collaboration Protocol” physical spaces (Incubator-TEKMER) are demanded to be supplied by “universities [or] other partners”, in the latter one “no allocation of physical space” is required (virtual incubator) (KOSGEB, 2014: 5, 8). While currently numbers of TEKMERs are 41, those of R&D and Innovation collaborations between KOSGEB and universities based on “virtual incubator logic” are 75, and university-industry collaborations being 116 [21].

Potentials and problems associated in technological SME improvement in Turkey

“SMEs face particular problems due to their small size and limited resources. Globalisation of economy has also altered the challenges faced by these enterprises.” Beyond those of finance, labour, administrative burdens, marketing and exports, environment and entrepreneurship, there are considerable others such as technology, innovation and information and communication technologies (ICT) relating to their technological development. Concerning the “Technology” issue in common “SMEs in Turkey suffer from insufficient know-how and low level of technology [where] Lack of technical skills” obstructing those to benefit from cost advantages. “SMEs’ low level of technology is concomitant with weaknesses in innovation. Undertaking research and development and putting innovative ideas into practice is often much harder for SMEs than for large firms. Business sector share in total R&D expenditure[s] is around 40%.” Despite increasing involvement in R&D, poorness in “innovative activities” is a handicap for SMEs in “upgrad[ing] to technology intensive industry sectors.” Shortage in ICT being “essential for SMEs because of the high cost and lack of qualifications” is an additional problematic issue [19]. While further development of domestic SMEs depends on “modern technology [high-tech] and know-how”, the lack of those in Turkey “result[s] in billions of dollars of unnecessary imports, such as mobile phones and digital cameras, as well as office machinery and aircraft”, low level of technological development being a cause of “low level of innovation in Turkish SMEs” [8].

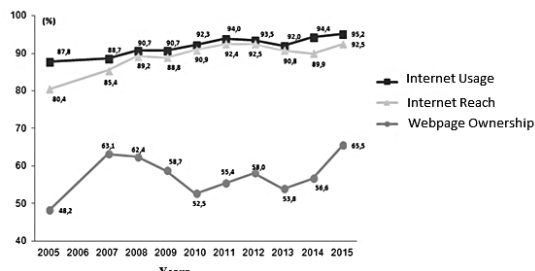
Based on the three year period 2010-2012 [where no current figures are reached], the rate of innovative SMEs in Turkey showed up to be 48%, being higher in medium-sized enterprises (56.1%) compared to small-sized others (46.5%). Within the same period where the rates of SMEs in industry and services were 49% and 46.8% respectively, 26.3% of those enterprises “were... product and/or process innovative” based on their “ongoing” and “terminated” innovative activities, results indicating the supremacy of the former against the latter. While the rate of “organizational and/or marketing innovative” SMEs remained to be 43.2%, their breakdown in organizational and marketing were sequentially 31.2% and 34.3% [30].

R&D expenditures performed by domestic SMEs (2012) was 16.6% of the overall spending summing up to 2.166 Million TLs [over 700 Million US Dollars], SMEs having a 25.3% share in entire FTE R&D personnel employed (105.122) (TÜİK, 2013). “The R&D Innovation and Industrial Implementation Support Program... designed for [the] developing [of] SMEs and entrepreneurs possessing new ideas/inventions on new products, for providing information and/or services, [helps] to facilitate the production and commercialization processes and for supporting innovative activities of SMEs.” Targeting to support “the high added value R&D projects” of SMEs with one Million Turkish Liras limit through “grants and loans”, the Program rules out the

receiving of such support for projects “receiv[ing] support for the same kind of expenditure by another institution” [21]. “R&D deductions can be carried out indefinitely, but the amounts are limited under a complicated formula set forth in the Tax Procedurals Law” (Deloitte, 2014: 45).

Concerning with the use of informatics in Turkey that goes back as early as mid-1960s, an era where the government is targeting the development of the sector “in the area of telecoms equipment manufacturing” and launching TUENA (Turkish Information Infrastructure Project) in 1996 to “build a Turkish information society” where for such purpose an Agenda is created in 1997 intending the “Preparation of a master plan for a national information infrastructure, establishing a national academic network and an information center, spreading the electronic trade... [and accordingly] issuing the law of electronic trade in Turkey” [4]. Currently (2015) the rate of domestic “Internet usage” in total enterprises in Turkey (excluding micro ones) is 92.4% compared to 89.9% in 2014 where in breakdown of enterprises as to their employment (10-49, 50-249 and over 249) those rates being 91.1%, 98.0% and 99.5% respectively. Similarly, there are increases both in rates of “computer usage” (96.2%) and “having own webpages” (65.5%) in total number of enterprises employing more than ten people compared to rates in 2014 sequentially being 94.4% and 56.6%. In “owning webpages”, depending on a breakdown of enterprises as to their employment, while those over 250 employees are highest at that (90.9%) such rates are 79.9% and 61.1% for medium-sized and small others. Relating to Internet access (2015) 92.4% of the enterprises used broadband connection where DSL connection (ADSL, VDSL, etc.) was the most widely-used broadband connection type in 88.1% of overall enterprises, mobile broadband connection usage rate being lower than that (66.9%). Such ratios in SMEs (2013) are 91.8% (computer usage), 52.9% (owning website), 90.4% (broadband connection) and 86.4% (DSL connection). Internet connection speed (2015) varies on enterprise sizes (44.1% under 10 Mbit/s., 40.3% between 10-99 intervals with 15.6% 100 Mbit/s. and over). In online shopping (2014) 12.4% of the enterprises involved in sales/takes of services/goods through Internet (websites, online shops, and mobile applications) or Electronic Data Interchange (EDI), such rates for large, medium and small enterprises being 20.4%, 15.1%, and 11.5% respectively. As 81.4% of overall enterprises used Internet for interaction with public administrations (2014) [32], rate of SMEs (2012) remained at 73.2%, 9.7% of those involved at that in “receiv[ing] orders for products or services via webpages or Electronic Data Interchange (EDI)” [31].

Figure 1. PC and Internet usage, Webpage Ownership in Enterprises, 2005-2015(1) [in Turkey]



Source: TÜİK (2015). ICT Usage Survey in Enterprises, 2015. Press Release.

(1) Survey not done in year 2006.

Finally, relating to the patents applications, “Due to the combined effect of intellectual property awareness and increasing R&D expenditures, since 1998, Turkey has exhibited a rapid increase in the number of international patent applications being filed to the USPTO, EPO, and JPO, either separately or simultaneously as triadic patent applications and Patent Cooperation Treaty (PCP) applications” [29]. While in 2014 the number of patent applications compared to that of the previous year increased by 2%, a similar rise (5.2%) is also observed in the first four months of 2015 compared to same term in 2014 (Daily Sabah Business, 2015). Data relating to the patent ownership applications of Turkish SMEs are quite poor. However, it is possible to reach traces of that through some research conducted such as one carried out by [5], depending on their sample “Using a firm-level survey conducted on 45.000 SMEs” indicating that while “73 percent of the SMEs... have been trying to innovate... only 8 percent has applied for a patent [where] [such] share of firms with more than [one] patent in the whole sample is only [two] percent.”

Conclusion and remarks

As indicated in Final Declaration of XI. Turkish SMEs Summit held in March 2015 (Istanbul), the general SME policy is planned to be constructed in placing these within the axis of the structural transformation, overlapping with the requirements of the new economy intended to be centering on industrialization. Trusting these to be the bearers of domestic industrial memory the aim is an SME weighed future economic order where for such purpose priority in reforms and applications have to be given to these organizations [28].

Beyond problematic issues starting with shortages in capital and struggles with bureaucracy (being a dilemma regarding government support), an indispensable problematic issue for Turkish SMEs today is the lack of expertise and technological sufficiency making government support a sine qua non must at that. Lack of domestic capital, high interest rates, and diminishing foreign investment are main challenging issues directly/indirectly preventing/limiting implementation of modern technology and know-how in Turkish SMEs. Regarding such case these are backed through financial/advisory backing programs/applications maintaining

supports in creation of R&D centers and innovation, credit interests, exports, domestic and foreign market research and market entrance, e-commerce websites memberships, branding, employment, fairs joining, agricultural credits, insurance, and techno-entrepreneurship capital [27].

Depending on the views, understanding and assessments of particular official and non-official groups and specialists, leading policies and applications for further technologic advancements of SMEs are considered to be outlined as follows [28, 14, 2, 22 & 11].

- Usage of IT applications in maximum level helping to realize an industrial attempt based on R&D and innovation, beyond encouraging tendency towards production industry,
- Building genuine back-up models to maintain increases in R&D and innovation capacities such like the development and application of an effective mentoring mechanism,
- Creating a project market or a design project market,
- Empowering transformation and adaptation to enable higher use of informatics,
- Empowering e-commerce strengthening financial structures to trigger involvement in R&D and implementation of new technologies,
- Facilitating networking, exchange of experiences and know-how,
- Focusing on high technology, innovation, clusters, industrial-technology and software parks and business incubators as concrete instruments to facilitate start-ups,
- Encouraging industrial design for higher domestic and global competition purposes,
- Help in effective utilization of new technologies, information systems and IT where such enterprises having serious difficulties at that for their limited physical and human resources,
- Be of higher assistance in field of investment, choice of right technologies, and production management for lack of information in those cases means poor quality production, high costs, wastes in raw material, labor, and machine tools,
- Helping productivity problems, R&D support, general support program, cooperation,
- Maintaining usage of locally produced software in public sector [that could indirectly be minimizing costs at that in SMEs],
- Increasing the number of qualified workforce and TEKMERs (Technology Development Centers) to facilitate allowance to technological advancement and creation of new technologies.

In Turkey, despite all current government beyond government-initiated efforts in improving the innovative and technological structures of domestic SMEs, time is early in indicating desirable ends are to be reached to date where that requires efficient, realistic and resultant solutions to cope with the present and future technological problems of these enterprises in face of the demands/essentials of a

constantly changing competitive countrywide and global environment. As also witnessed and experienced in other parts of the globe, long-term progress and success of economies basically depends on their technologically well-equipped, innovative and creative micro as much as the macro players.

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Descriptive Analysis of Internet Deviance in Indonesian Workplace

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Abstract

Today, employees are using the Internet, either for job-related activities or personal purposes, by utilizing computer at work as organizations are providing internet access to their employees or via their own devices. Therefore, it is necessary to detect the implication of internet use on the organization productivity because the internet users in Indonesia have not fully utilized the technologies, as they simply used the internet for socializing, browsing, and updating in the virtual world. Hence, the objective of this study is to analyze the duration of time employees in the Indonesian workplace are doing internet deviance. Data gathered from 338 respondents was analyzed using descriptive analysis. The findings of this study indicate most of the respondents have not spent their working hour effectively for job-related purposes by doing serious internet deviance for more than four hours a day which will impact work productivity if not managed well.

Keywords

Serious Internet Deviance, Time Duration of Internet Use, Indonesian Workplace

Introduction

Today employees are using the Internet, either for job-related activities or personal purposes, by utilizing computer at work as organizations are providing internet access to their employees or via their own devices. Because technology at work tends to be more advanced than what employees have at home or on cellular phones, employees are likely to use computer at work.

This activity is called internet deviance [20] or a counterproductive behavior because it is the act of using internet for personal purposes [31] which is inflicting major costs to organizations in terms of resource wasting, productivity losses, legal liabilities, and security risks [17]. In Indonesia, it is necessary to detect the implication of internet use on the organization productivity because the survey in 2014 illustrated that internet was utilized as a means of social interaction or communication (72%), source of daily information (65%), and following the latest trends (51%). The four major activities while accessing internet are social networking (87%), searching information

(69%), chatting or messaging (60%), and searching the latest news (60%) [37]. This situation is due to the increase of internet penetration rate in Indonesia from 24% in 2012 to 35% in 2014 [37]. Furthermore, the majority of employees in Indonesia have more than one device which is affordable with easy access to the internet and applications.

Organizations should put attention to these circumstances because most of the internet users are mostly employees (65%) who work in trading (32%) and service (26%) sectors for an average of one hour a day (35%) [37]. They access internet using mobile phone (85%).

That is why it is very essential to analyze the empirical studies on the internet use in the work setting. Starting the year of 2000, previous studies have revealed several benefits of the high levels of internet access in the workplace, namely (1) having possibilities for flexible working practices to new employees [3, 8, 12], (2) more willing to develop and maintain professional relationships when assigned to work in virtual teams [14], (3) helping mentor junior employees through distance or organizational learning programs [28], (4) having improved collaboration and communication among team members [35], (5) improving employee participation and fosters innovation activities by enabling additional flexible organizational configurations in firms [26], (6) smoothing the sharing of information between colleagues [39], (7) getting up-to-date and pertinent information [39], and (8) reinforcing of employee contribution by the development of new products and services [26]. Moreover, some other benefits of internet use in the workplace are (1) reduced costs in term of less administration, sending materials, and invitations electronically [35] and (2) reduced transaction and communication costs among organizations to improve flexibility [26].

Despite having benefits of experiencing an increased organizational learning through sharing knowledge and experiences [33] and reduced costs, prior studies discover that internet use have some detriments, such as, lower productivity [21, 29, 34], exposing organizations to legal liabilities lawsuits [29, 34], disrupting operations, influencing communications, and embarrassing an organization [29], and misbehavior [11, 31, 41]. Some examples are majority of the employees posted their thoughts and messages in the

social networking sites such as Twitter and Facebook, i.e., calling passengers with bad words [5], criticizing the employer's safety standards [5], insulting customers [6], discussing pupils [6], branding work as boring [38], and uploading photos of patients having operations [7].

Referring to Henle and Blanchard [27], the detriments of internet deviance can be classified into two. The first detriment is minor internet deviance which consists of sending and receiving personal e-mail, and browsing financial websites and mainstream news as well as shopping online at work [27]. Moreover, it includes surfing for non-work related information [41], conducting domestic chores [11], looking at football scores [31], and making personal arrangements [19].

The second detriment is serious internet deviance which consists of visiting adult oriented websites, maintaining personally-owned websites and personals ads, interacting with others online through blogs and chat rooms, downloading MP3 music files, and gambling online [27]. Furthermore, it also comprises of trading stock shares [23], illegal downloading [17], paying personal bills, moonlighting for extra income [1], viewing pornography [17, 43], online gaming, and cybersex [17], and spending time during work on Internet-based journals or blogs [13].

Aside from the detriments, many authors have stated different amount of time to classify an employee doing internet deviance. For examples, using internet for non-related job purposes in a day for at least 30 minutes [25], 48 minutes [18], one hour [4], and one hour 20 minutes [19].

It is clear that internet deviance is and will remain a continuing trouble for employers whose workers have access to the internet [10]. Based on the previous studies and the growing internet users among employees in Indonesia, hence, the objective of this study is to analyze the duration of time employees in Indonesian workplace are doing internet deviance.

Research methods

Internet deviance is measured based on 20 types of internet activities that had been adapted to the context of this study from Coker [18], such as reading online news, reading/checking social network websites, online shopping, organizing personal financial affairs, booking personal trip tickets, or viewing adult websites. Those activities are then classified into minor (no. 1 to 5) and serious internet deviance (no. 6 to 20) based on [27] (see Table 1).

Aside from analyzing based on minor and serious internet deviance, this study also examines the internet activities by grouping them based on their relatedness, namely social interaction (number 2, 6, 7, 8, 17), personal arrangements (number 3, 9, 11, 12, 19), entertainment (number 5, 10, 15, 16, 18, 20), updating news (number 1), and online shopping (number 4, 13, 14).

Table 1: Internet deviance activities

No	types of Activities
1.	Reading online news websites.
2.	Checking online sport results.
3.	Reading/checking social network websites (including Twitter and Facebook).
4.	Browsing online shopping catalogues.
5.	Browsing websites for products or services of interest (no goal of specific purchase).
6.	Writing personal blogs (including Twitter and Facebook).
7.	Reading/writing newsgroup/discussion forum messages.
8.	Online shopping (browsing with the intention to purchase products and services).
9.	Browsing or participating in online auction websites.
10.	Organizing personal financial affairs (e.g. online banking, stock trading).
11.	Watching video online (e.g. YouTube).
12.	Playing online games.
13.	Checking/writing personal emails from a non-work related email account.
14.	Searching for information about hobbies.
15.	Booking personal trip tickets.
16.	Looking for job.
17.	Using chatting room or instant messaging to spend time (e.g. gtalk, Yahoo!Messenger, mIRC).
18.	Downloading movies.
19.	Downloading songs.
20.	Viewing adult websites.

Source: Coker [18]

The duration of each internet activity in minutes is divided by 60 minutes to get the amount of internet deviance time in hour. Then, the duration of accessing internet for non-work related purpose is classified into two categories, low and high duration. Referring to Atkinson [4], employees are considered to have low duration when they spend a maximum of one hour a day or 5 hours a work week, while high deviance when they spend more than one hour a day.

To collect quantitative data, a web-based questionnaire created in Google Spreadsheet application was distributed to respondents who work in different industries, such as banking, financial and management service, public sector. With the criteria of working as an employee in an organization and having internet access in the workplace, a total of 338 respondents (from 700 distributed online questionnaires) were gathered, giving a response rate of 48.3 percent.

The respondents from service companies were 59.2% and product companies 40.8%. Most of them were male (53.0%), had undergraduate degree (50.6%), and worked as staff (47.6%) in the back office (65.4%). Most of them work in the private local companies (41.4%) as compared to multinational companies (32.2%) and public sector (26.6%).

To answer the objective of this study, descriptive analysis was utilized to illustrate whether re-

spondents have low or high duration spending their time doing minor or serious internet deviance.

Table 2. - Internet Deviance and Duration of Internet Use

	Minor Internet Deviance				Serious Internet Deviance				Total %	
	Low	%	High	%	Low	%	High	%		
Low Duration ($\leq$ 60 minutes)	117	75.5	0	0	0	0	0	0	117	34.6
High Duration (> 60 minutes)	38	24.5	45	100	46	100	92	100	221	65.4
	155		45		46		92		338	

Research results

The duration of internet use among the respondents is revealed to be high (65.4%) or more than one hour a day. Among the high duration, majority are classified as serious internet deviance users (62.4%) (see Table 2). There are 59.2% of the total respondents who are only doing minor internet deviance activities with low and high duration of time.

Table 3: Time Spent in Internet Deviance Activities

No.	Internet Activities	Hours a day	%
2.	Reading social network websites (M)	7.77	
6.	Checking/writing personal emails	4.24	
7.	Using chatting room or instant messaging	3.99	
8.	Reading and discussing in group message	3.88	
17.	Writing personal blogs/status	1.53	
	SOCIAL INTERACTION	21.41	27.4
3.	Searching for hobbies	7.45	
9.	Booking personal trip tickets	3.87	
11.	Looking for job	3.63	
12.	Organizing personal financial affairs	3.13	
19.	Browsing/participating in online auction	0.28	
	PERSONAL ARRANGEMENTS	18.36	23.5
5.	Watching video online	5.54	
10.	Downloading movies	3.64	
15.	Downloading songs	2.61	
16.	Checking online sport results (M)	1.83	

18.	Playing online games	1.01	
20.	Viewing adult websites	0.22	
	ENTERTAINMENT	14.85	19.0
1.	Reading online news websites (M)	12.18	
	UPDATING NEWS	12.18	15.6
4.	Browsing for products/services (M)	5.67	
13.	Online shopping	2.93	
14.	Browsing online shopping catalogues (M)	2.82	
	ONLINE SHOPPING	11.42	14.6

Note: M=Minor Internet Deviance

Table 3 illustrates the time spent by the respondents doing each internet deviance activity. They spent more than an hour a day for each activity, except browsing or participating in online auction websites and viewing adult websites (between 13 and 17 minutes a day). The highest duration time is reading online news (12.18 hours a day).

Discussion

This study revealed that most of the respondents (65.4%) spend their working hour doing serious internet deviance, especially searching for hobbies, watching video online and social interaction for more than four hours a day. Result of this study supports the research done by Griffiths [24] in the U.S. which found that 40 percent of employees were doing internet deviance at work.

The internet deviance activities done by the respondents are social interaction (27.4%), personal arrangements (23.5%), entertainment (19%), updating news (15.6%), and online shopping (14.6%) (see Table 3). These results have similarity with the survey done by Puskakom-APJII in 2014 [37], although not in the same order. The survey found the internet was utilized as a means of

social interaction or communication (72%), source of daily information (65%), and following the latest trends (51%). Study in the U.S. also revealed that the most common use of the internet at work was for communication purposes, followed by information searches [42].

Based on the results, it is obvious that many respondents have not spent their working hour effectively for job-related purposes. This finding supports the 2012 survey which illustrates that the internet users in Indonesia have not fully utilized the technologies, as they simply used the internet for socializing, browsing, and updating in the virtual world [2]. If this situation is managed well, it will jeopardize the employees' work productivity.

However, Coker [18] argues that internet deviance can have a positive effect on worker productivity, provided the time of using internet does not exceed 57 minutes a day. Coker's argument is supported by Oravec [36] and Lim and Chen [32] who state that a constructive and decent amount of internet use will help employees deal with problems they encounter at work and enhance their productivity in the workplace [36]. Considering that majority of the respondents in this study is staff level (47.6%) who work in the back office (65.4%), it is not surprising that they blend their task completion with personal purposes.

Accessing the internet for a short period is similar to as a replacement of having a short break [16] because it could be a stress reliever for employees, since employees need to do something when they are bored in the workplace. Even the most loyal, hard-working employee can be tempted to occasionally communicate with family and friends, check local news or weather reports, do a little online shopping, play games, or watch videos [22] during office hours.

Based on the previous studies, the reasons behind high level of internet deviance in the workplace are caused by unchallenged job characteristics [40], a failure by managements to control such activities [15], a result of lack of supervisor awareness, and insufficient internet usage policies which lead to a failure to measure and discipline employees' doing internet deviance [42].

Implementing internet policies will not effective in changing individuals' internet behavior [30] without giving sanctions [9]. They can still shift their internet deviance activities to their smartphones or tablets which are unmonitored.

Conclusion and recommendation

The findings of this study indicate most of the respondents have not spent their working hour effectively for job-related purposes by doing serious internet deviance for more than four hours a day which will impact work productivity if not managed well. This circumstance is related to the current situation in which smartphones and tablets have triggered the way people access the internet and it has become people's indispensable communication need to support their daily

activities. Therefore, employees have blended their task completion and personal purposes while using the internet.

Consequently, it is not effective to only implement internet policies and giving sanctions accordingly in the workplace. But it is highly recommended that organizations should transform into a working smart culture. Accordingly, top management should redesign challenging job targets with clear goals and attractive incentives so employees will respond productively and lessen their internet deviance activities in the workplace.

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A Critical Review on ISO/IEC 25000 SQuaRE Model

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Abstract

This paper reviews ISO/IEC 25000 series systems and software quality requirements and evaluation (SQuaRE) critically. SQuaRE defines three views of software quality: quality in use, external quality, and internal quality. This paper reveals theoretical inconsistency of ISO/IEC 25000 series SQuaRE model and provide a new paradigm of software quality. This paper proposes to classify quality characteristics and sub-characteristics into two categories: those associated with a specific activity and contexts of the activity, and those inherent to a software product and independent from activities and contexts. This paper also proposes to use the suffix '-ability' for the formers and not to use the suffix '-ability' for the latters. According to this principle, this paper also proposes to rename functional suitability to 'functional suitability.' The existing three sub-characteristics of functional suitability, functional completeness, functional correctness, and functional appropriateness can be classified as sub-characteristics of functional suitability. This paper argues that quality (sub-)characteristics should be classified so that there are cause-and-result relationships between non '-ability' (sub-) characteristics and '-ability' (sub-) characteristics. This paper argues that, for example, usability of a software product is influenced by its functional suitability and its functional suitability can be measured by the developer during its development to estimate its usability even before its executable version is completed. If usability of a software product is revealed low after the completion of its executable version, then the developer may improve functional suitability of the product to improve its usability. This paper also argues that maintainability is influenced by and may be regarded as the result of, for example, 'good-structuredness'. The proposed paradigm makes it possible to evaluate software quality truly contextually. It, however, should be elaborated much more.

Keywords:

ISO/IEC 25000 series, SQuaRE (Systems and software Quality Requirement and Evaluation), Software Quality in Use, Software Quality in Activity, Internal Software Quality, Software Product Quality.

Introduction

ISO/IEC (The International Standard Organization/The International Electrotechnical Commission) issued ISO/IEC 9126 in 1991 and revised it into four parts: ISO/IEC 9126-1:2001, 9126-2:2003, 9126-3:2003, and 9126-4:2004. This model, however, suffers from ambiguity, inconsistency, and contradictions in the definitions of quality characteristics and sub-characteristics, making it unsuitable to measure the design quality of software product [3, 4, & 16]

Then, ISO/IEC replaced ISO/IEC 9126 with a more extensive 25000 series SQuaRE (System and software product Quality Requirements and Evaluation): ISO/IEC 25000 in 2005, ISO/IEC 25020 and 25030 in 2007, ISO/IEC 25010 and 25040 in 2011. SQuaRE has become bulky (refer Appendix A). SQuaRE has 8 product quality characteristics (in contrast to ISO 9126's 6), and 31 sub-characteristics (in contrast to ISO 9126's 21). SQuaRE, however, suffers from almost the same problems as ISO/IEC 9126 [4]. This paper addresses this issue and proposes a new paradigm for software quality.

ISO/IEC SQuaRE (Software product Quality Requirements and Evaluation) model defines three different views of software quality and quality requirements [14].

In use view: The software quality in use view is related to application of the software in its operational environment, for carrying out specific tasks by specific users. Quality in use requirements are typically derived from stakeholder requirements such as a) business requirements (company policy, competitors, etc.), b) functional requirements, and c) application domain specific requirements. Quality in use requirements are normally used for software validation (is the software fit for its intended purpose).

External view: External software quality provides a 'black box' view of the software and addresses properties related to the execution of the software on computer hardware and applying an operating system. External software quality requirements are typically derived from a number of sources including a) stakeholder requirements, b) legal requirements, c) standards and guidelines for the relevant application, d) quality in use requirements, e) functional requirements, f) application domain specific requirements, and g) security requirements, which may be derived from risk analysis. External software quality requirements are

used for software validation and verification (is the software built according to specifications).

Internal view: Internal software quality provides a ‘white box’ view of software and addresses properties of the software product that typically are available during the development. Internal software quality is mainly related to static properties of the software. Internal software quality requirements are typically derived from a number of sources including a) external software quality requirements, b) company policy, c) development policy and limitations, and d) best practice guidelines. Internal software quality requirements are normally used for quality monitoring and control during development.

By defining the characteristics and sub-characteristics the same for both external quality and internal quality to integrate external quality and internal quality into product quality, however, SQuaRE actually acknowledges only two views: before-delivery view and after-delivery view. The quality in before-delivery view can be measured before delivery while the quality in after-delivery view can be measured legitimately only after delivery.

Quality in use is of after-delivery view. Once a software product has been delivered, the user may find out how much the product is good to use as soon as he starts to use it, even without deliberate and rigorous measurements.

It is generally recognized to be important even for the developers to know the quality in use of the software product which he is developing (it is the very reason why SQuaRE identifies quality in use apart from product quality). Using, however, is only an example of important kinds of software activities. For example, learning how to use a software product may be as important as using it for the user in some contexts. Moreover, there are many other kinds of stakeholders related with a software product and many other kinds of software activities related with them.

This paper expands the notion of quality in use into quality in activity, where the activity may encompass any important software activity. Introduction of quality in activity makes the notion of external quality clear and shows that external quality and

internal quality should not and could not share the same quality (sub-)characteristics. The resulting model gets rid of theoretical inconsistency associated with ISO/IEC SQuaRE model and provides a new paradigm for software quality. We earnestly hope that the new paradigm touches off discussions to make it possible to evaluate software quality truly contextually.

Methods

Overview of ISO/IEC 25000 series Square model

According to SQuaRE, system requirements consist of human business process requirements, information system requirements and mechanical system requirements, and information system requirements again consist of

a set of computer system requirements, and computer system requirements again consist of computer hardware requirements, operating system requirements, application software requirements and data requirements. While these models interact with each other, SQuaRE covers the software quality model and the data quality model, but not the other quality models.

SQuaRE defines three views of software quality and quality requirements: quality and quality requirements in use, external quality and quality requirements, and internal quality and quality requirements. Internal software quality is supposed to be mainly related to inherent and static properties of the software. External software quality is supposed to be influenced by hardware, operating system and data of the computer system on which the software is running too. SQuaRE defines quality in use and context of use as follows:

- Quality in use: the degree to which a product can be used by specific users to meet their needs to achieve specific goals with effectiveness, efficiency, freedom from risk and satisfaction in specific contexts of use.
- context of use: users, tasks, equipment (hardware, software and materials), and the physical and social environments in which a product is used

SQuaRE measures effectiveness, efficiency, satisfaction (it includes usefulness, trust, pleasure, and comfort as its sub-attributes), freedom from risk (it includes economic risk mitigation, health and safety risk mitigation, and environmental risk mitigation as its sub-attributes), and context coverage (it includes context completeness and flexibility as its sub-attributes) (refer Appendix B).

According to 25030:2007,

- A system is defined as a combination of interacting elements organized to achieve one or more stated purposes.
- A system will often be composed of different elements, each with specific characteristics and serving different purposes in the whole system. In order to be operational, system requirements have to be formulated as requirements for the different system elements. As different elements interact to offer the system capabilities, requirements for different system elements cannot be seen in isolation, but only in a broader view including requirements for other system elements.
- Software is often part of a larger system. Architectural decisions made at a higher level of system hierarchical structure define boundaries and interfaces to the software.
- A computer system is an example of a system, which includes software. The elements of a computer system include the computer hardware, operating system and data necessary to apply the software.
- A computer system represents an applicable model when discussing single user software like a word processor. Client-server software or internet applications need a

more complex system model like an information system which includes more communicating computer systems. E-commerce applications often include human business processes as well. Many devices include both computer systems and mechanical systems such as an antilock braking system (ABS) of a car. The luggage handling at an airport includes both computer system, mechanical systems (such as conveyer belts), and human business processes. This example illustrates that humans can be part of a system.

- Systems have variety of stakeholders who have interest in the system throughout its life cycle. Their needs and expectations may change throughout the systems life cycle.

- Stakeholders' need and expectations are identified through a requirement elicitation and definition process. The process takes all stakeholders' need, wants desires, and expectations into consideration. This includes the needs and requirements imposed by society, the constraints imposed by the acquirer, and the need of their end users. The result of the analysis process is called system requirement.

- Stakeholder requirements come from many sources and are elicited from all relevant stakeholders.

- An analysis process transforms stakeholder requirements into a technical view of system requirements that can be used to realize the desired system. The technical view of requirements is called system requirements. System requirements are verifiable and will state which characteristic of the system is to possess in order to satisfy stakeholder requirements.

- Stakeholder requirements may imply requirements for, for example, software, but it is not always the case that a stakeholder requirement implies a software requirement. Stakeholder requirements can be implemented in alternative ways, for example, either in hardware or in software or as a business process (for example as a manual process). Such implementation decisions are part of a high level design process.

- Software quality in use requirements may imply external software quality requirements and similarly external requirements may imply internal software quality requirements.

- The software implementation process realizes the software quality requirements.

- The quality of new system can be used as input to another new system again, thereby completing the cycle indicated in Figure 2.

- Internal software quality is mainly related to static properties of the software. Internal software quality has an impact on external software quality, which again has an impact on quality in use.

According to ISO/IEC 25022.2,

- The quality of a system is the degree to which the system satisfies the stated and implied needs of its various stakeholders, and thus provides value.

- Quality in use depends not only on the software or computer system, but also on the particular context in which the product is being used. The context of use is determined

by the user factors, task factors and physical and social environmental factors.

- Quality in use can be assessed by observing representative users carrying out representative tasks in a realistic context of use. The measurement may be obtained by simulating a realistic working environment (for instance in a usability laboratory) or by observing operational use of the product.

- The term usability has a similar meaning to quality in use, but excludes freedom from risk and context coverage. Some external usability measures are tested in a similar way, but evaluate the use of particular product features during more general use of the product to achieve a typical task as part of a test of the quality in use.

According to ISO/IEC 25040,

- Stakeholders include, but are not limited to, end users, end user organization, supporters, developers, producers, trainers, maintainers, disposers, supplier organization and regulatory bodies.

- Stakeholders to be identified are a person, party or organization and may be involved in the evaluation. Two kinds of stakeholders are to be identified. One is a stakeholder of software product, such as developer, independent evaluator, user, operator, recipient of the results of the software, maintainer, or supplier. Another is an evaluation requester who needs information about software quality, sponsors the evaluation and requires an evaluation report.

Activity or attribute orientation of product quality

Activity Oriented Product Quality Characteristics and Sub-Characteristics

As SQuaRE admits, product quality has both (sub-) characteristics which are inherent to a software product and independent from activity and context of activity and those which are dependent on activity and context of activity (refer Appendix C). It is noticeable that some software activities are directly cited in the definitions of product quality (sub-)characteristics. Table 1 shows such quality (sub-)characteristics, activities, and associated stakeholders. By the definition, quality in use is concerned only with 'being used by specific users.' That is, quality in use is designed to evaluate effectiveness, efficiency, satisfaction, freedom from risk and context coverage of using a software product (refer Figure 1). Although quality-in-use can be legitimately evaluated only after the delivery of a software product, the developer may estimate the quality in use of the product it developing by simulating the contexts of use. By feeding back the result of estimating quality in use into the development process, the developer becomes to be able to develop a product good to use. However, it is also important for users to recognize appropriateness of, learn how to use, control, and access a software product to use it. So, it is also important for both the user and developer to estimate effectiveness, efficiency, satisfaction, freedom from risk

and context coverage of such activities. By doing so, the developer becomes to be able to produce software products good for users to recognize appropriateness of, learn how to use, control, and access. It seems relevant to measure effectiveness, efficiency, satisfaction, freedom from risk and context coverage of the activities listed in Table 1. As a matter of course, there may be other important activities which are not listed in Table 1. For example, ‘understanding’ is frequently referred as a sub-activity of maintaining [1, 2, & 4].

Quality in activity: expansion of quality in US

Like quality in use should be evaluated in appropriate contexts of use, each software activity should be evaluated in appropriate contexts of the activity. We suppose to expand the notion of quality in use and context of use as follows:

- Quality in activity: the degree at which a software activity could be performed by specific performers on a software product to meet their needs to achieve specific goals with effectiveness, efficiency, freedom from risk and satisfaction in specific contexts of the activity.

- Context of activity: type of activity, entity who performs the activity, tasks, equipment (hardware, software and materials), and the physical and social environments in which the activity is performed on a software product. Specifically, the activity in ‘quality in activity’ may be any software activity. For example, quality in maintaining and quality in learning may be defined as follows:

- Quality in maintaining: the degree to which a product or system can be maintained by specific maintainers to meet their needs to achieve specific goals with effectiveness, efficiency, freedom from risk and satisfaction in specific contexts of maintenance.

- Quality in learning: degree to which a product or system can be learned by specific users-to-be to meet their needs to achieve specific goals with effectiveness, efficiency, freedom from risk and satisfaction in specific contexts of learning how to use the product or system.’

Oxford online dictionary defines the suffix ‘-ability’ as ‘the quality of being able to be or having to be’ or ‘the fact of having the quality mentioned.’ According to this definition, for example, maintainability means ‘the quality of being

Table 1: Types of software activity cited in the definitions of SQuaRE product quality

Characteristic /sub-characteristic	Type of activity	Role of entity/ performing the activity
Usability	Using the product	End user
Appropriateness recognizability	Recognizing appropriateness	
Learnability	Learning how to use the product	
Operability	Operating/controlling	
Accessibility	Accessing (to use) the product	
Reliability	Availability	
	Operating, accessing	System operator
	Recoverability	
	Recovering the data, Re-establishing the state	
Portability	Porting/transferring the product	
	Installing/uninstalling the product	
	Replacing another software	Maintainer
	Adaptability	
	Adapting the product	
Maintainability	Modifying the product	
	Analyzing (assessing impact, diagnosing the product, and/or identifying parts)	
	Modifiability	Developer of other software products
	Modifying the product	
	Testing the changed product	
	Reusability	
	Reusing components of the product	

Table 2: Activities implied in the definitions of product quality and quality-in-use characteristics applicable to those software activity

Role	Activity	Effectiveness	Efficiency	Satisfaction				Freedom from risk			Context coverage	
				U	T	P	C	Ec	HS	En	CC	F
End user	Recognizing	O	O	O	O	O	O	X	X	X	△	△
	Learning	O	O	O	O	O	O	X	X	X	△	△
	Accessing	O	O	O	O	O	O	X	X	X	△	△
	Operating	O	O	O	O	O	O	O	O	O	△	△
	Using	O	O	O	O	O	O	O	O	O	△	△
System operator	Installing	O	O	O	O	O	O	X	X	X	△	△
	Uninstalling	O	O	O	O	O	O	X	X	X	△	△
	Recovering	O	O	O	O	O	O	X	X	X	△	△
Maintainer	Analyzing	O	O	O	O	O	X	X	X	X	O	O
	Modifying	O	O	O	O	O	X	X	X	X	O	O
	Adapting	O	O	O	O	O	X	X	X	X	O	O
	Testing	O	O	O	O	O	X	X	X	X	O	O
Developer	Reusing	O	O	O	O	O	X	X	X	X	O	O

Table 3: Attribute-oriented ISO/IEC 25010 product quality characteristics

Characteristic	Sub-characteristic	Activity influenced by sub-characteristic	Evaluation	
			Internal	External
Functional suitability	Functional completeness	Recognizing, learning, operating, using	O	O
	Functional correctness	Recognizing, learning, operating, using	O	O
	Functional appropriateness	Recognizing, learning, operating, using	O	O
Performance efficiency	Time behavior	using	O	O
	Resource utilization	using	O	O
	Capacity	using	O	O
Compatibility	Co-existence	Installing, uninstalling, recovering	O	O
	Interoperability	Installing, uninstalling, recovering	O	O
<u>Usability</u>	User error protection	Using	O	O
	User interface aesthetics	Recognizing, learning, operating, using	O	O

Reliability	Maturity	Operating, using, accessing	O	O
	Fault tolerance	Recognizing, learning, operating, using	O	O
Security	Confidentiality	Operating, using	O	O
	Integrity	Operating, using	O	O
	Non-repudiation	Operating, using	O	O
	Accountability	Operating, using	O	O
	Authenticity	Operating, using	O	O
<u>Maintainability</u>	Modularity	Analyzing, modifying, adapting, testing, reusing	O	X

able to be maintained.’ So, it seems appropriate to use the existing term ‘maintainability’ as the synonym of ‘quality in maintaining.’ That is, it seems grammatically and semantically appropriate to call the quality in a specific activity ‘the activity-ability.’ Table 1 shows SQuARE characteristic and sub- characteristic names which can be used in this meaning. In this point of view, usability may be regarded as a synonym of quality in use.

Quality-in-use characteristics and sub- characteristics can be evaluated against each software activity. Every quality-in-use characteristic/sub- characteristic, however, may not be evaluated against every software activity. Table 2 shows the author’s subjective and temporary judgment on which quality-in-use (sub-)characteristics are applicable to each software activity. Replacing is combination of uninstalling another product and installing the product. Porting is combination of adapting the product for a new environment and installing the adapted product. So, replacing and porting are deleted from Table 2. As mentioned earlier, the list of activities in Table 2 should be augmented to build an exhaustive and mutually exclusive classification hierarchy which includes most important software activities.

Effectiveness, efficiency and satisfaction may be evaluated for each and every individual activity. Freedom from risk may be evaluated for some activities. Context coverage, however, cannot be evaluated against each individual activity. The abstractness level of context coverage is higher than that of effectiveness, efficiency, satisfaction and freedom from risk. So, it is supposedly not to be appropriate to classify context coverage into a category with effectiveness, efficiency, satisfaction and freedom from risk. The contents of Table 2 show the author’s subjective and temporary judgment and should be elaborated, much more.

Attribute Oriented Product Quality Characteristics and Sub-Characteristics

Table 3 shows those not included in Table 1 among ISO/IEC 25010:2011 product quality (sub-)characteristics. Some of (sub-)characteristics are concerned with attributes which are

invariant and inherent to a software product and do not change according to contexts of activity. For example, modularity of maintainability does not vary according to contexts of activity. Modularity cannot be evaluated externally, but can be evaluated only by examining ‘internally’ the structure of a software product.

Coupling and cohesion are other examples of those characteristics which are invariant and inherent to a software product which are supposed to influence maintainability. The characteristic which includes dependency and cohesion as well as modularity as its sub-characteristics may be named ‘good-structure,’ and may replace maintainability. Coupling and cohesion cannot be evaluated externally, but can be evaluated only by examining ‘internally’ too. Although it is not sure until now, it looks very likely that such inherent and invariant quality characteristics could be measured only ‘internally.’ This issue should be scrutinized more.

For some of them, it seems possible to evaluate externally as well as internally. If a quality characteristic could be evaluated legitimately only externally, then it seems of little value as a product quality characteristic. The contents of Table 3 show the author’s subjective and temporary judgment on whether it is possible to measure a product quality sub- characteristic internally or externally.

It seems possible to evaluate functional completeness, functional correctness and functional appropriateness both by examining the source code and by testing an executable version of a software product. Three sub-characteristics of performance efficiency are generally influenced by the

function implemented in a software product. However, upper limits of computing resources including time and capacity needed to perform its functions can be generally estimated mathematically and be confirmed by testing. So, all these performance efficiency sub-characteristics can be evaluated, or at least, estimated both internally and externally. To be differentiated from efficiency of quality in activity, only indicators associated computing should be measured for these sub-characteristics. On the other hand, for example, the total effort including the time which end users spend to

complete their tasks should be measured when one evaluate the efficiency of using.

User error protection of usability and sub-characteristics of compatibility, reliability and security are chiefly influenced by technical factors implemented in a software product rather than by its functions. That is, values of such a sub-characteristic of software products which implement similar technical factors are generally similar too. So, standard evaluations of the effect on which each specific industry-widely important technical factor exerts on the sub-characteristic should be made, chiefly by academy, to reduce the burden for practitioners to evaluate the quality of each product they are building.

It is not sure whether the developer can evaluate user interface aesthetics objectively or not. If it is very hard for the developer to measure user interface aesthetics objectively, there is no use to include it as

sub-characteristics of usability. Then, usability as an internal quality characteristic has no sub-characteristics, and cannot be measured. This conclusion implies that maintainability cannot be an internal quality characteristic, but only can be an external quality characteristic.

Discussions

ISO/IEC 25030:2007 defines external view as a ‘black box’ view of the software addressing properties related to the execution of the software on computer hardware and applying an operating system. According to this definition, quality in maintenance cannot be classified as external quality. That is, quality in activity and external quality do not coincide with each other. In this point of view, we redefine, not rigorously, external product quality and related notions as follows:

- External software activity: software activities directly related to execution of a software product.
- Internal software activity: software activity which is not directly related to execution of a software product.
- External quality: quality in external software activity.

Using, recognizing appropriateness of, learning how to use, accessing, controlling, installing, uninstalling, and testing a software product are, but do not exhaust, examples of external software activity. Recovering the data and re-establishing the state are other examples. For such a software activity, quality in the activity may be evaluated even without knowing the software product ‘internally.’ External quality of a software product may be evaluated by weighting quality of external software activities according to the importance of corresponding activities. Adapting, modifying, understanding and analyzing the product are, but do not exhaust, examples of internal software activity. These activities inevitably involve knowing the software product ‘internally. Even for these activities, however, knowing the product ‘internally’ does not make it possible to evaluate quality of those activities ‘internally.’ Even for internal

software activity, quality in the activity can be legitimately measured only by doing it. That is, quality in any software ‘activity’ can be legitimately measured only by doing it.

Quality in activities of a product will be known sooner or later to the one who performs the activity, even without deliberate or rigorous evaluating or measuring. For example, users may recognize the quality in use of the product which ze just began to use. On the other hand, internal software activities are typically related with modifying a software product, and generally performed after a considerable time has elapsed since the acquisition of the product. So, it generally takes long time for the maintainer and, ultimately, the acquirer to know the quality in maintaining the software product which the acquirer has acquired. Ultimately, however, the acquirer will find out the quality in activity of the product ze has acquired. When the quality of a specific activity become to matter, the associated stakeholder will become to know the quality of the activity even without deliberate evaluation. Let’s suppose a maintainer is maintaining a software product, for example. If the maintainer finds out that it is easy to maintain the product. Then high quality in maintenance of the product does not matter. If the maintainer finds out that it is very difficult to maintain the product and, as the natural result, find out the quality in maintenance of the product is low, then the fact that the quality in maintenance of the product is low becomes to matter. However, it may be of no or little use for the acquirer to know the low quality in maintaining the product at the time, since the acquirer may have no practical alternative other than maintaining the product at the time.

Although the acquirer will know quality in software activities by doing the activities sooner or later, what is important for acquirer is not to know the quality of a software product, but to acquire a software product of high quality. To acquire a software product of high quality, it is necessary for the acquirer to know in advance the quality of a software product which ze is going to acquire. It may be of no or little use to know the quality of a software product after its acquisition, since after acquisition the acquirer may have no practical alternative other than keeping and using the acquired product whether its quality is satisfactory or not.

However, it is generally very difficult and costly for the acquirer to evaluate the quality of a software product which ze has not acquired yet. So, acquirers typically try to mitigate the risk of low quality of the software product which ze are going to acquire, for example, by making a service level agreement. Service level agreements, however, generally do not effectively mitigate risks associated with low quality of a software product. This assertion seems to be especially valid for low quality in internal activities.

There is no need for the developer to care about what the acquirer will not care about. So, it is quality in activities what the developer should ultimately care about. It is impossible for the developer even to estimate quality in activities until an executable version of a software product has been developed. Until then the developer cannot but

help estimating indirectly by examining the product under development ‘internally.’

Since it may be very costly for the developer to change a software product after an executable version has been developed, internal quality should be defined and evaluated so that quality in activities may be estimated reasonably accurately from the results of internal quality evaluation. Moreover, if quality in activities is turned out to be poor, then it should be possible for the developer to derive clues of improvement from the results of internal quality evaluation. Some ‘internal’ characteristics of a software product cannot be identified ‘externally’ at all. For example, it is impossible to evaluate modularity of a software product ‘externally.’ This means that neither characteristics nor sub-characteristics of ‘internal’ quality should and could be defined same as those of quality in activity nor external quality. In this point of view, the ISO/IEC Square model is totally misleading.

We propose to strictly distinguish characteristics associated with a specific activity and contexts of the activity and those inherent to a software product and independent from activities and contexts. We also propose to use the suffix ‘-ability’ for the formers and not to use the suffix ‘-ability’ for the latters. For example, maintainability should be distinguished from ‘modularity’ or ‘good-structuredness.’ To maintain a software product, people should analyze and modify the existing product, and test the modified product. So, it is appropriate to classify analyzability, modifiability, and testability as sub-characteristics of maintainability. Although maintainability is supposed to be influence by modularity, however, modularity cannot be a sub-characteristic of maintainability in this sense. On the other hand, modularity may be classified as a sub-characteristic of good-structuredness. Good-structuredness of a software product influences its maintainability and can be measured objectively by the developer even before it is delivered, while its maintainability can be legitimately measured only after its delivery. So, it is possible for the developer to estimate maintainability of a product by measuring its good-structuredness during its development.

We also propose to rename functional suitability to ‘functional suitability.’ Usability of a software product is influenced by its functional suitability and its functional suitability can be measured by the developer during its development to estimate its usability even before its executable version is completed.

It seems appropriate to classify the existing sub-characteristics, functional completeness, functional correctness, and functional appropriateness as sub-characteristics of functional suitability. If usability of a software product is revealed low after the completion of its executable version, then the developer may improve functional completeness, functional correctness, and functional appropriateness of the product to improve its usability.

Conclusions

ISO/IEC 25000 series SQuaRE model defines three kinds of quality of software products: quality in use, external quality and internal quality. It defines characteristics and sub-characteristic of external quality and internal quality same, and integrate external quality and internal quality into product quality.

Among (sub-)characteristics of product quality, both those related with software activities and those related with inherent and invariant traits of a software product exist to be mixed up. Some sub-characteristics related with inherent and invariant traits of software product, for example, modularity, cannot be evaluated ‘externally.’

On the other hand, some (sub-)characteristics related with software activities cannot be evaluated ‘internally.’ Learnability (degree to which a product or system can be used by specified users to achieve specified goals of learning to use the product or system with effectiveness, efficiency, freedom from risk and satisfaction in a specified context of use) is virtually impossible for the developer to evaluate ‘internally.’ Contemplation on the SQuaRE model that quality (sub-)characteristics which can be legitimately evaluated by different methods are mixed up in one category leads to the conclusion that definitions of Square product quality is not appropriate. That is, the developer should address quality of software product in the two different points of view: that of the acquirer, that is, external view, and its own, that is, internal view. These two views should not be integrated in to one. These two views should complement each other, but should not be the same to be useful.

The internal view should guide development of a software product until an executable version of the product has been developed. Once an executable version of the product has been developed, the external view should govern the development process of the product thereafter. The measurement of external quality should provide the direction of improvement of the software product and should be fed back to provide guidelines on which traits of the product being developed should be improved to provide maximum value to the acquirer. In this regards, external quality should addresses what the acquire cares about.

Our basic premise is that the acquirer acquires a software product to accomplish tasks by using it. So, using is the utmost important activity regarding software products. In some context, however, other than using may become as important as using. For example, if the platform is changed, then the software should be ported to the new platform. Sometime, adaptation to the new platform may be required. Moreover, modification may be required to fit new or changed business and/or technological environments. Learning how to use a new or changed product is another example of such activities, without which using cannot exist also. Such activities are frequently as important as using to the acquirer. So, a software quality model should properly address all of such software activities.

This paper proposes to strictly distinguish characteristics

associated with a specific activity and contexts of the activity and those inherent to a software product and independent from activities and contexts. This paper also proposes to use the suffix ‘-ability’ for the formers and not to use the suffix ‘-ability’ for the latter. For example, maintainability should be distinguished from ‘modularity’ or ‘good-structuredness.’ To maintain a software product, people should analyze and modify the existing product, and test the modified product. So, it is appropriate to classify analyzability, modifiability, and testability as sub-characteristics of maintainability. However, modularity cannot be a sub-characteristic of maintainability in this sense. On the other hand, modularity may be classified as a sub-characteristic of good-structuredness. Good-structuredness of a software product influences its maintainability and can be measured objectively by the developer even before it is delivered, while its maintainability can be legitimately measured only after its delivery.

This paper also proposes to rename functional suitability to ‘functional suitability.’ Usability of a software product is influenced by its functional suitability and its functional suitability can be measured by the developer during its development to estimate its usability even before its executable version is completed. If usability of a software product is revealed low after the completion of its executable version, then the developer may improve functional suitability of the product to improve its usability. This reveals theoretical inconsistency of ISO/IEC 25000 series SQuaRE model and provide a new paradigm of software quality. The proposed paradigm should be elaborated much more.

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Appendices

Appendix A: ISO/IEC 25000 series SQuaRE standards listed on ISO Store (Reference date: on 21 August, 2015, http://www.iso.org/iso/home/store/catalogue_ics/catalogue_ics_browse.htm?ICS1=35&ICS2=80)

- ISO/IEC 25000:2014 *Systems and software engineering – Systems and software Quality Requirements and Evaluation (SQuaRE) – Guide to SQuaRE*
- ISO/IEC 25001:2014 *Systems and software engineering – Systems and software Quality Requirements and Evaluation (SQuaRE) – Planning and management*
- ISO/IEC 25010:2011 *Systems and software engineering – Systems and software Quality Requirements and Evaluation*

- (SQuaRE) – Systems and software quality models
 - ISO/IEC CD 25011 Information technology – Service Quality Requirements and Evaluation (SQuaRE) – IT service quality model
 - ISO/IEC 25012:2008 Software engineering –Software Quality Requirements and Evaluation (SQuaRE) – Data quality models
 - ISO/IEC 25020:2007 Software engineering –Software Quality Requirements and Evaluation (SQuaRE) – Measurement reference model and guide
 - ISO/IEC 25021:212 Systems and software engineering – Systems and software Quality Requirements and Evaluation (SQuaRE) – Quality measurement elements
 - ISO/IEC DIS 25022.2 Systems and software engineering – Systems and software Quality Requirements and Evaluation (SQuaRE) – Measurement of quality in use
 - ISO/IEC DIS 25023.2 Systems and software engineering – Systems and software Quality Requirements and Evaluation (SQuaRE) – Measurement of system and software product quality
 - ISO/IEC DRF 25024 Systems and software engineering – Systems and software Quality Requirements and Evaluation (SQuaRE) – Measurement of data quality
 - ISO/IEC 25030:2007 Software engineering –Software Quality Requirements and Evaluation (SQuaRE) – Quality requirements
 - ISO/IEC 25040:2011 Systems and software engineering – Systems and software Quality Requirements and Evaluation (SQuaRE) – Evaluation process
 - ISO/IEC 25041:2012 Systems and software engineering – Systems and software Quality Requirements and Evaluation (SQuaRE) – Evaluation guide to developers, acquirers and independent evaluators
 - ISO/IEC 25045:2010 Systems and software engineering – Systems and software Quality Requirements and Evaluation (SQuaRE) – Evaluation module for recoverability
 - ISO/IEC 25051:2014 Systems and software engineering – Systems and software Quality Requirements and Evaluation (SQuaRE) – Requirements for quality of Ready to Use Software Product (RUSP) and instructions for testing
 - ISO/IEC TR 25060:2010 Systems and software engineering – Systems and software Quality Requirements and Evaluation (SQuaRE) – Common Industry Format (CIF) for usability: General framework for usability-related information
 - ISO/IEC 25062:2006 Systems and software engineering – Systems and software Quality Requirements and Evaluation (SQuaRE) – Common Industry Format (CIF) for usability test reports
 - ISO/IEC 25063:2014 Systems and software engineering – Systems and software Quality Requirements and Evaluation (SQuaRE) – Common Industry Format (CIF) for usability: Context of use description
 - ISO/IEC 25064:2013 Systems and software engineering – Systems and software Quality Requirements and Evaluation (SQuaRE) – Common Industry Format (CIF) for usability: User needs reports
 - ISO/IEC DIS 25066 Systems and software engineering – Systems and software Quality Requirements and Evaluation (SQuaRE) – Common Industry Format (CIF) for usability -- Evaluation Report
- Appendix B: Characteristics and sub-characteristics of ISO/IEC 25010 Quality in Use
- Effectiveness: accuracy and completeness with which users achieve specified goals.
 - Efficiency: resources expended in relation to the accuracy and completeness with which users achieve goals.
 - Satisfaction: degree to which user needs are satisfied when a product or system is used in a specified context of use.
 - Usefulness: degree to which a user is satisfied with their perceived achievement of pragmatic goals, including the results of use and the consequences of use.
 - Trust: degree to which a user or other stakeholder has confidence that a product or system will behave as intended.
 - Pleasure: degree to which a user obtains pleasure from fulfilling their personal needs.
 - Comfort: degree to which the user is satisfied with physical comfort.
 - Freedom from risk: degree to which a product or system mitigates the potential risk to economic status, human life, health, or the environment.
 - Economic risk mitigation: degree to which a product or system mitigates the potential risk to financial status, efficient operation, commercial property, reputation or other resources in the intended contexts of use.
 - Health and safety risk mitigation: degree to which a product or system mitigates the potential risk to people in the intended contexts of use.
 - Environmental risk mitigation: degree to which a product or system mitigates the potential risk to property or the environment in the intended contexts of use.
 - Context coverage: degree to which a product or system can be used with effectiveness, efficiency, freedom from risk and satisfaction in both specified contexts of use and in contexts beyond those initially explicitly identified
 - Context completeness: degree to which a product or system can be used with effectiveness, efficiency, freedom from risk and satisfaction in all the specified contexts of use.
- Flexibility: degree to which a product or system can be used with effectiveness, efficiency, freedom from risk and satisfaction in contexts beyond those initially specified in the requirements
- Appendix C: Definitions of ISO/IEC 25010:2011 product quality characteristics and sub-characteristics
- Functional suitability: degree to which a product or system provides functions that meet stated and implied needs when used under specified conditions.
 - Functional completeness: degree to which the set of functions covers all the specified tasks and user objectives.

- Functional correctness: degree to which a product or system provides the correct results with the needed degree of precision.
- Functional appropriateness: degree to which the functions facilitate the accomplishment of specified tasks and objectives.
- Performance efficiency: performance relative to the amount of resources used under stated conditions.
- Time behavior: degree to which the response and processing times and throughput rates of a product or system, when performing its functions, meet requirements.
- Resource utilization: degree to which the amounts and types of resources used by a product or system, when performing its functions, meet requirements.
- Capacity: degree to which the maximum limits of a product or system parameter meet requirements.
- Compatibility: degree to which a product, system or component can exchange information with other products, systems or components, and/or perform its required functions, while sharing the same hardware or software environment
- Co-existence: degree to which a product can perform its required functions efficiently while sharing a common environment and resources with other products, without detrimental impact on any other product
- Interoperability: degree to which two or more systems, products or components can exchange information and use the information that has been exchanged
- Usability: degree to which a product or system can be used by specified users to achieve specified goals with effectiveness, efficiency and satisfaction in a specified context of use.
- Appropriateness recognizability: degree to which users can recognize whether a product or system is appropriate for their needs.
- Learnability: degree to which a product or system can be used by specified users to achieve specified goals of learning to use the product or system with effectiveness, efficiency, freedom from risk and satisfaction in a specified context of use.
- Operability: degree to which a product or system has attributes that make it easy to operate and control
- User error protection: degree to which a system protects users against making errors.
- User interface aesthetics: degree to which a user interface enables pleasing and satisfying interaction for the user
- Accessibility: degree to which a product or system can be used by people with the widest range of characteristics and capabilities to achieve a specified goal in a specified context of use.
- Reliability: degree to which a system, product, or component performs specified functions under specified conditions for a specified period of time.
- Maturity: degree to which a system meets need for reliability under normal operation.
- Availability: degree to which a system, product, or component is operational and accessible when required for use.
- Fault tolerance: degree to which a system, product, or component operates as intended despite the presence of hardware or software faults.
- Recoverability: degree to which, in the event of an interruption or a failure, a product or system can recover the data directly affected and re-establish the desired state of the system.
- Security: degree to which a product of system protects information and data so that persons or other products of systems have the degree of data access appropriate to their types and levels of authorization.
- Confidentiality: degree to which a product of system ensured that data are accessible only to those authorized to have access.
- Integrity: degree to which a system, product or component prevents unauthorized access to, or modification of, computer programs or data.
- Non-repudiation: degree to which actions or events can be proven to have taken places, so that the events or actions cannot be repudiated later.
- Accountability: degree to which the actions of an entity can be traced uniquely to the entity.
- Authenticity: degree to which the identity of a subject or resource can be proved to be the one claimed.
- Maintainability: degree of effectiveness and efficiency with which a product or system can be modified by the intended maintainers
- Modularity: degree to which a system or computer program is composed of discrete components such that a change to one component has minimal impact on other components
- Reusability: degree to which an asset can be used in more than one system, or in building other assets
- Analyzability: degree of effectiveness and efficiency with which it is possible to assess the impact on a product or system of an intended change to one or more of its parts, or to diagnose a product for deficiencies or causes of failures, or to identify parts to be modified
- Modifiability: degree to which a product or system can be effectively and efficiently modified without introducing defects or degrading existing product quality
- Testability: degree of effectiveness and efficiency with which test criteria can be established for a system, product or component and tests can be performed to determine whether those criteria have been met
- Portability: degree of effectiveness and efficiency with which a system, product or component can be transferred from one hardware, software or other operational or usage environment to another
- Adaptability: degree to which a product or system can effectively and efficiently be adapted for different or evolving hardware, software or other operational or usage environments
- Installability: degree of effectiveness and efficiency with which a product or system can be successfully installed and/or uninstalled in a specified environment
- Replaceability: degree to which a product can replace another specified software product for the same purpose in the same environment.

Individual dispositions, resistance to change and organizational empathy in the hospitality industry when change means implementation of a new IS

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Abstract

Using a sample of employees in various hospitality organizations, we proposed that individual disposition such as tolerance for ambiguity, positive affectivity, internal locus of control, and self-efficacy, will influence hospitality employees' resistance to change. The results supported hypotheses. Ultimately, we hope the results of this study provide proper guidelines with hospitality managers and employees to decrease their resistance to change such as new IS implementation and thus increase their willingness to adopt in implementing new IS.

Keywords: Information Systems, Resistance to Change, Tolerance for Ambiguity, Locus of Control, Self-Efficacy, Hospitality Industry, Organizational Empathy

Introduction

The hospitality industry is known as a highly customer-centered business and accumulates large amounts of customer data from central reservation systems (CRS), property management system (PMS), point-of-sale (POS), and guest loyalty program databases. IS for such as data-warehousing and data-mining technologies can easily handle large and complex databases and thus assist hoteliers and restaurateurs in predicting future customers' behaviors, designing marketing campaigns, supporting market analysis, evaluating and refining loyalty programs, creating strategies, and conducting trends analysis [23]. However, trend in IS changes quickly and, as a result, the industry needs to catch up this fast change. Whenever new IS is emerged and implemented in the industry, resistance is also emerged from the employees who will use the IS and eventually receive benefits from the IS. Therefore, the success of implementing a new IS may be depending partly on decreasing employee resistance to change and, in order to decrease employee resistance the organization may need to know each individual personality that can influence that resistance. Despite numerous benefits from the appropriate use of information systems (IS) in the hospitality industry, it has been criticized that the industry is behind of using the new IS techniques or that

the implementation of new IS is frequently failed, compared to industries such as retail or manufacturing [4]. Given that successful implementing IS brings about many strategic competitive edges to the hospitality industry, it may be critical to investigate factors that could assist success or could hamper failure of the implementation. Amongst several factors, employees' resistance is a major reason the implementation failed [10]. In an attempt to reduce employee resistance to new IS, research needs more attention to each individual's differences. That is, knowing each individual's "different" willingness to adopt IS can be a key factor for an organization be successful or be failed when implementing new IS. Previous research has mentioned individual disposition as an influential factor to the resistance [7 & 22]. However, in those studies, individual characteristics meant system's ease of use or usefulness or the influence of the interaction between users and the systems. Gardner et al. [7] discussed people-oriented theory, arguing that each individual's reaction to change may be different because of internal characteristics. Yet, since Gardner et al. [7] discussed individual differences as one of the main reasons to adopt change easily or not, research has been rare to investigate what specific individual personalities can affect the acceptance of the change. The current study addresses this void and proposes the research model that individual differences (e.g., tolerance for ambiguity, positive affectivity, internal locus of control, and self-efficacy) may influence employee resistance to implementing a new IS and change.

Employee resistance to change

When employees face a new IS, the employees have a tendency to resist with the new IS, a situation that resistance theory need to be explained. Gardner et al. [7] claimed people-oriented theory that each individual's different personalities or characteristics are attributed to such resistance. That is, based on an employee's disposition makes him or her easily or with difficulty accept a new IS. Shneiderman [2] claimed that employees can struggle to accept the new IS because the new IS is hard to be operated or the design

or the system of the IS is difficult to handle, suggesting system-oriented theory. Josi [11] and Kendall (1997) explained that interaction theory, as a hybrid theory, stresses the attribution of both employees and a new IS to the resistance. Furthermore, the seven most identified reasons of the resistance has listed by Jiang, Muhanna, and Klein (2000) and they are change in the job content, uncertainty for the future, change in decision-making process, a possibility to loss of status and power, a possibility to change the interpersonal relationship, and insecurity for job. Amongst these three possible theories, this study mainly focuses on the first theory, people-oriented theory.

Resistance and individual disposition

Tolerance for ambiguity

Whether or not an employee is tolerant of change can be critical to the organization because it can influence employee's work behavior such that if the employee is intolerant of change, he or she can easily engage in counterproductive work behavior [17]. As such, tolerance for ambiguity explains that how much an individual perceives information and endures a new environment with unfamiliar situations [6]. For example, an intolerant individual can be simply exposed to a stressful situation such as a new IS implementation. Based on the notion of tolerance ambiguity [18, 6], employee resistance can be reduced if he or she is tolerant for ambiguity. Therefore, we predict:

H1: Tolerance for ambiguity is negatively related to employee resistance.

Positive affectivity

As Judge, Thoresen, Pucik, and Welbourne [13] mentioned positive affectivity (PA) generally relates to the concepts of one's positive view. One's confidence, energy, well-being have been represented characteristics when PA is mentioned. Research has found that a higher PA person is easy to follow a new change and also to deal with coping strategies. Therefore, we predict:

H2: PA is negatively related to employee resistance.

Locus of control

An individual can be adjusted better when the individual believes he or she can control what happens in his or her lives (i.e., Internals, see Judge and Bono, 2001) and the internals can have better work performance and higher job satisfaction [24]. Internals tend to adjust their current situations to the expected or standard situations suggested by their companies and it has been found that internals have a positive work attitudes toward situations such as changes (Weiss and Sherman, 1973). Therefore, we predict:

H3: Locus of control is negatively related to employee resistance.

Self-efficacy

A person who is in high self-efficacy has been shown to adjust a new environment better (Ellen, Bearden, and Sharma,

1991). Self-efficacy can be described as one's beliefs that the person is capable of accomplishing a certain objective [2]. Many researchers have agreed on a generalized self-efficacy disposition, one's behaviors in any given situation. Self-efficacy has been related to one's attitudes toward novel and unpredictably stressful situations (Schunk, 1983) and to deal with changes in one's job [25]. Finally, Ashforth and Lee [1] mentioned that self-efficacy has a positive relation with one's defensive behaviors. Therefore, we predict:

H4: Self-efficacy is negatively related to employee resistance.

Methodology

The unit of analysis was employees of hospitality related companies in Korea. The participating hospitality companies are randomly chosen and those companies were contacted by mails, followed by phone calls to seek their agreement to participate in this study. The total number of the surveys collected for this study was 195 and 173 were usable for the data analysis. The participants of this study were described as 65.2% female and approximately half of them were in their thirties (56.6%). We used Oreg's resistance to change instrument to measure individual's resistance change (2003). Internal locus of control was measured by Levenson's [15] scale and tolerance for ambiguity was measured by Lorsch and Morse' scale [16]. Self-efficacy was measured by Sherer et al.'s scale [21] and finally positive affectivity was measured by Watson, Clark, and Tellegen's scale [26]. All items were measured on a 5-point Likert scale (1: strongly disagree to 5: strongly agree).

Results

To examine the internal consistency of the subscales, Cronbach's α was used. Table 1 showed alpha coefficients over .72, indicating that the reliabilities of the scales were acceptable (Hair et al., 1998). To conduct the evidence for the validity for the measures, exploratory factor analysis (EFA) was used and the results of EFA indicated and demonstrated measures' validity.

Table 1 also showed the means, standard deviations, and correlations among the variables. Employee resistance was negatively correlated to all antecedents, tolerance for ambiguity, PA, locus of control, and self-efficacy.

Table 1 - Mean, SDs, Cronbach's α , and correlations

	Means	SDs	1	2	3	4	α
1. TA	4.08	1.97					.87
2. PA	4.00	1.87	.44*				.78
3. LC	3.98	1.08	.57	.24*			.93
4. SE	4.21	2.01	.68**	.28	.53**		.91
5. RC	4.34	1.05	-.23**	-.55**	-.49*	-.33**	.88

TNote: TA = Tolerance for Ambiguity; PA = Positive Affectivity; LC = Locus of Control; SE = Self-Efficacy; RC = Resistance to Change. *p less than .05; **p less than .01

Multiple regressions analyses were used to test hypotheses 1, 2, 3, and 4. Hypothesis 1, tolerance for ambiguity is negatively related to employee resistance, was supported, showing the result of $\beta = -.402$ at a significant level ($p < .001$). The result indicates that employees whose tolerance for ambiguity is high may not have less resistance when a change is coming. Hypothesis 2, PA is negatively related to employee resistance, was also supported, showing the result of $\beta = -.597$ at a significant level ($p < .001$). This result means that the level of resistance may be lower if an employee shows strong positive affectivity. Hypothesis 3, locus of control is negatively related to employee resistance, was also supported ($\beta = -.508$, $p < .001$). Internals who are high in locus of control may be lower in resistance. Hypothesis 4, self-efficacy is negatively related to employee resistance, was supported with the result of $\beta = -.466$ ($p < .001$). The result indicates that when an employee is higher in her or his self-efficacy, she or he may be more easily accepting resistance.

Discussion and conclusions

Based on the notion that employee resistance in hospitality companies can be one of the major problems that any hospitality companies need to overcome, this study was mainly focusing on the relationship between individual dispositions and resistance. As all of our research hypotheses were accepted, the results of this study support previous research findings and reveal interesting findings. First, all antecedents (e.g., tolerance for ambiguity, PA, locus of control, and self-efficacy) indicated negative relationships with employee resistance. That is, employees in hospitality companies who were tolerant for ambiguity are more likely accepting changes for the future. Also, employees who showed positive affectivity are more likely accepting changes. Internals and employees with high self-efficacy are also easier to accept changes in their companies. All of these results mean that individual dispositions are an important factor to be a success of a new IS implementation. However, looking at closely this changing situation (i.e., a new IS implementa-

tion), we may add one more positive advice on the organization that is about to implement a new IS. The organization can be empathic to its employees who could resist a new change. In a broad view, empathic behavior denotes an understanding behavior of another person's feelings and sharing [3]. In other words, the organization in advance needs to know that its employees normally do not like a change and easily show resistance to change. Then, if the organization shows its empathy first, the employees may be felt understood better its organization's action of changing.

In conclusion, organization should realize that individual dispositions are of importance when it comes to change. Therefore, management can possibly create different paths for employees who could show different reactions on the change. In addition, it would be much better if the organization create the culture of empathy before it implements change.

Acknowledgments

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Effect of Graph Orientation and Trend on Perception of Financial Data

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Abstract

The objective of this research is to find out the threshold of graph distortion that affects perception of a graph user. Two types of graphs, column and bar, are included in the study. Four levels of distortion were manipulated in a semi-experimental research design with online questionnaire conducted in a computer lab environment. Relative Graph Discrepancy Index (RGD) was used as measurement distortion in graphs. Both column and bar charts with upward and downward trends were constructed using financial performance data from the highest market capitalization company in the Stock Exchange of Thailand (SET). Almost two hundreds undergraduate and postgraduate students from the school of business in a large public university are the subjects of study.

Using the RGD measurement scoring procedure, the study found distortion threshold to be 2.5% for upward trend for both column and horizontal bar graphs. Inclusive percentage of perceived distortion threshold are for downward trend data. Respondents appeared to be able to detect distortions in vertical graph more than horizontal graphs and upward trends more than downward trends. No significant relationship was found between graph and financial literacies and distortion perception scores.

Keywords:

Graph Distortion Perception, Column versus Bar Charts, Business Visualization, Financial Data, Relative Graph Discrepancy Index (RGD) Measurement.

Introduction

There are increasing used of graphs in business reports nowadays. Column chart and Bar chart are perhaps the two most popular and commonly used graphs to depict company financial data in an annual report of public corporations [2] [11] [12]. However, not all public displayed graphs represent their underlying data accurately. Graph makers might conceal unfavorable information by distorting the graph intentionally. Others might not realize that the depicted graph is distorted by the flaw in a particular graph making software. For graph users, naive investors in particular, the dis-

torted graphs may lead to inadvertent consequences such as a wrong investment decision.

The objective of this research is to measure the threshold of graph distortion. By manipulating various levels of distortion together with different graph characteristics, what is the cut-off point that can be detected by naïve users or ones with minimal experience of using graphical financial data? In other words, how much lie is lying?

Literature review

Graph characteristics: Orientation and trend

Different graph users may understand the underlying data of the same graph differently. One possible factor affecting the understanding is visual conveyance or the characteristic of the graph itself. For upward graphs displaying positive financial data, the attention to the accuracy of their underlying data might be less than downward graphs.

It is natural for an investor to scrutinize negative more than positive financial performance data. Besides trend, graph orientation can influence individual graph user's perception. Previous research found column graph and bar graph are the two most popular graphs being used by companies [6] [11]. Tangmanee & Jittarat (2013) found individuals to be able to read column graphs more than bar graphs. They also found graph orientations to affect individual's ability to read graph differently [16].

Graph distortion measures

Research instruments used to measure graph distortion have been around for decades. "Lie Factor" created by Tufte in 1983 is perhaps the pioneer development [18]. Later in 1986, Taylor and Anderson developed an index called "Graph Discrepancy Index (GDI) to assess the accuracy of graph representation of its underlying data [17]. The GDI was used in Beatties & Jones's study. They found a 10% misled graph to be the threshold of naive reader's perception [5]. However, Mather et al (2005) found four cases of GDI

inconsistencies: 1) no change in the percentage change in the graph, 2) no difference between the percentage change in data, 3) the percentage change in the graph is equal to the percentage change in data and finally, and 4) the distortion might not be apparent if there are very small changes in both the graph and data [15]. With the shortcoming of GDI, Mather et al (2003) proposed an improve measurement called the Relative Graph Discrepancy Index (RGD) [14]. The authors noted that even though RGD was a better measurement, it also has some limitations. That is if the last data point is zero, the calculation will not be possible. In graph distortion research, both GDI and RGD have been extensively used. Empirical evidences of graph distortion thresholds are few and inconsistent. While 10% was found using GDI but 5% using RGD [5] [11], more research is needed so that graph readers can be aware of these potential misleading accuracy of graphs.

Research method

Sampling frame and subjects

Business students from a large public university in Thailand are used as the sampling frame of this study since they are likely to be the business graph users in their future career. Both undergraduate and graduate students are included because they represent different level of financial data literacy. Convenient sampling is used for the research. A total of 163 students volunteered for the study, 77 undergraduate students with accounting major (47.24%) and 86 postgraduate students with MBA and MIS majors (52.76%).

Research design

A semi-experimental approach is used in this study. Four conditions were manipulated, two types of orientations (column and bar), and two data trends (upward and downward). Each subject was asked to see a total of 32 graphs, with 16 column graphs first and 16 bar later. Graph displays were randomly displayed within each type of orientation. The experiment was set in a computer lab with internet access to the online data collection tool.

Research instrument

An online questionnaire was developed based on financial data typically disclosed to internet consumers. The data are shown with trends [11]. The questionnaire is divided into 4 sections as follows:

1. Demographic This section comprises 4 basic questions that are likely to affect individual's perception of graph data [7]. They are level of education, field of study, experience in using financial data, and experience in reading financial graphs.
2. Graph Literacy This part of the questionnaire is adapted from the graph literacy test developed and used in medical context. Three aspects of graph literacy are measured, Ability to read the data, Ability to read between the data, and Ability to read beyond the data [8]. While the test was used

with different types of graphs, such as bar charts, line charts and pie charts, the graph literacy test in the present study is focused only on column and bar charts. The questionnaire substitutes medical contents with financial related matters. Time-series data are reflected in the graph literacy questions. 3-year of time series data is used because it is among the top 3 most common length of time that companies use to present their financial performance in annual reports [3].

3. Financial Literacy A prior study in perception of graph distortion found that financial literacy is one of the factors which affects perception. To measure financial literacy, self-assessment questionnaire has often been used [5]. However, scale variation in self-evaluation measures together with individual differences may result in measurement inconsistency [19]. Highly competent people usually underestimate their performance while low competency people usually overestimate their performance [9]. Hence, an attempt was made to develop more objective measures of financial literacy. The respondents are asked to match the meaning of four keys financial variables used by investors to evaluate the financial performance of a firm. These variables are recommended by the National Association of Investor Corporation (NAIC) and were selected for the study. They are sales, net profit margin, earning per share and dividend per share. The higher the correct matching, the higher the subject's financial literacy.

4. Perception of Graph Distortion RGD is used to measure graph distortion in this study. Graphs were created with four levels of distortion, consisting of 2.5%, 5%, 10% and 15%. These levels were chosen for the following reasons.

- 2.5% in RGD measure is the percentage of distortion equivalent to 5% of the GDI measure [15]. Past research using GDI found 5% to be the cut-off point when subjects recognized a distortion. Similar distortion level of 5% was also reported as the threshold of Lie factor, the first graph distortion measurement [18].
- 5% distortion is included so as to verify the finding of Wu's unpublished paper that RGD threshold is at 5% [21].
- 10% distortion is the value of GDI threshold reported in (Beatties & Jones, 2002b).
- 15% is the distortion level higher than any thresholds found in previous studies. This level is included to give additional reliability to RGD measure used in this study. Since 15% distortion should be visually detected, it is expected that reader's perception will not be misled by this high level of distortion.

To add to the reliability of the present research instrument, both overstate (favorable) and understate (unfavorable) distortions were included. This is because not all companies want to mislead their performance by exaggeration especially the companies that want to hide their growth because of political cost theory [20].

Real data from a company listed in the Stock Exchange of Thailand (SET) was used to create graphs depicted in the research instrument. The selected company was the highest ranked company in the SET50 index in June 2015. The company has used bar chart to show its upward sales series in its annual report. Sales data were chosen because they are easy

to understand. Investors also use this key financial variable to determine market capitalization and its subsequent liquidity. Five-year sales data was presented since it is the most commonly used timeframe to show financial graphs [6].

To construct the graphs depicted in the online questionnaire, sales data were manipulated as follows:

1. The original data trend was recalculated so that the rate of change can be consistent from one bar to another. Since graph slope showing rate of changes of data was found to be one of the factors affecting users' perception and judgment [4], the recalculation and subsequent graph depiction was necessary to show a distinctive data trend in the study instrument.

2. The same set of data used in the column chart (vertical bar chart) was used when rotating the graph horizontally (horizontal bar chart, or bar chart). Thus, graph proportion was the same in both orientations. This is done to reduce the effect of time used found to affect reader's perception in previous study [10].

Data collection procedure

Prior to using the online data collection tool, the researchers give a general overview of the experimental procedures, i.e., nature of the study, approximate time needed to do the study, and reassurance of subject voluntary. After explanation, participants access the online questionnaire using the link provided. The first part of the online questionnaire provides a detailed overview of the experiment without specifying the intention of the study. This was done to imitate a real life data consumption situation where most people do not have awareness that graph distortion occurs. Then, each participant is shown a consent form to ensure the participation is voluntary. In accordance with ethic guideline, the form indicates that each participant is able to exit from the experiment whenever he/she wants without any consequence. After finishing the questionnaire, a small gift was given to each participant.

In the graph distortion section, there are 32 questions (16 for column charts, 16 for horizontal bar chart) which show a pair of graphs in each question, one is the correctly represented graph and another distorted. Black and white graphs are used so as to avoid the effect of color [13]. Combinations of overstate, understate, various distortion levels, upward trend and downward trend were randomly presented. The randomization was done in order to minimize the ability of participants to make guesses. Although graphs without axes are considered to be inappropriate by previous researchers, most financial data presented in annual reports do not have x- or y-axes [1] [11] [12]. In addition, the concealment of the graph axis is to reduce the effects of extraneous information to be considered by a participant. For each question, the participant was asked to compare two graphs and choose the graph that shows better financial performance. An option of no difference is also available in each question. The amount of time used on answering graph distortion section was recorded automatically. 4 additional pairs of non-distorted graphs (2 column charts and 2 bar charts with upward and

downward trend each) were included as an experimental control. Finally, the participants were asked to rate how much they were confident with the graph perception answers they had given earlier. The self-assessment rating uses a 5-point Likert-scale (1 = not at all confident and 5 = very confident).

Distortion score assignment

1. For the four questions on control graphs that have no distortion, a 1 or 0 point will be given to the correct and incorrect answer. The maximum points for this section is 4.
2. For all 32 questions on distorted/non-distorted graph comparison, the unweighted scoring scheme is as follows:

- 1 point if the participant chose an distorted graph correctly;
- 0 points if the participant unable to see the difference between distorted and undistorted graphs; and
- -1 points if the participant chose distorted graph incorrectly.

Under this scheme, 3 points mean that the participant can detect the distortion correctly, 2 points mean that they cannot differentiate the distortion, and 1 point means that they cannot detect the distortion. The scheme does not take into account the granularity of distortion being manipulated. Note that reversal of signs for understated distortion levels were carefully scored.

3. For all 32 questions on distorted/non-distorted graph comparison, the weighted scoring scheme is used to differentiate participant's ability to differentiate each pair of graphs. This weighted scheme is adapted from accuracy measure named "D" by Vivien Beattie and Michael John Jones. This is a more sophisticated scoring practice which takes into consideration the nature of individual's error and the unequal difficulty of distortion detection of the four distortion levels employed in the research instrument [5].

- 6 points if the participant chose the correct answer at RGD = 2.5%;
- 4 points if the participant chose the correct answer at RGD = 5%;
- 2 points if the participant chose the correct answer at RGD = 10%;
- 1 point if the participant chose the correct answer at RGD = 15%;
- 0.5 point if the participant chose no difference between the graph pair; and
- 0 point if the participant chose incorrectly.

Results

Descriptive analyses

As shown in Table 1, respondents with different levels of education, undergraduate and graduate, only differ slightly their graph literacy and financial literacy. Undergraduate students were better in graph literacy scores (Undergrad Mean = 9.64; Grad Mean 9.42) whereas graduate in financial literacy (Undergrad Mean = 2.29; Grad Mean = 2.69). Also, graduate students are better at assessing the control

graphs where no distortion were presented in all combinations graph orientations and trends (Grad Correct% = 77.03; Undergrad Correct% = 62.34).

Detailed analysis to examine whether educational level would have a bearing on the percentage of correct answers the respondents had made when graph orientation and data trend were taken into consideration. The results as shown in Table 2 are inconclusive. Undergraduate students outperformed graduate in horizontal bar graphs for both upward and downward trends. They were able to give more correct answers for the downward trend, vertical graphs as well (44.3% as compared to 40.99%).

The only type of graphs distortion manipulation that graduate students did better than the undergraduate is vertical

upward graphs (Grad Mean (SD) =5.28 (1.77); Undergrad Mean = 5.09 (1.83).

Scores and Time Spent on Graph Distortion Detection Table3 shows the average correct scores of graph distortion detection. Respondents were able to detect vertical oriented graphs slightly better than horizontal oriented graphs (Vertical Mean = 25.59; Horizontal Mean = 22.15). The dispersion of scores and time used are relatively high. The respondents were able to detect distortions in vertical graphs more that horizontal graphs in both upward and downward trends. On the average, the respondents also spent more time with column charts than horizontal bar charts, 109.87 seconds and 74.63 respectively.

Table1: Percentage of correct answer by literacy factors and education level

Factor	Number of Question	Bachelor Degree (n=77)			Master Degree (n=86)		
		Total Question	Percent of Corrects	Mean (SD)	Total Question	Percent of Corrects	Mean (SD)
Graph Literacy	10	770	742 (96.36%)	9.64 (.69)	860	810 (94.19%)	9.42 (.80)
Financial Literacy	4	308	176 (57.14%)	2.29 (.99)	344	231 (67.15%)	2.69 (.94)
Control Graph	4	308	192 (62.34%)	2.49 (1.39)	344	265 (77.03%)	3.08 (1.28)

Table 2: Percentage of correct answers by graph orientation, trend, and education level

Graph Orientation	Data Trend	Number of Question	Bachelor Degree (n=77)			Master Degree (n=86)		
			Total Question	Percent of Corrects	Mean (SD)	Total Question	Percent of Corrects	Mean (SD)
Vertical	Upward	8	616	392 (63.64%)	5.09 (1.83)	688	454 (65.99%)	5.28 (1.77)
	Downward	8	616	273 (44.32%)	3.55 (2.13)	688	282 (40.99%)	3.28 (2.06)
Horizontal	Upward	8	616	362 (58.77%)	4.70 (2.23)	688	392 (56.98%)	4.56 (1.88)
	Downward	8	616	198 (32.14%)	2.57 (1.85)	688	184 (26.74%)	2.14 (1.89)

Table3: Scores and Time Spent on graph distortion detection

		Orientation	Data Trend (Full Score)	Minimum	Maximum	Mean	Std. Deviation
Score	Vertical	Upward (26)	3.50	26	14.86	5.85	
		Downward (26)	1.50	25	10.73	5.93	
		Total (52)	8.00	44	25.59	9.08	
	Horizontal	Upward (26)	0.00	26	13.59	6.13	
		Downward (26)	1.00	24	8.56	5.39	
		Total (52)	6.50	48	22.15	8.90	
Total Score		(104)	16.00	77.00	47.74	14.48	
Time (Sec)	Vertical		29	407	109.87	55.48	
	Horizontal		20	282	74.63	38.20	
Total Time Used (Sec)			58	689	184.50	85.22	

Table 4: Thresholds of graph distortion

Graph Orientation	Data Trend	Distortion Level	Mean (between -4 to 4)	Std. Deviation	T-test (t=0)	Sig. (2-tailed)
Vertical	Upward	2.5 %	.29	1.035	3.558	.000**
		5 %	.85	.951	11.450	.000**
		10 %	1.39	.918	19.274	.000**
		15 %	1.61	.756	27.239	.000**
	Downward	2.5 %	1.99	1.468	17.344	.000**
		5 %	1.60	1.566	13.004	.000**
		10 %	.24	1.435	2.128	.035*
		15 %	1.13	1.950	7.389	.000**
Horizontal	Upward	2.5 %	.19	1.075	2.259	.025*
		5 %	.74	1.153	8.223	.000**
		10 %	.87	1.218	9.132	.000**
		15 %	1.32	1.087	15.492	.000**
	Downward	2.5 %	.02	1.108	.212	.832
		5 %	-.12	1.035	-1.514	.132
		10 %	.13	1.037	1.586	.115
		15 %	.22	1.262	2.234	.027*

** . Correlation is significant at the 0.01 level (2-tailed).

* . Correlation is significant at the 0.05 level (2-tailed).

Graph distortion threshold

As shown Table 4, it is apparent that vertical and horizontal graph orientation have the same result provided that the data trend is upward. In case of upward distortion, the mean responses of both orientations are significantly different from the 0, starting at the RGD of 2.5%. Thus, the threshold of distortion level for data in a growth period is 2.5% without any effect from graph orientation. Graph should not be distorted excess 2.5% with the RGD measure.

The threshold of downward trend data varies by graph orientation and level of distortion. Surprisingly, the mean responses for horizontal orientation are significant at a very high distortion level, that is, at the RGD of 15%. Although the respondents were able to detect small distortions in horizontal graphs with upward trend, they appeared to have a difficult time to detect the distortion when the graph show decreasing values. Not until the decrease is large enough that it is obvious to see without doubt that the distorted graph is really different from the undistorted one.

Discussion and conclusion

RGD measurement scoring procedure was tested for graph distortion thresholds. Unlike Wu's unpublished manuscript (Wu, 2011), the present research found a threshold of 2.5% level instead of 10%. The threshold level of 2.5% was also

different from 5% GDI equivalent of previous studies [5]. One possible explanation for the dissimilarity between current and previous findings is that the present study has incorporate both orientation and trend of data into graph distortion equation. More levels of graph distortion were also included in the present study.

While respondents in the present study appeared to be able to detect distortions in vertical graph more than horizontal graphs and upward trends more than downward trends, more empirical evidences are needed to validate the present results. Also, a different group of subjects may have to be used to examine whether presumably influential factors such as graph literacy and financial literacy really have no effect on graph users' distortion perception scores.

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Virtual Self: Who are you? Are you a part of me?

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Abstract

People use Internet daily in many countries. Since social networking sites emerged, people have used Internet to socialize with others. People consider online communication as a part of their social lives so online communication has become as important as offline communication. However, online interaction has a quite different process from offline interaction. Online users can make their identities such as changing their appearances, ages or genders. A way to represent a self online (virtual-self or virtual-identity) is not always coincided with the self offline (real-self or actual-self). Person can have various types of selves and each of selves have specific characteristics. (s)he might experience emotional vulnerability depending on how different the characteristics are. This paper combines the self discrepancy theory with the new concept of self, 'Virtual self'. This study researches the role of the virtual self between existing self concepts.

Keywords:

Self discrepancy, Virtual self, Real self, Social networking sites.

Introduction

Internet has become popular more than 10 years. Now we live in two types of the world at the same time. One is real or physical world and the other is a cyber or virtual world which is made by Internet. Now people frequently take advantage of the virtual world when making team work with others remote from them or just when chatting with friends in real time. People usually have online substitutes of their identities or selves. And this is called 'Avatar' or 'Virtual self'. The virtual self is "the representation of an identity in virtual environment, consisting of a property of objects allowing these objects to be distinguished from each other" [45].

Nowadays many people have these two kinds of selves simultaneously (off-line and on-line self) but without recognizing it. Those selves act independently, however, sometimes they have a great influence on each other. This could be represented by real and virtual self and there is an exam-

ple to describe that the two selves have a dependent relationship. In 2006, there was a 13-year-old girl who had committed suicide after experiencing cyber bullying in US. The girl had a romantic relationship with a 16-year-old boy who claimed Josh Evans himself through 'My Space', a kind of social chatting service. And then, one day she got a message from him that he couldn't maintain good relationship with her because he had heard about her misbehavior. She was discouraged too much and destroyed herself eventually even though she never seen him before. Until that time, the girl was considered just to wait her 14th birthday like ordinary teenagers [29]. That means disappointment or bullying experience in cyber space made her be in deathly agony like as if she experienced in person. This story implies the real and virtual self exist individually and separately but have a strong, very close relationship with each other.

After being widely known that people make their identities in reality and cyber space respectively, this situation comes into the spotlight these days. As a virtual self impacts on a real life, activities of virtual selves influence on real lives in a society as a social phenomenon. The phenomenon concerning virtual activity becomes a new topic to behavior research such as a relationship between an online community and its members' activities or a relationship between Internet users and business' sales [12, 15, 20, 47, 52].

Due to easy contact and communication on Internet, people have a choice of various types of communications as well as relevant side effects. Subsequently, a lot of research has opened up concerning that social phenomenon from multiple areas. Chan and Anindya [2] suggested that a cause of increasing Sexually Transmitted Disease (STD) rate in US is the development of online community. Since Internet provides a free communication place to people by removing time and space constraints, people could interact easily. And then it brings about some social problems such as indiscriminate meeting with strangers. A vigorous online meeting attracts electronic relationship to real place and then it would be related to actual social phenomenon [15]. Also there are many studies about virtual concept regarding

business area. Passing the web1.0, it turned over web2.0 and a few enormous businesses. They gave people high switching costs and it helped them became bigger and bigger. Those feature positive network externality. That is a network which has more resources could provide more value and it makes an opportunity of attracting more members. After Internet era, there are countless competitions among virtual systems and online communities. To survive in these environments, it is advantageous to draw fast more users on the basis of network externality. [5, 8]

By the way, if the network wants more users to participate, inducements which people are interested in are needed. And then this situation leads to feeling the necessity of finding each person's attribute for business managers. In other words, understanding Internet users' tendency is more important than in the past when growing business. Depending on this idea, in the early stage, a lot of web developers started online customer management based on a concept that people act identically online as they are in reality. They thought the existing offline customer relationship strategy would work at the online place either. However this idea had to be changed. Since online users feel and think different from reality. Namely, they act dissimilar between online and offline [54]. In view of the fact, companies had to figure out how online users act.

In fact, it seems to be similar situation that people simply change a platform of interaction from offline to online. However it isn't simple change because online users have unique characteristics and they make different interaction behavior when they are online. Thus a new way to manage them is needed. In order to conduct a specific study, it is necessary to know 'Virtual self'. That is formed by different way comparing to real self. And online or virtual concept on the self is considered as a new theory comparing to traditional interpersonal theory which was made before Internet emerged.

This paper is about virtual self on the basis of existing self concept. To do this study, we try to extend a psychological theory, 'Self-discrepancy' (which explains kinds of selves and there are significant gaps among them) into virtual self. For a Journal Article, see [28], according to Higgins (1989), the domain of self consists of three selves (actual, ideal, and ought) and there are two standpoints (own and significant others). Thus there are some kinds of self discrepancies. Actual self means the real one you are and the other self domains are named self guides. And actual/ideal and actual/ought discrepancy are mainly described. Such discrepancies are related to emotional vulnerabilities. The wider degree of a gap brings about the larger emotional vulnerability. Above all, when the discrepancy between actual and ideal self is broad, it can incur much bigger mental problems than other discrepancies [28].

For a Journal Article, see [28]. With this as a momentum, affects many studies. Those studies predict that a self-discrepancy is related to negative emotional condition. Higgins

insisted that the discordance between actual and ideal/ought self was related to agitation or dejection. Since then, other dependent variables emerged like general distress [64], specific behavior such as procrastination and so on. Likewise many studies regarding self-discrepancy have concluded in a negative direction (emotions or behavior) along with the existing theory. Therefore self-discrepancy state has been considered as a negative thing and people get a motivation to minimize the gap between actual self and self guide (ideal and ought self). Thus, researchers have focused on the negative side effect of self-discrepancy [58].

But new idea emerged after introducing Internet. Does the self-discrepancy really have only negative impact on people? People can express themselves through another self in the virtual world [44]. The previous self-discrepancy theory suggested two kinds of criteria when it divided the self concept, domain (actual self) and guide (ideal and ought self). But another kind of self has appeared as 'virtual self' in the Internet era. Therefore, more broaden research is needed in the study of selves including virtual self. In regard to Blumer [9], individual self or identity is made of interactions with others. We live in reality and virtual society simultaneously so we encounter different interactions at each place. This phenomenon can make different identities [84]. For this reason, this paper studies 'virtual self' and discrepancies associated with it. In addition, factors influencing the discrepancy and the role of virtual self in relation to ideal self are investigated.

Literature review

Self-discrepancy theory

Self-discrepancy is a theory of how different types of discrepancies among self-state representations are related to different kinds of emotional vulnerabilities. According to the theory, a self is divided in detail and based on the two criteria. This theory divides self into six types using two criteria (Domain and Standpoint). There are three domains and two standpoints of the self. Self domain is actual, ideal and ought. Standpoint is own and significant other (just called 'other'). Actual/own and actual/other mean typical self concept. The remaining one is self-guides (ideal/own, ideal/other, ought/own, ought/other). Although these discrepancies differ from individual to individual, people are motivated to narrow gaps between self-concept and self-guides. Research about motivation for matching self-concept and self-guide has long history. Higgins focused the four self-guides and found each motivational predisposition.

This theory predicts multiple emotions (mainly negative direction) [28, 64]. To solve these emotional or psychological problems, people have to decrease their self-discrepancies. And to do that, it is demanded to control factors causing the self-discrepancies.

Each factor brings about the respective self-discrepancies.

‘Actual and ideal discrepancy’ has a motivational nature as frustration from unfulfilled desires or concerns over losing the affection or esteem of others. This discrepancy predicts dejection related emotions such as disappointment, dissatisfaction or shame and so on. Those who have this discrepancy may have a mental condition like absence of positive outcomes. The other discrepancy is ‘actual and ought discrepancy.’ This features a motivational nature as feelings of moral worthlessness and weakness, or feelings of resentment. That discrepancy anticipates agitation-related emotions (e.g. guilt, self-contempt, fear or feeling threatened). Those who have this kind of emotion may have a mental condition as presence of negative outcomes.

So the self-discrepancy implies that each discrepancy leads to different degree of emotional vulnerability. Specifically, actual and ideal discrepancy provokes much bigger emotional vulnerabilities than actual and ought. Therefore, this study focuses on actual and ideal self among self-guides.

By the way, the self-discrepancy theory had a limitation when a concept of virtual self emerged. Originally it proposed some kinds of negative experiences as a motivated attribution of the theory. Self-discrepancy is occurred from repeated experience of negative emotions in their early life and all discrepancies go to discomfort feelings [28]. However, discrepancy related to virtual self is able to bring about positive emotions. Virtual self has a distinct feature under the anonymous and non-spatiotemporal environment. Therefore, people can make virtual self easily with desired characteristics (e.g., outer or inner feature, ideal or ought personality). The self-discrepancy theory suggested that experience from the uncontrolled environment becomes motivational causes of self-discrepancies and that has a decisive effect on emotional vulnerabilities. However, people can have a series of selves which is possible to control by using virtual system. As a result, discrepancies through virtual self can possibly lead to satisfaction or interests. Thus, the emergence of virtual self can positively impact people’s selves, which refutes the self-discrepancy theory.

According to Kim for a journal article, see [79], there might be multiple selves in one person. In accordance with the symbolic interactionism by Blumer [9], an individual identity is composed of interactions with others. A virtual society has a different environment and interaction comparing with real society. A different identity or self can appear in the virtual world where a great number of people participate in and play specific roles as they wish [84]. These concept of virtual things has been revealed empirically. There is a self made in the virtual world that is separated and different from that in the real world [54].

Concept of the virtual world

There are many definitions concerning the concept of ‘virtual’. “Virtual communities provide unprecedented opportunities for individuals to interact and share information” [7, p.68]. Virtual communities are places where the members

share information, resources and communicate with intended identities made by other members. It has been studied in many areas such as economics, sociology, marketing and management information systems. Some researchers suggest that this community can change a way of interaction or a relationship between business and customers [7, 13, 17, 47]. People gather together, interact, and autonomously play certain roles on online systems without physically seeing each other [47, 60, 68].

Organizations are interested in these kinds of virtual systems because they can use these systems for their businesses. Investing and building a virtual system in an organization is prevalent. This tool helps employees make team collaborations and display their potentials. A virtual system can remove or decrease time and space constraints, which is related to the growth of an organization and its employees. Consequently, many organizations feature virtual characteristics [3, 33, 47, 74].

A virtual community can give a lot of advantages to people who take part in the system such as customers and organizations [17]. Individuals are interested and frequently use this virtual system, because they can freely express themselves. For example, the average number of Facebook users in the third quarter of 2015 is over 1.5 billion [30]. The more users participate in a virtual community, the more valuable the virtual community becomes, which creates a network externality. On account of this nature of the network externality, organizations try to build and use a virtual community that attracts people [5, 8]. In addition, organizations are focusing on a virtual system and try to encourage employees to use it to increase the efficiencies of their works. For example organizations like IBM have invested in virtual world projects because a virtual world is where people work, live, and play [16, 23, 25, 47].

There are many studies about a virtual system from the perspective of organizations, managers and communities. However, there are few studies from the perspective of users, customers and individuals. The virtual community can be categorized by operating agent [17, 43] or respective members’ roles [39]. The former has three branches. The first is ‘third party managed’, second is ‘firm sponsored’ and third is ‘customer initiated.’ Many IS researchers have studied the first part but not the others, even though many organizations are interested in the subject of ‘customer initiated.’ In the perspective of ‘firm sponsored,’ research has focused on data generated by the members of a virtual community [17, 39]. These are all valuable studies. Nevertheless, we still do not know what factors affecting people act differently or similarly in the virtual world.

Hypotheses development

Organizations have used a virtual system to facilitate remote resources and to make employees form flexible work environments such as telecommuting, virtual teams and distributed collaboration. In order to help communications and

collaborations, virtual organizing and virtual working have become common [69, 72].

In accordance with Jabr Wael and Zhiqiang Zheng [34], on-line stores deploy a recommendation system and review system as critical operating tools when managing their customers. For example, a recommendation system makes consumers approach a wide range of products and bring on a great amount of revenue [4, 11]. A recommendation system allows a company turns browsers into customers and increases their loyalties through their customized searching experiences [34]. For these reasons, many organizations are interested in and willing to manage online channels.

In addition, a virtual system is valuable for an organizational knowledge system. Knowledge is considered as one of the most important competitive advantages for organizations. Thus, organizations are seeking for an effective way of exchanging knowledge. For the sake of exchanging knowledge among employees, organizations tend to an enterprise social media (ESM), which makes employees be interpersonal to each other so that organizations can improve overall performance of their employees [21]. Consequently, an ESM system can make a symbolic social interaction [9] and enable members to establish virtual identities [53].

Apart from business's point of view, there is another reason to consider virtual self and behavior in virtual community. The virtual system can significantly affect. As participating in an online community and building a virtual self are easy, people easily interact others online, which impacts their real lives, as shown the case of a valid correlation between growing online intermediaries and STD (Sexually Transmitted Disease) [15].

Virtual identity, avatar, virtual self

What is the virtual self? The virtual self is "the representation of an identity in virtual environment, consisting of a property of objects allowing these objects to be distinguished from each other" [70] In plain language, anyone who is described or played in a virtual world is the virtual self. A virtual world can be explained as a real environment in virtual system at which people come, participate in activities or interact with others or create artifacts, information etc. [47] And social system designers used avatars as the new way for identity construction in online environments. [71]

When the importance of virtual system is considered, the individual's direction should be regarded. Because the system is operated by each user, more specific information about user's attribute is needed. And this paper focused on Self-discrepancy theory especially between ideal-virtual with some psychological personalities. These personalities represent a feature of person's moment or general life and are related to the motivation of self-discrepancy (i.e. frustration from unfulfilled desires or concerns over losing the affection or esteem of others).

Mindfulness

Mindfulness is explained as a mental state that people recognize and accept the present situation with the exception of any judgment or assessment. [14, 18] Mindfulness is a translation word, 'Sati', from language of Pali. The dictionary definition of this contains awareness, attention, remembering and so on. The sati was translated into noting, awareness, attention mindfulness but these days mindfulness is settled. And this scale can be related to various factors regarding mental health a kind of psychological attribute.[78]

In IS area, many IS practitioners have studied collective mindfulness for explaining performance, team work mainly from the organizational perspective. [10, 37]

Self-esteem

Self-esteem is one of the frequent mentioned topic in literature associated psychology and regarded as a important subject throughout a person's whole life. [35] It has been studied for a long time and has various definitions. For example, global affective orientation towards the self [56], or a person's point of view which is evaluated by him/ herself. And it is a kind of main variables influencing individual's mental well-being and social functioning. [59] Also this is significant concept relevant to subjective experiences, quality of life and psychological health. And this can be described as a main feeling of individual's own value emerging through interactions with environment. [35]

Self-esteem and self-discrepancy has something in common, that is being influenced by relationship with significant others (i.e. family, friends and so on). [88] In other words, it is the main motivational attribute to feel emotions from interaction with others who are considered significant.

Anxiety

State anxiety is "characterized by subjective feelings of apprehension, nervousness, and worry" [65, p.1] 'Anxious' means having a concern, sick at heart, to be afraid something. So this word comes from being careful and worrying. Unlike fear, anxiety has unspecific object and is divided into a mental agitation state. [67], [89]

Self disclosure

Self disclosure is a behavior to make others know about herself by showing clearly her identity or position. [41] [90]

Self disclosure is a typical example which explains human behavior represent differently between real and cyber space. People are under pressure when they disclose themselves in actual space since a considerable level of trust is needed each other between discloser and the other party. [77]

In social network site, people do the self disclosure earlier in their relationship development. [40, 61], Now that people online can cover their virtual identity and deviate from social norms which control them in face-to-face environment. [40, 75]

So the research question in this paper is what factor can influence the virtual self and what is the role of virtual self when it meet person's ideal self. The hypothesis is below.

[H1] Online Un-mindfulness is negatively related to virtual/ideal outer self-discrepancy.

[H2] Online Un-mindfulness is negatively related to virtual/ideal inner self-discrepancy.

[H3] Online self-esteem is negatively related to virtual/ideal outer self-discrepancy.

[H4] Online self-esteem is negatively related to virtual/ideal inner self-discrepancy.

[H5] Online state un-anxiety scale is negatively related to virtual/ideal outer self-discrepancy.

[H6] Online state un-anxiety scale is negatively related to virtual/ideal inner self-discrepancy.

[H7] Online self-disclosure is negatively related to virtual/ideal outer self-discrepancy.

[H8] Online self-disclosure is negatively related to virtual/ideal inner self-discrepancy.

Methods

Participants

This paper carried out survey targeting university students and there were useful 46 samples. The students are 20s who have grown up with Internet. So they are familiar with virtual system. Possibility the students have diverse virtual selves is high and sometimes they can be influenced more than their actual self.

These days, a smart phone became widespread and a great deal of people can surf Internet regardless of places (95.1% of the whole Internet users). And Korean 20s use Internet over 20 hours per week on average like figure 1. This picture is a kind of data which means that 20s spend a lot of time to use Internet on the basis of easy service environment.

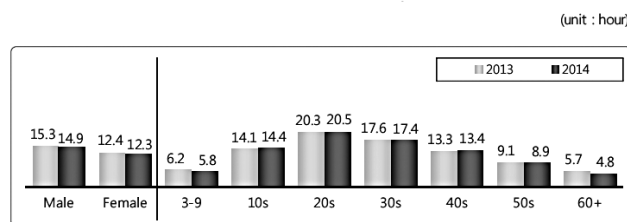


Figure 1 – Hours of Use of Internet by Gender & Age

A group of university students is not the representative of 20s in Korea. However, they are one of the groups familiar with online circumstance. In addition, as an explorative research, this sample group provides an interesting perspective on the study of virtual selves.

Model and procedure

Survey

For all measures, a 5-point Likert-scale applied, validity of the measurements is supported by executing a pilot test prior to the actual survey. At the first pilot test, there were many problems to understand concept of virtual self or virtual space. So the explanation about virtual concept was added. And then, after trying to add or modify the contents, the final questionnaire was distributed.

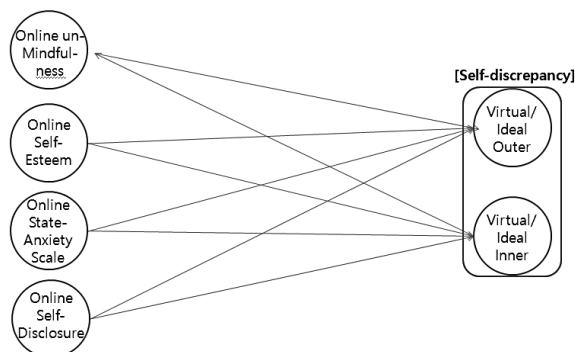


Figure 2 – Research Model

The data was given on May in 2015 from university students. There were classes to participate in the survey and during the classes, the students answered the questionnaire. Over 60 students responded to the survey, several respondents were deleted owing to inappropriate or incomplete answer.

Some questions are reversed item to assure comparable scales. For example, in the self-esteem section, number 3 question is ‘Generally, I tend to think about myself as a loser’. If a respondent checked higher value in this question, it means he or she has low self-esteem. Therefore, in case of reversed items, the high values become low values and vice versa. And at this paper, every construct was applied assuming that the respondents are online.

Mindfulness

The mindfulness scale was developed by Seonghyun Park [78] and applied to this paper. This method is considered as a promising tool for moderating a kind of attention process when people feel psychological pain and maladjustment behavior. [78] The original one has 20 questions but only 12 questions are adapted in this paper. And higher point means the lower level of mindfulness.

Self esteem

In order to measure self-esteem, it is employed that Hun-jin lee and Ho-tack won adapted in 1995 (the Korean version) [91] originated by Rosenberg [57]. This measurement is used a lot in estimate single dimension self-esteem. This

criterion is composed of 5 positive self-esteem and 5 negative self-esteem questions. Positive questions (1, 2, 4, 6, 7) can be used intactly but the other must be reversed. Higher score means that the respondent has higher self-esteem. [82] State-Anxiety Scale

The questions interpreted by Wea-Sook Park [92] were used. That is one of the scales from STAI (State-Trait-Anxiety Inventory) made by Spielberger [65]. This method originally has 20 questions and is devised to measure a kind of feeling in specific situations. In this paper, this method applies 5 likert scale and 8 questions are selected including 3 reversed items. The bigger scale means the person has less vulnerable state. [62]

Self disclosure

Self disclosure questions comes from JSDQ (Jourard Self-Disclosure Questionnaire) [42] which is modified by Pyeonggu Im [77]. It consists of 36 questions and has 6 contents related to (1) Interest and hobby, (2) work and study, (3) pecuniary matter, (4) attitude and opinion, (5) personality, (6) body. This method measures a mental pressure when a person talks about her(him)self. The bigger scale means that the person has a higher level of self-disclosure.

Self –discrepancy between Ideal and virtual

There are 2 way to measure self-discrepancy. [26, 27] Both include lists of personal attributes about person's self domain (actual, ideal, ought). And the 2 methods of the studies were adapted and adjusted. Using this, Andre Sijtsma [1] implemented a survey to measure a discrepancy between actual and virtual self. Except asking participants to list their own personal attributes, a series of attributes is given. The attributes targeted to measure both inner (i.e. self-esteem, honesty, emotionality), outer (i.e. gender, education level, appearance). In this paper, the contents related to actual self (i.e. In the last few years, I have....) were revised to virtual contents like 'When I'm in online environment...).

Results

[H1] Online Un-mindfulness is negatively related to virtual/ideal outer self-discrepancy.

[H2] Online Un-mindfulness is negatively related to virtual/ideal inner self-discrepancy.

[H3] Online self-esteem is negatively related to virtual/ideal outer self-discrepancy.

[H4] Online self-esteem is negatively related to virtual/ideal inner self-discrepancy.

[H5] Online state un-anxiety scale is negatively related to virtual/ideal outer self-discrepancy.

[H6] Online state un-anxiety scale is negatively related to virtual/ideal inner self-discrepancy.

[H7] Online self-disclosure is negatively related to virtual/ideal outer self-discrepancy.

[H8] Online self-disclosure is negatively related to virtual/ideal inner self-discrepancy.

Four hypotheses are supported among eight hypotheses. Online self-esteem and online state un-anxiety scale are negatively related to the discrepancy between virtual and ideal self. Otherwise, online un-mindfulness and online self-disclosure are positively related to the discrepancy between virtual and ideal self. That is, those who have higher self-esteem or higher un-anxiety state (probably the person feels easy) are likely to have small discrepancy between their virtual and ideal self. On the other hand, those who have higher online un-mindfulness and online self-disclosure are likely to have large discrepancy between virtual and ideal self.

Every item has chronbach's alpha which is higher than 0.8. All constructs have AVE which is over 0.6 and composite reliability which is over 0.8. Two of the dependent variables' have R higher than 0.6.

Discussion

This paper revealed what factor affects the difference between virtual and ideal self and ultimately influences individuals. There are a great deal of study about online community and virtual world until now. Nevertheless, research of the users or individuals who make constant use of the system haven't been yet. There was study regarding the substitute of an identity (avatar) but there wasn't specific one focusing behavior about the concept of virtual self or online users itself. So this study concentrates on that perspective. We can discuss how people think about themselves and how they will behave after using virtual world or online system.

People who have high self-esteem and low state-anxiety scale were related to small discrepancy between their virtual and ideal self. Namely, the virtual self which can be easily manipulated approached their ideal self. On the contrary, those who have low mindfulness and high self-disclosure were linked with large discrepancy between their virtual and ideal self. That is the virtual self didn't get close to their ideal self even though they can control freely their virtual one.

According to self discrepancy theory, people can get several kinds of selves like actual, ideal, ought and they can feel uncomfortable emotion (i.e. agitation, anxiety) when the each self grows apart. Then people are motivated unconsciously to narrow the discrepancy between their selves owing to the emotional vulnerability. Among the discrepancies, the one related to ideal self is the biggest factor for making discomfort. So it can be predicted that

people would try to approach their ideal self to remove the discrepancy. By the way a new topic arouse after the Internet age. How can we apply virtual self to this theory? The virtual self can totally controlled by each person while the existing theory explained a self is made by interactions with others. For example people who want blonde hair, just they can make their online image blonde. Or those who want be outgoing but have trouble in meeting people face to face, just they can socialize in many online community using talkative ID.

Table 1: Latent Variable Correlations

Object	Online Self Disclosure	Online Mindfulness	Online Self Esteem	Online State-Anxiety Scale	Virtual/Ideal Inner	Virtual/Ideal Outer
Online Self Disclosure	1	0	0	0	0	0
Online Mindfulness	0.0272	1	0	0	0	0
Online Self Esteem	0.1076	-0.4594	1	0	0	0
Online State-Anxiety Scale	-0.1225	-0.444	0.4703	1	0	0
Virtual/Ideal Inner	0.2354	0.6613	-0.5862	-0.6325	1	0
Virtual/Ideal Outer	0.2531	0.6268	-0.4096	-0.6964	0.6978	1

Table 2: Overview

Object	AVE	Composite Reliability	R Square	Cronbachs Alpha	Communal ity	Redundanc y
Online Self Disclosure	0.6805	0.8945	0	0.8571	0.6805	0
Online Mindfulness	0.6147	0.9051	0	0.874	0.6147	0
Online Self Esteem	0.6745	0.8922	0	0.8439	0.6745	0
Online State-Anxiety Scale	0.7734	0.911	0	0.8536	0.7734	0
Virtual/Ideal Inner	0.6482	0.9362	0.6676	0.922	0.6482	0.0359
Virtual/Ideal Outer	0.7939	0.9685	0.6432	0.9626	0.7939	0.0462

Table 3: Total effects

	Online Self Disclosure	Online Mindfulness	Online Self Esteem	Online State-Anxiety Scale	Virtual/Ideal Inner	Virtual/Ideal Outer
Online Self Disclosure	0	0	0	0	0.2201	0.1841
Online Mindfulness	0	0	0	0	0.3902	0.3966
Online Self Esteem	0	0	0	0	-0.2919	-0.0168
Online State-Anxiety Scale	0	0	0	0	-0.2951	-0.4899
Virtual/Ideal Inner	0	0	0	0	0	0
Virtual/Ideal Outer	0	0	0	0	0	0

Taking these advantages, people can do many things which couldn't be done in reality. From these benefits of virtual system, this paper started. It could be assumed that there are different results unlike the previous self-discrepancy theory (self discrepancy is related to negative emotional vulnerabilities.). High degree of self-esteem, mindfulness and low degree of state-anxiety and self-disclosure are the characteristics of those who have small gap between virtual and ideal self discrepancy. Eventually, people who feel stable and focus themselves make their virtual self which seems like their ideal self whether they intended or not.

In accordance with the previous study, people have a motivation of approaching their ideal self to reduce the self discrepancy. But is the virtual self same with their actual self? The people who think about themselves confident, stable and recognize themselves enough did like that but the people who don't think and recognize them enough didn't. In other words, not everyone makes the virtual self which looks like their ideal one. Even if they can very easily form a online identity depending on their wish, they didn't. It means they didn't reduce the discrepancy between virtual and ideal self.

Implication

Self discrepancy theory has been studied around 30 years and this can be applied to a wide arrange of researches such as business, psychology, sociology and so on. And it has been developed but except in virtual system which is very necessary concept for these days. This study contributes developing this theory using virtual self. And this paper is very specific study. This paper not only mentioned virtual self, but also applied to discrepancy theory. So we can see how different the virtual self to actual self. And this can be related to many other issues like Internet addiction, SNS culture, Internet user's behavior in online community.

Also it can refer to practical area. For example, management for sales of Internet transaction can take advantage of this helpfully. According to an analysis from Mckinsey global institute, sales of virtual goods all over the world will close with \$13 billion in 2015. [49] And platform managers are trying to increase these goods and then they think understanding motivation of expenditure in virtual world is necessary. [68] Like this attracting the real-world currency into online is regarded as one of the substantial profit creation. So predicting online user's behavior is important. In order to do that, it is needed to expect the thinking and behavior of virtual self.

Limitations

Probably those all problems come from the less sample size (46) or mistakes in survey questions. So that more samples, sophisticated questionnaire and modification of some variables are needed.

And some constructs are needed after measuring the self-

discrepancy. In this study, it is explained the virtual self act dislike the previous self concept. But there isn't any emotion or specific behavior after people have those discrepancies. In order to compare the existing theory, it is better to predict some emotional state coming from each self-discrepancy.

And compulsive use of Internet is utilized as a moderator to influence self-discrepancy. This study assumes that every respondent uses Internet and is given some effect from that. So the degree of compulsive use of Internet will have an impact on this model.

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A Classification of Car-related Mobile Apps

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Abstract

This study classifies car-related mobile apps that provide assistance to users in driving or managing a car. A total of 697 car apps (273 from Apple App Store and 424 from Google Play Store) were classified into eight categories: car news & information, buying & selling, driver's communication, location service, safe/efficient driving, maintenance management, renting service, and expenses monitoring.

Most apps are in four categories: car news & information (28%), locating service (23%), car rental service (15%), safe/efficient driving service (12%). The apps that are directly involved in car driving and car management account for 63%. However, multiple apps are too homogeneous, i.e. too similar in their main functions. Only a few apps are designed to be more comprehensive and have functions in two or more categories.

In order to improve the practicality of the categorization scheme, this study checked the inter-rater reliability in two tests.

Keywords

Mobile Apps, Car Apps, App Classification, App development, Internet of Things, Connected Car Services, Smart Cars

Introduction

The automotive industry is at the turning point in that ICT (Information and Communication Technology) starts to play a significant role not only in the functionality but also in the persuasiveness of a car. Automakers have made serious efforts to improve the safety and comfort of car users by utilizing ICT. Traditionally a car was considered as a standalone machine for only transportation. Nowadays the car can be connected to the whole world and provide space for infotainment, communication, office work, or almost anything.

Automakers attempt to provide the best car experience which would attract potential car buyers. They have developed telematics or in-car systems for connected car

services for the past two decades. Some representative services include vehicle tracking, navigation, remote locking/unlocking, emergency warning, eCall, etc. for individuals and organizations. These services have increased the value of a car, expanded the size of the global car market, and boosted the revenue of automakers. Although the automotive industry has become more competitive and improved the connected car technology quite significantly, its overall structure has been largely unchanged for decades.

However, the automotive industry is at the brink of revolutionary changes and expects rapid transformation of the overall structure in the near future [8], [13]. Most executives of automakers have realized the disruptive power of connected services and autonomous driving [6]. From the 2015 global survey involving more than three thousand car customers, the positive response to the question about 'the willingness to switch automakers for connected car services' has increased to 37% from 20% in the previous year. In addition, the willingness to pay for connected car services has increased to 32% from 21% [6].

These are good news, but there is bad news. Automakers are not the only players in the automotive market any more. Recently companies such as Google, Apple, and Microsoft in the ICT industry provided platforms for connected car services. Google even built new prototype cars which are fully autonomous and under road tests at present. Apple is also developing a self-driving car.

Even though automakers have accumulated experiences in developing ICT systems and acquired some capabilities for implementing connected car services, they cannot identify all the requirements that various customers demand and cannot deliver all services that satisfy every customer. They need to set up a strategy for building an ecosystem and for capturing values created by the ecosystem. Unfortunately, it is not clear for the best outcome which services automakers should provide and which services partners or the 3rd

party should provide. App developers as the 3rd party are also looking for potential sources for revenue. There is a need to investigate existing apps for cars and to devise a categorization that can give guidance to automakers and app developers.

This study attempts to identify and classify currently available services. Services by automakers are implemented in applications running on built-in devices (hereafter in-car systems), while most services by the 3rd party are implemented in applications running on mobile devices such as smartphones and tablets (hereafter car apps).

The next section summarizes the background information such as connectivity types and apps available from app stores. Then, the next section presents the categories of mobile apps for cars and the following section shows the inter-rater reliability of the categorization. The final section concludes this paper with directions for future research.

Background

Connectivity types

A connected car is equipped with connectivity to technical systems, inside and outside the car, that provide services to car users by utilizing ICT. Connected car services have evolved from telematics which is a compound word made up of telecommunications and informatics. For connected car services, there are three types of connectivity: embedded, tethered, and integrated [3].

In the embedded type, both the communication (a modem and a 'UICC-Universal Integrated Circuit Card') and the app are built directly into the car. Some services that require high availability and high reliability are good candidates for the embedded type. For example, for tracking a stolen car or for the eCall (emergency call) service, the embedded type is better than the other types for fast execution.

In the tethered type, the app resides in the car, while the communication involves an external device. There are two sub-types: tethering with a built-in modem and tethering with an external modem [5]. The tethered type with a built-in modem utilizes the customer's UICC only for connectivity and is useful for infotainment services for charge, since this type allows the user to control the cost for services. The tethered type with an external modem uses the customer's smartphone, USB key, or OBD (On-Board Diagnostic) dongle for connectivity and modem. In this subtype, there are multiple ways to enable tethering: USB cables, Bluetooth profiles or WiFi. This external modem subtype has an advantage of more up-to-date modem since customers upgrade smartphones more often than cars, but the compatibility of profiles/protocols between the customer's smartphone and the car's head-unit is a disadvantage. The tethered type may not be appropriate for safety related service, since there is no guarantee that the driver will use tethering consistently [4]. In the integrated type, both the communication and the app strictly remain on the smartphone. The human machine

interface (HMI) generally remains in the car, but sometimes remains on the smartphone. The integrated type has advantage in using customer's mobile network for higher bandwidth and numerous smartphone apps available such as on-demand music, Internet radio, social networking, access to traffic information, and external navigation. But it is unreliable for safety related services, due to the need for the driver to activate their smartphone.

A summary of the connectivity types is shown in Table 1.

Table 1 - Connectivity types

	Embedded	Tethered		Integrated
Modem	car	car	external	phone
UICC	car	external		phone
App	car	car		phone
User Interface	car HMI	car HMI	car HMI	phone

(Adapted from GSMA 2012b)

An automaker may choose a combination of these connectivity types since they are not mutually exclusive. Even one car may employ multiple connectivity types for different services in order to optimize the car experience [5]. Table 2 summarizes which connectivity types are employed by three global automakers for different services [2].

Table 2 - Connectivity Types for Various Services

Services	Automaker		
	A	B	C
SOS	1	1	3
Auto crash response	1	1	3
Emergency services	1	1	3
Crisis assist	1	1	3
Roadside assist	1	1	3
Stolen vehicle assist	1	1	3
Stolen vehicle slowdown	1	1	×
Remote ignition block	×	1	×
Lane departure warning	×	×	×
Locate your vehicle	4	4	×
Hands free calling	1,3,4	1,4	1,3,4
Check data plan usage	3,4	3,4	3,4
Remote diagnostics	3,4	3,4	3,4
Remote door lock/unlock	4	4	4
Remote horn and lights	4	4	×
Remote ignition	4	4	×
Temperature control	4	×	×
ETC(Electronic Toll Collection)	×	×	×
Maintenance notice	1,3,4	1,4	1,3,4

Reservation service	1,3,4	1,4	×
1: Embedded			
2: Tethered with built-in modem			
3: Tethered with external modem			
4: Integrated			

App categories

A mobile application is a small, self-contained computer program running on a mobile device such as a smartphone or tablet. The number of apps available for download in app stores was almost 4 million as of July 2015 [9]. Almost 1.9 million apps are available from the Google Play Store as of December 2015 [1] and 1.5 million apps were available from the Apple App Store as of June 2015 [10].

Google Play classifies apps into 25 categories and Apple Store has 24 categories. The games category in both app stores has 18 subcategories (See Table 3).

Table 3: App Categories of Two App Stores

Apple	Google
Books	Books & Reference
Reference	
Business	Business
Catalogs	-
-	Comics
-	Communications
Education	Education
Entertainment	Entertainment
Finance	Finance
Food & Drink	-
Games(18 subcategories)	Games(18 subcategories)
Health & Fitness	Health & Fitness
-	Libraries & Demo
Lifestyle	Lifestyle
-	Media & Video
Medical	Medical
Music	Music & Audio
News	News & Magazines
Magazines & Newspapers	
(28 subcategories)	
Personalization	
Photo & Video	Photography
Productivity	Productivity
Shopping	Shopping
Social Networking	Social
Sports	Sports

Utilities	Tools
Navigation	Transportation
Travel	Travel & Local
Weather	Weather
24 categories	25 categories

Two taxonomies look very similar. Only two categories in Apple's taxonomy and five in Google's taxonomy do not have corresponding category. There are two categories whose labels are different. Another difference is that Apple Store has 28 subcategories in the Magazines & Newspapers category. As of June 2015, the number of worldwide cumulative downloads from Apple Store reaches 100 billion including 25 billion downloads in the past 12 months. Google Play has 50 billion worldwide downloads in the same 12 months [7]. In both app stores, the most popular app categories are game, education, lifestyle, entertainment, and business, as shown in Figure 1 [1]; [11].

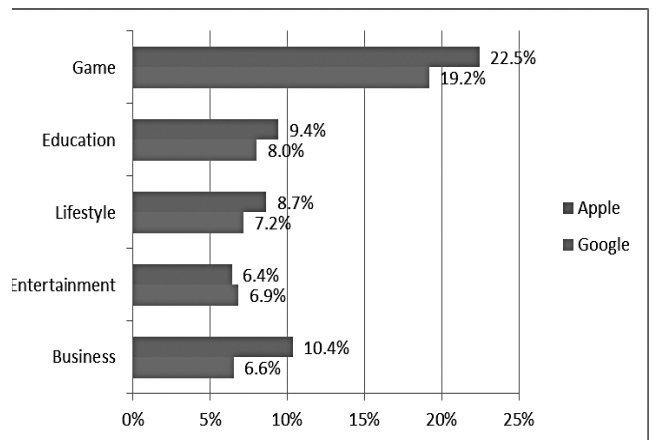


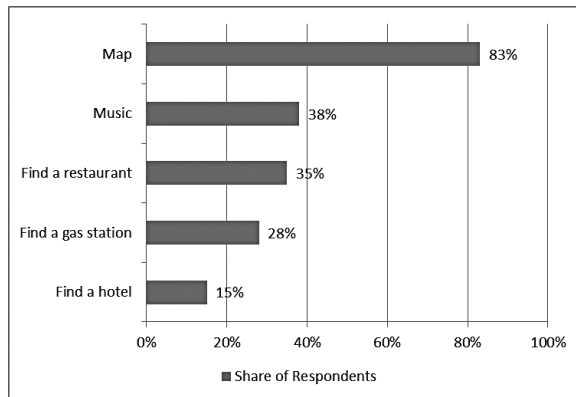
Figure 1 - Most Popular App Categories

Navigation/Transportation and Travel & Local/Travel are two candidate categories for which this study needs to search. The Travel & Local/Travel category has quite many apps, but Navigation/Transportation category has much smaller number of available apps, as shown in Table 4.

Table 4 - Number of Apps in Two Candidate Categories

	Google	Apple
Travel & Local/Travel	82,186 4.3%	50,4004.2%
Navigation/Transportation	29,072 1.5%	14,400 1.2%

A survey result shows the percentage of car drivers who downloaded different kinds of apps such as map app, music app, and apps for finding a restaurant, gas station, or hotel, as shown in Figure 2. However, this classification can hardly be useful to automakers or app developers.



(Source: [12]) Figure 2 - Download by US Car Drivers

Data collection and categorization

From a long term perspective on connected car services or car app market, there is a need for a systematic categorization of car apps currently available. Although there are a few taxonomies as mentioned in the previous section, there is still no systematic or comprehensive categorization useful for both automakers and app developers. This appears to be an emergent issue.

The categorization work spanned one and half years from October 2013 till March 2015 in two rounds. The first round started in October 2013 and ended in May 2014. The purpose of this first round was to explore the car-related mobile apps in the market, grasp comprehensive understanding about its functionality, and devise a categorization framework of car apps. The second round lasted for another ten months from June 2014 till March 2015. The purpose of the second round was to check the reliability of the categorization framework. The second round will be discussed in the next section.

From the two representative app distribution platforms, the authors collected 1,036 apps: 490 from Apple iTunes App Store and 546 from Google Play Store, by browsing apps in Travel, Navigation, or Transportation categories and by searching the stores with keywords such as car, navigation, automobile, driving, vehicle maintenance, locating, car expenses, car rental, and so on. We read the description of each app and downloaded it for trials.

The search results included apps for car racing games, paper folding games, and even cartoons. These apps were filtered out. Apps in Entertainment or Music category are also excluded from this study, since those apps are made for use outside the car even though they can be run inside the car. Finally 424 apps from Google Play Store and 273 car apps from Apple iTunes App Store remained. Among 424 apps

from Google Play, 395 were free and 29 were paid. Among 273 apps from Apple Store, 218 were free and 55 were paid (See Table 5).

Table 5: Number of Apps for Classification

	Google	Apple
Free apps	395	218
Paid apps	29	55
Total	424	273

The remaining apps were evaluated in two ways: one way is to run the app directly on a smartphone; the other way is to use simulators such as BlueStacks (a popular Android simulator used for running apps on PC) or Xcode (an iOS simulator used for running apps on Mac). Each of 697 car apps was executed for examining its features, functionality, and utility. Then, all 697 car apps were classified into eight categories: safe driving, locating service, maintenance management, renting service, expense monitoring, communication, buying & selling, and news & information. The features and functions of apps in each category are summarized in Table 6.

Table 6: Features and functions in each category

Category	Features & Functions
Safe Driving	-Auto accident report -Event data recorder function (EDR) -Monitors car speed, speed warning system, acceleration, braking G graph, car odometer, record driving information -Sends an address from the Maps app directly to the Internet-connected navigation system of the vehicle to free hands -Accident call and problem confirm, SOS service
Locating Service	-Uses GPS, Bluetooth, and smartphone map to find and save locations -Uses Photo to show parking sign or street. -Use note to remember. "MEMO". -Use "off-line compass memory" or "Augmented Reality Technology" to find car. -Parking meter alarm and notification service -Find nearby gas stations, EV car charging station, restaurant, ATM, reputable mechanics, highly-rated body shops, car wash locations, parking lots -Prevents parking fines by recording the location of parked car and receive alerts.

Maintenance Management	-Keeps track of car maintenance/repair records, remind you of oil changes, inspections, and part replacement. -Uses iCloud or dropbox to sync your vehicles and notifications across all your devices. -Keeps track of repair service, part number, part price and information -Confirms car symbols to know the indicator or functions. -Helps with no-start problem or other car problem. -Introduces car repair knowledge or maintenance knowledge.
Renting Service	-Makes or cancels a booking and check its status -Choose how many passengers -Manage previous booking and favorite address. -Tracks the rental vehicle on a map. -Uses GPS to find a location as a pickup point -Checking in/out
Expense Monitoring	-Keeps track MPG -Calculates money spent on a car -Calculates average costs of the car per day, week, month, or per year. -Reminds about tax or insurance deadline. -Monitors spending on fuel, maintenance, parking fees, insurance fees, service fees, driving fees, car washes, part exchanges, repairs, and other expenses,
Communication	-Driver community -Communicate with others about what types of supplies need, how to start, where to go for parts and help. -Guides users how to paint car in steps and show to friends. -Guide user how to design a car audio system -DIY assembly guide for restoring a classic car

Buying & Selling	-Showing car price, etc. -Apps used as a platform for purchasing and selling new or used cars. -Search best dealer nearby. -Dealer information -Used for dealers to show their car to customers in a showroom or online. -Save customer details. -Car loan and tax calculator
News & Information	-General car information, model, color, brand logo, car images, videos etc. -VIN number, plate number, license number -Car specs, horsepower, powertrain -Car news, reviews.
8 categories	

The top five categories of safe driving, locating service, maintenance management, renting service, and expense monitoring are directly related with car driving or management. The remaining three categories of communication, buying & selling, and news & information are not. In spite of extraneous efforts, not all apps could be nicely classified into a specific category. If an app had functions that belong to two or more categories, it was classified on the basis of their main features or functions. The result shows that most of app developers focus on building car apps in four categories: car news & information (28%), locating service (23%), safe driving (12%), car renting service (15%). The apps that are directly involved in car driving or car management account for 63%. Table 7 shows the number of car apps in each category.

Table 7: Number of apps in each category

Category \ Platform	Platform		
	Apple	Google	%
Safe Driving	27	54	12%
Locating Service	53	107	23%
Maintenance Management	21	23	6%
Renting Service	47	60	15%
Expense Monitoring	24	25	7%
Communication	6	8	2%
Buying & Selling	12	35	7%
News & Information	83	112	28%
Total	273	424	100%

Many car apps in the categories of locating service and renting service are too homogeneous in that their main functions and user interfaces are very similar. Only a few apps are designed to be comprehensive and contain functions from two or more categories.

Inter-rater reliability test

The practicability of the categorization framework presented in Table 5 needs to be checked by the inter-rater reliability test. Inter-rater reliability refers to the degree of agreement among raters. Generally, Cohen's Kappa is a statistical measure for assessing the degree of agreement. Cohen's Kappa refers to a measurement of concordance or agreement between two raters or measurement methods. Forty car apps were selected from eight categories (five car apps from each category) for two tests. In the first test, two consumers were asked to classify forty apps and in the second test two professionals working in the automotive industry were asked to classify them. Table 8 shows a ratings sample by Rater 1 and Rater 2 for eight car apps, one from each category. The statistical analysis of Test 1 shows that the Cohen's Kappa is 0.886 with the standard error of 0.054 and p-value of 0.000 (See Table 9). We can reject at the 5% significance level the null hypothesis that two rater's agreement occurred by chance. In general, Cohen's Kappa value greater than 0.70 is acceptable.

Table 8: Sample ratings in test 1

Rater App Name	Rater 1	Rater 2	Agree
Car Recorder	Safe Driving	Safe Driving	Yes
Find My Car	Locating Service	Locating Service	Yes
About My Car	Maintenance Management	Expense Monitoring	No
AJ Rent Car	Renting Service	Renting Service	Yes
CarXpense	Expense Monitoring	Expense Monitoring	Yes
ALL CAR	Communication	News & Information	No
Car for you	Buying & Selling	Buying & Selling	Yes
Cars	News & Information	News & Information	Yes
Total	8	8	6/8

Many car apps in the categories of locating service and renting service are too homogeneous in that their main functions and user interfaces are very similar. Only a few apps are designed to be comprehensive and contain functions from two or more categories.

Table 9: Cohen's kappa in test 1

	Value	Asymp Std. Error	Approx. T	Approx. Sig
Measure of Agreement Kappa	.886	.054	14.853	.000
Number of Valid Cases	40			

Table 10: Sample ratings in test 2

Rater App Name	Rater 3	Rater 4	Agree
Car Recorder	Safe Driving	Safe Driving	Yes
Find My Car	Locating Service	Locating Service	Yes
About My Car	Expense Monitoring	Maintenance Management	No
AJ Rent Car	Renting Service	Renting Service	Yes
CarXpense	Expense Monitoring	Expense Monitoring	Yes
ALL CAR	Communication	Buying & Selling	No
Car for you	Buying & Selling	Buying & Selling	Yes
Cars	News & Information	News & Information	Yes

In Test 2, the same forty car apps were given to Rater 3 and Rater 4. Table 10 shows a ratings sample by Rater 3 and Rater 4 for the same eight car apps.

The statistical analysis of Test 2 shows that the Cohen's Kappa is 0.828 with the standard error of 0.064 and p-value of 0.000 (See Table 11). Again, we can reject at the 5% significance level the null hypothesis that two rater's agreement occurred by chance.

Table 11: Cohen's kappa in test 2

	Value	Asymp Std. Error	Approx. T	Approx. Sig
Measure of Agreement Kappa	.828	.064	13.875	.000
Number of Valid Cases	40			

Through the two inter-rater reliability tests, the categorization suggested by this study seems practicable. However,

some apps such as ‘About My Car’ and ‘ALL CAR’ were put into different categories by the four raters. ‘About My Car’ was classified into ‘expense monitoring’ or ‘maintenance management.’ In case of ‘ALL CAR’, four raters put it into three different categories of ‘communication’, ‘buying & selling’, and ‘news & information.’ This could be due to either the taxonomy or the app. This needs further investigation.

Conclusion

The automotive industry is expecting seismic changes in the near future. Many experts speculate that the automotive industry would become a software-driven mobility industry [8] or ‘transportation as a service’ industry. Automakers and ICT companies including mobile network operators, app developers, new entrants like Tesla and global giants such as Google and Apple have great interests in the industry and are making enormous efforts to seize their own share of the market.

This study made a serious attempt to categorize car-related mobile apps. It identified 697 apps from Google Play Store and Apple App Store, devised a categorization with eight categories, and classified 697 apps into the eight categories. Then, the taxonomy went through two inter-rater reliability tests. Although this taxonomy may need further refinements and modifications, the current taxonomy seems usable from the practical perspective. Automakers and app developers can utilize this taxonomy in order to find areas for developing car apps. From an academic perspective, this study made a way to do research for investigating design principles of persuasive apps.

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Customer Perceived Value and Satisfaction in Shopping at Thai Market

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Abstract

The formulation of customer value is a tradeoff between benefits and sacrifices. It is defined as the consumer's overall assessment of the utility of a product based on perceptions of what is received and what is given. Therefore, this study aims to explore the impact of the perceived benefits, perceived cost as the customer perceived value dimensions on customer satisfaction. The research has been conducted in the Thai market (call talad nat) where 388 respondents were surveyed with the structured questionnaire. Linear Regression analysis is employed in order to test the relationship between variables. The findings confirmed that some factors such as image dimension of perceived benefit and price and effort dimensions of perceived cost have played an important role in enlightening the satisfaction of customer shopping at Thai market.

Keywords:

Perceived value, Perceived benefits, perceived costs, Customer satisfaction, Thai market

Introduction

Unfavorable economic condition and rising of cost of living were one of the problems in Thailand. This scenario occurs because of slow down of global and local economic. Therefore, most of the consumer started to change their shopping habits and being more sensitive to the price of the goods. Thai market (called talad nat in Thailand) is one of the oldest forms of traditional retailers in fresh food lines. Thai market (talad nat) is playing an important role in Thailand for fresh grocery and cook meals, and the importance tend to be further increased in this 21st century parallel with the expanding of urbanization [1]. Many consumers are interested in talad nat market consumption because it is fresh, flavorful, and convenient friendly atmosphere at a reasonable price. Talad nat market becomes a source of inexpensive for fresh grocery and ready-to-eat food for consumers in every class and occupation [1]. Therefore, the objective of the present study is to investigate the impact of these individual shopping values on an individual's perceived benefits and perceived costs in Thai market context. The focus of this paper is to identify the key dimensions of customer perceived value and explore whether customers will perceived that they have received the promised value offer will depend on comparing a product or service's actual performance in relation to their expectations.

In other word, the comparison between perceived benefit and perceive costs will influence customer satisfaction.

Literature review

Customer perceived value

Customer perceived value is defined as "the consumer's overall assessment of the utility of a product based on perceptions of what is received and what is given". Zeithaml [2] defined customer perceived value as "the consumer's overall assessment of the utility of a product based on perceptions of what is received and what is given." Two essential conceptions are established with customer perceived value (CPV). First, CPV is a result from the consumers' pre-purchase perception (expectation), evaluation during the transaction (expectation versus received), and post-purchase (after-use) (expectation versus received). Second, CPV involves between the benefits received and sacrifices given. The benefits include customers' desired value from a given market offering because of the products or services, personnel, quality and image involved. Sacrifices, on the other hand, is the perceived bundle of costs that customers expect to incur in evaluating, obtaining, using, and disposing of the given market offering, including monetary, time, energy, and effort costs [3]. Monroe [4] observes, "Buyers perceptions of value represent a tradeoff between the benefits they perceive in the product relative to the sacrifice they perceived by paying the price" (p. 46). Furthermore, non-monetary sacrifice includes customers' time and effort in acquiring products [3]. Therefore, to maximize customers' perceived value, a firm must either increase the customers' perceived value, e.g., product, service, image, quality, personnel and/or decrease their sacrifice, e.g., price paid, time effort and risk to purchase.

The effect of the customer's perceived sacrifices are a comparison of what they got for what they paid. This is where value enters the stage. Howard and Sheth [5] and Kotler and Levy [6] stated that satisfaction depends on value. Perceived value is defined as the ratio of perceived benefits relative to perceived costs [4]. Hence, if customer satisfaction depends on value, then it must depend on the total costs or sacrifice, too. Therefore, buyers in most buying situations use reference prices [4] and even reference values [7] when they evaluate the attractiveness of an offering.

Customer satisfaction

According to Kotler and Keller [8], satisfaction is “a person’s feelings of pleasure or disappointment resulting from comparing perceived products’ performance (or outcome) in relation to his/her expectations”. Authors elaborate that customer is dissatisfied if expectations are not fulfilled by the performance; whereas in case of satisfied the performance matches customer’s expectations. However, if his/her expectations are exceeded by the performance; it is delighted or highly satisfied [8]. Woodruff [9] defines satisfaction as the customer’s feelings in response to evaluations of his/her experience with a product. While, Perrault and McCarthy [10] explained perceive customer satisfaction as the extent to which a company fulfills the needs, desires and expectations of customers. Satisfaction is mainly analyzed as a trade-off between expectations and the performance of a product.

There are several studies have examined the relationship between perceived product value and customer satisfaction. For example, the study by Bei and Chiao[11] has researched the relationship between the perceived core product value and customer satisfaction. The most important dimensions of core product– quality and price – were measured. Authors have found that perceived product quality and perceived price fairness are both positively related to customer satisfaction which they explain by product quality and price being the essential concerns to customers and therefore effecting their satisfaction[11]. Anderson, et al., [12]have also found a positive relationship between product price and customer satisfaction. Woodruff [9] further identifies that customer satisfaction measurement without fulfillment of customer perceived value cannot really meet the customer's expectations. It means offering real value to customer should be one of the most important goals of a company. Thus, delivering superior value to customer is building the firms' competitive advantage

Thai market

Thai market (promounceddà~lart) is the heart of the community and one of the great Thai shopping institutions. They may vary in size from small to huge roofed but open air local markets with rows of concrete or wooden benches, food carts and cooking stalls which sell fresh food and almost anything else. There are two types of Thai market (talads in Thailand). The first is known as the talad sod (or fresh market) which is permanent markets. They are always open seven days a week. The second type is the talad nat (or appointment markets) which are similar to the weekend markets in many other countries where farmers bring their produce to town to sell. The busiest markets tend to be the talad nat (‘appointment’ markets). The name of talad nat comes from the fact that they are only open on certain days (usually one or two days per week). There are some talad nat that are open every day, but just not in the same location every day. The type’s talad nat market that is current available such as push-carts, balance pole, basket, small stalls or even a mat lies on the ground. These tend to be big markets with plenty of stall. Talad nats are located in every town or village and have hundreds of vendors selling fresh

and cooked food, clothing, and a wide variety of goods of all descriptions. The talads are great places to buy cooked meals that can be consumed or taken away, along with fresh meats, poultry, seafood, fruit and veggies. The produce on sale in the talad nat is fresher than in supermarkets and much cheaper. Many market traders move from site to site around the town selling their merchandise at talad nats.

Research design Sampling

Data were collected in a town of Phitsanulok province in Thailand. Three of the Thai markets were selected. Researcher intercepted shoppers at the talad nat and asked them to complete a survey questionnaire.

Measure

The questionnaires are closed questions measuring the research variables. A questionnaire containing three parts, the first part included questions about respondents’ demographic characteristics: gender, age, occupation and income. In the second part, respondents provided information on their perceived value on food purchase behavior. The third part was asked about consumer satisfaction on shopping at talad nat market. The Likert scale is used in questionnaire to obtain respondents’ degree of an importance with a statement by marking the answer on a 5-point scale ranging from 1 “least important” to 5 “most important”. The structured questionnaire is designed in a way to evaluate the main variables of this research: Independent variables: customer perceived benefit and perceived cost determinants, whereas, dependent variables: customer satisfaction. Before the survey administration, a pre-test was carried out with a group consisting of thirty customers, who shopping at street market (talad nat). The Cronbach’s alpha coefficient was calculated to ensure the reliability of the instrument by assessing the degree of internal consistency among a set of questionnaire items. The reliability assessment of each dimension ranged from 0.82 to 0.89. All measures demonstrate an acceptable psychometric property in terms of reliability estimates, thus it can be stated that the questionnaire of this particular study is reliable (Table 1)

Table 1 - The reliability test

Perceived Benefits	Cronbach’s Alpha
Product	0.87
Image	0.87
Quality	0.83
Place	0.82
Trader	0.84
Perceived Costs	Cronbach’s Alpha
Price	0.89
Time	0.86
Effort	0.82

In this study, linear regressions was used to analyze which factors consumers considered to have an effect on their perceived value and satisfaction to shopping at Thai market (talad nat). Linear regression is used to explore the relationship between the perceived values (benefits and sacrificed (independent variables)) and customer satisfaction (dependent variable). The working hypotheses are as the following: H0.1.1 - H0.1.5: there is a linear relationship between product, image, quality, place and trader, and customer satisfaction. H0.2.1 - H0.2.3: there is a linear relationship between price, time, and effort, and satisfaction.

Research results

A total of 388 respondents completed the questionnaire. The characteristics of respondents are stated as follows: 177respondents are male (46.5%) and 211are female (54.5%). 90 of sample's age is between 18and 25 (23.2%), and 79 are between 34and 41 (20.4%). 95respondents (24.5%) are students, 91are self-employed (23.5.5%). 191of respondents earns average income below10,000 Baht (49.2%) per month and 125 of respondents earns between 10,001 - 20,000 Baht per month (32.2%). Table 2 below shows the demographic data of the respondents.

Table 1 - The reliability test

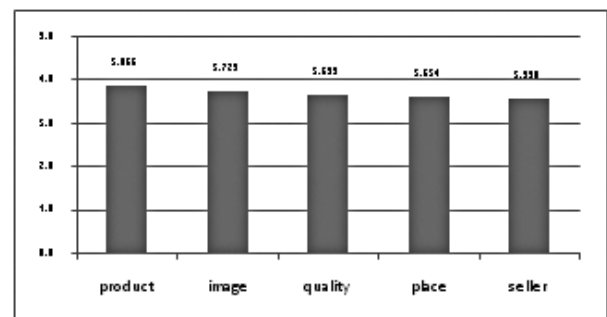
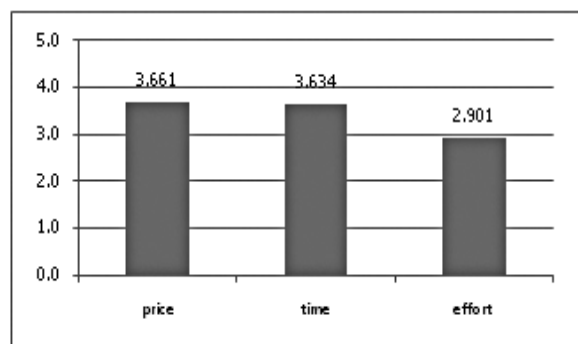
Perceived Benefits	Cronbach's Alpha
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Trader	0.84
Perceived Costs	Cronbach's Alpha
Price	0.89
Time	0.86
Effort	0.82

Table 2 Demographic Data of Respondents

Demographics		F	%
	male	177	45.62
	female	211	54.38

age	< 18	42	10.82
	18-25	90	23.20
	26-33	68	17.53
	34-41	79	20.36
	42-49	57	14.69
	50 up	52	13.40
occupation	student	95	24.50
	government official	45	11.60
	state enterprise employee	15	3.90
	self employed	91	23.50
	employee	73	18.80
	house husband or house wife	25	6.40
	farmer	24	6.20
	worker	20	5.20
salary	<10000	191	49.23
	10000-19999	125	32.22
	20000-29999	38	9.79
	>30000	34	8.76

Comparison of total perceived benefit means dimensions showed that the highest mean scores fall under the category of product (3.87). This indicates that consumer shopping at Thai market (talad nat) focus on the variety of products available which means more choices. There are various stalls that sell fresh products, whereas tradervalue dimension was



graded with the lowest (3.56) scores because if a trader is charging too much, customers will often visit another stall as there are plenty of alternatives to choose from. On the other hand, total perceived cost means showed that the highest mean scores fall under the category of price (3.67) which showed that customer concentrate with the price when they go shopping at Thai market(Figure 1 and Figure 2).

Figure1 means of perceived benefit

Table 3.1 Regression model 1 summary

R	R Square	Adjusted R Square	Std. Error of the Estimate
.350 ^a	.123	.111	.739
a. Predictors: (Constant), trader, image, product, place, quality			

Table 3.2.Regression model 1 characteristics

	UnstdCoef		StdCoef	t	sig
	B	Std. Error	Beta		
(Constant)	3.872	0.223		17.372	0.000
product	-0.188	0.075	-0.182	-2.498	0.013
image	-0.216	0.056	-0.242	-3.821	0.000
quality	0.109	0.068	0.122	1.593	0.112
place	-0.084	0.073	-0.081	-1.147	0.252
trader	-0.007	0.058	-0.008	-0.124	0.901

Table 4.1 Regression model 2 summary

R	R Square	Adjusted R Square	Std. Error of the Estimate
.308 ^a	0.095	0.088	0.749
a Predictors: (Constant), price, time, effort			

Table 4.2.Regression model 2 characteristics

	UnstdCoef		StdCoef	t	sig
	B	Std. Error	Beta		
(Constant)	3.548	0.212		16.743	0.000
price	-0.211	0.054	-0.253	-3.895	0.000
time	0.047	0.062	0.05	0.768	0.443
effort	-0.185	0.049	-0.186	-3.772	0.000

The adjusted R square in table 3.1 tell us that the model 1 account for 11% of the variance. As shown in table 3.2, the Beta coefficient of image factor is -0.188 at the significant level of 0.013 (<0.05), implying that there is significant negative linear relationship between image factor and satisfaction. This support the hypothesis H0.1.2 while the hypothesis H 0.1.1, H0.1.3, H0.1.4 and H0.1.5 are rejected.

The adjusted R square in table 4.1 shows that the model 2 accounts for 8% of the variance. As shown in table 4.2, the Beta coefficient of price and effort factor are -0.211, and -0.185 respectively at the significant level of 0.000 (<0.05), implying that there is significant negative linear relationship between price and effort factor and satisfaction. This supports the hypothesis H0.2.1 and H0.2.3 while the hypothesis H0.2.2 is rejected.

Discussion and conclusion

As hypothesized, the results of the current study confirm that only perceived image benefit value has significant effect on customer satisfaction. On the other hand, perceived costs (price and effort) have significant effect on customer satisfaction. Consumers' perceived image benefit of talad nat is important when buying grocery products because it is fresh, flavorful, and convenient friendly atmosphere. According to Goldman et al. [13] supermarkets in Asian countries are unable to dominate fresh food lines due to serious problems in handling the fresh food category. In the talad nat market, traders are able to fulfill consumer's requirements for freshness for fish, meat, vegetable and fruit. This situation cannot be experienced in modern retail outlets where most fish and meat items are frozen or chilled According to the data analysis, price is another type of perceived sacrificed. This finding indicates that most people are value sensitive that they would ensure to getting best value for money during the purchasing process. Therefore, they might check and compare the price before purchase. Respondents were found to be price sensitive probably due to the increasing cost of living which have resulted in the reduction of consumers' disposable income and affected their purchasing power [14]. In addition, consumers are willing to pay if they perceived worth value for the money or low in price [15]. This study also found that respondents' perceived effort may be related to the inconvenience hour and consumers were not willing to go out of their way for shopping at talad nat, it may need to be offset with lower prices [16]. This finding in line with Ross et al. [17] that consumer considered it an inconvenience to have to travel to a separate market for local produce. The purpose of this study is to enhance knowledge about consumer perceived benefit and perceived cost with satisfaction in shopping at Thai market. This finding shows that state own talad nat market or private own talad nat market should pay more attention to perceived image benefit and perceived price and effort as sacrificed in order to satisfy consumer shopping at Thai market.

Research limitations and future research

There are some limitations associated with this study that need to be addressed in future studies. Firstly, this study has demonstrated that customer perceived value is a significant determinant of customer satisfaction; it has not explored how the degree of customer satisfaction would change to follow the difference of customer perceived value. Secondly, customer perceived value should be further studies by focusing on a wider range of variables, possibly exploring the effect of involvement and switching cost.

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The Use of Digital Technologies in Designers' Information Activities--Beneficial or not?

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Abstract

We all nowadays live and work in highly digitized environment. Due to a great need of handling more information at real time, we make frequent use of various tools including smartphones, laptop computers, and information management solutions. Despite the continual advance of related technologies, we know little about how much better off we are from the use of such tools.

Recently a new field, personal information management (PIM), has emerged. PIM is defined as the study of the activities people perform in order to acquire, organize, maintain, retrieve and use personal information items. Rooted in a variety of research areas, a number of scholars have begun to tackle PIM issues. Their studies include issues of how we actually manage personal information and how PIM tools are used for this purpose. However, few empirical study has been found in this field. Accordingly, we attempt to determine whether or not the use of PIM tools provides users with benefits in their performance. Goodhue's task-technology fit theory is employed as a theoretical basis. An empirical evaluation will be taken aimed at creative practitioners, who ought to process a great amount of information items during their creative activity.

Keywords:

Information Activity, Designer, Digital Technology, Task-Technology Fit

Introduction

Designing is the creation of a new object. It requires considering a number of dimensions of the design object which include functionality, economic feasibility, and aesthetic. To do so, designers need to acquire much information from a variety of sources, and manage the information in order to extract new information. Kalay[9] calls designing as an information-centric activity.

Today, such information-centric activity encounters much change due to the advent of digital age and the continuity of technological advancement. Information technologies makes the acquisition and management of the information easy and cheap. Accordingly, knowledge workers such as designers are called to adopt IT tools in their work. In fact, Johnson emphasized that computer tools can be newly used as an ideation tool in design domain. Analog design tools would rather be augmented with digital capabilities [12].

As a matter of fact, there actually exist so many digital design tools. Tekk has listed the 200 best graphic, app & web design tools in his blog[17]. In addition, a set of social network service sites are widespread, including Pinterest and Flickr. Among a plethora of these design tools, designer are in a position to select and use a set of tools at will.

Does the use of multiple digital design tools give designers significant effect? What sort of design tools actually has a positive impact on design performance? What kind of design tasks is more suitable for the application of design tools? These are main research questions in our study.

A number of research fields have coped with issues of managing information by individual knowledge worker such as designer. Personal information management (PIM), which is defined as the study of the activities an individual worker performs in order to acquire, organize, maintain, retrieve and use information items, tends to focus on the management of information objects. Their main interest is to identify kinds of technologies or mechanisms that ought to be devised for people to better manage their information objects.

Human information behavior community aims to understand how people do with information. Much studied behavior

includes information seeking, organizing, re-finding, and sharing. It does not presuppose that information is acquired by using an information system and also covers non-instrumental information behavior such as asking another human.

A field of design research that is to understand and improve design processes and practices mainly deals with how technologies or tools can be applied over the various stages of designing. These research communities, however, have stayed away from the assessment of the effect of utilizing such tools on performance results.

Assessing the linkage between technology and performance has been a crucial concern within information systems community. There exist a number of theoretical framework for explaining this linkage. One plausible alternative is Goodhue & Thompson's task-technology fit (TTF) theory [8], which states that the fit between technology characteristics and task characteristics will lead to individual's utilization of the technology and consequently add value to individual performance.

In our study we apply the TTF theory to identify whether designers' use of design tools in information activities will have positive impacts on their performance. After the establishment of research model and hypotheses, we plan to conduct a survey of designers to empirically examine the linkage between technology and performance.

Related work

We here introduce a range of interrelated research before forming our research model. We identify design as an inherently information-centric activity. As designing needs to deal with various information objects, we relate designing activities to personal information management and information behavior. To understand how digital tools are applied over the course of designing, we review some of design studies dealing with the use of digital design tools. Major findings in information systems area about the linkage between technology and performance are also described.

Personal information management

Personal information management has come into the picture based on a presumption that our manner of handling information items is rather messy and problematic and with the possibility that a set of new technologies such as search and storage techniques may help us to better manage information items [16]. As a matter of fact, PIM issue is not fresh and rather renewed. Jones & Bruce [10] emphasized that double-edged issues were found from renewed interest in PIM. First, the advent of newer digital technologies

makes us believe that our messy personal information management environments may soon be brought to order. Second, we have become aware of such new tools creating new problems and possibly aggravating old problems.

There are two main research areas within PIM [5]. One avenue is prototype design study. Mostly carried out by computer science researchers, these studies have pursued to come up with an exploratory prototyping of new technologies or mechanisms directed at enhancing PIM tools or facilitating an integration with multiple tools. For instance, [7], on the premise that creative practice requires a better integration of information items on project-specific task instances with information items related to the practitioners' interests over the course of a life or career, presented a prototype system called 'Associative Scrapbook'. Besides, a number of other studies have suggested technical solutions in order to eliminate or reduce PIM problems [21, & 3].

The other avenue is empirical studies about the usage of PIM. Capra [6] took a survey to understand how people manage personal information and transfer information among electronic devices. Cross-tool usage was investigated by Boardman & Sasse, [5] A number of studies were taken to assess the usage of PIM tools [18, & 20].

Though PIM research provided a considerable amount of contribution to an understanding of how people use PIM tools over the course of work or life, it seems to have limitations that it focuses on information objects such as email, file, and documents and it hardly covers the assessment of effect of PIM tools on performance results.

Information behavior

Information behavior community is to identify how an individual or group of individuals can do with information. Such behavior mainly includes information seeking, which refers to the way people search for and utilize information. The birth of this concept has a close connection with Wilson's work. Wilson [22] first coined the term of information seeking behavior and later in 2000 used the concept of information behavior to describe the totality of human behavior in relation to information [23].

While PIM's focus was on technology or tools, information behavior is directed at the person and the activities. Researchers mainly from library science or information science employ a variety of research models available in multidisciplinary areas such as cognitive science, anthropology, and psychology.

With research results of information behavior, we have become to be able to understand about human information behavior. However, the use of tools or technologies is dealt with as a secondary issue.

Design studies

As digital tools have come into the picture in design domain, design studies community started to look at the use of digital design tools. Kalay [9] studied impacts of information technologies on design activity. A comparison of traditional tools vs digital tools in sketching activity [4] and synthesis strategies of graphic designing [15]. Moreover, Oxman [14] emphasized that, in order to use digital tools effectively, digital thinking may be needed.

Information systems

Information systems area aims to explain how business organizations adopt and utilize new technologies for better performance. Its two major concerns are whether systems delivered are being utilized and how much the use of systems improves the business performance. Each of them is described more specifically as below.

Why users adopt and employ a certain technology is a major research question in the IS community. As expected, the community has proposed models to explain individual adoption and use of technology.

One of the earliest and most fundamental models is the theory of reasoned action (TRA) developed by Fishbein & Ajzen [13]. Drawn from the field of social psychology, the model asserts that a person's behavior can be determined by his or her behavioral intention to perform; such an intention can be explained by the person's attitude and subjective norm toward the behavior. Ajzen developed the theory of planned behavior (TPB) by adding the construct of perceived behavioral control, which is defined as "the perceived ease or difficulty of performing the behavior" [1].

The most renowned model is the TAM [Davis, 1989]. Grounded in the TRA, the TAM takes a restrictive approach. That is, the adoption intention can be explained by two specific belief constructs: perceived usefulness (PU) and perceived ease of use (PEOU). Furthermore PEOU is expected to have a positive association with PU.

Because of its simplicity and strong theoretical foundation, the TAM has been applied to a wide range of technologies and users. Subsequently, extensions or revisions to the TAM have been made in subsequent studies. TAM2 [19] and the unified theory of acceptance and use of technology (UTAUT) are good examples [19]. To compare these models, King & He [2006] determined through a meta-analysis using 88 published TAM studies that the original TAM is a powerful and robust predictive model.

An initial adoption of technology does not guarantee its continuous use. After a technology or an information system has been accepted and made available to users for performing their work activities, they may discontinue using it or apply it in a way that deviates from the original usage mode. In this regard, Bhattacharjee [2], by differentiating initial and post-adoption behaviors, developed the IT continuous use (ICU) model. According to this model, the intent to continue using a technology is determined by both perceived performance and post-adoption satisfaction, which are influenced by initial pre-usage expectations.

Whether the use of information technologies produces positive results as expected is the second major question. IS researchers have dealt with this issues very extensively. There exist many models and frameworks. Some of them deal with organizational performance as a whole and some with individual performance. One widely accepted theory is Goodhue & Thompson's task-technology fit (TTF). The theory says that the fit between technology characteristics and task characteristics will lead to individual's utilization of the technology and consequently add value to individual performance [8].

Despite much contribution regarding the application of technologies in organizations and individuals, this community did not study intensively the domain of knowledge workers such as designers in creative industries.

Research model and hypotheses

Research model

The objective of this study is to determine whether using a set of digital design tools actually leads to better design performance. We believe it is highly reasonable for us to apply the TTF theory. The theory states that, no matter of how advanced the technology is, the technology must fit tasks it is intended to support. Task-technology fit is the degree to which a technology assists an individual in performing his or her tasks. It is expected that such fit will help individuals to accept and utilize the technology and consequently produce a positive effect on their performance.

Goodhue & Thompson [Goodhue & Thompson, 1995] have indicated that the theory can be directed at not only a specific system but also the entire set of systems. In this regard we can also apply the theory in design environments where designers are utilizing literally tens of digital tools in their tasks.

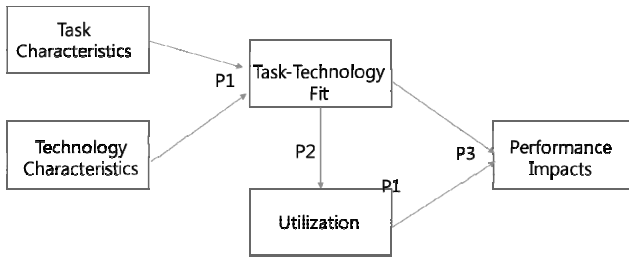


Figure 1. Research model

Our research model is given as shown in Figure 1. Hypotheses from the model are as follows.

- H1: Do task and technology characteristics predict task-technology fit?
- H2: Does task-technology fit predict utilization?
- H3: Does task-technology predict performance impact better than Utilization alone?

Plan of empirical survey

We plan to conduct a survey of designers. Types of designers to be surveyed include product designers, graphic designers, and fashion designers. All these professionals are regarded as the typical designer. By encompassing these different types of designer, it is hoped that we may be able to identify whether designers in different professions may do different information behavior with regard to the use of digital design tools.

We are going to conduct the survey at two different geographic countries, USA and Korea, with an intention to check if there is any difference in the use of digital design tools from one geographic region to another.

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A Case Study of New Competitive Dynamics of Transient Advantage in the Korea Cosmetic Industry

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Abstract

The increasing transient nature of advantages has been attributed to numerous causes, including technological change, globalization, industry convergence, aggressive competitive behavior, deregulation, the privatization movement stimulated by governments or hedge funds, government subsidies, the rise of China, India, and other emerging countries, the increase in availability of patient venture capital money, terrorism, global political instability, the pressure of short-term incentives for senior executives to produce results, etc.

The purpose of research is to develop theory and empirical evidence about how organizations can successfully compete, evolve, and survive when firm-specific advantages are sustainable or enduring, but more transient in nature. The primary goal is to ask what the field of strategy would look like if sustainable competitive advantage did not exist. The research provides rich description of the cases analysis, respecting their strategy and transient advantages

Keywords:

sustainable competitive advantage, transient advantage, competitive dynamic model

Introduction

The creation and management transient advantage has emerged as an alternative to sustainable models of competitive advantage in the strategy literature. Almost since the onset of strategic management scholarship, the field has assumed that sustainable competitive advantage exists (Rumelt, Schendel, and Teece, 1994). Considerable effort has been dedicated to defining and empirically demonstrating the existence of sustainable advantage. However, recent studies have begun to suggest that sustainable competitive advantage is rare and declining in duration (Ruefli and Wiggins, 2002). Other studies have found anecdotal and more rigorous empirical evidence of the concatenation of transient advantages [1 & 2]. And there is growing empirical evidence that the volatility of financial returns is increasing, suggesting that the relative importance of the transient (volatile) component of competitive advantage is rising when

compared to the long run component of sustainable competitive advantage [3]. Finally, there is increased attention to the ethical consequences of the sustainable advantages derived from monopoly positions and oligopolistic behavior [4].

Considerable thought has also been given to the idea that continuous strategy innovation is necessary in disruptive environments. The core argument of this stream of enquiry is that the unremitting pursuit of strategic change is necessary for success, especially in nascent, emerging, high-tech, or other high velocity environments, where the structure and the rules of the game are unstable or erratic [1].

Interestingly, some argue that disruptive environments never reach maturity; they self-reproduce, cannibalize, innovate, and self-perpetuate by incessantly innovating, reviving, and reinitiating the initial stages of different waves of industry and product life cycles (Christensen, 1997). The authors in this research stream implicitly suggest that sustainable advantage does not necessarily exist, except for saying that dynamic capabilities and organization flexibility can occasionally be sources of sustainable advantage. Yet, there is no consistent body of evidence that dynamic capabilities are sustainable over extended periods of time and in different contexts, and there is some evidence that initiative fatigue or complacency and inertia undermine the sustainability of dynamic capabilities. Accordingly, firms can either become exhausted by continuous transformation and innovation or get complacent by success and turn out to be blinded and myopic to requisite environmental change [5].

The purpose of research is to develop theory and empirical evidence about how organizations can successfully compete, evolve, and survive when firm-specific advantages are sustainable or enduring, but more transient in nature. The primary goal is to ask what the field of strategy would look like if sustainable competitive advantage did not exist.

Research background

What is transient advantage?

As the environment becomes more dynamic and disruptive through both exogenous and endogenous changes, it perhaps becomes appropriate to define strategy as dynamic maneuvering—moves and counter moves—rather than static positioning, such as resources, routines, capabilities, generic strategy, industry structure, strategic groups, etc. [6]. When such a view is taken, the value and duration of a move perhaps lasts only as long as rivals do not outmaneuver it. The literature on the delay or rapidity of competitive response finds that industry leaders are dethroned more frequently than is commonly believed [7 & 8], that more aggressive firms are more successful [9] and that Red Queen competition exists whereby rival actions cut into the performance of the acting firm requiring new action to keep pace [1 & 10].

This perspective suggests that firms are incentivized to take a variety of different kinds of actions to actively destroy their own and the advantages of rivals. In fact, the vigorous pursuit of a series of transient rents becomes the enticing strategy from this viewpoint. This recalls models of strategy eventually purporting that firms do not stick with just one advantage over their lifetime [11 & 12]. Such strategic behavior focuses on continuously matching the rapid evolution of the firm with a rapidly evolving environment, suggesting the relevance of the learning school [13], which emphasizes how firms incorporate input from the environment and adapt over time.

But is the capability of learning a frequently observed phenomenon that yields sustainable advantage or does learning stop when firms learn a successful formula and turn it into an immutable paradigm? And, how should firms learn in conditions where prior advantages are quickly eroded? The learning literature suggests there is tension between top-down or theory-driven learning based on accumulated experience over time versus bottom-up learning that is based more on the result of immediate action [14]. There are also a number of important issues related to how firms transition from one advantage to the next. For example, how do firms manage the timing and transitions from one advantage to another as they learn? When should they begin these transitions? Should they plan for the next advantage prior to the erosion of an existing advantage? How can firms avoid cannibalization of an existing advantage while creating a new advantage? Is there path dependence across a firm's sequence of advantages or are the sequences truly unpredictable and responsive to unpredictable change? In sum, strategy in today's environment is analogous to a marksman who is shooting at a moving and very unpredictable target [4].

Skill and capabilities are needed, but instincts are necessary too, and the shooter's strategy must be fine-tuned unrelentingly to adjust to the moving target. Finally, as environments get more dynamic, they become more unpredictable and uncertain, making the creation of intended, planned strategies more difficult. Strategic planning models were origi-

nally conceived for conditions of stability. In fast changing environments where unexpected changes occur, strategic planning is inevitably fated to fail [13].

How do organizational structure, culture, and processes transform themselves so as to be capable of concatenating a series of short-lived advantages? More than engaging in old-fashioned formal planning, firms need to engage in a continual evaluation of their actions, developing a strategy as they go by seeing which actions bring about the best results [6]. Others have gone so far as to suggest that finding sustainable advantages in unpredictable environments is more a matter of luck—requiring firms to be lucky as numerous unpredictable competence destroying disruptions thwart their plans.

New competitive dynamic model

As we think about the consequences of rapidly changing turbulent environments and the management of transient advantage, one must also consider the appropriate unit of analysis for research study. For example, much of the research in industrial organization economics and RBV was largely developed using longitudinal panel data based on public archival annual company or industry/environment data.

But what if changes in firm, environment, and performance relationships are more dynamic, varying more frequently than can be captured with annual data? What if such relationships are moving by the month or even by the week? If such dynamics occur, important relationships might be masked with annual data. The competitive dynamics research stream focuses on the specific actions of firms, which may occur at multiple times within a given year, month or week. As noted, such actions have been linked to rival reactions and to more coarse-grained measures of firm capabilities, such as top management characteristics and excess slack resources. Still, it is fair to conclude that the competitive dynamics research has suffered from aggregating actions over a given year so as to link such actions to firm capabilities and annual performance data only available at the year/firm unit of analysis.

One exception is the study by Lee et al. [15] where the authors linked new product introduction actions occurring on a given announcement date to rival imitation and the firm's stock prices immediately after. The authors found that new product introductions had a positive significant impact on stock prices immediately after the introduction for the introducing firm, but that stock prices were also negatively affected by rival imitation. The use of daily stock prices allowed the authors to capture the Schumpeterian creative destruction effect: the positive effects of innovation and the negative effects of rival response. Livengood [16] tested certain aspects of Smith and Cao's [9] entrepreneurial action model. With an eight-year study of new product intro-

ductions (entrepreneurial actions) by cell phone providers, the author found that the greater the novelty of the action, the greater the amount and duration of discourse by market participants (as measured by news media attention). Importantly, he also found that the novelty of the action and the varying amounts of discourse—both the amount and duration—predicted variation in monthly cell phone sales. The unit of analysis was the product introduction followed by discourse measured at the monthly level, followed by monthly cell phone sales. Livengood found that the greatest positive change in sales was immediately after the peak in discourse and that it declined thereafter.

As illustrated in figure 1, during the launch process, a firm organizes to grasp a new opportunity. During launch, opportunities are identified, resources allocated, and a team is assembled to create something new. This is where innovation comes in. If the opportunity gets traction, the advantage begins to enjoy a period of ramping up: from the initial few segments, more and more are captured, and the business gains ground. Systems and processes to get the business to scale are implemented. Experiments become full-scale market introductions. Speed is often critical here: ramp up too slowly, and competitors can quickly match what you are doing and destroy differentiation.

After a successful ramp-up, the company can enjoy a period—sometimes quite a long period—of exploitation, in which the business is operating well and generating reasonable profits. During the exploitation phase of a transient advantage, a firm has established a clear point of differentiation from competitors in a way that its customers appreciate and is enjoying the benefits. During exploitation, market share growth and profitability typically expand, more and more customers are adopting, prices and margins are attractive, and competitors see organization as the one to beat. The goal is to understand how this period can be extended for as long as possible while simultaneously being mindful that it will eventually erode.

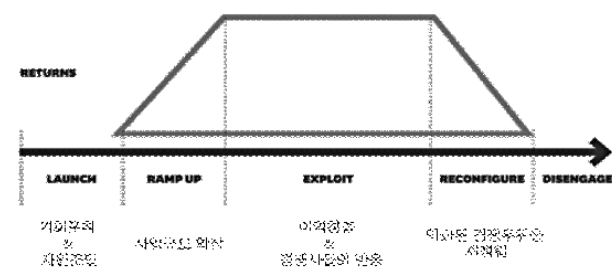


Figure 1 The Wave of Transient Advantage

Managing the exploitation phase well means focusing on those few key areas in which a firm has achieved meaningful competitive separation. Within those spaces, manage competitive moves and countermoves, build highly scalable competencies for the next innovation, make sure that new

advantages are eventually integrated into the firm's core offerings as a legitimate part of the company, and remain alert to threats and opportunities from different areas. One really wants to prevent excessive build-up of assets and people during the exploitation phase, because these will create barriers to moving on to the next advantage. Even as the existing advantages are generating good results, leaders need to be pulling assets and resources out of them to create resource space for the next advantage.

With transient advantages, the existing model will always come under pressure, suggesting the need for reconfiguration and renewal of the advantage. The reconfiguration process is central to succeeding in transient-advantage situations, because it is through reconfiguration that assets, people, and capabilities make the transition from one advantage to another. During reconfiguration, teams that might have been engaged to ramp up or exploit an advantage are shifted to some other set of activities, assets are changed or redeployed, and people move from one assignment to the next. Rather than viewing such reconfigurations as negative as they often are in a sustainable-advantage context, they are taken for granted as necessary and useful in a transient-advantage world.

Finally when an advantage is exhausted, the opportunity undergoes a process of erosion, suggesting the need for disengagement. Through the disengagement process, a firm disposes of the assets and other capabilities that are no longer relevant to its future, either by selling them, shutting them down, or repurposing them. The objective is to manage this process gracefully and quickly. Long, drawn-out disengagements do little more than consume resources without making the end result any more pleasant. In a transient advantage context, unlike a conventional one, disengaging is not confused with business failure. Indeed, disengagement can and should take place when a business is still viable, rather than when a desperate organization has no other choice.

Mcgrath(2013) suggested that company that want to create a portfolio of transient advantages need to make eight major shifts in the way that they operate.

1. Think about arenas, not industries
2. Set broad themes, and then let people experiment
3. Adopt metrics that support entrepreneurial growth
4. Focus on experiences and solutions to problems
5. Build strong relationships and networks
6. Avoid brutal restructuring ; learn healthy disengagement
7. Get systematic about early-stage innovation
8. Experiment, iterate, learn

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Research model and methodology

The following AMOREPACIFIC vs. LG Household & Healthcare case study illustrate the use of transient advantages to compete in competitive business environment.

Household goods industry analysis

Market trends

First, to introduce the characteristics of household goods industry are from several aspects, Household goods are seen as low involvement products, commodity. And for styling and cleansing every day, as a part of the necessities of daily life, once their market share, sales volume is very stable, there will not be a big rise up or down range. In Korea, there are a specially patterns about the household goods. People like makes up several kinds of products like shampoo, rise, toothpaste and soap as a gift set and send to each other as the holiday gift. This habit is nationwide. Therefore, the products during the holiday season will increased on sale. From the view of PLC, household products are in the position of mature period, in other words, the household goods companies are in a very competitive environment.

There are many suppliers and chancing the structure of distribution. he efforts for the new market overheated Market due to declining of consumer's purchasing power and competition among competitors. Therefore, many new entries are try to develop new premium markets by launching well-being products, and bring extra value to consumers. For instance, Amway household chemicals developed a number of functional products, Amway Glister toothpaste is one of very famous products in anti-carries and white terms. A Korea company Atom Beautiful, they developed many functional household products and cosmetics as well. The market trends have had favor on Market Differentiation and entering niche market by the differentiation of consumer's needs. So the existing companies are hard on develop the premium products.

Household products: Poter's five-forces analysis

Intensity of competitive rivalry: When exit barriers are low, weak firms are more likely to leave the market, which will increase the profits for the remaining firms. Low exit barriers are a positive for household products. When storage costs are low, competitors have a lower risk of having to unload their inventory all at once. Low storage costs are a positive for household products. And large industries allow multiple firms and produces to prosper without having to steal market share from each other. Large industry size is a positive for household products. Few competitors mean fewer firms are competing for the same customers and resources, which is a positive for household products.

Threat of new entrants: When the learning curve is high, new competitors must spend time and money studying the market before they can effectively compete. High learning

curves positively affect profits for household products. High sunk costs are another aspect that makes it difficult for a competitor to enter a new market, because they have to commit money up front with no guarantee of returns in the end. High sunk costs positively affect household products. And Economies of scale help producers to lower their cost by producing the next unit of output at lower costs. When new competitors enter the market, they will have a higher cost of production, because they have smaller economies of scale. Economies of scale positively affect household products. If existing competitors have the best geographical locations, new competitors will have a competitive disadvantage. Limiting geographic factors positively affect household products. When barriers are high, it is more difficult for new competitors to enter the market. High entry barriers positively affect profits for household products.

Threat of substitute products or services: An inferior product means a customer is less likely to switch from household products to another product or service. A lower quality product means a customer is less likely to switch from household products to another product or service. When products and services are very different, customers are less likely to find comparable product or services that meet their needs. This is a positive for household products. A limited number of substitutes mean that customers cannot easily find other products or services that fulfill their needs. Limited substitutes are a positive for household products.

Bargaining power of consumers: The bargaining power of consumers is very high. In terms of the household products is in a position of mature period in the PLC, there are a number of products for consumers to choose, and the most important one is until now, the household products is not high end product even though there have small part of premium market share. So it is not positive for household products industry.

Bargaining power of suppliers: When there are a large number of substitute inputs, suppliers have less bargaining leverage over producers. This is due to competition among substitutes. Greater competition positively affects household products a low concentration of suppliers means there are many suppliers with limited bargaining power. Low concentration of suppliers positively affects household products. The easier it is to switch suppliers, the less bargaining power they have. Low supplier switching costs positively affect household products. When suppliers are reliant on high volumes, they have less bargaining power, because a producer can threaten to cut volumes and hurt the supplier's profits. This can positively affect household products.

Cosmetic industry analysis

Market trends

In Korea, Cosmetic industry as a typical domestic industry, it has several characteristics. First, it affected by domestic

economic trends and private consumption. (See Exhibit) As the Statistical data of Kookmin Investing Stock, As can be seen that from the year 1998 to 2013, it showed that cosmetic industry have similar trends compared to GDP growth trends. As we all know, cosmetic is not necessary as commodity. When people's living standards improved, after satisfied with the most basic needs for survival and then it will enter the next stage of the pursuit of higher living standards. Therefore, the cosmetic industry is very sensitive to the changing of consumer's buying power.

In another perspective, cosmetic industry is a high value-added industry. Mostly, companies are concentrated on R&D portion and to and to compare with manufacture cost including the raw material and package etc., the profit is very high. What is most import for a brand is to make prestige just as same as luxury products. With the globalization and Korea is deeply influenced by foreign culture. Import high-end brands are very popular in Korea market, and it particularly charged the large quota in department store. Therefore, this is the most important fact led the declaration of domestic cosmetic profitability.

Due to cosmetic industry is tech-intensiveness and small batch productions, it is very difficult to imitate both technology and ingredient. Many companies have had developed genetically and other bio technologies into cosmetic especially in skin cares in recent years. Cosmetic industry has made incessant advanced in R&D and try to develop new technology. But cosmetic's PLC is very short owing to trends and consumer's preference makes small quantity and batch products. It is very frequently on new product development.

Cosmetic industry: Porter's five-forces analysis

Threat of new entrants: The cosmetic industry has a low threat of new entrants. This is due to several factors. The first is the huge costs of entry. Developing unique cosmetic products requires a lot of resources both in terms of research and development and the actual manufacturing process. Few middle and small scale firms have access to the funds and expertise required to perform this effectively. Another factor which discourages entry into this industry is the huge competition present in the industry. In addition to the huge competitors such as Avon, Revlon, Clinique, Estee Lauder, LR, Mac and Unilever, who have a large market share, there are many other small scale competitors who also have a small market share and who reduce the overall profitability of firms in the industry.

Bargaining power of customers: The bargaining power of customers analyzes the power which consumers have relating to price changes in the industry. This factor analyzes the power which consumers have in manipulating price changes due to shifts in demand. When consumers have a high bargaining power, the manufacturers and sellers may not adequately predict future demand by the market. This may make them unable to achieve long term profitability due to unpredictable demand patterns.

The cosmetic has a high bargaining power of customers. This is due to the increase competition and availability of cosmetic products from a variety of manufacturers. Since these products have high substitutes, then it is possible for consumers to force manufacturers to reduce their product prices through purchasing those of their competitors. This is a challenge which manufacturers of cosmetic products face across the world.

Bargaining power of suppliers: This factor analyzes the power which suppliers have regarding making price changes for their products. Suppliers who have a high bargaining power are able to influence price changes through using techniques such as market manipulation through hoarding and restraining supply. Although some of these strategies are illegal in many countries, suppliers usually apply them when they want to effect price changes. The cosmetic industry has a low bargaining power of suppliers.

This is due to the high number of market players and large supply of diverse products to the market. There are many cosmetic products which are developed by both large and small scale manufacturers. Due to the huge supply, consumers have the power to influence the market prices as opposed to the suppliers.

Threat of substitutes Products or Services: The threat of substitutes arises when there are similar products developed by competitors which satisfy the market needs. When consumers have access to substitute products which can satisfy their market needs, then manufacturers and suppliers lose their bargaining power. Consumers are able to purchase competitor's products if they are not satisfied with product price or quality. In order for suppliers to tackle the challenge of threat of substitutes, they have to develop products which meet the needs of their target market segments.

In the cosmetic industry, there are many competitors as has been discussed. There is therefore a high threat of substitute products. If manufacturers sell their products at higher prices, or if the products are of low quality, then consumers are able to purchase substitutes from the many competitors who are present in the market environment. It is therefore essential for the market players in the cosmetic to be innovative if they are to tackle the challenge of the threat of substitute.

Intensity of Competitive Rivalry: Due to the high costs associated with developing cosmetic products, it is difficult for firms to leave the industry without achieving the costs for production. There are also many machines and equipment used in developing cosmetic products and disposing these at a fair market value is difficult hence making it an exit barrier.

New Competitive Dynamics : Transient Advantages

From the management point of view the two companies have different operation method. AMOREPACIFIC is said to be the founder of the Korean cosmetics business. It is an over 70years history company. With the first-mover advantage until now AMOREPACIFIC is still charge the leading position of cosmetics companies in Korea. Amore Pacific The CEO Kyung-Bae Suh was inherited his father. Amore Pacific's brands include almost all house brands; each brand was very stable from the creation to the development and growth through a number of columns evolving process. AMOREPACIFIC has been gradually based on conservative business method in order to steady development. While to follow the fast pace in today's society, M&A as rapidly evolving business strategy today, AMOREPACIFIC were also tried M&A, but they seems not very good at it, 2 out of 3 M&A were failed. So for AMOREPACIFIC the CEO Suh is preferred to keep their conservative management style.

Otherwise, LG Household and Health Care as the latecomer of cosmetic field, to expand the market share in this area, it has been lost in time. But at the beginning there are many benefits to follow the winner, it can avoid some unnecessary risks, and get the second mover advantages. The CEO of LG Household and Health Care Suk-yong Cha was very active on using different kinds of strategies in order to make company bigger and bigger. LG Household and Health Care were utilize the M&A boldly, and success. CEO Suk-yong Cha is good at utilizing and seeking every opportunity from K-POP and make correct judgment. There LG Household and Health Care developed very fast and became the second biggest cosmetic company in Korea to compete with Amore Pacific.

Building an innovation proficiency

In Korean market, the both companies, AMOREPACIFIC and LG Household & Health Care, are leading the local market. Of the two, AMOREPACIFIC is maintaining the first leader based on their brand awareness. But, the gap is gradually reducing.

Become conglomerate less and extend their business area than other top companies in Korea. AMOREPACIFIC has the goal for being the leading company with having the motto of "Asian Beauty Creator" by 2020. As one of the action plan strategy for reaching the goal, the company is doing aggressive business expansion to ASEAN countries based on their prestige brand "Sulhwasaoo", with utilizing their test market in Singapore. AMOREPACIFIC plans to more use their premium image for several ASEAN countries. Now, the company has entered a few duty-free shops and department stores in Indonesia, targeting the upper class focusing on one of their brand, "LANEIGE". They targeted the premium market with making their brand to be luxurious based on the positive prospect of the economic growth and Korean wave's good effect in the region. AMOREPACIFIC entered the twelve countries across the world and largely targets Asia and U.S market with operating the fifteen local subsidi-

aries. The company is doing their cosmetic and household items businesses there and mainly focusing on the cosmetic business. From now on, the growth of the cosmetic industry in emerging market, especially Asian market, is expected to be accelerated while developed countries such as North America and Europe is downsizing from the economic recession. Therefore, most companies are currently trying to enter the Asian market and the competition seems to be intensified. In this situation AMOREPACIFIC is striving to do localization strategy on each market based on their main brands such as “Sulhwassoo”, “LANEIGE”. And mostly they are making an effort to make their brands be prestigious. As the entry mode, AMOREPACIFIC is largely doing the global business through exporting their products produced in Korea until now.

As an AMOREPACIFIC’s human resource management system, there is a distinctive characteristic that they are excellent in equal rights for both sexes. To be specific, there is no different wages between men and women in the same type of occupation and same position. Also, AMOREPACIFIC guarantees maternity leave and come back to their office. They offer woman employees not only maternity pay but also additional 60% wages of the common wage. Furthermore, in the office life, woman employees are able to use women exclusive lounge in which nurses always reside in. And AMOREPACIFIC is operating ‘Smart Working Time System’ in which employees can selectively come to work between 7 AM to 10 AM. Also, there is counseling agent for victims of sexual violence. Because of these AMOREPACIFIC’s gender equality efforts, they gained recognition from the Korean Ministry of Employment and Labor. So, AMOREPACIFIC were awarded with prestigious President Award (Lee, 2012). In fact, AMOREPACIFIC’s woman employees’ main job arrangement rate is high and so, talented women employees will be able to show their ability with no differences in the company’s supports with various policies and systems.

Healthy disengagement

LG Household & Health Care is the company which is producing and selling the cosmetic and household items. Their producing and selling category is a lot similar with AMOREPACIFIC as well as the competing markets so the company is a strong competitor to AMOREPACIFIC. Based upon their various product categories, LG Household & Health Care is gradually expanding the overseas market. From now, the competition between both companies is expected to be fierce in domestic and overseas market. Both two companies are focusing on the localization strategy through operating local subsidiaries. LG Household & Health Care are also doing their business based on their three production subsidiaries in China and Vietnam and each sales subsidiary in China, Taiwan and U.S. As the same way of AMOREPACIFIC, the company is making an effort to enhance the adaptability in the local market by developing their products for the local consumers.

On the other hand, there is difference between both companies about how to localize the each market. AMOREPACIFIC refrains from the short-term expansion and they more emphasize on the localization in the long term perspective. It shows from hiring local employees with the natives in every country more than 90%. In this respect, AMOREPACIFIC has a bit negative point of view based on the long term strategy. However, LG Household & Health Care is more focusing on M&A with local companies as the aggressive management and taking the business line products through developing the brands which is appropriate in the local market. Besides, they put the emphasis on the stable performance by strategies of business diversification.

Continuous reconfiguration: Distribution channel differentiation

In domestic market, the sales through departments or other high price channels were increased as 2~3% (Ko, 2012). Also, the sales through duty-free stores are growing as 15~ 20% and it is expected to grow constantly. For several years, these high price channels of departments and duty-free stores were growing over double digits as expanding needs of high price cosmetics by 20~30s customers. On the other hand, the sales rate of middle low cosmetics was reducing 5% annually due to customers’ breakaway as expanding brand specialty stores. Therefore, it is not efficient for achieving the vision to focus on middle low cosmetics. In the short run, it is expected that departments as high price sales channel concentration phenomenon will be intensified due to the polarization of consumption. And it is expected that department store sales channels will grow 10~20% more. So each brand of cosmetics is expanding luxury products as high-end strategy. As a result, the overall sales unit costs will be increased. Therefore, AMOREPACIFIC has to strengthen high price product line which creates high margins. But due to FTA between Korea and U.S, Korea and EU, the competition between imported cosmetic companies and domestic cosmetic companies will be intensified more and more than before (Ko, 2012). The domestic market is growing with high rate but there is an unfavorable trade balance and imported cosmetic companies’ proportion is still remained as high. Especially importing of functional cosmetics was increasing from 14.9% in 2008 to 16.4% in 2011. These imported cosmetic companies are mostly famous global brands, and the revenue of 3 high ranked companies account for more than 50% among 100 companies. That means that the famous global cosmetic companies are the strong competitors that AMOREPACIFIC has to keep strict watch in not only domestic market but also global market. Therefore, AMOREPACIFIC has to make countermeasures for easing monopolistic imported sales structure by global brands, establishing a solid foothold in high price cosmetic market, which is growing at the same time. AMOREPACIFIC has been stably grown in the door to door sales channels and department store channels based on differentiated customer services and sales way and launching a successful new luxury brand product. Also, AMOREPACIFIC’s duty-free channels have achieved high sales growth

by expanding the influx of the new customers. Also, in the premium product market, “Sulwhasoo” and “Aritaum” have been grown by expanding their distribution channels and by selling a hot item which satisfy customers’ want and needs (AMOREPACIFIC, 2011). In addition to these, AMOREPACIFIC is continuously growing with succeed in online and home shopping sales, which are the new growth power of future business. AMOREPACIFIC has been stably grown in the door to door sales channels and department store channels based on differentiated customer services and sales way and launching a successful new luxury brand product. Also, AMOREPACIFIC’s duty-free channels have achieved high sales growth by expanding the influx of the new customers. Also, in the premium product market, “Sulwhasoo” and “Aritaum” have been grown by expanding their distribution channels and by selling a hot item which satisfy customers’ want and needs (AMOREPACIFIC, 2011). In addition to these, AMOREPACIFIC is continuously growing with succeed in online and home shopping sales, which are the new growth power of future business.

Department stores showed a growth of 16 percent compared to the previous year, however, this can be partly attributed to the price increase in imported cosmetic products. On-line sales and TV home shopping sales show continuous growth as people are more familiar and spend more time in such media. Premium products are mostly sold at department stores or through door-to-door salespeople. Imported brand cosmetics have been sold mostly at department stores and there is a recent movement of imported brands to diversify distribution channels into specialty stores and on-line shopping malls.

Mind-set of companies facing transient advantages: overseas expansion

As cosmetics are recognized as one of the essential consumer products, the market is growing fast regardless of economic conditions. The domestic cosmetics market has grown 10% annually on average for the recent three years, amounting to 7.4 trillion won in 2009. As cosmetics are gradually recognized as one of the essential consumer products, the market is growing fast regardless of economic conditions. Consumption bipolarization has also contributed to the growth of both premium and affordable cosmetics brands.

Premium cosmetics and brand shop cosmetics has led a fast growth trend in the overall cosmetics market. The premium cosmetics market, accounting for 50% of the domestic cosmetics market, has grown by double digits on average for the recent three years. Top two domestic cosmetics companies and import cosmetics companies have led such growth. The brand shop cosmetics market has grown nearly 30% annually on average for the past three years due to strengthened product line, increased participation by large companies, benefits from economic slowdown, etc. However, as leading companies have increased their market share, brand shop cosmetics companies which have entered late into the market and new starters are competing fiercely. The online and home shopping cosmetics market is small in terms of

distribution channels. However, since entry barrier is relatively low, mid-to small-sized cosmetics companies are actively enter into the niche market of the cosmetics industry, contributing to the growth of the domestic cosmetics market.

Conclusion

The increasing transient nature of advantages has been attributed to numerous causes, including technological change, globalization, industry convergence, aggressive competitive behavior, deregulation, the privatization movement stimulated by governments or hedge funds, government subsidies, the rise of China, India, and other emerging countries, the increase in availability of patient venture capital money, terrorism, global political instability, the pressure of short-term incentives for senior executives to produce results, etc. There is no evidence, however, about the real drivers of transient competitive advantages and the increased volatility of returns. What are the endogenous antecedents of various kinds of transient advantages? It would seem especially important to identify the extent to which a firm’s own decisions, competitive actions, and behaviors undermine its advantages and what motivates such behavior? What are the exogenous antecedents of various kinds of transient advantage? In this regard, it would seem important to study the role of industry structure and industry boundaries. For example, how does the convergence of industries and competing business models from converging industries contribute to the erosion of advantages? Furthermore, how and why do different industry structures contribute to the speed of erosion? Finally, are controllable or uncontrollable causes more important? Answers to these questions are necessary to understand whether there are ways to slow the accelerating depreciation of advantages over time and which strategic solutions are possible. Through a case study approach of AMOREPACIFIC vs. LG Household & Healthcare, this the study has focused on the transient advantage and the new competitive dynamics model and competitive performance by proposing and testing a practical effectiveness that explicitly articulates the role of transient advantages for strategic competitiveness that in past research received attention only sustainable advantages.

There are several limitations of this study. First, our sample were particularly two case, they are unclear how well these results would generalize to a broader sample. At the same time this research has focused on a single dimension of industry and business model and implemented it in just two cases. To clarify these problems and broaden this study, much in-depth empirical work remains to be conducted before a general theory can emerge.

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Learner's Cognitive Engagement with Interactive e-Books

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Abstract

The objective of present study is to examine whether different types of supplemental e-books, interactive versus non-interactive, will engage a learner's cognition differently. Also, whether learning engagement resulting from using different types of e-books will affect learning effectiveness differently? Survey data will be collected from learners of an online business course. Only the module on "Present Value and Future Value" has been chosen. The samples comprise two groups of students, one with interactive e-book supplement and another with non-interactive. Study framework with detailed research instrument development and methodology are provided in this manuscript.

Keywords:

Interactive e-Book, Cognitive Engagement, Learning Effectiveness, Digital Literacy, Learning Style

Introduction

E-learning has been a major role in education nowadays. The market share of e-learning in the past 5 years has grown about 9.2% [18]. Many companies develop their own e-learning as a tool for training their personnel. Many renowned educational institutions, on the other hand, extend their student bodies by offering e-learning in the form of distant education. The need for e-learning platform appears to be necessary, especially for open universities. For close universities, the development of e-learning platform may serve other purposes, for example, to alleviate congested classroom environment, to boost interdisciplinary education, to move to flipped learning pedagogy, and so on.

The present study focuses on an e-learning initiative called the "CBS Innovative Business Online" offered in a large public university in Thailand. The objective of this initiative is to facilitate campus-wide cross disciplinary education where students from engineering, medicine, arts, and so on can learn an online course in business whenever they want. The course was developed to help students learn general business concepts. The course is comprised of 14 business related topics/modules. In the present setup, a teacher will prepare and deliver the module content using a video

clip. After watching the video clip, students will be asked to take a quiz. Unlike regular classroom instruction, no materials and supplemental books are provided. Once the students finish all modules, a comprehensive examination will be given and the students will earn a pass/fail credit toward their degree.

Educators are interested in the question of how to engage a learner to learn. This is true for both face-to-face classroom instructions and online classes. In each class session, a student can learn from watch, listen, and think during taking lesson. In normal classroom setting, students often have reading materials to enhance their learning while taking classes. Thus, one would wonder whether having supplemental materials while taking online classes will result in a more learning effectiveness or not. Also, which type of learning materials, static or dynamic, can engage learners more, especially within an e-learning environment?

Since technology has become a part of everyday life, reading behavior of a learner has gradually changed from paper-based books to electronic books (e-Book). Even though the market share of e-Books as compared to paper-based books is still smaller, many large publishers offer e-Books that have features and functions to meet the needs of customers with a reasonable price. Hence, the use of e-Books as supplemental materials for e-learning lessons is inevitable.

The present study examines whether different types of supplemental e-books, interactive versus non-interactive, will engage a learner's cognition differently. Also, whether learning engagement resulting from different types of e-books will affect learning effectiveness differently?

Literature review

Interactive e-books

Normally, e-books can be separated into several categories by various criteria, for example, by directions of communication and by e-Book formats. In terms of communication directions, e-books can be classified into 1-way direction and two-way directions between readers and e-books. By using a typical textbook, information contents from the

book will be extracted by a reader in one direction. For modern, interactive e-books, readers are able to both receive information and send information back to the multimedia, hypermedia e-books [2]. In terms of formats, there are many popular e-Book formats [4 & 10]. As shown in Table 1, any e-Book that is developed under iBook and Amazon formats is an interactive e-Book which allows interactions with its reader. The e-Books using PDF format are non-interactive which only allow the reader to read.

Table 1: Popular e-book formats

e-Book Format	Amazon	ePub	iBook	PDF
Base code	(X)HTML5	(X)HTML5	XHTML 1.1 with extensions (similar to ePub2)	PDF
Retailer support	Amazon	B&N, Apple, Google, Kobo, Sony	Apple	None
Device support	Kindle reader, Kindle app	Apple, Sony, Kobo, B&N, Google	Apple iBooks	Most devices support PDF file display in some way. Support will be limited with DRM applied
Extensions	.prc, .mobi, .azw (interchangeable)	.epub	.ibooks	.pdf
Reflowable Layout	Yes	Yes	Yes	No
Development oversight	Amazon	IDPF	Apple	Adobe

Table 2: The VARK model

Type of Learner	Teaching strategy	Behavior
Auditory learners	Lecture, discussions, independent tasks, tasks with specific answers, memorization.	Need process time, interact with information orally, request oral repetitions, request additional information, first must understand the facts and then understand the whole concept.
Visual learners	Group learning, graphic organizers, modeling, demonstrations, role-playing, student presentations, field trips, computer-aided instruction.	Prefer to learn about a concept before trying to understand its parts, require visual aids (charts, diagrams, drawings and outlines) in order to make sense of something new.
Kinesthetic learners	Focusing techniques that include interaction with objects, questioning based on physical interactions with objects; Internship, field trips, simulation.	Like learning by doing, rely on physical interaction during learning process, like to be active participants in order to fully understand and learn, require exploration and experimentation time, interaction with resources and materials.
Read/write learners	Focusing techniques in writing, focus questions in writing, activities that allow freedom and emphasize creativity, open-ended questions.	Prefer to take information most efficiently from reading headings, lists, definition, lecture-notes and textbook, organize and turn any diagram, chart, and graph into words.

Learning effectiveness

According to Bloom's Taxonomy, it suggests that evaluation after class is necessary because it will enable both learners and teachers to know whether the lesson objectives have been met. Evaluation can be done by reflecting or testing (Anderson, Krathwohl, & Bloom, 2001; Forehand, 2012). Similar to Bloom's learning taxonomy, the importance of performance assessment is also discussed in Gagne's nine events of effective instructions. Effectiveness evaluation is one of the instructional events required to see if the expected learning outcomes have been achieved [16].

Apart from learning outcomes, satisfaction is also a major factor to evaluate learning effectiveness. E-learning and e-Books are a new learning scenario for Thai students. This learning environment allow them to be able to control the time they want to spend on learning. As a result, learners may be more satisfied (Chou & Liu, 2004). Sun et al. (2008) classify 5 dimensions used to predict e-learning satisfaction: (1) Learner dimension – computer anxiety, (2) Instructor dimension – instructor attitude toward e-learning, (3) Course dimension – e-learning course flexibility and e-learning course quality, (4) Design dimension – perceived usefulness and perceived ease of use, and (5) Environment Dimension – diversity in assessment [20]. Additionally, Liaw [17] found factors that predict learning satisfaction to be self-efficacy, multimedia instruction, and e-learning system quality which is also found by Pei-Chen et al. (2008) as technology dimension. Nevertheless, both technology quality and internet quality in the technology dimension may influence a learner's satisfaction directly. This is because institutions that have well-developed infrastructure can reduce unwanted system problems and unpleasant experience by learners.

Cognitive engagement

Cognitive engagement is one aspect of learning engagement which was developed from participation-identification model [6]. According to the Finn & Zimmer, learning engagement comprises (1) Academic engagement – behaviors related to learning process; (2) Social engagement – behaviors related to following written and unwritten classroom rules; (3) Cognitive engagement – the expenditure of thoughtful energy needed to comprehend complex ideas in order to go beyond the minimal requirements; (4) Affective engagement – a level of emotional response characterized by feelings of involvement. In this study, only cognitive engagement will be included as the factor affecting effectiveness of online-learning since other aspects of engagement are more suitable in traditional class setting.

Learning style

Telecommunication technology has changed learning environment from face to face to e-learning. Teachers and students do not need to be in the same proximity for learning to take place. Nonetheless, technology alone does not result in learning effectiveness. Individual learners may have dif-

ferent style of learning. One may learn well with a particular pedagogy whereas others may not. Research in learning effectiveness should take into account individual learning style as it is the preference of an individual to perceive and process information in a particular way [21]. Two popular learning style theory/models are Experiential Learning Theory and VARK Learning Style model.

In Kolb Experiential Learning Theory, learning is the process of how knowledge is created through experience. Learning is a continually recurring problem solving process in the four-stage cycles: concrete experiences, reflective observations, abstract conceptualizations and active experimentations. From these cycles, learning styles are observed and characterized [14 & 15]. Four learning styles are described as follows:

- (1) Convergent – good in situations where there is only one correct solution to a problem.
- (2) Divergent – good in situations that call for alternative ideas such as a brainstorming.
- (3) Assimilative – good in inductive inference and the ability to build theoretical models.
- (4) Accommodative – good in doing things, in finishing assignments and plans and getting involved in new experiences.

Fleming [8] used different human sensing in his modeling of learning style and called it the VARK Model. The acronym VARK stands for Visual (V), Aural (A), Read/Write (R), and Kinesthetic (K). As shown in Table 2, each learner is not limited to only one learning style but some learners may fit in with multiple learning styles (Hawk & Shah, 2007). Fleming and Baume (2006) reported that from March 2006 to September 2006, 180,000 people used the VARK model to identify their learning styles [7]. They found 58% matched and 37% un-matched between a user's own perception of learning style and the model's classification. 5% of users did not know what style they were. ding, focus questions in writing, activities that allow freedom and emphasize creativity, open-ended questions. Prefer to take information most efficiently from reading headings, lists, definition, lecture-notes and textbook, organize and turn any diagram, chart, and graph into words.

As seen above, the VARK Model is suitable for use in this study because it addresses the unique learning environment of online learning. Besides, Kolb Experiential Learning Theory fits more with normal classroom where students and teachers are able to interact directly with one another and teachers are able to observe student's behaviors first-hands.

Digital literacy

Digital literacy is a personal and social ability to interpret, manage, share and create meanings so as to communicate efficiently within a digital channel. For example, in using Web 2.0 technology, a user can advance from reading only

to writing as well [5]. In addition, digital literacy can be categorized into 4 main areas:

- (1) Language – not only traditional print literacy but also the skills to translate online text which includes the ability to read and create the abbreviation of text messaging.
- (2) Information – abilities that help us navigate the digital overload information on the internet. For example; the ability to search for information online, tag online information so they are searchable and deal with flooded information.
- (3) Connection – knowing how to manage your online profile and filter information received from online networks.
- (4) (Re-) design – ability to recreate exist digital content in creative ways.

In the era of fast growing technology, the level of digital literacy can differ from one person to another. Also, digital literacy is likely to affect a learner's ability to efficiently use the supplemental, digital materials. To measure a person's digital literacy, many researchers use questions from the General Social Survey (GSS) Internet Model 2000 and 2002. Digital vocabularies are the basis for question development in the survey which is consisted of four parts: Part-1 uses a 'yes/no' response on self-reporting questions; Part-2 employs a five-point rating scale to determine the understanding of digital literacy; Part-3 uses multiple choice tests of digital literacy; and Part-4 contains an overall rating of the internet skill. The survey was popular because previous studies found that understanding digital vocabularies is positively correlated with users' ability to search information online [12 & 13].

Study framework

Figure 1 shows the conceptual framework developed based on the aforementioned review of literature to examine the relationship between Learning effectiveness and cognitive engagement of learners who use interactive versus non-interactive e-books. Digital literacy and learning style constructs are also included in the model as they are likely to affect learner's cognitive engagement.

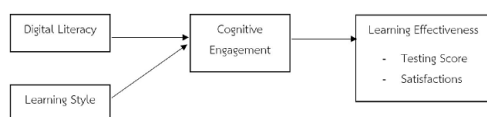


Figure 1: Conceptual framework of the study

Methodology

Population and sampling

The sampling frame of this study is all freshmen students in

the business school of a large public university in Thailand. There are approximately 550 freshmen students each year. Nevertheless, according to Roscoe's simple rules of thumb, the sample size for behavioral study can range from 30 to 500 [19]. Thus, the present study plans to survey a total of 200 samples, 100 students will be asked to use interactive e-Book and 100 students non-interactive e-Book. Simple random sampling will be the method for sample selection.

Research instrument

Two main parts of the research instruments of this study will be employed. The first part entails the development of supplemental materials in the form of interactive versus non-interactive e-Books to be used together with the online class module. The second part is the development and validation of survey instrument to be used to collect data on all four constructs of the study framework.

1) E-Book content – Contents of both types of the e-Books are extracted from the video clip of the managerial finance course. The subtopics covered are Present value and Future value. The learning objectives are twofold. First is to introduce basic concepts of the topics and second is to explain calculation steps of the two topics. The reason for choosing this course is that the topics do not require prior knowledge as prerequisite. Two versions of the e-Book will be developed: interactive and non-interactive.

2) Survey instrument – The survey was developed in accordance to the literature review.

a. Digital literacy questionnaire – This part of the questionnaire is adapted from the study of Hargittai (2009) in order to indicate the ability of using digital technology through self-reporting assessment. 24 digital vocabularies will be used to ask respondents to evaluate with a 5-point Likert-scale where 0 point for 'don't know', 1 for the lowest level of usage, and 5 for the highest level of usage.

b. Learning style questionnaire – The learning style questionnaire from Fleming [9] will be used. 16 questions will be asked and analyzed so that learning style of each respondent can be determined.

c. Recall questions – These questions are used to evaluate the cognitive engagement after learning with the e-Book. There are 4 matching questions with 5 options testing the recall of content, namely the meanings of present value and future value and the formula for calculating them.

d. Post learning quiz – 6 multiple-choice questions will be used to assess the respondent's learning outcome.

e. Satisfaction questionnaire – The part of the questionnaire is developed from combining the tools used in [20 & 17]. There are 6 dimensions that can predict the satisfaction of a learner: Learner dimension, instructor dimension, course dimension, technology dimension, design dimension and

environment dimension. 7 points Likert scale will be used, ranging from 1 as strongly disagree to 7 as strongly agree. To ensure reliability and validity of the questionnaire instrument, especially for digital literacy and satisfaction constructs, a survey test with 30 samples will be conducted and the results will be used for survey questionnaire improvement prior to the actual data collection.

Data collection method

Prior to collect actual data, a pilot study will be conducted to assess the validity of instruments as well as the consistency of data collection process. The pilot study data will be collected from 60 students of CBS Innovative Business Online program who had already learned the present value and future value topic. Among these, 30 students will be assigned to use an interactive e-Book and another 30 students to use non-interactive e-Book. This pilot test will be taken place in a particular website. A step-by-step data collection protocol is shown as follows:

- 1) Sample enters the website and answers the demographic part of the questionnaire.
- 2) Sample answers the digital literacy and learning style parts of the questionnaire.
- 3) Sample watches a video clip of the learning unit (present value and future value) together with either an interactive or non-interactive e-Book.
- 4) Sample answers recall questions about the content of the learning unit (present value and future value).
- 5) Sample answers post learning quiz about the content of the learning unit (present value and future value).
- 6) Sample answers the satisfaction part of the questionnaire. Upon actual data collection, the questionnaire will be distributed to more than 500 hundred first year students from the business school of a large public university in Thailand. It is expected that there will be at least 100 respondents per group. The survey duration is estimated to be less than 40 minutes.

Conclusion

This manuscript is a proposal to study the relationships between learning effectiveness and cognitive engagement within a particular e-learning context. Supplemental materials in the form of interactive and non-interactive e-Books are introduced in the setting and their possible effect on a learner's cognitive engagement will be determined. Two hypothetical determinants of cognitive engagement con-

struct, digital literacy and learning style, are also examined. Detailed research method is provided in this paper.

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Culture, Technology, and Design Preferences' for Increased Chinese, Korean, & Vietnamese Adoption of Mobile Online Educational Resources

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*"Education is the most powerful weapon you can use to change the world." "Learn as if you were to live forever."
Nelson Mandela & Mahatma Gandhi quotes within <http://Alison.com> (one of the first MOOC providers).*

Abstract

Development of writing by Sumerians in 3200BC, universities starting in 1088, correspondence courses, radio, and TV, all help education [9]. Decades around 2014 however, have unbelievable potential with education, to improve wealth inequality, alleviate poverty, expand the impact of professors, train workers, and simultaneously educate people about cultural differences. 83% of 34,779 surveyed massive open online course (MOOC) students already have a degree, 80% come from the wealthiest and most well-educated 6% of the population, and almost 70% are already employed [7]. In contrast, 94% of students surveyed in Korea and China and more in Vietnam, are unaware of MOOCs, yet those aware, love them. Improvements are possible through online, open educational resources (OER), whether in the modified simple form of properly prepared videoed classes, or fully interactive, customizable, gradable, certifiable MOOCs. This paper reviews the literature and uses qualitative, participant observer, case study, and interviewing research methodology, to note lessons learned from the first clear MOOC, and suggestions from Vietnamese, Chinese and Korean students, to increase adoption of OERs in non-Western countries, and thus most of the world's population.

Keywords: Online Education, MOOC, Cross Cultural Education, Alleviating Poverty, Wealth Inequality.

Introduction

Learning, related to writing info and passing it on to others, must have started with the invention of Cuneiform writing by Sumerians (in what is now called Iraq) in 3200BC, or the Egyptian hieroglyphics maybe as old as 3500BC [8]. From this point, and with the first university in Bologna in 1088, [9] education has never had as much potential to create equality through education, and alleviate poverty, as now, in the decades around 2014. Education can be provided by educators, for free, to accessible locations globally. The rapid popularity of online open educational resources (OER) and related courses is evident viewing statistics released on MIT's OCW (Open CourseWare): as of March 2014 there were a total of 199.3 million visits by 152.3 million unique visitors from virtually every country. iTunesU (an app for iPhone

users to view online educational resources) had 46 million downloads -YouTube had 46 million views. The majority of these viewers are students and self-learners, consisting of 42% and 43%, respectively. According to MIT OCW, as many as 80% of visitors rate OCW's impact as positive or extremely positive, and 91% expect that level of impact to be sustainable in the future. Most viewers use open courses to enhance personal knowledge instead of pursuing a degree. MIT OCW statistics also reveal that East Asia has the second-largest number of visits to open course websites, after North America. This number, however, is undervalued as it does not include visits to third-party organizations that relocate open courses from their original web domains to their own sites in an East Asian country, and it does not account for materials circulated in languages other than English." E-learning has large benefits in terms of cost, consistency, timely content, flexible accessibility, and convenience, and has become attractive in many countries (Cantoni, Cellario, & Porta, 2004). This revolution has been the most significant change in the field of education and it is promoting the concept of learner-centered educational practices, and customization of content (Byoung-chan Lee, Jeong-Ok Yoon, In Lee, 2009). The challenge now is to increase adoption of OER in Vietnam, Korea and China, where surveys show up to 94% of people are unaware of OER.

This paper highlights how for the best effect with Vietnamese, Korean and Chinese students, open educational resources (OER) or online class videos should learn from the efforts of others, and make modifications to accommodate cultural preferences that differ from Western values of the popular online course creators. OER materials being developed with Chinese, Vietnamese, and Korean students in mind should not simply copy or replicate Western OER. Needs vary with culture. In addition to the great American, Vietnamese, Chinese, and Korean cultural differences identified by Hofstede at <http://geert-hofstede.com/countries.html>, Korean, Vietnamese, and Chinese students are often associated with conformity, passivity, and dependence on authority figures (Ballard & Clanchy, 1984, 1991; Chen, Bennett and Maton, 2008; Turner, 2006). Fortunately, there

is a small but growing literature on Chinese and Korean international students' online learning experiences (Chen, Bennett and Maton, 2008; Ku & Lohr, 2003; Tu, 2001; Wang & Reeves, 2007). No research has been found on the subject covering Vietnam.

Possible explanations for the increased Western attention on online and East Asian education, relates to the East Asian dominance on OECD PISA international education scores (compared to all OECD member nations). Even Vietnam is rising respectably in international high-school students' international test scores. We also note the high tuition revenue available from the majority of international students that travel from East Asia to North America each year for their studies, and professors pay. Despite Canada only having 33 million people in ten provinces and three territories, and the first clear offering of a free massive open online course at the University of Manitoba in 2008, at least 19,779 professors in one of the ten provinces alone (Ontario), posted online in 2013 that they earned over \$100,000 to \$772,547 (plus taxable benefits) annually. Much higher amounts can be earned by professors in USA. Taken together with the fact that American student debt level surpassed one trillion dollars may explain why Americans generate more publicity about online courses. It is nice to earn a lot, but it is often expected that you give back to society in return.

Massachusetts Institute of Technology (MIT) & its professors deserve attention for its respected ranking, and efforts for giving back. In 2001 MIT developed an open course software package, known as Open Course Ware (OCW), and started to publish MIT courses online systematically for the general public to view and download (NA/ND ocw.mit.edu). For these and various reasons, including the desire to provide education for all, alleviate poverty, and better train workers, online classes are increasingly videoed and made into open online educational resources (OER) and massive open online courses (MOOCs). This is important as the World Bank recognizes 21 percent of people in the developing world, or 1.22 billion people were in poverty, living on less than \$1.25 daily in 2010. 2.4 billion people lived on less than US \$2 a day in 2010, the average poverty line in developing countries and another common measurement of deep deprivation. According to the IMF (2015), while Vietnam is one of the most rapidly growing countries, it's nominal GDP/capita is approximately \$2000/year or about \$150/month.

Noting the numbers of poor in developing, non-Western countries, and the recent technological changes in education, this paper uses mixed qualitative case, participant observer, and interviewing research methods to note lessons learned from the first clear MOOC, and cross-cultural experiences of Chinese and Korean international students, in order to suggest factors to increase adoption of OERs in China, Korea, & similar non-Western countries. The focus is important: 83% of 34,779 surveyed MOOC students already had a two- or four-year post-secondary degree, with 44.2% reporting education beyond a bachelor's degree, in

BRICs countries and South Africa, almost 80% come from the wealthiest and most well-educated 6% of the population, men accounted for 56.9% of all MOOC students (and 64% in countries outside the OECD, and almost 70% of MOOC students are already employed (Emanuel, 2013).

The international students from China and Korea, in Western countries, have been subject to intensive research, but only a very small number of studies have considered how non-Western, poorer students adapt to learning with online course videos and massive open online courses (MOOCs). Guided by Berry's acculturation framework (1980, 2005), this paper addresses this gap by identifying the key components within online educational resources, needed to be more easily adopted by non-Western students, the majority of the world's population. The paper specifically explores the desirable features needed for Korean students to adapt American (EdX), Indian (NPTEL), and European (Alison) online learning materials at a Korean university. This article reports on the challenges perceived by students from South Korea and China, their knowledge of open ed resources (OER), their opinions of online learning, respective preferences for adoption, and their ideas about the future of OER. By presenting qualitative analysis, this article aims to demonstrate what modifications to Western OER and MOOCs, are needed to become more popular and possibly mainstream in Korea. Since Korean culture and values closely reflect Chinese culture and values, this study will show modifications needed for western MOOCs to be adopted successfully by Confucian people, such as Koreans, Chinese, and Japanese.

With regard to open course content, the Korean and Chinese survey participants and students observed from March 2013 to June 2014 are both more interested in course materials that echo their daily experience and requirements of popular employers, than in courses that merely deliver knowledge and skills, and they desire chat rooms and boards to post comments in the local language. These features seem to be a base for rapid acceptance. Providing an index of "suggested courses" to complete, for certifiable completion of a topic, and interactivity with a "hierarchical figure" or person representing authority on the subject will greatly help adoption. The acceptance by leading organizations, such as employers, universities, and governments (as pre-requisites for acceptance interviews), is considered by survey participants to be the single most important requirements that would lead to rapid adoption of online educational resources, such as online videos.

Background & review of literature

Innovations and disruptions with universities, and with online info and management information systems' are discussed, such as those by Google, Youtube, Facebook, Weibo, and Naver. The best open educational resource creators can modify materials using these resources to better reflect desires and needs of viewers. Many multinational organizations know of the world's leading management information

systems companies, SAP and Oracle, but few know of "disruptive innovations" or open educational resources, especially in Korea and China. This paper discusses educational basics that are disrupting the status quo with new ways of providing information. Development and success seems to hinge on learning and innovations. Although Clay Christensen published a few academic articles, "disruptive innovations" was discussed in his five books, from *Innovator's Dilemma* (1997), to *Disrupting Class* (2008) (which looks at why schools struggle), and *Innovator's Prescription* (2009). According to Christensen, "Disruptive innovations create an entirely new market through the introduction of a new kind of product or service, one that's actually worse, initially, as judged by the performance metrics that mainstream customers value" [3]. This paper discusses innovations and disruptions in learning and info management that can be applied to poverty alleviation through educating the poor in areas focused outside areas of Western culture and values. This is important since the open educational resources often originate in the West, at universities such as MIT, and have the greatest number of viewers in areas with Eastern culture and values. One of the most widely used frameworks for studying cross-cultural communications is based on work by Hofstede [12]. Hofstede developed a four-dimensional model of cultural differences, that characterize cultural values and behaviors that originate from different societies. A detailed description of each dimension is displayed in Figure 1.

Figure 1. Hofstede's 4-Dimensions of Culture Model

Dimensions	Descriptions
Power Distance (PDI)	Degree to which people accept the unequal distribution of power and wealth in a society. In countries with high PDI, individuals with high social status exert great power and influence [11].
Individual -Collective (IDV)	The tendency of members of a society to act as individuals or members of groups, and to which a culture values individual versus collective achievement or well-being (Mercado, Parboteeah, & Zhao, 2004).
Uncertainty Avoidance (UAI)	Degree to which the individuals of a culture feel threatened by uncertain or unknown situations. Individuals from a culture with high UA are uneasy with unstructured ideas and situations. (Hofstede, 1986).
Career vs Relationships' Orientation; Masculinity/ Femininity	The degree to which the society prefers aggressive career focus, or relationships (interpreted by the author to avoid confusion with gender roles, 2014). (12; Mercado, Parboteeah, & Zhao, 2004).

Source: Authors notes, references within & Liu (2010)

The degree to which the society prefers aggressive career focus, or relationships (interpreted by the author to avoid

confusion with gender roles, 2014). (Hofstede, 1986; Mercado, Parboteeah, & Zhao, 2004).

Source: Authors notes, references within & Liu (2010)

According to Hofstede's research, both China and India rank very high on the PD index, while the US has a very low PDI. In addition, the U.S. exhibits very high individualism when compared to China. Despite the popularity of Hofstede's model, his work has been challenged with strong criticism. In addition to challenging the external validity of his work (Shattuck, 2005), other researchers have labeled his work as the "essentialist" models of culture emphasizing fixity of identity over the reality of identity fluidity (Goodfellow & Hewling, 2005, p355). In spite of this criticism, Hofstede's work has proven to be a valid framework for analyzing cultural differences in teaching and learning [54]. Thus, this framework was considered useful for the present study.

Methodology

Survey results of 34,779 MOOC students, in depth surveys of university students in Korea and China, observation of students for more than one year, participation in the open educational resources in Korea and China, and a review of literature, all form the background of this study. This paper uses interpretive philosophies, with interviewing and participant observer methods of qualitative research as shown by Becker (1958); Spradley (1980); Tedlock (1991), and Yin (2011) in conducting field-based research based on the researcher locating in the real-world setting being studied. The Canadian author has been based in East Asia since 1995. This study is also a variant mix of: case study as shown by Platt (1992) and Yin (2009); studying a phenomenon (the "case") in its real-world context.

The main author in this study comes from an Irish Canadian family. The main author, however has lived, taught and studied in China and Korea, and was based in Seoul since 1995. As it is inevitable to interpret information in various ways, to be accurate, research will follow Klein, & Myers' Set of Principles for Conducting and Evaluating Interpretive Field Studies (1999).

Results

As expressed in the introduction, more than 80% of open educational resource materials, specifically MOOCs, are not reaching the people that need it the most. Modifications reflecting cultural preferences are needed for increased adoption. Current "Western" creators may benefit and obtained increased adoption by considering their own origins and the original places that identified places of growth and prosperity. Writing, laws, and cultural identities may have started as Hofstede [13] stated with "Phoenician sailors who 3,000 years ago lived in the present Lebanon and who spoke a Semitic language related to present-day Arabic and Hebrew. The Phoenicians at sea oriented themselves between "esch" and "ereb", (dawn and dusk, beginnings with prosperity and darkness, or East and West); and this became Asia, (eve-

rything East of them, Turkey and beyond,) and Europa (or Europe, everything West of them). So even in those old days the name Asia was already associated with these desirable ends. Their distinction was inherited (learned and replicated) by the Romans and subsequently by all Europeans.” Education today seems divided by these geographical areas in that Western areas developed, became complacent, and are now falling in rank. Eastern, or Asian areas, still largely hungry to develop, continue to rise in educational ranks as shown with the amount of time students study in high school in China (583,200 ~ same as in Korea), India (422,400) and US (302,400) [6] and (Fig 2.) in the 2013 OECD PISA test scores.

Figure 2. World education rank-'12 OECD PISA

1.China-Hong Kong&Taiwan	2. Singapore	3. S.Korea
4. Japan	5. Switzerland	6.Netherlnds
8. Finland	9. Canada	10. Poland
12.Germany	13. Austria	14. Australia
23.Slovakia	24. USA	25. Sweden
27. Israel	28. Greece	29. Turkey
		37.Indnsia
		22. Russia
		11.Blgium
		7. Estonia

Educational leadership from outside of the west is not a new concept. From ancient Egypt 3500-3100 BC to 353 BC, civilization flourished with learning - writing, carved in stone, along Egypt's Nile, called Sumerians' Cuneiform, the first known writing.. The hieroglyphs are thought to be the first told stories of ancient rulers like Ramses and Tut, the building of the pyramids and the Pharaohs, courtesans, builders and entourages of the Pharaohs [8].

Not much has changed in the many years as a leader continues to lecture at the front of a factory styled room, filled with students that generally come in, in batches, much like a factory's assembly line, sorted by teachers and parents typically by age, most often regardless of intellectual ability or interest. The students are thought to be of great ability if they find the teachers' words interesting and are able to memorize and regurgitate details.

Students in Korea, in traditional classes, taught by traditional Korean professors, find it not rare to see students sleeping in class. A highly respected Korean professor is known for making students he catches “nodding-off” in class, stand at the back of the room. This cannot immediately be interpreted as a bad thing. Western researchers state that students sleep when there is lack of interest in many parts of the world, where education is prioritized, such as in Asia. These Asian values are often misinterpreted with boredom, without the understanding of the true “hunger” placed on education by society at large; parents, teachers, employers, and society

in general in Korea and China encourage students to study incredibly long hours that can result in exhaustion.

The author is aware of study life in both the North American and East Asian environment; he lived for his first twenty years in Canada and USA, where he completed most of his studies, then based himself in Korea, where he continued studies and worked another twenty years, and married into a Korean family, and has four children. The author's two high school aged kids, study mostly from before 6am to 11pm, Mondays to Fridays, and part days on Saturdays, and even more intensely as the kids get closer to the end of high school, and thus the university entrance exams. The author believes and has verified on several occasions (but only now in a qualitative scientific study), that some students simply cannot keep their eyes open and fall asleep due to the lack of sleep, due to the extreme focus on studying.

This focus on studies relates to the overall work focus intensity that Korea is well known for globally. It is not isolated to high school kids. The author's youngest son was encouraged by family and friends in Korea, despite the author's wishes, to be enrolled with educators and in educational organizations from his third month after birth. The son enjoyed two school graduation ceremonies before he was four years old. While the author initially thought this focus on education was extreme, he was convinced of its appropriateness after observing the steady rise in global recognition by the OECD PISA results. One of the biggest factors that influenced acceptance of education at an early age came from the author's family experiences; the author took three kids, whom were in elementary, middle, and high school, on a vacation to Florida and California. Disney World, Cape Canaveral, Miami Beach, and Hollywood, with the fun activities, beautiful mansions and cars, and daily trips to the beach, seeing dolphins, exotic pelicans, and sea lions and whales in California, from the Big Sur coast, - these all seemed like vacations from Heaven, by the author. The kids said they really liked the trip. The only major point of surprise for the author during the trip was the daily studying that the Korean mother had the kids do for several hours since it was easily tolerable for the kids. The kids often started studying on their own, perhaps due to habit.

The biggest surprise to the author came after the trip, several months later. The author asked if his children wanted to go on the same type of trip the next year. The kids turned down the opportunity because they felt uncomfortable with their friends studying without them; the author's kids did not want to miss so much school again as it made them almost “outsiders” and negatively viewed by their peers. The author's kids admit that they like spending time at school. The complaints often heard about studying too much and lives being hard in school are hollow complaints that develop regardless of the situation, by students in Korea, China, Canada, and USA. Students preferences speak for themselves. The initial cultural shock the author experienced entering China and Korea in 1995 was intriguing. Reports were told to the author of more than 80 percent of “foreigners” in Chi-

na and Korea quitting lucrative jobs before the standard two year employment contract expired due to cultural incompatibilities. Non-Asians frequently complained of the abusive East Asian educational system, before any serious studies were examined. This torturous environment for kids was a significant reason for many foreigners to leave East Asia.

The author studied Chinese and Korean culture extensively, soon after arriving in 1995, to help understand the cultural differences, with the educational differences being the most noteworthy. Changsoo Kim's book, *The Culture of Korean Industry* (1992) had the best explanations. Han, a Korean euphemism, is an abbreviation of "Hantan", meaning "deploring," "catalytic bitterness and anger" or "unrequited resentments". The "Han" may provide a clue to tracing a possible source of Koreans' historical drive and determination for hard work. The effects of prevailing poverty, loss of sovereignty through foreign invasions, and underdevelopment of science and technology remained as the Koreans' Han for generations. A Japanese futurist, Sha Seiki, has also pointed out that Korea's history of adversity motivates Koreans to work harder to succeed according to Changsoo Kim's book (1992). Kim explained that Koreans seem more Confucian than the Chinese have been in their devotion to Confucianism. Confucianism emphasizes traditional social relations, teaches hierarchical order, and contains five basic principles in human social relations, of which the parental authority of father over son is the most valued, and teacher over student remains today. Confucianism, which originated in China, was introduced to Korea during the Three Kingdom period (37 BC- AD 935) [17].

The cultural differences were shocking. Following the Qualitative Fundamental Principle of the Hermeneutic Circle, it was hard for the author to deny international OECD studies, world ranking, and vast practices of both the Korean and Chinese population. The Principle of Contextualization and its requirement for critical reflection of the social and historical background of the setting is intended for the reader to see how the current situation under investigation emerged. The Qualitative Analysis, Principle of Interaction, Between the Researcher and the Subject, requires critical reflection on how the research materials ("data") were socially constructed through interaction between researchers and participants. The Principles of Abstraction and Generalization, Dialogical Reasoning, Multiple Interpretations, and the Principle of Suspicion were all closely monitored throughout the study.

To explain the author's reasoning for the study, it is first helpful to explain the definition of modernization and globalization. Modernization can be defined as transformation of a society from a rural and agrarian to a secular, urban, and industrial one (Kumar, 19). Industrialization represented a key economic goal for the Korean government for decades and guided the country to one of the top manufacturers of high-end electronics and technologies. Globalization has been the topic of countless publications during the past twenty years, despite the actual number of American articles

as stated above. For analysis of Korean culture, a new definition is certainly not needed. Professor Samuel S. Kim of the Weatherhead East Asian Institute of Columbia University in New York defines globalization as a series of complex, independent yet interrelated processes of stretching, intensifying and accelerating worldwide interconnectedness in all aspects of human relations and transactions – economic, social, cultural, environmental political, diplomatic, and security – such that events, decisions, and activities in one part of the world have immediate consequences for individuals, groups, and states in other parts the world' (Kim, 1999, via Goydke 2002, p.106). This characterization surely covers many distinct areas relevant in explaining the effect of the globalization process. For the purpose of this paper, Kim's definition will be used as the foundational theory.

It appears that globalization and modernization occurred almost simultaneously in the case of Korea. What is now called 'globalization' began in the 1950ies with an extraordinary increase of international trade, investments and migration. Around the same time, Korea began to 'modernize' from a poor agricultural society into a fast developing industrial economy. Korea's GDP per capita was US \$105 in 1965, \$5,500 in 1991, and above \$20,000 in 2011 according to the World Bank and IMF. Near the end of World War 2 and during the Korean War, Korean kids "were unable to wear decent shoes", or eat three bowls of rice daily. Ironically, by 1986 Korea was the world's largest exporter of shoes (US \$1.1 Billion) and leatherwear US \$69 million. By Oct 1988, nearly 2 million tons of surplus rice was bought by the government. In 2010, Korea hosted the World's G20 Financial Super-Powers. The OECD PISA educational tests in 2012 shows Korea at the top of international rankings. From 1952, when the Korean War ended, to 1987, the GNP grew to 42 times the 1953 level, and GNP per capita grew to 42 times the 1953 level, the volume of trade expanded to 200 times it earlier size, and the total government budget swelled to 1,672 times the 1952 budget. The total number of business and industrial firms jumped from 3,600 employing 240,000 workers in 1953 to 110,000 hiring 4.79 million workers (CS Kim 1992). Therefore, both modernization and globalization phenomena are of relevance for analyzing traditional and modern Korean culture. The same applies to China, especially given the World Bank figure for poverty stated earlier, which are largely based on China, and China's association with education, being holder of the number one spot according to the OECD PISA studies above.

The first several years in Korea, with multiple annual trips to China, the author admits he had blatant "biases" and systematic "distortions" in the narratives collected from the participants. Initially, it was the miraculous growth the two countries obtained and the comparative lack of crime and drugs in Korea, which supported the author's continued work and research. The idea of doing new research in South Korea came after conducting business in the country and throughout Asia, while based in Seoul, from 1995 to present (2014). Soon after first arriving, a sense of fantasy, then mild, moderate and severe culture shock, differences between West-

ern and Korean and other East Asian cultures became very visible. Currently, there continues to be feelings of being a “white monkey” while in Korea, which are expected to remain for the foreseeable future, but the need for vacation has reduced from every three months, to every six months, to now the author is happy to stay in Korea and China, with trips abroad as a refresher, annually. “White monkey” is the author’s attempt to describe the feeling of being a monkey in a zoo; people approach you with a range of feelings from fascination and awe, to disgust and hatred, sometimes positively, and sometimes negatively, and then at the end of the day you are left alone, feeling you will never be accepted as normal, such as when zoo visitors return home at the end of the day after providing gifts and treats to the monkey.

Current literature often depicts China and Japan as representatives of East Asian culture while far fewer publications can be found that describe relevant customs of South Korea. It seems that Korea as a smaller country in between the neighboring nations had been comparatively forgotten and underestimated in contemporary American and Western literature as only little can be read about the country and its culture or educational practices in particular. Similar to China, Japan and other Asian states, Korea has nevertheless maintained old-established traditions and values.

As stated by Chen, Bennett and Maton (2008), “The widespread image of the (Korean and) Chinese learner in the 1980s was one of a rote learner with high achievement motives, but one who rarely questioned authority figures or written texts and showed little interest in participating in class discussions (Ballard & Clanchy, 1984; Bradley & Bradley, 1984; Samuelowicz, 1987). This stereotype has subsequently been challenged. Watkins and Biggs’ seminal book *The Chinese Learner: Cultural, Psychological, and Contextual Influences* (1996) expounds the so-called ‘paradox of the Chinese learner’ (Biggs & Watkins, 1996, p. 269) by investigating the influence of cultural factors on approaches to learning in Chinese societies. (The same applies to Korean learners.) The ‘paradox’ refers to the apparent contradiction between Chinese and Korean students’ surface approach to learning and their internationally acknowledged high academic achievement (Biggs, 1996; Watkins & Biggs, 2001). Specifically, Watkins and Biggs asked, how is it possible that Chinese and Korean students can outperform Western learners if they tend to learn through memorisation? Numerous empirical studies have examined this ‘paradox,’ and Chinese learners are now portrayed as learners who view memorisation as an integral part of understanding (Dahlin & Watkins, 2000; Marton, Dall’Alba, & Tse, 1996; Sachs & Chan, 2003), are oriented towards deep learning (Biggs, 1996; Kember, 2000; Watkins, 1996), and prefer tutorials to studying alone (Volet & Renshaw, 1996). Didactic teaching and passive learning are still the norm in the Chinese and Korean education system (Cortazzi & Jin, 2001; Kember, 2001).

These studies reflect in class activities. However, Korean and Chinese students report huge importance of outside class discussions. In 2014, this relates to online chat room

discussions in local languages, such as on Kakao in Korea, and Weibo in China. To manage the large size of classes (in most universities apart from the newest programs such as Yonsei’s EIC which often have less than ten students per professor), tightly structured courses and assignments with prescribed correct answers are common practices (Kember, 2000). In addition to this, Chinese and Korean learners’ have a predilection for tutorials (Volet & Renshaw, 1996), with private educational academies operating from before dawn to well beyond dusk, and they have almost a non-stop spontaneous collaboration outside the classroom (Tang, 1996)”, especially in high school, as noted by the authors children and associated communities. With these points in mind, arguments in educational debates that globalisation is eroding national and cultural differences in educational practices (e.g., Burbules & Torres, 2000; Stromquist & Monkman, 2000) appear unfounded, at least in East Asia..

Research into the attitudes of Korean and Chinese students towards online learning has concluded that many of their attitudes do not differ greatly from those of their Western counterparts. Most students appreciate the temporal and spatial flexibility afforded by online learning but see the lack of interaction and immediate feedback as initial impediments to effective learning, that can be overcome. Specific benefits and challenges of online learning for East Asian learners, primarily resulting from the largely text-based and asynchronous nature of the communication medium, have also been identified. These include higher levels of participation (Thompson & Ku, 2005; Yildiz & Bichelmeyer, 2003) and more confidence and greater assertiveness of East Asian students in stating their views than in a face-to-face environment (Ku & Lohr, 2003, and Chen, Bennett and Maton, 2008).” When online learning is accompanied with local language chat rooms for students to discuss the topics, the impact of the OER rises rapidly. English language chat rooms, however have little to no effect as the difficulty in the foreign language communication and the fear of making mistakes in front of “foreigners” prevents proactivity.

North American students, due to the developments of various “disruptive” laws and regulations, are said to be unable to fail or be “physically punished,” and thus students in these areas, sometimes can be seen skipping classes, rather than sleeping beside the peers in Asia. “Physically punished” is used specifically noted here as one of the author’s sons was beaten so his thigh was black with bruising for “too many mistakes” on his class quiz; he did his homework and was prepared, just not perfectly. The family was uncomfortable. The author was irate and wanted a confrontation, but was told by family that the situation is bad, but a confrontation will only make matters worse. Long term educational plans outweigh North American viewed individual human rights to comfort according to the author’s Korean family and surrounding community.

Change is thankfully here. As Ken Robinson says, “Every country on earth at the moment is reforming public education. There are two reasons for this. The first of them is eco-

nomic. People are trying to work out how do we educate our children to take their place in the economies of the 21st century, despite being unable to anticipate what the economy will look like at the end of next week. The second is cultural. Every country on earth is trying to figure out how do we educate our children so they have a sense of cultural identity so that we can pass on the cultural genes of our communities while being part of the process of globalisation. Unfortunately, many educators are trying to meet the future by doing what they did in the past. And on the way they're alienating millions of kids who don't see any purpose in going to school. When the current educators went to school, decades ago, often before the internet was popular, we were kept there with a story which is if you work hard and did well and got a college degree you would have a job (Skolnicki 2010). Many kids no longer believe that. You are better having a degree than not, but it is not a guarantee anymore. Particularly not if the route to it marginalizes most of the things that a student thinks are important about him/herself.

This study conducted several sets of 50 students' interviews. Students were chosen as opposed to working adults, as the focus of the paper is educational developments. On average from each of the survey attempts, 47 of 50 students initially contacted in Korea were unaware of massive open online courses (MOOCs) or open educational material other than articles professors demand students review for class. Even Graduate School of Information students were mostly unaware of open online course possibilities. It is appropriate to quote Sal Khan, the founder of the educational learning website Khan Academy, one of the world's best online educational resources, "YouTube is for dogs on skateboards and cats playing piano; not serious education." The point to note is that Sal Khan said this in 2006, at a point that many people are experiencing in East Asia today in 2014 – a point when individuals realize Youtube does more.

Times however are changing rapidly and students are starting to learn about the online educational opportunities. The following are typical responses of students that were aware of OER and MOOCs. One interviewee, YongJoon Lee is a medical student of Hanyang University who is originally from Seusan, rural area of Korea. He said that "Since I was really young, my dream was to enter the most prestigious high school which is Korean Minjok Leadership Academy. However, I had no way to take a chance since I was living in a very rural area of Korea, and the standard of our family's living was very bad. Most of students who go to Korean Minjok Leadership Academy were rich and had experiences living overseas or receive expensive private lessons. As time went by, I had to accept my situation. However, through MOOCs, my entire life changed enormously. When I first knew MOOCs, I was shocked by the fact that I could study anywhere if the Internet is available with the least cost. Since the courses were composed with the best professors, the quality of the courses was very high, too. Also, since I could repeat the courses as many as I wanted, I could learn much better compare to the offline classes.

Though it is sometimes difficult for me to learn by English, the subtitles that MOOCs provided helped me a lot. Through MOOCs, I could enter Korean Minjok Leadership Academy and now I am a medical student of one of the most prestigious university in Korea. I believe MOOCs is a combination of convenience, economic feasibility, quantity and quality. I can guarantee, because I experienced it."

Another interviewee Sejin Hong is a student who studies international studies in Kyunghee University who is originally from Daechun, which is also another rural area of Korea. He said that "I was always interested in liberal arts studies such as English literature, but I could not take those courses even I entered university. I had to follow the curriculums that school provided and there were only few courses I could take in four years. Also, the online courses had too many problems in teaching the courses I wanted. However, after taking literature and writing courses in MOOCs, I found out that unlike online courses, I could interact with those who take the courses I take, and also could get enough feedbacks from the professors though it is a labor-intensive activity. Through the system MOOCs uses, I could learn critical thoughts through debate just like offline courses. It was a bias that online courses cannot teach liberal arts studies. MOOCs changed my thoughts."

A third interviewee Jinwon Lee is a student of Yonsei University, and from Seoul, Korea. Jinwon strongly supported MOOCs by quoting University of British Columbia, Canada, Philosophy Professor Scott Anderson, "There are parts that will be fine, insofar as mostly when students listen to a lecture, there is no special reason why they need to be physically present to hear and get it. There is certainly no reason they need to be physically present to get the readings and to think about these things." Jinwon said that "To be honest, I learn more from MOOCs than Yonsei University. However, it is even much cheaper and convenient. How can I not love MOOCs and advertise to others." Jinwon's comments are especially important as Yonsei is the premier private university in Korea, with its management program recently ranked 69 globally. More importantly, Yonsei has a culture of strong loyalty and a desire not to make others within the "family" (of Yonsei) look bad. Stating online courses are better than Yonsei courses, especially while the main authors of this paper are Yonsei professors, is impressive. Changes are coming with the adoption of online courses, but more slowly than in North America, where MOOC participation is highest.

Despite using different online educational resources, the three students noted above perceived similar challenges: a reduced amount of input from the teacher, an absence of direct interactions with the teacher and with fellow students, and a lack of enforcement of learning by the teacher. All three agreed that local language chat rooms helped and that adoption of OER by the national government, by universities within entrance requirements, and by employers for interview prerequisites, would cause rapid adoption of OER.

Public education paid for from taxation, compulsory to everybody and free at the point of delivery - that was a revolutionary idea. The University of Bologna may have been the first such university, followed a century later by the University of Paris as shown in the History of Learning Figure below. Many people objected to it; they said it's not possible for many street kids and working class children to benefit from public education; they're incapable of learning to read and write and so little time or investment was invested.

These beliefs are also built into the education architecture, a whole series of assumptions about social structure and capacity. It was driven by an economic imperative of the time but running right through it was an intellectual model of the mind, which was essentially the enlightenment view of intelligence; that real intelligence consists in this capacity for a certain type of deductive reasoning and a knowledge of the classics originally, what we come to think of as academic ability [52]. This is deep in the gene pool of public education; there are only two types of people - academic and non-academic; smart people and non-smart people. The consequence is that many brilliant people think they're not because they've been judged against this particular view of the mind. People that perform poorly and people that do not match the educational system are viewed as inept and with less potential than those students that more closely match the teachers' characteristics, such as Bill Gates, Steve Jobs, and other misfits. We have twin pillars - economic and intellectual. Both are designed with a restrictive focus on theoretical academics more than practical applications. It is great for some, who have benefitted wonderfully from it. However, increasingly, most people do not benefit or appreciate this system [52].

Current universities are quickly learning that their existence hinges on successful alumni contributions, contributions for research from connected corporations, and tuition fees that often price out of the system, most students needing benefit as shown in the Universities Tuitions. Luckily, some American federal contributions are being refocused toward educational organizations that produce the most employment or the highest enrolment. This is seen as biased by some and is leading some universities to allow people to easily sign up for classes, even though they may not be able to graduate, such as with opening of courses online, while not providing these online participants degrees.

Perhaps the Finnish educational system can be a good role model, where teachers are required to have 360 degree performance reviews and votes from students in order to proceed; this is not a simple concept since many universities already have student evaluations. When considered closely, Finnish students pay little to nothing for education, so when they find classes boring or ineffective towards their development, the students can simply walk out and take a different course. Professors that do not make classes directly benefit students, and do not tailor classes directly to students' needs, are pushed out of work. The fact that all Finnish teachers must have graduate degrees, and show a serious interest in

their studies, is additional explanation for Finland's historical excellence, as shown in the World Educational Rank above.

Increasingly, universities from generally lower developed countries rise to the top, due in part to the burning desire to develop out of poverty, a trait that complacent students in developed countries lost long ago. A new cultural dimension to Hofstede's is "Extreme Education" whereby parents hold an extreme focus on education for their children, above the normal desire of parents to simply provide a good education that is popular in North America. This is shown in the Educational Rankings, but also in the work hours popular in a country. Korea for example, has the world's longest work week, and this is inclusive of children studying. Korean high school kids, including those of the author, study at least 361 days a year, if not every day in the final year of high school, with no break for winter or summer. The author's son, despite the author's encouragement otherwise, goes to high school daily, Monday to Friday starting at 5:30am and returns home at 11pm. He also studies "in a relaxed fashion" at school every Saturday.

Education has been around for a long time, prior to any enrolment at and even the establishment of universities. European higher education took place for hundreds of years in Christian cathedral schools or monastic schools (Scholae monasticae), in which monks and nuns taught classes; evidence of these immediate forerunners of the later university at many places dates back to the 6th century AD [49] Figure 3. History of Learning

Year	Learning Event
BC	Learning existed since before history was recorded
3500	Writing Cuneiform invented by Sumerians (Iraq), Hieroglyphs on stones appear by Nile - Egypt.
1045	5 National Schools open in Zhou Dynasty, China
1400	1400 Bone script writing found in China-Shang Dynasty-led to more than 2500 characters now (over 40,000 characters in total in 2013).
797 BC	Germany's Gymnasium Paulinum (school) opens
976AD	Yuelu Academy, China (Song Dynasty) renamed Hunan University in 1926

1088	University of Bologna, founded
1158	Emperor Frederick I in <i>Authentica Habita</i> gave the first privileges to students in Bologna
1160	University of Paris, founded. recognized. 1150
1167	University of Oxford recogn (teach. 1096)
1179	Pope Alex III forbid masters of church schools to take fees for granting the license to teach (<i>licentia docendi</i>), Obligated giving licenses to qualified teachers Cathedral schools & monasteries -Church mandated priests give free ed. "Scholastic Movement"~ universities grew. Literacy grows.
1728	Caleo Phillips teaches "short hand" by mail
1810	Wilhelm von Humboldt starts university in Berlin & becomes model for many research universities
1892	Univ of Chicago starts distance learning & exchange assignments & lessons by mail
1921	Colleges begin delivering ed through radio. Fed. Communications Commission grants first ed radio licenses to University of Salt Lake City, University of Wisconsin, and University of Minnesota. FCC grants these licenses to some 200 colleges
1963	ITFS, low-cost, subscriber-based allows ed institutions to broadcast courses over TV. California State Univ. system 1 st to apply for an ITFS license.
1964	University of Wisconsin creates the Articulated Instructional Media Project ~first to systemize distance learning ~provides guidance on how to create and incorporate materials distance ed
1976	www.phoenix.edu/ Univ of Phoenix - campus & online degree programs, certificate courses, & individual online classes-20 years of online ed. Now invests over \$200 million yearly (while Harvard is said to invest nothing) in upgrading existing courses
1980	Learn/Alaska ~ 1 st state ed TV. Students in 100 villages can watch 6 hours of classes daily

1985	1. National Tech Univ offers online degree courses by satellite. Course materials come from other universities for broadcast to adult learners that can call professors during broadcasts and participate in discussions.
1991	Tim Berners-Lee creates World Wide Web "internet"-catalyzes online ed
1993	International University founded by Glenn Jones becomes 1 st fully online university accredited by the Higher Learning Commission.
1993	Univ of Nebraska-Lincoln begins online doctorate program in Ed leadership & Higher Ed
2001	Moodle-virtual learning environment started
2002	MIT launches OpenCourseWare~free, web-based courses with lecture notes, exams, & videos.
2003	China's Open Resources for Ed, National Quality Course Plan, & Top Level Quality Project started
2005	Google Analytics starts in Nov.-free analysis of online info with advanced service for a fee.
2005	WebCT & Blackboard merge - ed services online.
2005	40% African students do not attend primary school
2005	3.2 million US students take course online in Fall
2006	India starts free National Prog for Tech Enhanced Learning-open to the world: http://nptel.iitk.ac.in/
2006	Salman Khan free ed www.khanacademy.org ~many subjects & over 4,300 video lectures.
2006	11,200 US college programs only by distance ed

2007	http://alison.com Started in Ireland
2008 <i>1st</i> M.O.O.C.	<i>Connectivism & Connective Knowledge (CCK08)</i> by George Siemens & S. Downes teach 25 Univ of Manitoba students & 2200 online students for free. “MOOC” (Massive Open Online Course) started
2009	Eduventures reports for-profits’ share of online ed market rose to 42% in 2009 from 39% in 2008. Chronicle of Higher Ed- for-profits’ share of all higher ed market is 9%.
2009	YouTube EDU offers thousands of courses free
2010	Babson College report 6.1 million students took 1+ online course.~500,000 students increase over 2009 ~65% of institutions say it’s critical
2011	Stanford’s S. Thrun offers Artificial Intelligence, 160,000 online students then founds “Udacity.”
2011	Distance learning is preferred method in UK (vs high tuition fees of brick & mortar universities)
2012	UK’s Open University for online learning started
2012	https://openhpi.de/ Started in Germany, for online ed of Info and Communications Tech (ICT)).
2012	http://school.jp Started in Japan
2012	Coursera online ed starts in April. In Sept 2013 it earned \$1 million by course certificates
2012	EdX online ed starts May by Harvard & MIT

Sources: Author’s compilation & Various Wiki including Medieval University & Kemal Gürüz (2007)

Power Distance

(PDI) Degree to which people accept the unequal distribution of power and wealth in a society. In countries with high PDI, individuals with high social status exert great power and influence (Gunawardena et al., 2001).

Individual -Collective (IDV)

The tendency of members of a society to act as individuals or members of groups, and to which a culture values individual versus collective achievement or well-being (Mercado, Parboteeah, & Zhao, 2004).

Uncertainty Avoidance (UAI)

Degree to which the individuals of a culture feel threatened by uncertain or unknown situations. Individuals from a culture with high UA are uneasy with unstructured ideas and situations. (Hofstede, 1986).

Career vs Relations’ Orientation; Masculinity/Femininity.

Even before universities, the Roman Catholic Church members, called Jesuits, formed a society to educate (founding schools, universities and seminaries), and for intellectual research, and cultural pursuits. Ignatius of Loyola, Francis Xavier, and five others founded the society on 15 August 1534, in Montmartre outside Paris, in a crypt beneath the church of Saint Denis, now Saint Pierre de Montmartre. The society was headquartered in Rome and signed by Pope Paul III in 1540 and by Pope Julius III in 1550. The Roman Catholic Church Jesuits members’ numbers have been in decline for the last 40 years – from over 30,000 in the 1960s to fewer than 18,000 in 2013. (NA, ND. Wiki Society of Jesus)

We have come a long way, especially with the development of the internet and the trend to place everything online, including education and knowledge. The dominate player, universities, and their high tuitions may now be under attack by a disruptive innovation that is spreading virally, and most often, for free or at nominal cost initially (however advanced versions can be purchased). Massive Open On-line Course (MOOCs) started in 2008, as shown in Figure 3 (Wiki MOOC, 2013), but only after a long slow history of learning and schools developing with “distance learning”.

There is also a history of learning too much, going beyond customers’ needs, and producing products and services that are too sophisticated, complicated, and expensive for general customers to afford. Organizations continue to have these “sustaining innovations” at the higher tiers of their markets since this is what has helped them to thrive: by charging the highest prices to their demanding customers who are willing to pay for the latest and greatest, companies can enjoy high profits. The problem is that these organizations, while sticking with traditional business and profitable models, becomes slowly pushed out of the market by new innovations provided by lower costs, or initially for fee, to more consumers. Regarding university tuition fees alone, university tuitions are becoming unaffordable to many people and it is obvious that the billions of people in poorer areas, and students wishing to take control of their competitiveness, are increasingly moving to online forms of learning, from free or fee per view online courses, to the new analytics programs that can inform better about other people active in

the wired world, in the form of computers and the internet, to even “off line” people with credit card transactions being recorded and cellphones with GPS computer chips.

Conclusion

As the individual MIT university has 601 or 66% of its total tenure track faculty participating in online educational resources’ (Open Courseware) production, with 2,206 courses published (762 have already been updated), with 71 full video courses, and 1,018 translated courses (MITOCW 2014), Korea and China can do more than they are currently. A digital Library focused on East Asian interests will help. Since 96% of educators say the MIT OCW site has/will help improve courses, and 96% of visitors would recommend the MIT OCW site, once educators in China and Korea fully realize the presence of OER, there will be rapid growth and participation. Further studies are needed, not only for researching details, and to identify cultural characteristics to help increase adoption, but to help publicize details that seem largely unknown by non-English native speakers, especially in East Asia. One area identified in this study was a proposal for increasing adoption: online educational providers should set up the learning materials with a user scoreboard, much like video game companies show global gamers’ rank. As people become aware of the online courses, and the fun that can be associated with learning, increasing amounts of participants will rise to a competitive challenge to outdo their classmates and peers, locally and globally, much like Korea has done with its global – professional - video gaming superstars. Open educational resources have become massively significant to large businesses, universities and individuals in Europe and North American where materials are well known. Online courses, educational social media, and analytics programs of Google, Yahoo, Naver and Facebook have created a whole new market with disruptive innovation. Online, open educational resources, tailored to national values and preferences, for free, using analytics programs to make modifications, are increasing attention of a larger range of consumers, and rapidly changing the Korean and Chinese educational landscape. Traditional universities need to notice the growing presence of a powerful force that is sure to disrupt the market. Usage of information has become beneficial to a larger group of people, of which the trend was perhaps assisted by the internet search and analytics programs. Traditional universities are maintaining their stance on the stage of global top level education, though they are increasingly facing risk of lower student numbers due to changing population age groups, and open educational resources. Consequently, the increasing dominance of online education and the Analytics programs of Google, Yahoo, Naver and Facebook will incessantly absorb the attention and usage of universities, students, and the public in general around the world.

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Social Media Impact on Electronics Related Brand Communities in Korean College Students

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Abstract

This research studies social media platforms in building online brand community, focusing on users not corporations. This paper surveyed to find whether different user interests in the platform lead to different motivations for joining online brand community in the same platform. A connection between users' main interest and activities in the platform was revealed. Users engage each platform to serve different interests categorizing each platform to fit their purpose. The high correlation between the users' interest and the activity did not affect their decision to join online brand community. The key factor was personal experience between the user and the brand and possible rewards/info from joining online brand community or corporate events. There is no distinctive relation between the barrier/issue to joining events and the types of platform. All three concerns (time, privacy, and bad (negative) corporate image) appear to be equally important to users. Monetary concern was least important to users.

Keywords: Online brand community, Web 2.0, Social media, marketing

Introduction

Many academic papers explore the effects of social media brand community on the marketing and value creation [1-7]. Yet, few papers address the topic of formation of brand community in social media platforms and the impact of social media on companies' effort – an effort to have a long-term relationship with buyers. This research was designed due to the lack of academic exploration on the formation of online brand community through social media. It aims to find the basic relation between users and brand community. The research is based on one conceptual paper published by Sashi [8] and one field research paper published by McAlexander, Schouten, and Koenig [9]. Sashi's paper is used to determine the focus of the research. In the paper, he suggests a cycle of customer engagement and value creation of online brand community. Since this research mainly concerns the formation of online brand community through social media, it was important to set criteria that a user can relate to, to be a member of an online brand community. McAlexander's paper is used to render a comprehensive framework that narrows down social media's functions that are specifically related to brand community-building efforts.

This research focuses on Korean college students and electronic gadget corporations since they are usually in their twenties and the most active social media group [10]. They grew up with the development of social media, as the most

convenient communication channel, and college students are both potential customers and the largest, active, future social media users. For the choice of corporation, it is necessary to choose a company or industry that uses social media actively and at the same time diversely – meaning it engages different social media platforms. Different social media platforms support different functions and different methods of communication that is either suitable for companies to build brand community or inappropriate to meet both actual and potential customers. For instance, pharmaceutical companies rarely engage social media marketing actively or diversely, as customers are professionals or elderly engaged in social media less than other groups. On the contrary, electronic gadget corporations such as Apple, Samsung, and Dell are one of the industries that engage social media most actively and diversely for the heavy presence of possible customers.

The purpose of this research is to conduct preliminary research that can provide a foundation for the implications of social media platforms in building online brand community. There is significant research about the relationship between online brand community and brand loyalty, but little research suggests how online communities are formed. This paper explores distinctive users' interests in social media platforms, and how the distinctiveness is connected to the formation of online brand community. In other words, this paper aims to find out whether the users of different social media platforms have different interests in engaging social media interactions, how the interest affects their actions in the platform, their connection to the company, and participation to the company-organized events. For a more precise result, the paper exclusively focuses on Korean college students and their interaction with electronic gadget corporations.

Theoretical background

Companies usually change their marketing strategies to fit the characteristics of the platform—companies are not often concerned with patterns of the users. Companies often launch video content in Youtube, picture content in Facebook, naming content in Twitter and review content on blogs. These are fine as they fit the supposed main function of each platform. However, social media is very flexible as are users. People may go to Youtube not to post their video but to watch interesting video or tutorials. Facebook users usually upload their pictures but they might not want

to post their pictures in public pages because of the risk of others seeing their picture and thus endangering their future career [11]. Another approach – company-led events, if applied wrong, may lead to severe damage to a company's reputation [11]. Of course, companies need to apply both traditional and non-traditional promotion to get the attention of users [12] but the flexibility of social media makes it hard for companies to maintain control as people act on their own [13]. Companies engaging social media marketing should know users' patterns, main interests, and motivation. Just creating pages will not engage users. Sometimes if managed crudely, internet pages can be marketing disasters [14]. Understanding the relationship between pattern of users and their engagement with a company will allow companies to make better decisions on what extent they should mix traditional promotion into social media marketing and how to facilitate shared rituals and a sense of moral responsibility. Such informed decisions will result in successful events and communications that not only satisfy the Board of Directors, but also the participants that are led into formation/expansion of online brand communities.

2.1 Social Media and South Korea: Social media is defined in this paper as “a group of Internet-based and technological foundations of Web 2.0, that allow the creation and exchange of User Generated Content” [15]. Each type of social media platform has different characteristics and serves different interests to its users. The different level of engagement and content divides social media platforms into roughly four categories; Social Networking sites (Facebook, Myspace), Microblogs (Twitter), Blogs (Blogger), and Content Communities (Youtube, Instagram) though usually integrated and intermingled under terms such as web 2.0 or UGC [16].

Korea's social media market was originally dominated by Korean firms. SK Communications developed and introduced Cyworld in 2001 and it's still the major social media platform in Korea. Unfortunately, Cyworld lacks easy access like Facebook or Twitter, and thus entices others with easier formats to penetrate the market. Cyworld is dominant due to its unique linking system 'Il-Chon (First Bond)'. When two different users agree to be 'Il-chon' or bonded, they are allowed to have special access and functions to each other's diary and walls. This special bond increases the unity among the users, and builds social capital and Cyworld. Korean users increasingly demand easy access to each other's profile regardless of region, school, and age – what Cyworld used to connect users -rather than having secret group. However, Cyworld's market share is still dominant while its growth remains dormant [10]. Facebook is growing incredibly fast in Korea. Another market factor to consider is mobile phone operation of instant messenger. Korea's nationwide 3G/4G network facilitates the use of instant mobile messenger, which in Korea, is Kakaotalk. Kakaotalk is a mobile application that enables smartphone users to send instant messages to each other and to groups via wide broadband and 3G/4G network. Korean Internet Infrastructure Statistics [3] shows that 91.4% of people in their 20s use Kakaotalk and other smartphone instant

messengers to communicate along with text and desktop messengers. Kakaotalk utilizes its huge customer base in its own social media platform such as Kakaostory –a Korean version of Instagram -and Kakaoagit, the substitute of Cyworld.

2.2 Brand Community: In this paper, brand community refers to this specific definition, “Customer-centric community whose existence and meaningfulness are inherent in customer experience rather than in the brand around which the experience revolves” [9]. This means joining a corporate Facebook page is not the same as joining brand community; it is joining online brand community that is closer to joining the list of potential members of the brand community. In this sense, launching successful events – which often means getting lots of participation, is not sufficient to form brand community. To be more effective, companies should apply three necessary components simultaneously: consciousness of kind (a feeling of similarity or belonging), shared rituals and traditions, and a sense of moral responsibility [9]. The consciousness of kind is usually formed offline as it is formed when a person owns a product from an electronic gadget company. However, shared rituals and a sense of moral responsibility can be achieved by launching a series of regular events and with constant communication with customers (possible through social media).

Social media interests:

Four Major Interests and Actions: Consumption, Socialization, Sharing info, & Absorbing info. Seraj [17] states there are three values in online communities: intellectual, social, and cultural value. It is therefore possible to create four main interests that can be applied to social media. Consumption represents cultural value – how much the users are interested in the contents of the platform - managing the quality of contents indirectly allowing suitable cultural contents in the platform. This includes watching videos, consuming pictures and stories posted by others. Socialization represents social value – how much the users are interested in other users and how willing they are to connect with others. This category involves active use of original function of social media such as exchanging comments and tagging people in videos and pictures. Intellectual values are divided into two interests: sharing info and absorbing info. Facebook users may post some info but it can hardly have the intellectual value of a forum. Microblogs such as twitter do not support co-creation of content, which is crucial part of intellectual value according to Seraj's research.

To meet the conditions of different platforms and avoid data collection error, the interactive intellectual activity performed by adding comments that are professional or intellectually interesting to the forum participants, is segmented into distinctive functions: collecting info and sharing info. Collecting info includes activities like scanning personal info posts from social media to personal databases and reading notifications of events from companies/

organizations/celebrities' pages. Sharing info generally refers to activities such as posting info that one find useful to others on social media.

Barriers to participation:

1. Time-related barrier (ex. takes too long to win, too much time spent, too busy to participate)
2. Monetary barrier (ex. participation costs too much)
3. Privacy barrier (ex. Fear of being identified or having details revealed)
4. Bad corporate image barrier (The event goes against the public image of the brand, or disbelief of the company's public intention)

One of the reasons that companies hesitate to actively engage social media marketing is the risk of failure, which often leads to critical damage to brand image. Image, and "face value," are critically important in Korea and throughout East Asia. Molson Canada and Nestle learned this lesson the hard way [11],[14]. A bad corporate image barrier is added to explore whether the nature of social media affects one's decision to join an online brand community. The socializing nature of social media may prevent sensitive users from connecting themselves to corporations with bad public images or reputations. Canada's Molson beer provides a good base for this criteria especially barrier 3 and 4. It clearly shows what happens if the company neglects privacy and corporate image and proceeds with events. The idea of using socialization interest and competition between colleges is not bad marketing. However, not considering the privacy issue and the image that the company has built over decades severely deteriorated the company's reputation.

Hypothesis

1. Each platform serves different – not necessarily unique but distinctive -main interests
2. The relationship between main interest and main action is related to each other.
3. Relationship between main interest and reason for joining brand community list is related to each other.
4. Relationship among the main interest/actions and reason for participating in social media event is related.
5. Main issues for not participating / reluctance to social media events differs according to platform types.

Findings

Main interest & social media platforms: The data suggests clear distinction of interest among different platforms, which are currently SNS and Blog. The users from SNS such as Facebook identified their main interests to be consumption (59.4%). This is surprising considering the medium level media richness of SNS. The fact that only 35% of users reported themselves interested in socialization is almost doubtful as the main function of SNS is supposed to be socialization. However, this figure is understandable as most of Korean college students communicate with each other though mobile chatting service such as Kakaotalk.

Blogs users, such as Blogger, identified their main interest as collecting info (66%). Blogs are low in media richness yet the high self-disclosure allows production of professional knowledge or contents that target specific interest groups. However, the small sample size is not good enough to make any valid claim on the distinctiveness of the user interest. This area should be further reinforced and explored in the future.

Main interest & main activity: The relationship between the main interest and the main activity is positive. Among 40 valid responses, 58% (24) of respondents identified their main interest to be consumption of content. Within the consumption population, 66% (16) reported their main activities are related to consumption. In the socialization, approximately 30% (13) of entire respondents identified their main interest is socialization and all of them (100%) reported most of their activities are socialization-oriented. (Other areas were insufficient to determine relationship - numbers were inadequate for data analysis.)

This suggests two things. First, social media platform only provides a suitable environment for certain activities. Second, it is the users that create the characteristics of the platform which may be reinforced or discouraged by the supposedly function of the platform.

Main interest & reason for joining online brand communities: The data shows no apparent correlation between the main interest and the reason for joining online brand communities. Among 17 respondents who reported they do follow certain electronic gadget corporations, only one respondent matches one's main interest and the reason for joining brand community. Most of respondents reported the main reason or motivation is either the experience with the company (53%) or access to corporate info (47%). This suggests that the users separate their main interest and activity in the platform when they are deciding to follow a company. This also shows that the most connection between the social media marketer and the community member is not accomplished on the platform; rather it is done in reality and brand image constituted by traditional marketing method.

Main interest/action & reason to participate in corporate-organized event: Data collection revealed no relationship between main interest and reasons to participate in corporate-organized events. Among six respondents, only one respondent (16%) reported that his/her main interest mattered in his/her decision to participate the event. Others (84%) reported their main reason for participating in events to be material rewards. This suggests that the users consider economic value of joining the event, which implies the users – who joined online brand community and participated in events more than three times – do not feel they are strongly connected to the company. Social media is better with material benefits than social or intellectual benefits.

3.5 Different platforms & barriers to participation: The main barrier did not differ from one platform to another. In fact,

there was no main barrier. In all platforms, the three barriers shared similar percentage of the data pool. In SNS, privacy-related barrier turned out to be 35% (13), time-related barrier to be 43% (16), and negative corporate image-related barrier to be 22% (8). In Blog, results were similar; each barrier sharing a third of entire respondents. Monetary barrier – money related issues – was not reported from both SNS and Blog, as most social media in Korea does not require a great amount of money to participate events. This suggests corporations or social media marketers need to consider all three aspects when launching events.

4. Conclusion & Implications for Social Media Marketing

The findings suggest that each social media platforms may have its distinctive user pattern that is originated from the different media richness and degree of self-presentation. The sample size was too small to draw and solid claim on the issue. The lack of correlation between the main interest and the motivation to join the brand community suggest traditional method such as salesperson or internet commerce is more reliable in making connection with potential brand community member. Social media can only be assisting factor by absorbing interested groups or once-connected people into online brand community. Korean college students who engaged social media are often motivated to join events by material rewards rather than their main interest. They do not necessarily connect their reason for using social media platform with their decision to contact brand community.

Companies need to put more importance in traditional way of promotion rather than non-traditional approach. Moreover, material reward turns out to be the greatest impacting factor in promoting user participation in social media events. Perhaps rewarding participants with the product/service will be better way to create and expand brand community through social media.

Furthermore, in terms of the barriers, the data presented three major barriers among the four: time, privacy, and the negative corporate image. The fact there was no great difference in terms of importance among the variety of platforms suggests that companies should consider all three issues (time, privacy, bad corporate/marketing image) and treat them equally important when deciding social marketing strategy.

Thus, it can be concluded that Korean college students who engaged social media are often motivated to join events by material rewards rather than their main interest. They do not necessarily connect their reason for using social media platform with their decision to contact brand community. Companies need to put more importance in traditional way of promotion rather than non-traditional approach. Moreover, companies should consider all three issues (time, privacy, bad corporate/marketing image) and treated them equally important when deciding social marketing strategy.

Further research can examine the relationship in details

such as how strongly related the supposed function of the platform and the actual user pattern. This paper presumed that electronic gadget corporations engage social media marketing actively and diversely based on consensus in Korea. Moreover, electronic gadgets tend to be male-oriented; using an industry that can appeal to both genders might generate better results.

This paper is heavily based on customer views. As relationship marketing is not just about the customer but the satisfactory relationship between buyer and seller, company focused research may show interesting results. It may help to explore the difference between the actual user pattern and the user pattern measured and expected by corporations.

The findings suggest that each social media platforms have distinctiveness in the user pattern. More detailed research may help solidify results. The lack of correlation between the main interest and the motivation to join the brand community suggest traditional methods, such as a salesperson is more reliable in making connections with a potential brand community member implying the limited role of social media as a marketing tool. How it is limited and how such limitations can be overcome would be a good research topic for further study. This research did not target specific genders that can influence the findings – often within Korea, it is men who are more interested in computers or electronic gadgets. More questions, and ones that are more detailed can deepen the implications of the research.

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Appendix – Survey Questionnaire

1. What is the social media platform that you most frequently visit?
 1. SNS (Facebook, Myspace)
 2. Microblog (Twitter, Me2day)
 3. Blog (blogger, Tistory)
 4. Youtube, Vimeo
2. How many times do you visit your choice of platform in a week?
 1. Below 7
 2. 7-8
 3. 9-21
 4. More than 22

3. What the greatest reason that makes you to use your choice of platform?
 1. It provides information (recipe, music file, picture, story and video) that I want
 2. It is easy to express and share my opinion on specific issues with many people and friends
 3. It is easy to connect and meet the people who shares the same region, school background and interest.
 4. It has many interesting and funny contents (video, story, pictures) that I can enjoy
4. What do you do the most in the platform? (Put the most frequent action in descending order)
 1. I enjoy interesting and funny contents (video, story, pictures)
 2. I post my daily and personal thoughts (diary, status) and share contents(video, writings, reviews and pictures) I made
 3. I catch up with people who I know in online and offline through chatting and status.
 4. I gather information I need (recipe, tutorial videos, reviews) and if I cannot find, I ask others through comments and status
 5. How many companies or organization or person have you connected (followed, made friends, subscribed)? (If it is blog, choose the number of blogs that you regularly visit and are operated by the company or under the sponsorship of the company)
 1. 0
 2. 1-2
 3. 3-5
 4. 6-9
 5. over 10
 6. How many electronic gadget companies (Samsung Electronics Corporations, Dell or LG) are there?
 1. 0
 2. 1-2
 3. 3-5
 4. 6-9
 5. over 10
 7. If you did not choose item 1, why was/were the reason you connected yourself with that company/ those companies? (two choice maximum)
 1. I have purchased their product and been interested in their activities and wanted updates on their new products, BOD and company itself.
 2. I wanted to gather information that I can use when I purchases decisions or when I can make a social, political or moral judgment.
3. I thought it frequently posts contents that are personally interesting to me.
 4. I wanted to make connection and communicate with people who are interested in the products and activities
 5. I wanted to let the company know my opinion on their products and activities directly or indirectly.
 8. Have you participated any event hosted by that company/those companies?
 1. Never (0)
 2. Barely participated (1-2)
 3. Fairly participated (3-5)
 4. Actively participated (6-9 or over 10)
 9. If you did not choose item 1 or 2, what motivated you to participate in the events? (Two choices maximum, if chose item 1, then three choices maximum)
 1. It offers rewards (Ipad, trip ticket etc)
 2. It offers access to the contents that I find interesting (access to secret video or sites or publicize videos if it reaches certain number of view or likes or retweet)
 3. It offers experience or information that I am always interested (1st place provided international volunteer experience, short internship in marketing department)
 4. It provides a good opportunity to share personal opinions and knowledge (video contest showing a tip living a week with ten thousand won, product review contest)
 5. It provides a good opportunity to solidify existing friendship with online and offline friends and meet the people with same interest (UCC(user created contents) contest, study aboard essay contest)
 10. What do you worry the most when you join such events? (if you never or barely participated, what was the reason that made you reluctant to join)
 1. Time restraints (do not have enough time to finish the event or I felt it doesn't worth my time)
 2. Privacy (others knowing my participation against my will or seeing videos and pictures that I am on)
 3. Money (do not have enough budget to finish the participation or I felt it doesn't worth my money)
 4. Lack of expectation on winning the competition or event or my negative perspective toward the company

Use of ICT in Management of Voters Registration in Nepalese Context

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Abstract:

Information and Communication Technology (ICT) has changed life style of every individual personally, socially and politically. Because of proper management of voters list by developed countries, electronic voting and counting votes have been very much easy, fast and reliable. But developing countries like Nepal has been using manual process for voters name list as a result searching voter details is time consuming, duplication and missing voters' details are primary problems. The researcher has used secondary data, his own experiences and followed qualitative research methodology. This research has explored the use of ICT for proper management of voters list. Once voters list has been managed properly by a nation, it helps in local, provincial and central level of planning.

Keywords: ICT, Management, Voters, Planning

Introduction

ICT plays significant role in the development of any countries of the world. E-democracy as an umbrella term that covers many democratic activities carried out through electronic means and broadly defines e-democracy as 'the use of ICT by governments to improve the efficiency, quality and quality of democratic participation [4]. Acquisition of appropriate ICT infrastructure will be the pace for the development of a credible voter registration database that is interactive, usable, sustainable and effective [7]. In present days, developed countries have been using ICT in a proper ways in every sphere of life and as well as in the management of voters list. There are so many areas where ICT has been used and applied. Nepal government and private agencies have been trying to provide deferent regular services through the use of ICT so as to provide quick and effective deliver of their services [1]. But in the context of electoral process, there has not been used ICT in the management of voter list and vote counting system. It has been using manual process still for voters name list. As a result Nepal is facing many problems in elections like; searching voters' details is time consuming, duplications of voters name and missing voters' details. There are also reporting of fake, proxy, under age, coercive, enticed and multiple voting even anti-voting campaigns [2]. When a voter registration is not automatically generated from a national citizen database, such as a civil registry or a national identity card database, the process of actively registering voters in one of the most complex, time-consuming and expensive operations of electoral administration.[8].

Election commission updates voters' list before held of elections. Electoral management process begins from the day of voters' list preparation. In Nepal, more than 81% people

live in village and average voters' are illiterate and poor. Because of the geographical diversity, scattered settlement in the high hills, the mountain and remote areas with little access to transportation, do not augur well for voters' participation in elections. In the other hand, due to the manual name lists, and casting system, voters become impatience to be queued all the day long. In the face of advancing ICT and emerging challenges in manual electoral process in developing countries like Nepal, it should be replace the current voters' register with a biometric register for subsequent elections. Biometric voter registration includes the use of biometric technology in voter registration. Therefore, this paper goes on to report on a proper management of voters' list, e-voting and e-counting using of ICT.

Statement of the problem

The Government of Nepal has maintained manual electoral process. As a result, voters have been missed, duplicate and time consuming in searching voter details.

Objectives of the study

The main objective of this research paper is to explore the use of ICT in the management of voters' registration, electronic casting and counting system in Nepal.

Methodology

This study is based on secondary data. The researcher has collected secondary source of information from different library, publications, related research articles, and researcher's own experience.

Literature review

A comprehensive and inclusive registration is a key part of ensuring universal suffrage and the enjoyment of the fundamental right to vote and right to elected (The Carter Center, 2013). Due to the manual electoral process, so many problems have been facing in all elections of Nepal. Because of the geographical condition and population size of Nepal, electoral process should be reformed.

According to the 2011 National Population Census, the total population of the country is approximately 26.5 million. The election commission decided that all the citizens aged 18 years and above by the end of July 15, 2013 would be eligible for casting their votes in the CA election 2013 and in terms of this provision, the total number of registered voters by the end

Table 1: Status of voters registered by development region.

Development Region	Male	Female	Third Gender	Total
Eastern	1440950	1468154	34	2909138
Central	2115064	2079012	77	4194153
Western	1134043	1235894	25	2369962
Mid-Western	755227	794863	9	1550099
Far-Western	535597	588906	10	1124513
Total	5980881	6166829	155	12147865

Source [5]

of July 15, 2013 was 12.15 million, consisting of 6.16 million female, 5.98 million male and 155 third gender [3].

About 12.15 million voters were registered on the voter's registry prior to the 2013 constituency Assembly election. Total 78.34% voters cast their votes in the first-past-the-post election and 79.82% participated in voting in the Proportional Representative race. The invalid vote count in the FPTP race was 4.96% whereas in the PRA race it was 3.20% [5]. The overall estimated cost of conducting the CA election, by election commission of Nepal, was approximately 4.34 billion Nepalese rupees, it means in an average the cost of per voters is NRs.357.00 [5].

Participating Party's numbers are increasing in every other election. There were 56 parties contesting in the Constituent Assembly Election of 2008. Total number of 130 political parties were registered to contest in the CA election, among them 122 parties contested in the PA race while registered in the PR race while 120 political parties filed candidates for the FPTP [5]. The participated parties in each development region have been summarized in the following table and chart.

Table 2: Participation of political parties by Development region.

Development Region	Number of Political Parties
Eastern	93
Central	107
Western	66
Mid-Western	61
Far-Western	41

Source [5]

There were 56 political parties participated in the general election of constituent assembly in 2008 and 122 parties in the second constituent assembly election of 2013. Due to the increasing number of political parties, voter and other factors, time have come to replace old manual system and adopt ICT in voter registration. The old method of registering voters did not have an in-built mechanism for detecting multiple registrations. With biometric technology, the detection and removal of multiple registrations from the system will be made possible with relative ease thus, a more accurate and reliable register will be produced for election [9]. In the Constituent Assembly Election 2013, national and international observers had prepared comprehensive

reports [10], where they were observing in far western region stated: There was lack of mechanism to handle disputes related to voter registration on the spot. They had met several people who had complained that their names were not in the list even though they had a small slip and not the identity card. Another problem was mixing of names and photos, missing cards, as well as late introduction of the idea may have, in the opinions of poll officials and observer contributed to up to 5-10% of the genuine voters not being able to vote. On the report of national election observation committee [10] stated that the free and fair election, one crucial area of reform lies in updating voter's list. The case of disenfranchisement of voters, ID cards not tallying with voter list, residency requirement depriving homeless and rural people working in urban areas. Such situation should be addressed in order to facilitate all eligible voters to vote conveniently.

In a report of National Election Observation committee [10] mentioned; A comprehensive and inclusive VR process is key to ensuring universal suffrage and the enjoyment of the fundamental right to vote and to be elected. VR reform was the priority recommendation of NEOC and other observation organizations following the 2008 CA election, due to the widespread lack of confidence in the accuracy of the voter rolls. Thus, in the face of advancing information and communication technology (ICT) and emerging challenges, the election commission has introduced the semi-biometric voter registration for the first time in Nepal since 2010 [10]. But still, Nepal could not be able to apply ICT instead of using manual system to register votes, cast votes and counts that have created many problems in every election, like fraud in counting, casting vote by impersonation, exchange of ballot boxes etc. Due to such problems, in some election constituencies create the situation of re-polling, re-counting and sometimes case files in Constitutional High Court by disgruntled parties and candidates. If Nepal adopts ICT in electoral process, these problems will reduce. There however is no provision for out-of-country registration or voting, although 3,000,000 or more Nepalese are estimated to work abroad.

In these places — Argentina, Australia, Canada, France, and the Canadian provinces of British Columbia, Ontario, and Québec — voter registration is virtually automatic. Election officials routinely add new voters to the rolls based on information that other government agencies provide on

a regular basis; there is no need for these voters to interact with election officials directly and no corresponding mountain of paperwork. Canada shares decentralized federal system. These, provinces create and maintain their own voter rolls, and a federal election authority builds a separate voter roll for use in federal election that is based in part on the provincial rolls and in part on other government lists. When an individual turns eighteen, or becomes a citizen, he or she is added to the rolls. A voter who moves remains on the rolls. The system works efficiently and with no allegations of fraud. An overwhelming ninety-three percent of eligible citizens are registered to vote, compared to 68% of Americans who were registered to vote as of the last Census report [11]

Developed countries Canada, UK and developing countries like India, Brazil etc. have adopted ICT in electoral process like in name register, casting votes and vote counting. The above illustrates that, for electoral process, most problems can all be solved given enough work: advance planning, training and management. It is a question of balancing time and cost against what can be achieved. But Electronic Voting and Electronic Counting are more difficult. They can produce accurate results quickly and thus provide cost savings, but even with the most competent staff and rigorous controls it is almost impossible to demonstrate that the results are correct with any credibility. But if the different stages of the Electoral Cycle all have their own ICT systems, pre-requisites and problems, the biggest problem is the gap between elections. In the UK and countries where there is an election every year there is no problem: budgets are sustained, systems maintained, registers are updated each year and the electoral staff gain experience at work. But where there are elections only every 5 years, the problem is what the Electoral Commission is to do in the quiet years. We know what happens: budgets are unsustainable, and are reduced experienced staff drift away, the voter registration is out of date, and the registration computers and polling equipments are locked away in a warehouse to gather dust. Then when the next election comes around, there must be new staff, new registration, new computers and possibly new software. So everything starts again from the beginning, and we spend all the money again [12].

Result and discussion

The developed and developing countries Canada, Brazil, India, etc have fully used ICT for voters' registration. As a result, they can control and manage voters' registration effectively and efficiently. But in context of Nepal, ICT in electoral process has not been fully used. A trial use of electoral voting was implemented in the Constitutional Assembly Election in 2008 in the Constituent Area 1 in Kathmandu but was not re-implemented in the Second Constitutional Assembly Election in 2013. The introduction and use of ICT poses new challenges like the lack of trained manpower, training requirement of existing manpower, implementation cost, periodic update to meet the fast paced development of ICT, development of trust in voters as well as the participating political parties on the implemented ICT based electoral system.

Conclusion

At this current Information Age, while every other organization/entity is thriving to update its traditional system to a more comprehensive updated ICT based system, the necessity of transforming the traditional manual electoral system to the updated ICT based one is increasing rapidly so as to maintain the future sharing/interlinking of information with other relevant systems. As Nepal has entered federal system and poses challenges of composite election / multiple levels of elections comprising of local, provincial and central levels, the use of ICT can ease such complications. Also one has to keep in mind the analysis to be done between the challenges posed by traditional manual system and the challenges as well as advantages presented by the ICT based electoral system.

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Sharing of Telecommunication Data in Nepal

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Abstract

Telecommunication industries have been generating large amount of real time data every second. Based on these data, the subscriber behavior can be easily studied and predicted. Large analytics like disaster analytics, marketing, fraud, governmental, sales, etc. are based on location based information, customer profile and their usage behavior. Nepal is a country which remains to be explored on the informative or business impact by venturing into big data and advanced analytics. Structured and unstructured files generated in the communication industries can be properly drilled and analyzed to generate unseen information and newer revenue. Additionally, most of customer profile is associated with a communication number. Telephone line distribution is governed by proper customer information, which makes it easier to analyze usage behavior based on telephone number. This research explores the readiness of Nepalese telecommunication industries to broadly think on the value of telecom generated data and whether the industries and government institute governing the telecommunication industry are ready to share their telecommunication generated data.

Keywords:

Telecommunication, data, analytics, readiness

Introduction

With the entry of private operators, Nepal has seen rapid growth of mobile subscribers and the coverage has reached almost all over Nepal. With the ease of availability of mobile lines and the market access of cheaper devices Nepal has a penetration of telephone lines of over 107% [1]. The competition and customer demand has automatically driven Nepal Market for data penetration, i.e above 44% [1]. With the still expanding network and with the demand of faster data connectivity along with newer technology it becomes necessary to explore the value of the data which is residing in the telecom industries. The insight value of data can be perceived with the intention of newer revenue generation as well as be explored to utilize information for better opportunity in other areas. Every subscriber line distributed in Nepal is legalized with proper documentation. Hence, telecom in Nepal, is already enhanced with large customers

and this large number of telecom bundled subscribers can be enhanced with newer business insights. Telecom customers' usage patterns can find value for other organizational businesses and information systems besides Telecom's own business and operational insights.

Smart query and decision support system with the big buzz word of big data and advanced analytics are all over. In near time, Nepal can resolve many of its weak informative and decision system with smart analytics applications valued by telecommunication data in governmental and private sectors. The cost benefit of investing in big data projects is highlighted by Wikibon by finding that ROI on big data project was 55 cents for every dollar spent [2]. According to Global ICT Development Index (IDI), Nepal has improved its IDI ranking from 140 in 2010 to 136 in 2015 with the IDI value at present scenario to be 2.59. United Nations International Telecommunication Union publishes this, based on 11 ICT indicators, in regard to access, use and skills. Since telecom reach is one of the main indicators, it becomes necessary to realize the values of telecom data generated from the use of telecom equipment. In the wake of development and global technological trend, business and research institutes will show interest to obtain telecom data for own studies and benefits. This research is to understand the response on the willingness of Nepalese Telecom industries to share data with other parties besides own. At present Nepal telecommunication services is rendered by 6 telecom operators. The market share of the six operators is shown in Figure1. A large telecommunication Nepalese operator can produce around millions of records per day. If historical stored data for several years were to be used it would exceed billions of records. Telephonic generated data has to be collected from all of the operators if a non-telecom organization were to use telephonic data. Hence, this would mean higher complexity of integration and data processing. An example of typical telecom data generation nodes is shown in Figure 2.

Market share of Telephone Operators

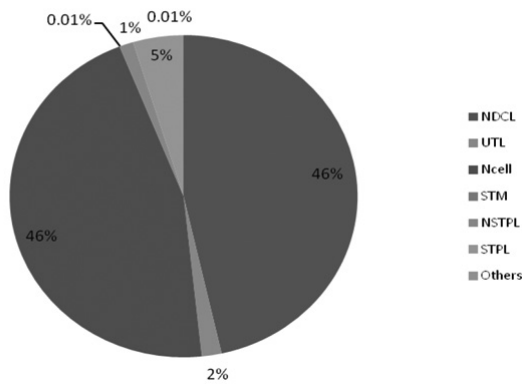


Figure-1-NTA MIS Aug-Sep 2015, Nepal

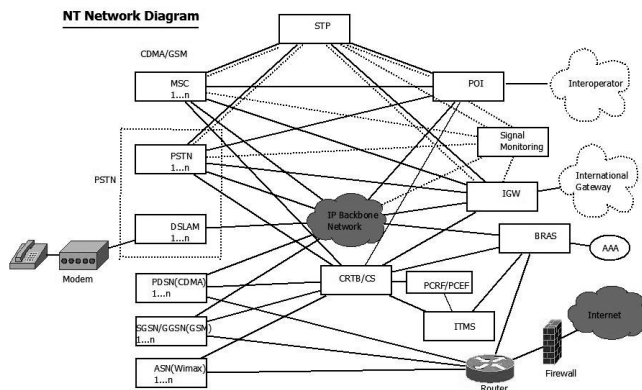


Figure-2-A Telecom Network in Nepal

retailers or websites the customer visits. Telecommunication industry, hence sit in a digital gold mine of information. To create new revenue stream telecommunication are adding or selling data to upstream partners like manufacturers, retailers, advertisement, etc. Sprint, sells data to marketing agencies. France's SFR contributes data to assist in blood donations among customer base, contributes to transport infrastructure development in Paris and even fights crime. France operator Orange, tied up with Autoroutes du Sud de la France for traffic forecasts. Telefonica partnered with other business houses to forecast best shopping areas by using the location information of the customers [3]. Innovative communication service providers in Asia are also leveraging the values hidden in their CDRs and other internet data in a pragmatic evolutionary approach [4]. AT&T sell customer data to their associate business houses on specific customer private policy level [5]. T-Mobile shares customer information, including geographic and demographic information to help advertisers "better reach" its customers [6]. Bloomberg estimated that telecommunication sector worldwide could earn \$9.6 billion by selling customer data to third parties in 2016 [7]. Furthermore, Cisco had forecast that by 2019 the global mobile traffic would increase tenfold from 2014 and 95% mobile data traffic will originate from smart phones [8].

Overview of telecom data

Telco industries have been generating data from very long time. These files containing large amount of data have been used in performance and business analytics of some form or other. It is therefore, not unusual to think that every organization has stored information of such data for past many years in some kind of data repository. As customer demand and hunger for internet has grown, more and more data is being generated not just simple structured form but also unstructured form. Telecom data broadly speaking can be grouped into network data, customer data and data for usage pattern and is briefly described below.

Network data

Network data describes the state of hardware and software components in the telecommunication network and the data acquired can be extremely complex. Each resource can be capable of generating errors, alarms and status measurement in regard to the performance [9]. Network connectivity data is inseparable from customers' daily lives. The Network data is emphasized for important delivery of Business and consumer product [10]. The network data has to be considered in cases where predictions are made in case of critical real time analysis.

Customer data

Data regarding the customer personal information is collected mainly from the customer relational management system which is plugged in with the billing system. In this, the telecom operator binds the customer's personal information such as name, age group, bank accounts, payable method, family members, addresses, roaming and other feature profiles, etc. The bill amount payable and the top up amount itself indicate the financial category of the customer's household income. Sharing this information to the third business parties is useful to push product campaign and advertisement [11].

Methodology

This research paper is based on quantitative methods assisted by survey method. Primary source of information by email and hard printed forms were used as survey tool. Survey was conducted among telecom technical staffs from three prominent and leading telecommunication operators in Nepal and Nepal Telecommunication Authority (Regulator). The survey tool was designed to collect feedback so as to explore the experts' personal view on sharing telecommunication data with third party analytics for governmental and private usage. Moreover, various articles, journals, white papers on related subject were used.

Literature review

Telecommunication service providers have large access to information about their customer and their usage pattern. Their large subscriber bases and data generated every time they make a call or texting or uses the internet. The information is provided on whom they call or what they text and also what websites were visited or which applications were downloaded along with the location information and devices used. Another form of data is generated from

Customer usage data

The most used and valued data for sharing is the called data records (cdr) of the subscribers. The usage pattern of the called subscriber is embedded in this data file. Phones are the most interactive medium of connectivity for low income people [11]. The cdr file contains not only the calling party number but also the called number is displayed. The period of call with accurate time and duration are part of this data. The other part of valuable information is the cell or location identity. The caller number can be matched with the information in the Customer Relational Management to add to better value of analytics. The smart phones play a great role in the usage pattern of the internet. The pattern is studied to understand personal or group information on the website visited, the high click areas and the applications downloaded or used. In addition, the value of data increases when wide variety of Over-the-top (OTT) players become innovative business partners. Telecom for increasing revenue, reducing operating expenses and retaining customer loyalty need to partner with such services [12]. The OTT players delivering newer and newer services (as market demands) see sources of large revenue for themselves. To be competent in their own services, the OTT players need the telecom personalized or categorized information to make smart decisions and campaigns for right product at the right time and right place. In the year of 2012, global mobile video traffic itself accounted for 50 percent of total mobile data traffic and by 2014 global mobile devices connected were 7.4 billion with 88 percent smart phones [8].

Analytic systems

In the global trend, in order to accelerate business, organizations are exploring and adopting the power of analytics. The popularity of Analytics 1.0 was designed (since mid, 1950s) to resolve the reporting and descriptive analysis of the internal data which resided in data warehouses. The data sources are relatively structured, smaller and so could be segregated in enterprise data warehouse or data mart after an extract, transform and load (ETL) process. For most industries the data sources are internal and address the customer information and organizational products. They work in batch processing mode and is time-consuming. This Business Intelligent product is mostly proprietary and sold in packages with the needed functions of the organization [13]. The popularity of on line firms like Google, eBay, Yahoo, Amazon, new form of transactions heaped with the assistance of smarter analytics. The characteristics of 4V (Volume, Velocity, Variety and Variability) of data inclusive of internet based data evolved the analytic technology to the next generation of Analytics 2.0 [11]. This type of Analytics brought about the big buzz word of Big Data (around 2010) [13]. This was born with newer generation of open source technology like Hadoop and NoSql and many more smart developments in storage, processing and query systems. The inclusive of internet of things in the conventional analytic system and ingestion of newer types of data has led the evolution to Analytics 3.0. Hence the evolution BBD (Before Big data), BD (Big data) and now ABD (After Big Data) [14]. Analytics 3.0 includes descriptive, predictive and prescriptive analytical functions with more emphasis on prescriptive analytics. This type of

analytics considered operational benefits with the mixture of employee behavior [13].

Application systems for nepal using telecom data

Advanced Analytic applications are widely applied in many research, business management and governmental information system. Likewise Nepal need to implement smart analytics systems in various sectors to boost the proper information and business systems in holistic way. Such analytics' reporting and visualization tool can assist Nepal to have a query system to serve the smart decision support systems in many cases. This research is to visualize the importance of the utilization of telecommunication data for some important applications in Nepal.

When the disaster of April 2015 struck in Nepal it took away the life of over 8000 people. Smart analytics could have served to understand actual relief efforts in a systematic way. Emergency relief workers worked on their own not knowing the corrective guidelines for relief or the area to serve. Telecom data could be analyzed with the cell identity as location based system to understand the number of people stranded or missing in particular areas. Proper utilization of the Customer Relational Management having personal information and collected by telecom could have been tied up with the cell id of the disaster area and traced to understand their position or their last location in cases where access were destroyed totally. Social networking could drilled down to quickly serve as an informative system in one analytic system. Tourist information was not immediately pinpointed. Two way call center information could be ingested to assist in rescue information. Earthquake, landslides and flood are the repeated disasters that occur in Nepal frequently. Besides telecom data, Google and Facebook both launched systems designed to help track or trace missing loved ones following disasters after the April 2015 Nepal Earthquake. It was updated 5,300 times in the first two days following the Nepal quake. Facebook's Safety Check service automatically sent messages to people whose GPS data shows they are within disaster zones. Massive amounts of data that generated with mobile phones, satellites and social assisted to giving clues to respond to situations [15]. Google's People Finder was launched after the 2010 Haiti earthquake. Big Data systems helped with disaster relief of the 2010 Haiti earthquake and the 2011 Tohoku, Japan earthquake and tsunami. All these social network data could be more efficient if integrated in a Nepalese environment built analytics to deliver a proper disaster recovery system.

Another area of analytics incorporating the telecom data, is the informative query and business aspect of mobility study of Nepalese migrants. Remittances sent by migrant workers now stands at around 30 per cent of total GDP of Nepal [16]. Issues of slavery, prostitutions, cheating both in home and in migrant country are highlighted in many reports on the study of Nepalese migrant. Some of the reports suggest that

government put up a holistic informative system for best fit jobs for migrant workers. Smart analysis for the migrant workers called and calling numbers and their origination or termination of called data records could be analyzed to avoid many of the issues that are based on the ill fit or misinformed/cheated jobs. Returnee migrant or unwilling migrant can be guided for 'in home' jobs by this intelligent analytics and query system. Destination countries Sim provided at departure airport enhanced with local mobile applications could serve as help line. Financial transaction, social site link-ups and legal guideline informative system for the unskilled Nepalese migrants in a single platform of query system could enhance the migrant workers environment.

Nepal with its scenic value and Himalayan regions is great attraction with eight highest peaks in the world. Nepal has large heritage and cultural attractions for the tourist sector. Telecom ingested smart analytics in tourism along with ticketing, weather information, accommodation, tourism business information system could be incorporated into the analytics. Telecommunication data can be analyzed starting from roaming data or Nepal distributed tourist Sim based data. Security information and tracing the tourist activity from structured and unstructured data information can be utilized to boost the tourist trade. Trekkers and mountaineers can be kept tracked for safety informative system. Health wise information can be centralized by the hospital. Past diseases and history could assist the doctors in the treatment process. Patient health profile could be centrally stored along with unstructured information including scanning, x-raying, test reports, etc. Patients can benefit with quick treatments by the application of health based analytics especially for rural and remote sectors where proper medication facilities are not available.

Results, analysis and discussion

In this research the survey tool was designed to ask personal opinion on data sharing for two broad aspects: governmental and private purposes. In the governmental areas security, disaster, governmental information system, public health, citizen benefit applications were highlighted. In the private sector business, finance, private academic and insurance applications were focused. The data can be in real time (even near real time) or obtained from repository (known as history data in this survey). Instantaneous information requires real time data availability; whereas history data stored for years are used wherever long turn changes are studied for forecast. The survey investigated the participant's view in sharing data in processed or raw format. The raw format contains same attributes that are generated from telecommunication node, whereas, the processed data files are filtered or transformed. Another set of study that was undertaken was the sharing method, with the following choices:

- Purchase: Sharing of telecom data directly or through distributors
- Bilateral Agreement: At negotiated deals
- Revenue Share: Negotiated with profit sharing
- Open platform: Put up into websites for general information
- Governmentally Order: Ordered to be shared by policy level

The survey participants (62 number) in this study were from leading telecommunication related organizations. Participants were experts who understood the core system of telecommunication. The roles in the surveyed telecom related organizations were Experts (60%), Decision makers (2%), Advisor to decision makers (34%) and Planners (4%). For survey tool, feedback for governmental purpose applications, as shown briefly in figures and tables, are security, disaster, public health, governmental information, citizen benefits (social security, old age and widow benefit, etc.).

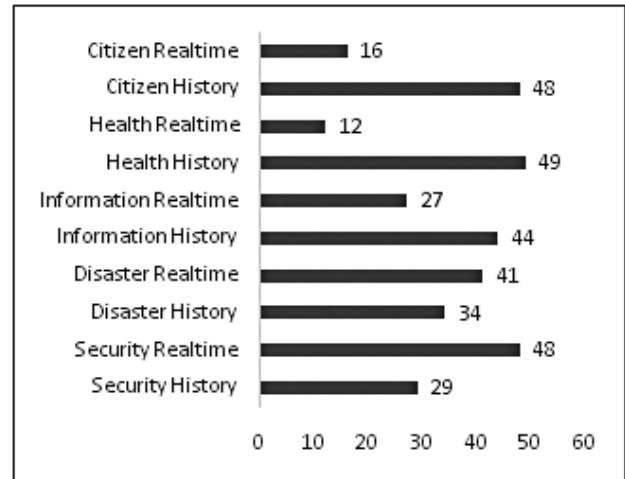


Figure 3 -Government real-time and history counts



Figure 4 -Government: real time and history role wise (%)

Table 1: Private: Real-time and history

Role	Business	Finance	Academic	Insurance
Decision Maker	Real time	Real time	Real time	Real time
Advisor Decision Making	History	History	History	History
Planner	History	History	History	History
Expert	History	History	History	History
Together	History	History	History	History

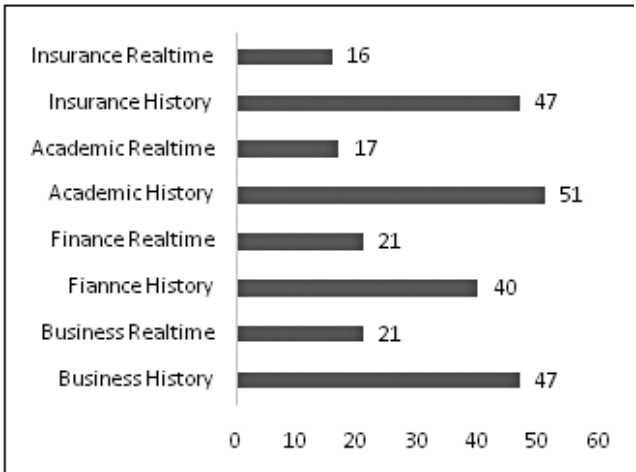


Figure 5 -Private: Real-time and history

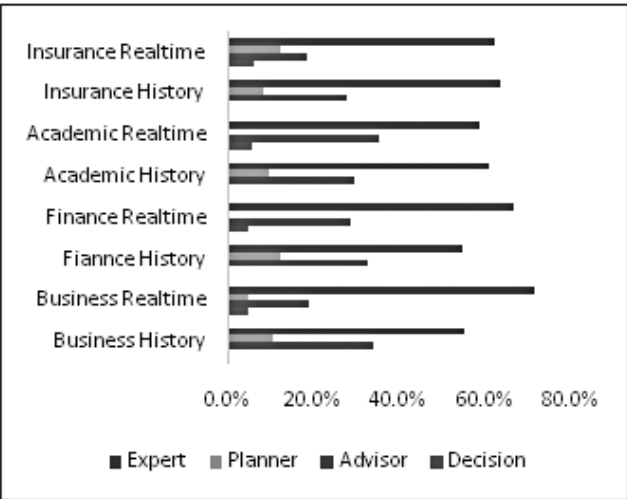


Figure 6-Private: Real time and history role wise (%)

Table 2- Private: Summarized real time and history

Governmental Purpose					
Role	Security	Disaster	Informa	Health	Citizen
Decision	Realtime	Realtime	History	None	History
Advisor	Realtime	Realtime	Realtime	History	History
Planner	Realtime	Realtime	History	History	History
Expert	Realtime	Realtime	History	History	History
Together	Realtime	Realtime	History	History	History

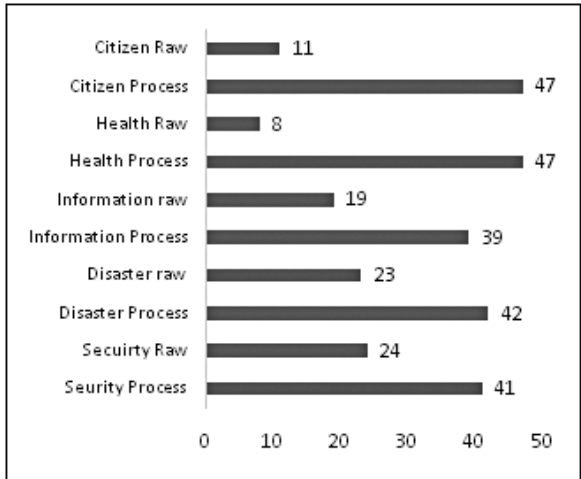


Figure 7-Govern: Raw and processed data counts

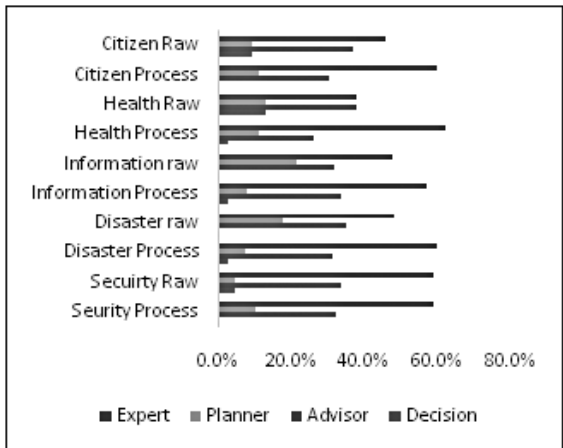


Figure 8-Govern: Raw and processed data role wise (%)

Table 3- Govern: Summarized raw and processed data

Governmental Purpose					
Role	Security	Disaster	Information	Health	Citizen
Decision	Raw	Processed	Processed	Processed & Raw	Raw
Advisor	Processed	Processed	Processed	Processed	Processed
Planner	Processed	Raw	Raw	Processed	Processed
Expert	Processed	Processed	Processed	Processed	Processed
Together	Processed	Processed	Processed	Processed	Processed

Figure 9-Private: Raw and processed data counts

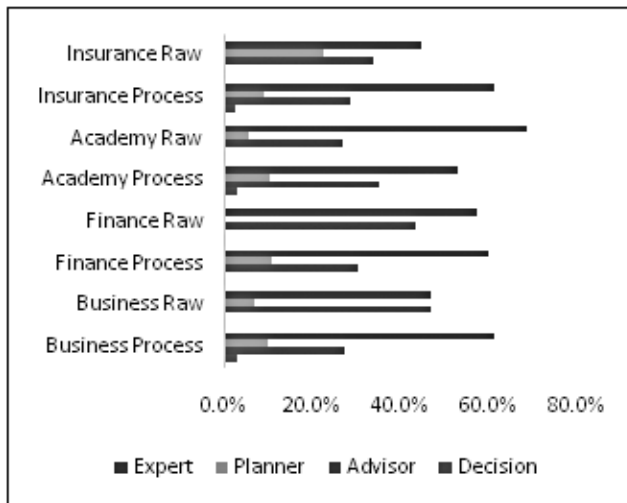


Figure 10-Private: Raw and processed data role wise

Table 4- Private: Summarized raw and processed data

Private Purpose				
Role	Business	Finance	Academic	Insurance
Decision	Processed	None	Processed	Processed
Advisor	Processed	Processed	Processed	Processed
Planner	Processed	Processed	Processed	Processed
Expert	Processed	Processed	Processed	Processed
Together	Processed	Processed	Processed	Processed

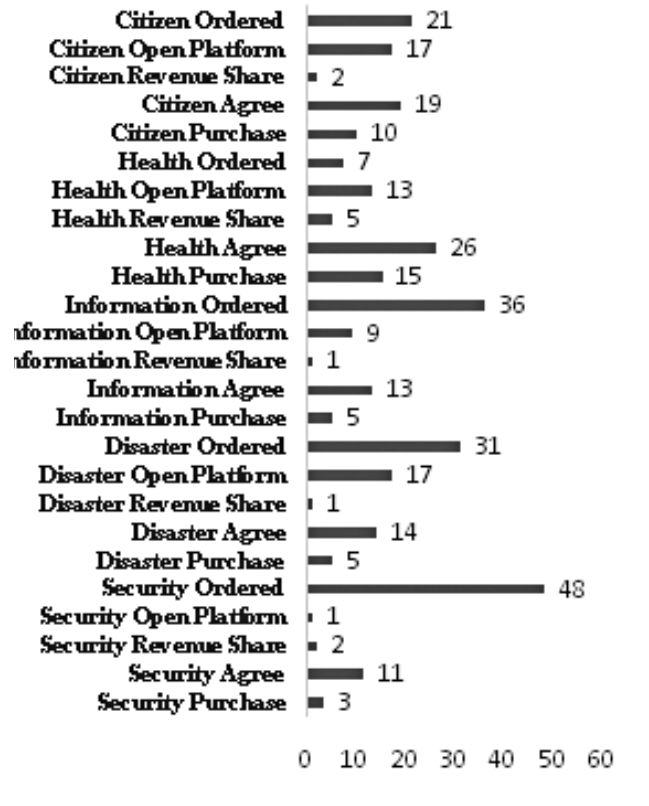


Figure 11-Governmental: Share mode counts

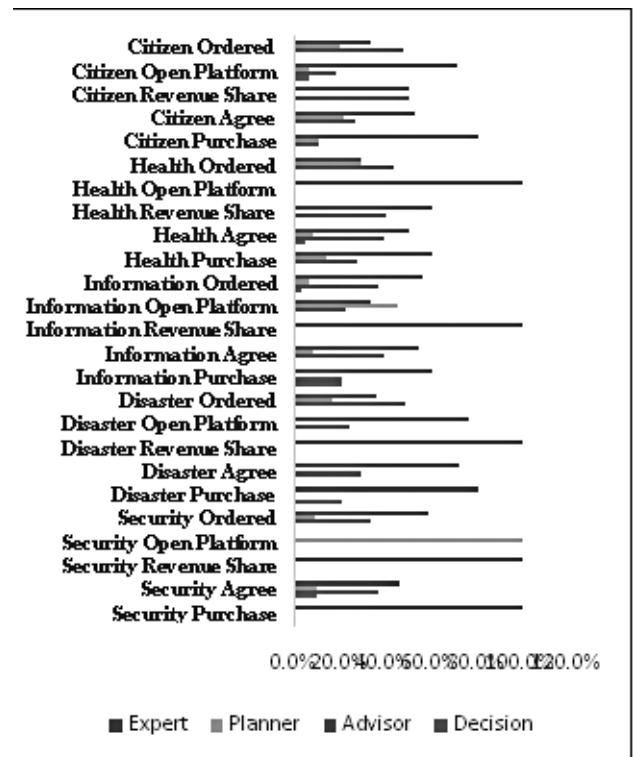


Figure 12: Govern share mode role wise (%)

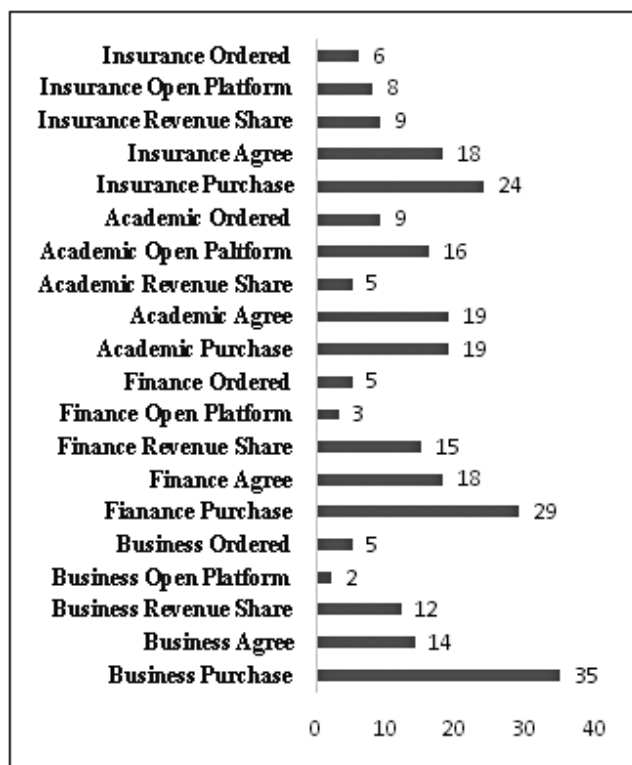


Figure 13: Private: Share mode counts

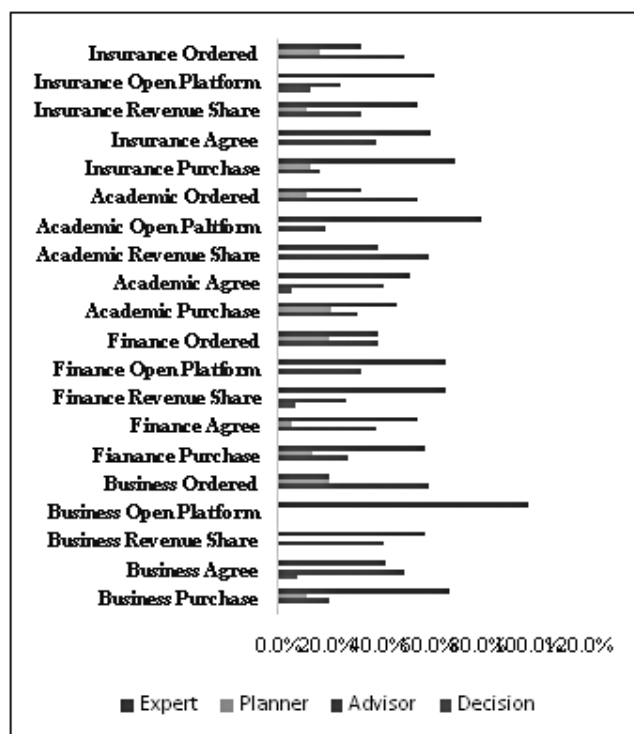


Figure 14: Private share mode role wise (%)

Table 5: Summarized govern Share mode

Governmental Purpose				
Role	Security	Disaster	Information	Health
Decision	Purchase	Purchase	Purchase & Ordered	Agreement
Advisor	Agreement	Ordered	Ordered	Agreement
Planner	Ordered	Ordered	Openplat	Agreement & Ordered
Expert	Agreement	Openplat	Ordered	Agreement & OpenPlat
Together	Ordered	Ordered	Ordered	Agreement

Table 6: Summarized private share mode

Private Purpose				
Role	Business	Finance	Academic	Insurance
Decision				
Maker	Agreement	Revshare	Agreement	OpenPlat
Advisor	Purchase & Agreement	Purchase	Agreement	Agreement
Planner	Purchase	Purchase	Purchase	Purchase
Expert	Purchase	Purchase	Agreement	Purchase
Together	Purchase	Purchase	Purchase & Agreement	Purchase

In the field of national security and disaster the need for real time is selected by all roles. In areas like public health and citizen benefits, history file sharing was mostly popular. The role of Advisor preferred the real time information for the governmental information system. Whereas, in the private sectors, besides decision maker, all participants thought the history files should be shared. The result of study showed that the experts and advisory role players fully preferred to share processed files in governmental. The other role players had some preferences of raw files too. In the private sector the processed files sharing was more popular method for sharing the telecom data. The survey regarding mode of agreement for file sharing was differently agreed by all roles. But, in totality for security, disaster, governmental information applications file sharing was when ordered from the policy level and for public health application analytics telecommunication data could be shared at bi-lateral agreement. In the private sector the survey resulted to the sharing willingness mostly only at purchase.

Conclusion and recommendation

Since the whole world has dug into the gold mine value of telecommunication data and their ingestion into smart analytics, it is essential that Nepal telecommunication sectors, prepare to share their data for governmental or business aspects. The survey result and analysis showed that telecom workers are willing to share data in some form or the other, though such decisions will be influenced in some manner by policy guidelines. It is also noteworthy to revisit the telecom market share which is occupied by 6 operators. The data extraction and combination from 6 operators will be of high complexity in future. Hence, the following points are recommended regarding the sharing of data:

- Government may think ways to encourage merger plans so that only committed operators serve the communication areas

- Government may start to make clear and strong policy for sharing telecom data incorporating issues like data ownership, customer privacy, redistribution process, security of handover and takeover and storage period, etc.
- Government may also establish or recommend trusted and strongly monitored carrier grade distribution house for data distribution

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Forest Resource Mobilization for Sustainable Livelihood: A Community Approach to Local Governance in Nepal

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Abstract

Social debates in forest resource management demands understanding of the complex socio-economic needs of socio-culturally and linguistically diverse community in Nepal today. Academicians and practitioners have been addressing the theories of managing forest resources and community participation with the aim of sustainable livelihood. The main purpose of the paper is to present community forest management and local governance strategies for livelihood empowerment based on community forest user group model. Global evidence and research findings have shown that all the community forests are at risk, and vulnerable environment in hills, rural areas and in plain regions and livelihood has been felt in risk. The attitude of people was found more positive towards the behavior of changing livelihood pattern in weak physical environment. Innovative ways of promoting local governance along with the natural resource management for securing and enhancing livelihood has been felt effective. Integrated Natural Resource Management provided new paradigms for development approaches in rural setting.

Keywords:

Sustainable livelihood, Community Forest, Non-timber forest products, Cooperative Management

Introduction

Role of local communities in forest management seems an international exemplary work in Nepal. Government of Nepal has started to hand over the state owned forest to local communities since the early 1980s. In Nepal, state owned the forest and forest land, and handing over forest to local communities means handing over the management and sustainable utilization rights to the local communities. Based on these rights, nearly 1.9 million people of Nepal have been engaging in community based forestry. Forest Sector Master Plan indicates that out of the total area of Nepal 14.7 million hectares, forest occupies 5.8 million hectares out of which 1.9 million hectares has been handed over to local communities as means of community based forestry comprising 45% of total population of Nepal. There are about 18,000 Community Forest Users Groups (CFUGs), 17 Collaborative Forest Management Group (CFMG), 6712 Leasehold Forest User Group and 4088 Buffer Zone Management Groups (BLMG) which are the exemplary of community based forestry in Nepal. People are put in the driving seat for management of forest resources (FSMP, 2013).

More than half of world's poor depend heavily on natural resources for their livelihood, and in Nepal about 70% of people are forest dependent [2]. There is a need to find an innovative ways for natural resource management for securing and enhancing livelihood. Integrated Natural Resource Management (INRM) provides new paradigms for development approaches. But, there has been very little literature that provides an adequate knowledge base in understanding the integration process at the catchment level in developing countries.

Forestry sectors have claimed at least partial success in these approaches for community-based management approaches [18]. In many cases, forest management are very much dependent on each other, and many communities have a CFUG. Yet we know very little about whether or not these are integrated, and whether there is potential for taking a more integrated approach in developing these community-based natural resource management entities. What we don't know is whether communities themselves play more of an integrative role.

This all indicates government's realization of the need for institutional mechanism for integrated natural resource management. The rationale behind the provision of the Community Forestry and the CFUGs in Nepal was the consequences of the Government's incapability to conserve the forest and biodiversity effectively through its bureaucratic systems. In 1957, the Government nationalized virtually all forests and placing them under the legal authority of Forest Department [16]. As a result, people gradually lost all of their traditional right over the forests and were deprived from getting their subsistence needs of forest products. Resentment against nationalization contributed to unregulated extraction, creating conflict between villagers and forest department staffs [22]. This distancing of people from resource management led to destruction of forests [8].

Nepal's community forestry is a well-established legal grounding for decentralization of forest management roles and responsibilities from state to the local communities as it is three decades old in practice [9]. The community forestry program has met with some notable successes in terms of enhancing flow of forest products, improving livelihoods opportunities for forest dependent people, strengthening social capital, and improving the biophysical condition of

forest. Because of these successes, Nepal's community forestry has moved beyond its original goal of fulfilling basic forest needs of the people including firewood, fodder, timber, and non-timber forest products (NTFPs), and hence Nepal is pioneer in terms of community-based natural resource management [9].

Various physiographical, geological and hydrological factors contribute to the high incidence of natural disasters, e.g. the seismic faults passing through the country, the high elevation of the mountain slopes, and highly skewed rainfall due to monsoon [19]. At the same time, the pervasive poverty and the rapid population growth have further compounded the disaster scenario of the country, causing the high degree of environmental deterioration, and the increased encroachment in the marginal lands. Of all the major hazards, earthquake is potentially the most devastating [4].

The incidence of poverty is much higher in hills and mountains than in the Terai. More striking are the difference in the level of poverty between rural and urban areas. As a result of low income and high prices due to poor transport network, the Terai surplus does not easily flow to the hills and mountains, rather much of the surplus goes to India. One implication of this from a food security perspective is that food adequacy at the national level is not a sufficient guarantee for Nepal's food security. The proportion of people in rural areas under poverty line is much higher as compared to the urban areas.

The rate of underemployment in Nepal is found to be about 40% of the available person days per year [5].

Research methodology

In this study, descriptive scheduled interview, survey and focus group discussion methods were used to gather first hand information. A simple cross sectional descriptive exploratory study design was selected to examine, describe and predict the relationship among variables based on schedule. On the other hand, the quantitative data concerning community forest management and other related information were collected and analyzed using statistical tools. Eight Community Forest user groups of eight districts were selected. About 381 Households from each FUG were surveyed. Various relevant literatures were reviewed as part of designing of research, and getting in-depth knowledge about the subject of study.

The analysis of data consisted of organizing, tabulating, performing statistical analysis and drawing inferences [17]. The coding process included the categorization of responses on the interview schedule, giving appropriate numbers for each different response and copying the responses on a code-book (Babbie, 1990). The computer readable forms of coded responses were entered into SPSS and statistical analysis was carried out.

Results and findings

Socio-economic status of the people determines the condition of livelihood of people how they have been living in the rural setting. The influence of the community forest management is considered as the change factor for sustainable livelihood

in general. The households participated in the research rated about their status of livelihood in sample districts. The questions were subjective related to the details of all family members including income, expenditure, profession and status of food production and causes of the economic threats.

The households were categorized as rich, middle class, poor, woman led, Dalit, and landless to rate their economic level. The selection of households of different social and economic background has been illustrated in table 1.

Table 1: Economic status of the household

S.N	Economic Strata of the family	No. of households	Households %
1	Rich	25	7
2	Middle class	120	31
3	Poor	134	35
4	Woman led	42	11
5	Dalit	34	9
6	Landless	26	7
	Total	381	100

Source: Field survey, 2015

Out of 381 households, the household of rich family, middle family and poor family were rated as 7 %, 31%, and 35% respectively. Similarly, the household of woman led, Dalit and landless family were 11%, 9% and 7% respectively. The majority of the households were from middle and poor classes.

Agriculture, livestock, service, labor work, business and overseas employment were recognized as major sources of the family in the sample areas.

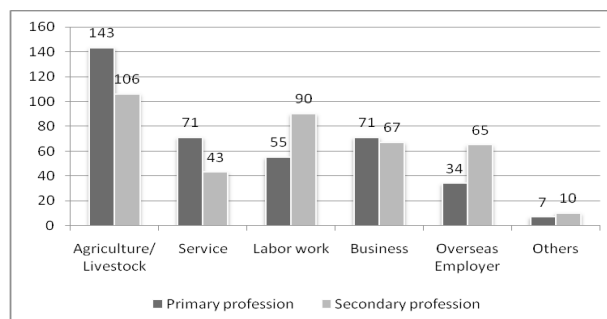


Figure 1: Trend of primary and secondary income sources of the family

Out of 381 households, the main income source of 143 households rated agriculture and livestock as their primary profession and 104 respondents placed it in secondary source of income. Similarly, 90 households rated labor work as their primary source of income and 55 rated as secondary source. Besides these two major sources, 71 rated business as primary source and 67 rated as secondary source for their income. However, another 71, 31 and 7 respectively rated service, overseas employment and others as their primary source of employment. Majority of the people rated

agriculture, livestock, business and labor works as their primary source of income. The income and expenditure balance has been rated based on the saving the people make in each year, no save and no loss category, and loss in their income status. The status of income and expenditure of the family has been presented in table 2.

Table 2: Income status of households

S.N	Economic status of household	No. of households	No. of household (%)
1	Saving	150	39%
2	No saving & no loss	56	15%
3	Loss	175	46%
	Total	381	100%

Source: Field survey, 2015

Out of 381 households, 150 households that is 39 % said that they have been able for saving their income and 56 household that is 15 % said that they neither have saving nor loss. The remaining 175 household that is 46 % said that they are living with loss; it means their lives are running very poorly and they have fell in vicious circle of poverty.

The category of people who are able to save yearly has been ranged from below twenty thousand to above eighty thousand. Most of the categories of houses were from middle class to save some money yearly.

Table 3: Yearly saving status of households

S.N	Saving (yearly)	No. of Households	Saving household %
1	Below 20 thousand	23	15
2	Below 40 thousand	45	30
3	Below 60 thousand	34	23
4	Below 80 thousand	22	15
5	Above 80 thousand	26	17
	Total	150	100

Source: Field survey, 2015

Out of 150 families 30% rated that they saved below forty thousand in a year. Similarly, 23% rated below sixty thousand, 15% rated below eighty thousand and 17% above eighty thousand to save every year. Most of the people of medium category save money with the range from forty to eighty thousand every year.

In the rural setting, the food produced by the family has not been found sufficiently even for their yearly food requirement. The category was rated from the sufficiency starting from three months interval exceeding even more than a year. This figure is only related to agricultural professional families.

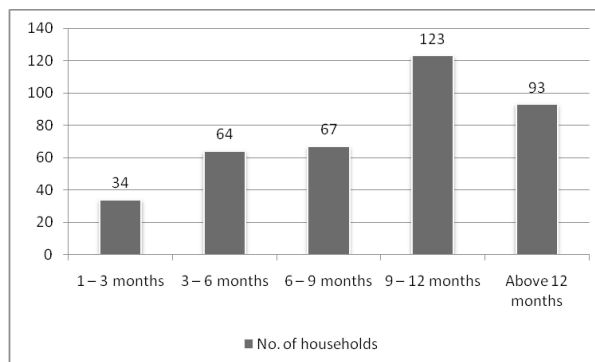


Figure 2 - Food production status of the households

Out of 381 families, only 93 families rated that they have food sufficient for more than a year and majority of the families i.e. 123 families demonstrated that they have food sufficient for 9-19 months. The agricultural production of 34 families, 64 families, and 67 families has available food only for 1-3 months and 3-6 months and 6-9 months respectively. People who participated on the survey agreed that they have not yet set any food security plan and for emergency they need to import food from out of the village.

The economic condition of the people from the past ten years have been rated under three categories namely as good, normal and weak in the interval of two years.

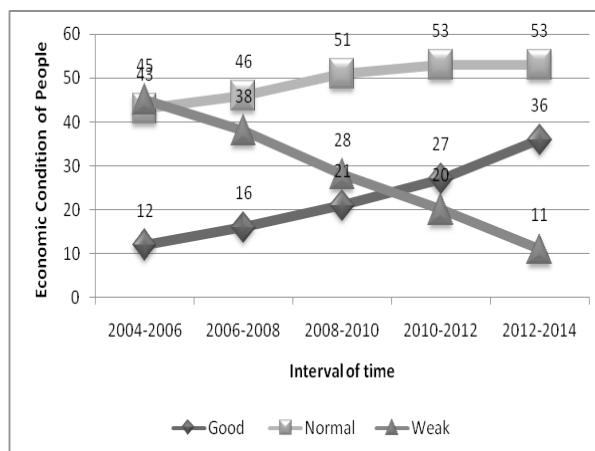


Figure 3: Trends of economic status of the households

In the beginning of ten years during 2004-2006, the economic condition of the people was rated as 12% good, 45% normal and 43% weak where as in 2006-2008, the level changed to 16% good, 46% normal and 38% weak. Similarly the trend of changing economic condition has been increased in 21% good, 51% normal but weak condition reduced to 28% in 2008-2010. This trend further continued to 27% good, 53% normal and 20% weak in 2010-2012. From 2012-2014, the economic condition has been found good by 36%, normal by 53% and weak condition has fallen to 11%. The major influence of changing scenario has been realized due to community forest management as one of the effective change factor. The various reasons have been identified behind the good income of some households in the region.

Table 4: Reasons for Good Economic Status

Reasons for good economic Status	No. of household with good economic status	households of good economic status %
Increase in employee in national level	14	9%
Increase in overseas employment	17	11%
Increase in agricultural production	54	36%
Increase in business investments	21	14%
Increase in livestock keeping	34	23%
others	10	7%
Total	150	100%

Source: Field survey, 2015

Among the 150 families rated in the good economic status, 36% respondents realized that the increase in income is because of growth in agricultural production. Similarly, 23% of the participants rated that the increase in income is due to increase in livestock keeping and availability of fodder from the community forest. About 14% realized that their income has been good through increase in business investments and generation of employments. Some 11% respondents also agreed that overseas employment has also contributed them for having good economic status in the village. However, 9% respondents identified that because of increase in employee in national level with development interventions in the rural areas, the income has been good for them.

The households were asked to respond different expectations regarding the socio economic status improvement strategies including provision of national employment, loan for overseas employment, modernization of agriculture sector, investment in business and investment in agriculture.

Table 5: Expectation of Households

Expectation of households	No. of households	Household %
Provision of national employment	45	12%
Loan for overseas employment	46	12%
Modernization of agricultural sector	123	32%
Investment in business	56	15%
Investment in agriculture	102	27%
Others	9	2%
Total	381	100%

Source: Field survey, 2015

Out of 381 families, 123 families that is 32 % rated that their expectation was modernization of agricultural sector, 102 families that is 27 % agreed that their expectation was investment in agriculture and 56 families that is 15 % said that the expectation for improvement of their present

economic status is to provide investment in business. About 12% rated expectation of provision of national employment and another 12% expected the need of loan for overseas employment to raise their socio economic status.

Changing Pattern of the Livelihood Adaptation strategies

There were various reasons found behind the increase in the green coverage as compared to past ten years. The respondents indicated the various reasons including decrease in mobile farming, control of deforestation, community awareness, increase in reforestation.

Table 6: Reasons for increasing the forest resources in the past ten years

SN	Reason for Increasing	Agreed Participants	Agreed %
1	Decrease in mobile farming	78	20
2	Control of deforestation	80	21
3	Community awareness	135	35
4	Increase in reforestation	67	18
5	Others	21	6
	Total	381	100

Source: Field survey, 2015

There were different views on the reasons behind the increase in the forest or green coverage. Out of 381 participants, 135 participants that is 35 percentage said that it is due to the community awareness in the recent years. Similarly, 80 participant that is 21 percentage believed on controlling of deforestation, 78 participants that is 20 percentage responded on decrease in mobile farming and 67 participants that is 18 percentage said that it is due to increase in reforestation. 21 participants that is 6 percentage said that it is due to the help of governmental and non-governmental sectors on protecting trees in farming for grass and fire wood, supporting for plantation of trees and fruits, etc.

Change in the amount of water in sources in the past ten years

There were various participants responding the change factors to increase in water sources in the regions. They demonstrated the amount of increase in the regions with evidences. The increase in water has been in growing trend as shown in figure.

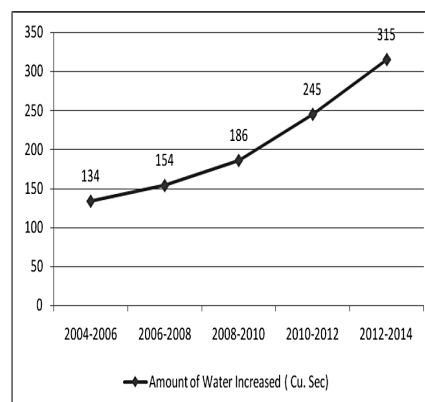


Figure 4 - Amount of water in sources of water in the interval of ten years

Amount of water in sources of water from 10 years ago to present was found with increasing trend. Out of 381 participants, 206 participants that is 54 % said that there used to be less amount of water in sources of water. Similarly, 63 participants that are 16.5 % said it has become more and remaining 67 participants that are 17.5 % said that there is no any difference and remaining did not respond clearly.

The views of participants, about the quantity of crop production in the interval of past ten years are shown on figure 6.

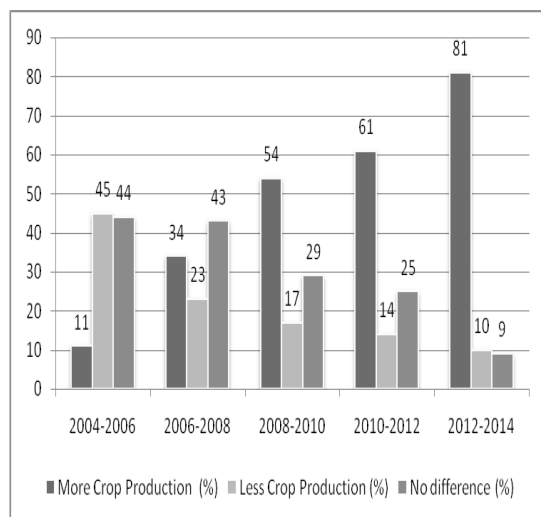


Figure 5 - The quantity of crop production in the interval of ten years

Out of 381 participants, 45 % realized that there was decrease in production and 44% responded for no change during 2004-2006. Similarly, 43% responded that during 2006-2008, there were no change in increase in production but 34 % realized that there was increase in production. However, because of forest conservation, in 2008-2010, 54% realized that there was increase in crop production in the region which was supported by 61% during 2010-2012. In 2012-2014 and in current year, 81% agreed that there was increase in crop production where one of the regions may be conservation of forest in the sample areas.

The view of participants about the number of livestock keeping in the interval of last ten years, are shown on table 7.

Table 7: The number of livestock keeping in the interval of ten years

Interval of time	More Livestock (%)	Less Livestock (%)	No difference (%)
2004-2006	12	43	45
2006-2008	33	24	43
2008-2010	52	18	30

2010-2012	59	15	26
2012-2014	79	11	10

Source: Field survey, 2015

Out of 381 participants 45% realized that there was no difference in keeping live stocks and in the same time 43% rated decrease of live stocks during 2004-2006. Meanwhile in 2006-2008, 43% rated constant number of live stocks and 33% realized increase in live stocks in their houses. Similarly, 52 % participants said that there was increase in livestock during 2008-2010 which was supported by 59% in 2010-2012 and 79% in 2012-2014. There seemed increasing trend of livestock in past ten years which was decreasing in the beginning.

The significant growth in the volume of crop production has been one of the symptoms of forest conservation, and balance of environment.

Table 8: The reasons for increased crop production

S.N	Reasons for increased production	Participants	Percentage
1	Use of Fertilizers and pesticide	34	9%
2	Use of high quality seeds	24	6%
3	Proper irrigation	56	15%
4	Suitable climate	73	19%
5	All of the above	194	51%
Total		381	100%

Source: Field survey, 2015

The influence of the forest conservation has made proper irrigation, favorable climate for crop production into the areas as people rated in majority. Out of 381 participants, 73 participants that is 19 % said that there is increase in the production of crops due to suitable climate and 56 participants i.e. 15% realized that there is proper irrigation that helped to increase the crop production. Majority people, 51% realized that the combined effect of fertilizer use, use of pesticides, use of high quality seeds, proper irrigation and suitable climate made it possible to increase in the volume of crop produced to increase.

Alleviation of Poverty of Dalit, Marginal, and Excluded

One of the major contributions of community forest management through CFUG is that there is improvement in the poverty alleviation and increase in economic level of ultra poor in the areas.

Table 9: The Poverty Alleviation Strategy to excluded and poor people

S.N	Strategies	No. of participation	No. of participation (%)
1	Forming the CFUG	129	34%

2	Forming cooperatives	62	16%
3	Participating excluded in CFUG	107	28%
4	Utilizing agro forestry practice	56	15%
5	Others	27	7%
	Total	381	100%

Source: Field survey, 2015

The people living and involving in CFUG identified different possibilities of strategies used in managing forest resource in order to alleviate poverty so that the excluded and ultra poor get maximum benefit for their economic growth. Out of 381 participants, 34% with majority of the participants said that forming CFUG with inclusion rights is the best way of alleviating poverty. Similarly, 28% people demanded the effective strategy is the reservation of excluded in the CFUG. However, 16% participants also showed that there is the effective action plan to alleviate the poverty by increasing the speed of present co-operative movement and in the same way 15% participants also rated that utilization of agro forestry practice has also contributed to alleviate poverty. Remaining 27 participants that is 7 % said that there are other programs like poverty alleviation fund; NGOs/INGOs etc. addressing the increase in income.

Emerging Themes from the Field

Having a pro-poor concept within the framework of forestry development is note-worthy. Pro-poor leasehold forestry has also opened an avenue for other programmes to rethink on their existing modalities to develop pro-poor strategies within their programmes. One-time policy formulation is not enough; it requires continuous revisits and amendments to make policies and programmes more workable in local conditions. The practical lessons gained from the implementation of policies and programmes are important bases for the Policy formulation and programme design. For instance, the apparent notion of allocating degraded forest land to the poor might not contribute to reducing the level of poverty as expected as it can offer limited products and services to poor households.

Reform through forest resource in poverty alleviation

The focus group discussion on the issue of poverty alleviation, were organized on the sample areas with the different stakeholders. The view of participants, about the suggestions to reform the present community forest management system as a basic platform of poverty alleviation has been summarized as:

1. There is need of the educational support for children.
2. The support for family health insurance, livestock

insurance and crops insurance etc. were demanded to have immediate intervention.

3. It has been realized that the identity card for purchasing daily required materials with cheapest price through the CFUG office for economic support and income generation.
4. Provision of the subsidy for community forest management.
5. Provision of the facility of registration of forest groups and cooperatives in local level without any problem.
6. Making the rule of registration of members with reservation of excluded ones in key posts.

Sustainable livelihood of poor and excluded

The participants realized that the livelihood of poor and excluded has been a relief when the community forest management has been practiced. The view of participants, about the ways for sustainable livelihood of poor and excluded people by protecting from adverse impact of climate change has been summarized as:

1. Conservation of forest by using the alternative resources of cooking like electricity, bio gas, solar energy etc.
2. Adoption of the modern technology on agriculture sectors according to changing climate.
3. Focus on fruit farming, ever green farming, biannual plants like cardamom, tea, Kibi, herbals, etc.
4. Control of the deforestation and support for reforestation and afforestation through the governmental and non-governmental sectors.
5. Model irrigation system required in farming area as a 'irrigation is the right of land'
6. Alternative crops should be referred to farmers according to changing climate.
7. Support to farmers by providing the best quality of plastics for tunnel house in the vegetables field, herbals etc.
8. Provision of attractive package to people through the government or non-government offices for planting at least five to ten plants in each and every house.
9. Inclusive and participatory provision of CFUG rule of community forest in favor of poor and excluded people.
10. Support of the awareness programs about the climate change and possible sustainable programs to withstand climate change.
11. Focus on alternative additional professions like farming, trade, handcrafts, animals keeping, bee keeping, silk keeping etc.

Options for new organizational poverty alleviation models

Good practices in the different communities needed to be replicated for the welfare of the ultra-poor so that they could get economic benefits from the community forest. The view

of participants, about the options for any organizational poverty alleviation models has been summarized based on the focus group discussion results from the participants as:

1. Establishment of nationwide network of Poverty Alleviation Fund working in local levels like VDC and municipality for mobilizing fund for the well management of forest and local resources.
2. Use of co-operative in different sectors for poverty alleviation, and thus different programs applying from governmental and non-governmental sectors.
3. Use of the 'cost of carbon' for poverty alleviation program which comes from rich and industrial countries.
4. Investment by governmental and non-governmental sectors in income generating areas and solving the problem of employment.
5. Encouragement to the poor people in production sectors by the governmental and non-governmental support.

Alternatives for poverty alleviation

The use of the fund generated forest resources as the carbon sequestration has been one of the major means and ends in poverty alleviation from the grass root level. The participants demonstrated their views and came into the following conclusion during the focus group discussion are illustrated as:

1. The best key factor for poverty alleviation has been good governance and thus needed to be governed fully in local level.
2. Developing short term and long term strategies for alleviating poverty through CFUG in the targeted areas where human development index is very low.
3. Priority to mobilize the funds of development partners in the areas of community forest management and alleviation of poverty as alternative means for development.
4. Private, public and community partnership in managing and utilizing forest resources. Based on the rise and pitfalls of the different community forest user groups during the discussion in the communities, people demonstrated their experiences about the things what works better and what does not in general. They demanded the need of codification and replication in other similar situation throughout the country.

Move towards agro-forestry

The cohesive among the diversity, people do not have differences in their social phenomenon. They helped each other during the natural as well as human made disaster. Among the diversity there is uniformity in environment related activities. The perception towards forest conservation and environmental sanitation among different ethnicity, found less in aware in Muslim and Dalit communities. The multi sectoral intervention on the improvement of forest conservation practices was felt needed in the sample

districts. The forest sector, agriculture and education were reported more complementary for the improvement of agro forestry in the CFUG for livelihood improvement.

Cultivation of medicinal herbs

The community forests were found safe in case of growing medicinal herbs that grow wild in the forests of different locations. The community people were trained to plant the herbal medicinal plants to make community forest group's income and use it for forest conservation management. They were found mostly in Dolakha, Sindhupalchowk, Baglung, Parbat, Lalitpur and Kaski. The possibility of water sources regeneration is more and the areas were found environmentally safe in Bara and Rautahat. They had prepared their constitution for handling forest products to manage for their livelihood improvement. The furniture and other products used in the household purposes were not maintained properly. The nongovernmental organizations were involved to intervene for the maintenance and management of governance principles in the community through the drill and simulation of activities.

Within, without and beyond the community forestry

The people from the areas of sample CFUG have managed eco-tourism practices in their areas. Home stay has been established to protect homely environment and preserving culture. They have placed different products for sale made from the forest resources. Their physical environment for healthful living was environment friendly. The landscape of the community forest in these districts was found in natural environment. The resorts were developed in some places but most of the lands were used for the forest conservation. The watering facilities were sufficient and children in the school reported that they get more access on the drinking water and water for cleaning toilets now a days.

People of sample forest user groups invested on socio-economic activities and for welfare schemes. There is a strong association between health facility delivery, children's education, and wealth quintile. About the basic care of students' knowledge increased based on level of education.

People were found more knowledgeable, practicing good behaviour, and positive thinking about the health, health service and the service providers. They have started the industries which use raw materials from forest. It has increased the preservation of cottage industries and preservation of traditional arts and crafts. The indigenous knowledge has been preserved through forest conservation practices.

The knowledge contribution

The study has made a contribution to the field of community forestry focusing on improvement on livelihood condition of ultra poor. The study confirmed pointing out that there is the synergic effect due to the combination of forest resource conservation, behavioral change and natural resource regeneration.

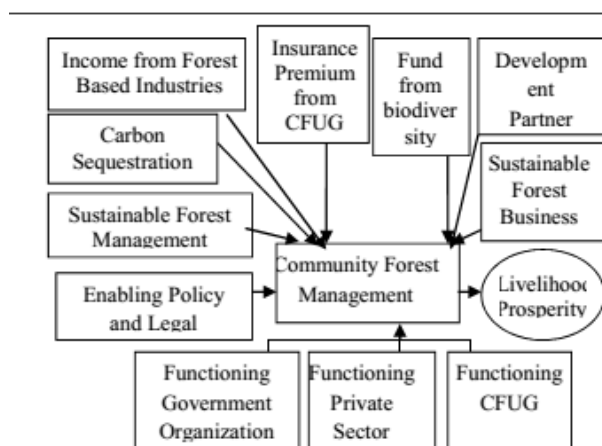


Figure 6 - Livelihood prosperity through community forest management

The design framework addressed issues of community forestry covering status of the community, livelihood and utility of the forest products. The study has confirmed that people have been empowered to engage confidently with different aspects of community forestry including forest specific and livelihood sensitive factors. In conclusion, there is extreme need of considering the strengths of forest management and its product utility to be addressed while making improvement in promotional, preventive, transformative and curative community forestry management for livelihood improvement.

Conclusion

The forest resource materials and their distribution to community members were applicable to help understand the balance need of environmental factors. The management of resources from forests in diverse perspectives made it possible for them to understand the practice better. The incorporation of different practice models together with the resources offered community members the opportunity to consider the ways from different points of view for improving livelihood. The community members confirmed that they used the resource materials to enable them to solve practical problems in the improved livelihood. The findings suggested that managing forest resources from the diverse points of view engaged community members in optimum use of resources and enriched their knowledge. Most significantly, several congruencies emerged between those themes and others, that is, community forest management perspectives and livelihood improvement principles respectively. The integrated management principles (optimization of resources, participatory management and livelihood improvement) determined the extent to which the community management concepts were successful. It was found that, to a large extent, the implementations of the community empowerment strategies were in line with the management framework derived from the principles generated in the theoretical framework.

The field notes recorded from the participants' interpretation of the existing situation demonstrated that the resources mobilization was a motivating and interesting way of

livelihood improvement. The members were happy and motivated after their involvement of forest resources themselves in sustainable manner. Managing forest resources through community participation engaged people in maintaining their life more comfortable and enriched their knowledge through theoretical models.

Implications

The focus of the study was on community forest management and its enabling impact in livelihood improvement effectively. The concise integrated model is helpful to document the successful experiences to construct their understanding of concepts to be implemented for sustained future.

1. There are certain philosophical implications to the way one entertains livelihood practice. These philosophical implications do indeed lead to good practices in the CFUG members' community involvement in forest management. Resource management and empowerment models, group involvement using cooperative strategies, active involvement (hands-on - heads-on), integration of livelihood component, interaction, and reflection, and flexibility of the members in both learning and management strategies are notable.
2. The practice emphasizes high-quality examples and representations of community roles, high levels of members' interaction, and leader connected to the real world.
3. Another implication of the findings is to include more empowerment strategies to give facilitators and development activists an intense opportunity to examine local situation of the CFUG.
4. Leaders and community members accept community forest as their own area. The techniques and methods involve encouragement of members' direct involvement through discussion, group-work, members' presentation, debates, simulations, brainstorming and individual study. Leader accepts individual differences, and encourages for higher level thinking.
5. Members should be made responsible individual to be autonomous player in the CFUG. Learned lessons and good practices should be evaluated and replicated.
6. Another implication of this study is to apply different CFUG practices. From the findings, it can be seen that not all the CFUG members were successful in improving livelihood.
7. This approach of forest management is a guideline for the vocational and technical educators to adapt the skills and technology based on the available forest resources and localization of technology.
8. The local government actors can play the important role in developing a suitable environment for CFUG management. They have to consider the facilitation of government policies and programs in line with community forest management preferences so as to increase the role of government actors and prepare the module for the training and program evaluation.
9. The community leaders must understand the commitment level necessary for the creation of participatory environment and show willingness for its practice.

10. Policy makers must realize the impact of policy decisions on successful implementation of flexible contextualized model of community forest management, well balanced ecological environment and improvement of livelihood in the community.

This research has attempted to contribute to a theoretical understanding of community forest management and lead to a refinement of the good practices and the design. It would be valuable to be able to make a claim about acceptance and efficiency of the findings of the research if further researches produce evidence of the value of the design framework in similar situations. There needs to be more research conducted in the field of CFUG and the community members' understanding of forest use and livelihood improvement in Nepal.

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Designing A Right Route to Market for Competitive Advantage

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Abstract

This research is to evaluate the attributes of the route to market approach taken by the marketing companies and its influence on consumer buying behavior in Nepal and the preference of the Nepalese consumers. The research aims to analyze the diverse response of ideas, from different ages, education, income and type of occupation from different places such as mom & pop stores, shopping center, club and university. Researcher from the study of shampoo usage discovered that product features like reinforcement, antidandruff, attractive packaging, and shiny hairs are most important attributes to influence on consumer buying attitude in Nepalese shampoo market. However the availability, price and quality are considered as the main reason to buy branded shampoo and these should be considered as main competitive advantage strategy for branded shampoo. The researcher concludes that irrespective of advertisements; availability, word of mouth, and product features always played important roles in the market.

Key words:

Route to market; Preference; Consumer choice; Marketing Strategy and Consumer Goods Markets.

Introduction

The long-term success of manufacturer marketing actions often depends on consumer response, and reaction of retailer and competitor [1]. Although the effects of the elements are different, some factors such as location of store, design and physical facilities, merchandise assortment, advertising and sale promotion, store staff, customer services and client (social-class membership) implement immense influences on choice of store [8]. So the highly competitive market place and rapidly changing consumer trend in consumer goods encourage to obtain more information about consumer preferences and their attitudes in this aspect especially in shampoo segmentation in Nepalese markets. This research conduct a survey based on consumer behavior and attitudes in purchase of shampoo as one of the consumer products in Nepal. Products, which have a quick turnover, and relatively low cost or inexpensive and are frequently purchased and rapidly consumed, to which purchaser exert only minimal

purchasing effort are known as Consumer Goods. Examples of Consumer Goods generally include a wide range of frequently purchased consumer products such as toiletries, soap, shampoo, cosmetics, tooth cleaning products, shaving products and detergents, as well as other non-durables such as glassware, bulbs, batteries, paper products, and plastic goods. The overall objective of this research is to investigate significant features based on consumer perspective in the context of shampoo sales in our country.

Literature review

The literature available suggests that the best route to market is being close to the consumer. So in this article retailing has been focused with a view that Nepal with many remote areas far from IT facilities, people believe in local market and local marketers.

Retail industry

Retail business is one of the fast growing areas in the global economy. It has testified a high growth rate in the developed countries and is poised for an exponential growth, in most economies. Simultaneously with the rapid growth, retailing is described by growing competition and appearance of increasingly changing formats.

The definition of retailing

Retailing includes the companies which basically deal with the activity of purchasing products from other firms with the purpose of reselling them to final customers, totally without transformation, and transferring incidental services to sales department. The retailing process is the last step regarding distributing the goods, thus, retailers are arranged to sell merchandise in small quantities to the public. The services which are added to the products normally entail transportation and stock storage in order to ascertain that the products are accessible by the time they are going to be sold.

The formats of retailing
According to the studies which were conducted before, it

was discovered that there exist 5 formats for retailing that are categorized as the following:

- **Food Retailing:** Food retailing experts are totally small retail outlets that are not related to national or international chains, such as fruit and vegetable stores, bakeries, butcheries and fishmongers.
- **Non-Food Retailing:** This kind of retailing includes: dispensing chemists, medical, orthopedic, cosmetic and toilet items retailers and other specialized in-store retailing of brand new goods, for instance, clothes stores, shoe stores, furniture stores, book stores, and electrical items stores (Eurostat, 2007).
- **Store-Based Retail Formats:** The most prominent types of store-based retail formats include: Convenience stores, Conventional supermarkets, Food-based super stores, Combination stores, Box stores, house appliance stores, specialty stores, variety stores, traditional malls, full-line discount stores, off-price chain stores, factory outlets, membership clubs, and flea markets.
- **Non-Store Retail Formats (Retail sales not in stores):** These tasks involve retail sales through stalls, markets, and house to house sales, as well as distant sales which are done through the internet, mobile phone sales or through vending machines [2].
- **Multi-Channel Retailing:** Some of the retailers also provide customer with services such as present packing, delivery, and installation in order to be more attracted by customers. Most of the retailers manage both physical stores and web sites to make shopping more comfortable and to attain customers' goals. Some parts of selling are even done through retail stores, mail orders, web sites, and a toll-free phone number.

Store choice has been a subject of many researches and has been studied from different point of views, brand choice behavior of the consumers are alike to the store choice behavior of shoppers, but in store choice there is a little difference in the incorporation of the spatial dimension (Sinha & Banerjee, 2004). Hence, while brand choice is autonomous of the location perspective, and is not influenced by it, the store choice is immensely affected by location [3, & 5).

Here for our purpose we understand retailing as one of the selling activity carried out by the marketer to make its products available as close as it is possible in the reach of the consumer.

Marketing mix strategy

Here is important theoretical evidence for the influence of advertisements on consumers' choice of products. Some theoreticians believe that advertisements decrease consumers' price sensitivity [4]. In addition, promotional ads motivate people to obtain more information about the present products. Consumer competitions are one of the reputable promotional tools that used by food retailers [10]. Retailers also use samples, pop displays, free products and

discounts in order to intensify of brand awareness, enhance sales and draw attention of new customers [7].

While personal selling is considered an important activity, at times it gets over shadowed by the advertising that is considered easier and quicker route to reach a mass of consumers.

The Consumer Goods

The consumer goods are applied, consumed, and substituted within a short period of time while being purchased frequently. It can differ between an hour, a day, a week, a month, and up to a year [9]. In addition to the products which have a quick turnover, and relatively low price (Mahesh & Dharod, 2009). This is the world of consumer goods, speed, adaptability, quality and scale [9]. The consumer involves food and drink, papers and magazines, medicines and pharmaceuticals, everyday electrical goods, cleaning and household products, and etc. [9]. In this study, most of the attention will be paid to shampoo. The consumer goods companies produce and sell goods with a short shelf life as a result of high consumer demand or since the products get useless very quickly [11]. The consumer goods Industry is determined by a well-established distribution network, low penetration levels, low operating price, lower per capita consumption and intense competition between the organized and unorganized segments [6]). Sales promotions are significant marketing activity for consumer goods which imply the most of manufacturers' marketing budgets become 16% of their revenues [6].

Before making an appropriate decision about the popularity of consumer goods, the opinion of the consumer and the view of the marketer are taken into account. In consumer's idea, those products which are mostly purchased can be considered as top selling products. The other factor here is brand loyalty. A large number of consumers always buy a particular brand, as they are satisfied with its quality. Unit price is yet other prominent factor. From marketer's perspective, the volume of sales, margin, distribution network and stock turnover are the crucial factors for a product to become bestselling.

Methodology

The purpose of this study is to find consumer-buying behavior of consumer goods product in Nepalese market of both the domestic and international brands of shampoo. In other words, the objective is to answer the following research questions with reference to Nepalese consumer in Nepal market.

H1: To understand the most significant attributes that impact on consumer buying attitude in Nepalese market.

H2: To understand the most important attributes which provides the customer satisfaction in consumer buying behavior in consumer goods product in Nepalese market.

H3: To discover the reason for consumer's brand switching between shampoo brands.

H4: There is a significant association between gender and income about the choosing the domestic or foreign product.

H5: There is a significant association between gender and education for choosing the domestic or foreign product.

We started with conducting an exploratory research on Nepalese consumer behavior to determine the most important attribute adopted by them. The research gradually shifted from exploratory research to quantitative research. According to Fisher(2007), a survey approach is suitable when the researcher is trying to obtain a broad and representative overview of a situation.

The researchers have divided the questionnaire in three sections. The method of administration for questionnaires is through drop off and pick up. The first section, we asked about demographic information of the respondents, the second section, the respondents asked about the reason for buying shampoo, brand switching, types of shampoo or focused on consumer behavior and attitudes about consuming shampoo and the last part we asked about the most important components or factor which impact on consumer buying behavior in Nepalese market, furthermore the questionnaire used five point Likert scale. The respondents were asked to reflect the range of the amount of impact of variables on measured variable (shampoo attributes) from very high to very low.

Sampling size

In this research, a simple random sampling was selected as the sampling method. The customers of consumer goods in Nepal were sampled to respond to the questionnaires. To achieve diverse response from a wide scope of ideas, age, education, income and type of occupation used; different places such as mom & pop stores shopping centers, clubs, and even university was used to get the respondents. In this study 225 questionnaires were distributed and 187 questionnaires were returned providing 83.11% response rate.

Data analysis and interpretation

Following Table 1 presents the characteristic reference to personal profile from Table 1 shows that 59.9% of respondent were male and 40.1% of respondent are female.

With respect to our statistical inferential, the most important attribute which induce consumer to buy or even think about these brand are reinforcement, antidandruff, attractive packaging and shiny hairs these are important for consumers to choose a shampoo and it gives an opportunity to the companies to work on these attributes and provide just noticeable difference for consumer in their integrated marketing communication (Table 3).

Table 1: Respondents' Profiles

Frequency		Percent	
Sex			
	MEN	112	59.9
	WOMEN	75	40.1
	Total	187	100.0
Age			
	LESS 20	11	5.9
	20-30	102	54.5
	30-40	45	24.1
	40-50	23	12.3
	MORE 50	6	3.2
	Total	187	100.0
Education			
	U n d e r diploma	16	8.6
	Bachelor	103	55.1
	Master	64	34.2
	PHD	4	2.1
	Total	187	100.0
Income			
	More than 1	36	19.3
	800-1000	51	27.3
	400-700	60	32.0
	less 400	40	21.4
	Total	187	100.0

Table2: Reliability Statistics

Cronbach's alpha	No. of items
.770	10

Table 3: Most Important Attributes in consumer goods Market

Model	R	R square	Adjusted R square	Std. error of the estimate
1	.446a	.226	.224	.68233
2	.526b	.286	.282	.65641
3	.554c	.307	.301	.64767
4	.544d	.316	.311	.64350

a. Predictors: (Constant), Reinforcement

b. Predictors: (Constant), Reinforcement, Antidandruff

- c. Predictors: (Constant), Reinforcement, Antidandruff, Attractiveness packaging
- d. Predictors: (Constant), Reinforcement, Antidandruff, Attractiveness packaging, and Shinyhair.

Our research also reveal that the most vital attributes which provides better customer satisfaction in consumer buying behavior for consumer goods product are availability, price and quality, which we retrieved through with highest frequency percentage of 45.4 % from Nepalese consumer buying behavior of Shampoo (Table 4).

Table 4: Main Reason of Buying Shampoo

Frequency	Percent	Valid percent	
Smell, Price, Brand	22	11.8	13.6
Integration, Price, Fashion	24	12.8	14.8
Availability, Price, Quality	85	45.4	52.5
Packaging, Quality, Price	31	16.6	19.1
Total	162	86.6	100

The reason for brand switching in shampoo products is also one of the critical issues and should take into consideration in next marketing strategy plan or marketing campaign to increase customer satisfaction and gradually shifted to customer loyalty for our brand. Researcher discovered that the reason of brand switching is just finding product insufficient once they used the product and they want to get the new experiences with 62 % and it normally happened in Nepalese market more than one year of using the product (Table 5,6,7).

Table 5: Reason for Switching Brand

Frequency	Percent	Valid percent
Frequently	30	16.1
Price	9	4.8
Experience	116	62.0
Loyalty	32	17.1
Total	187	100.0

Table 6: How Often Switching to Other Brands

Frequency		Percent	Valid percent
1-3 month	28	15.0	15.0
4-6 month	45	24.1	24.1
more than 1 year	76	40.6	40.6
Never	38	20.3	20.3
Total	187	100.0	100.0

Table 7: What Influence in Changing to Other Brand

	Frequency	Percent	Valid percent
Sensitivity	26	14.2	14.2
Insufficient	80	42.5	42.5
Curious	74	39.6	39.6
Size	7	37.0	37.0
Total	187	100	100
Total	187	100	100

The study also discovered whether there is association between gender and income as well as gender and education in selecting domestic and foreign product.

The small value of Pearson's chi-square test clearly states that there exists a significant inter-relationship between the dependent and independent variables. The contingency coefficient gives us the measure of strength of output, if value close to 0, there is no strong correlation between the two variables, however, if the value ranges between 0.5 and 1, there exists a strong correlation. From the (Table 8, 9), we can therefore conclude that there exists a correlation between the independent variables (income) and the dependent variable (gender), but there is no strong correlation whereas there is a strong correlation between education as independent variables and gender as dependent variables.

Table 8: Association between Gender and Income on Consumer Buying Behavior (in Rs. 100,000)

R s . / Gender	1-more	.8-1	.4-.8	0-.4	Total
MEN	30	31	33	18	112
WOMEN	5	21	27	22	75
Total	35	52	60	40	187

Pearson Chi-square Value (27.821); Asymp.Sig: .000 ; Df.3 ; contingency coefficient Value.262

Table 9: Association between Gender and Education on Consumer Buying Behaviour

	Under diploma	Bachelor	Master	PHD	Total
MEN	12	62	35	3	112
WOMEN	4	40	29	2	75
Total	16	102	64	5	187

Pearson Chi –square Value (5.096); Df.3; Asymp.Sig .164; Contingency coefficient Value.117

Conclusion

Across the Nepalese market where the research study was conducted, it was found that reinforcement, antidandruff, attractive packaging, and shiny hairs are the most important attributes influencing consumer preference. However availability and price are the other main reason to buy branded shampoo and these can be strategically considered for competitive advantage. Marketing manager should increase the availability while the production should maintain the quality & costs of their product to prevent consumers from switching to their competitor brand. It is revealed that the retailer must take challenges of maintaining customer because they have a habit of changing tests of different brands. This has insisted the producers to produce differing products which provide differing tests. This shows that only the route is not important.

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User Generated Content (UGC) and Travel Planning

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Abstract

User Generated Content (UGC) is having significant influence on travelers to make decision about their travel planning. Previous studies have shown the increasing use of UGC as an information source for tourist to make their travel decision. However, little is known about how UGC empowers travelers to make their own decision and influence on destination image formation. The study makes efforts to analysis the role of traveller's engagement with UGC and perception of destination image that leads to choice of destination. The data in this study is collected through an online questionnaire, and content analysis. The preliminary findings reveal that higher engagement of UGC when visiting a destination for the first time and international destination. The result of this study provides more understanding of UGC in context of travel planning and makes suggestions on how travel service providers can utilize UGC to their

Keywords: User Generated Content, Destination image, Travel planning

Introduction

General background

Today, people are spending more time on the web and sharing more information with each other [3]. They are making their thoughts and opinions easily available to the world through the Internet [2]. User-generated content (UGC), a new form of content generation, communication and collaboration offering information, review and recommendation, experiences, evaluations, and opinions have emerged on the web [8]. UGC is considered as a new form of Word-of-mouth produced by the general public on the internet (Hills & Cairncross, 2011). UGC allows Internet users to make content in a large variety of forms such as photos, videos, podcasts, ratings, reviews, articles and blogs [4]. Now consumers are both users and co-producers of content about goods and services which in turn impacts decision making. UGC generated by consumer has a greater influence on consumer decision making process [12]. This growth of UGC has inevitably impacted on the way consumers' research and purchase intentions [17]. Travel and tourism sector is in the forefront of such change.

Literature Review On Consumer Generated Content In Travel And Tourism Sector.

Travellers are now turning to UGC to obtain information prior to their travel, particularly online travel reviews. UGC is considered as one of the most influential information source that consumers can turn to when planning travel [9]. According to the research conducted by Google through IpsosMediaCT [7], travelers turn to the web early on in the travel process. Thus, UGC plays major role in consumers' travel intention.

Online travel review is one of the most prominent forms of travel related UGC [15]. Online travel review includes ratings and short descriptions about trips described by travellers [16]. These UGC can pass on a strong sense of travel destination and play an important role in the travel planning process. According to a survey carried by Yoo & Gretzel [16] showed that 97.7% of internet users who travel said that they read other travelers' review during the process of planning a trip and 84% of the online travel readers stated that reviews had a significant influence on their purchase decision. Another survey carried by TripAdvisor and StrategyOne (13) stated that 51% of travelers worldwide have written a review after a trip, 93% of travelers worldwide said that their booking decisions are impacted by online reviews and 47% of travelers book a different destination to the one they first started researching. In addition to that, it also stated that "review that has opinions" and "recommendations from a friend" are the most influencing key for inspiration in travel planning. Previous studies have shown the increasing use of UGC as an information source for tourist to make their travel decision. Recent studies have also shown greater trust in UGC than information provided by travel company marketing department particularly among frequent travellers [11].

Yoo & Gretzel [16] explained that there is a difference in traveller's engagement with social media for vacation planning. Litvin, Goldsmith, & Pan [9] explained the impacts of social media consumption for travel planning and decision making and which type of online user-generated content traveller access. Gretzel [5] argue that trip characteristic such as familiarity with a destination, location of a destination, trip length, travel planning lead time, and travel party composition and situation needs plays a major role in travel planning.

Previous studies have shown the increasing use of UGC as an information source for tourist to make their travel decision. However, little is known about the role of traveller's engagement with UGC and perception of destination image that leads to choice of destination. Therefore, the purpose of this study is to understand the level of consume engagement with UGC and perception of destination image that leads to choice of destination.

Research question

Is there any relation relationship between the level of consumer engagement with UGC and perception of destination image and consumers' choice of destination?

Research methodology

An online questionnaire survey was conducted in December 2015 in Google platform. Invitation containing a link to the online questionnaire was sent through email and social networking sites. Questionnaire pre- test was run to ensure the statements were easily understood. In this study non-probability sampling - convenience sampling and referral sampling in data collection were used. The surveys were self-administered, meaning that the respondent filled up the survey on his or her own. The validity of research design and plan is checked by discussion with the experts and also comprehensive research instrument used to develop and test before starting the real investigation. The items subsequently edited and vigilantly selected bearing in mind the research question. However, the sampling frame of this study was limited to those Nepali nationals who were willing to participate in the study. To maximize content validity, a comprehensive literature review was done in order to grasp the domain of consumer generated content (UGC), destination image and travel planning.

The final questionnaire was constructed around several dimensions which were drawn from prior research. These dimensions are represented in the research framework. Validity can also be increased by adopting questions already validated in previous research. In addition the questions were carefully worded to ensure that all respondents would understand the questions in the way that was intended. However, based on a confidence level of 95%; the total sample size of 70 respondents inside and outside of Nepal was considered.

Results and discussion

Demographic Profile of Respondents

The following table shows the demographic profile of the respondents.

Frequency	Percent		
Gender	Female	25	35.7
	Male	45	64.3
Age	18-24	6	8.6
	25-34	46	65.7
	35-44	11	15.7
	45-54	5	7.1
	55 and above	2	2.9
Highest education	High School	6	8.6
	Associate	1	1.4
	Undergraduate	25	35.7
	Master and Above	38	54.3
	Total	70	100.0

Table 1: Demographic profile of respondents

The table 1 displays demographic profile of the respondents. Out of the total(70), 35.7 % are female and 64.3% are male. Then age ranged 25-34 dominates the respondents. Regarding the educational qualification graduates dominates. This shows the respondents mostly are male young adults and graduates.

Reliability statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.913	.913	16

Table 2: Reliability Statistics

To analysis the reliability of the questionnaire, Cronbach's Alpha Test was conducted. The Reliability is found .913 which means the test has sufficient standard quality as regards to consistency in measuring the respondent responses.

	N	Mean	Std. Deviation	Std. Error Mean
Post your travel related Pictures / Video online	70	2.97	1.007	.120
Read UGC when making Travel plan	70	3.16	1.270	.152
Post travel related content	70	2.41	.876	.105
UGC in course of planning my travel plan	69	3.42	1.156	.139
UGC influence on travel plan in terms of destination choice.	69	3.55	1.078	.130
UGC influence on travel plan before the final decision.	69	3.38	1.202	.145
UGC did not influence recent travel plan	69	2.91	1.040	.125
UGC did influence to make few changes to travel plan	69	3.14	1.075	.129
UGC did influence to make significant changes to travel plan	69	3.14	1.004	.121
I intend to use UGC the next time for travel plan	69	3.96	1.006	.121
I intend to use UGC travelling to destination for first time	69	4.09	1.095	.132
I intend to use UGC going to international destination	69	4.14	.989	.119
UGC are good way to learn about a travel destination	69	4.12	.832	.100
UGC help in evaluating alternatives	69	3.96	.915	.110
UGC increase confidence in the travel decision	69	3.84	.964	.116
UGC buid the perception of destination image	69	3.93	.913	.110

Table 3: Descriptive table showing responses.

The respondent were given to rate their attitude and behavior towards their engagement with UGC and their travel plan. The mean of the respondents were 2.41 to 4.14. The lower mean is for the “UGC did not influence recent travel plan” and the highest mean is for “I intend to use UGC going to international destination”. This shows that, most of the respondents do not agree with “UGC did not influence recent travel plan” and not surprisingly, most of them agree on “I intend to use UGC going to international destination”. Similarly, it is followed by “UGC are good way to learn about a travel destination” and “I intend to use UGC travelling to destination for first time”. “UGC help in evaluating alternatives” and “I intend to use UGC the next time for travel plan” respectively.

		1	2	3	4	5	6	7	8	9
1	User Posting travel related content online	1								
2	Look for UGC while planning my vacation.	.219	1							
3	UGC influence on destination choice.	.081	.712	1						
4	UGC did not influence in my recent holiday/ vacation plans	.046	-.079	-.262	1					
5	UGC did influence me too make few changes in travel plan	.064	.468	.428	-.119	1				
6	UGC did influence significant changes in travel plan	.122	.477	.557	-.046	.548	1			
7	UGC help me evaluate alternatives	.034	.624	.553	.012	.535	.504	1		
8	UGC increase my confidence in the decision I make	-.067	.542	.661	-.174	.483	.537	.722	1	
9	UGC make it easier to imagine what a place will be like	.031	.452	.510	.056	.385	.458	.678	.701	1
	** . Correlation is significant at the 0.01 level (2-tailed).									
	* . Correlation is significant at the 0.05 level (2-tailed).									

Table 3: Pearson’s correlation matrix of factors of consumer engagement, destination image and behavior intention.

When testing correlations among factors of consumer engagement, destination image and behavior intention. “UGC influence on destination choice” and “UGC increase my confidence in the decision I make“, the Pearson’s bivariate correlation coefficient shows a medium positive relationship between both of them ($r = .661$) . However there is a negative relationship between “Look for UGC while planning my vacation.” and “UGC did not influence in my recent holiday/ vacation plans” ($r = -.079$).

Table 4: Predictability of dependent and independent variables.

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.494a	0.244	0.209	0.813
2	.318	.101	.059	.885

Dependent variable for the first model is “UGC help me evaluate alternatives” and independent variables are “Post your travel related Pictures / Video online” ,”Read UGC when making Travel plan” and ”UGC in course of planning my travel plan”.

Dependent variable for the second model is “UGC make it easier to imagine what a place will be like” and independent variables are “Post your travel related Pictures / Video online” ,”Read UGC when making Travel plan” and ”UGC in course of planning my travel plan”.

Both the dependent variable are not predictable from the presence of independent variables. This is revealed in table no. 4.

Summary and conclusion

In this study, sample respondent are dominated by male, young adults and graduates. Higher mean is received from “I intend to use UGC going to international destination”, and followed by “UGC are good way to learn about a travel destination” and “I intend to use UGC travelling to destination for first time”. “UGC help in evaluating alternatives “and “I intend to use UGC the next time for travel plan “respectively. This research also show that factors. “UGC influence on destination choice” and “UGC increase my confidence in the decision I make “, have medium positive relationship between both of them ($r = .661$). However there is a negative relationship between “Look for UGC while planning my vacation.” and “UGC did not influence in my recent holiday/ vacation plans” ($r = -.079$). While testing predictability between independent variable and dependent variables, the predictability coefficient are found very low. This study also supports that User Generated content is an important information source for forming an image toward a particular destination. Tourist destination should have

good present in web and include advice and comments from other travellers. This study makes efforts to analysis the role of traveller’s engagement with UGC and perception of destination image that leads to choice of destination. The result suggests that there is a significant relationship between the level of consumer engagement with UGC and perception of destination image and consumers’ choice of destination.

There are some limitations in this study. We have analyzed the level of engagement of UGC and its influence on the image of a tourist destination. We also analyzed the relationship of level of engagement of UGC with behavior intentions. Further research should be conducted on level of engagement of UGC with psychographics variables and motives travel. It would be then interesting to address psychological and emotional value exchange and latent motive of the travel. For example, social status may impact on their behavior intentions.

Our results may help travel service providers to understand the benefit of consumers’ engagement with UGC and utilize UGC to their benefit. This is the beginning of Consumer-Experience- Marketing for expediting the positive image of business by Word-of-mouth to other potential customers.

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A field report of 14th International Conference on IT Applications and Management

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Day 1 (June 24, 2015)

14th International Conference on IT Applications and Management was scheduled from June 24-26, 2015. On Day 1 i.e. on June 24 a meeting of all ITAM members was scheduled at Hanyang University, graduate school of Business. Professor NJ Cho welcomed the members and Professor Jungwoo Lee, Professor & Director, center for work science, Graduate school of Information, Yonsei university, Seoul delivered the keynote address on “Impact of ICT on Work & Life” and raised the relevant issues like: CNW (hanging nature of work), role of ICT, BPR, and activities related to international networking. In his address, he presented the trends of ICT applications and management in 1970s (DSS, MIS and EJS), 1980s (SIS, ISP), 1990s (BPR, incremental, ERP), 2000 (e-commerce & e-business), 2010 (SMART). He proposed a model on international networking at individual and organizational level. The discussion was followed by strong queries and Prof. Lee amicably satisfied all queries and suggested to look towards technology maturity and invisible machines.

All members were invited for the pre-conference dinner after the discussion on “Future of Asia” is over.

Day 2 (June 25, 2015)

The conference was held at Ewha Woman's University June 25, 2015. After the registration the inaugural session was started at 9.30 with opening announcement by Gyeong-min Kim, Chair of Organizing Committee, Ewha W.U., Korea, followed by greetings (by Jaehoon Whang, Conference General chair, Yonsei University and Namjae Cho, Conference General chair, Hanyang University). The welcoming remarks were given by Young Il Park (Vice president Ewha W.U. and Young Deok Lee (President, Korea Database agency). Dr. Chris Han (SAP Korea) delivered the keynote speech on “Design thinking-human centered innovation knows how”. Dr. Chris Han presented a model based on empathy, problem identification, learning and human-centered approach. He focused to generate new ideas and convert into prototype, testing and create a new product with the help of immense efficiency and effectiveness. He emphasized on innovations, creativity and entrepreneurship. He also suggested to work more on social enterprises.

The technical session 1 was started parallel at three different places with the themes of: content media analysis

(Chairperson Prof. Uthai Tamlamai, Chulalongkorn U., Thailand), Information system management (Chairperson, Hartijasti, Univ. of Indonesia, Indonesia) and for Technical session on information behavior (Chairperson Soo Kim, Dankook U., Korea). Total 14 papers were presented from different countries like: Thailand, Taiwan, Korea, USA, Indonesia, and Nepal. The post-lunch sessions held with three themes: “Optimization/Learning (Chairperson Prof. Iraj Mahadavi, Mazandaran U. of Science & technology, Iran)”, “Behavior Analysis (Chairperson, Jin Soo Kim, Chung-Ang U., Korea)” and “Mobile Computing (Chairperson Gyoo Gunlim, Hanyang U., Korea)”. The papers were presented on healthcare waste disposal strategy, optimization model, financial markets, big-data analysis, justice & citizen behavior, work place spirituality, issues in Nepalese education, CPP (Cyber Psychosocial & Physical) from different scholars of India, Iran, Nepal, Korea etc. After tea break, the following three themes were presented: “Social Network analysis” (Chairperson, Chih-Chien Wang, and National Taipei U., Taiwan), “Security (Chairperson Sang-Hyun Choi, Chungbuk National U., S. Korea)” and “ICT development (Suhong Hwang, Yonsei U., Korea)”. Here total of 11 papers were presented from different countries like: Taiwan, Korea, Thailand etc. In the valedictory session Gyeong-min Kim delivered the closing address and the next ITAM-15 was announced in Paris by Professor NJ Cho. The culture evening was performed by Korean traditional instrumental songs, which was followed by banquet.

Day 3: Industry Visit (June 26, 2015)

Day 2 (June 25, 2015)

The ITAM 14 was held from June 24-26, 2015. The Third day of the ITAM was planned for the Industrial Visit. The visit was started at 9 a.m. from Sangnam guest-house, Yonsei university campus, Seoul.

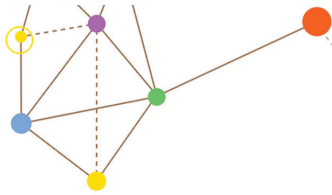
The plant visit was very enriching experience. The first visit was to Pan-gyo Valley Techno Park. The building was full of architecture and best Infrastructure. We were received by Mr. Sung-Sin Hong and his team given the presentation. Team members meticulously presented about the infrastructure of the Techno Park and about the four major division of the valley: invited research, general research, research support and parking lot. There were three centers

Global R&D Centre, Geyongi creative economic centre and Industry academia research centre. In techno valley 870 companies and 58188 employees are working. The focus was to encourage IT industries and others. The presentation continued for 20 minutes and ended with question answers. The answers were most understandable and simplest way. After that we were taken to first industry “Eteners”. It talked about smart office. The industry was very creative and was making communication oriented office i.e. SMART Office which demonstrate adjustment of furniture through sliding and adjustments so one can work with more creativity, effectiveness flexibility. The four key words were communication, creation, presentation and emotions.

The health well being of the employees was prime concern. The CEO Mr Lim Kag Keun welcomed to participants and shown his own work desk which was adjustable as per convenience of the employees. The coffice (Coffee+ office) place was made available to employees for official interaction during their working time to have coffee as well as meeting. The office was decorated with colorful furniture and separate special colour to Managers’ Desks, to differentiate between decision maker and non decision maker. The employees were provided facility of flexi workplace and more open space in addition to their fixed desks.

The second company was ATEC CO Ltd. Established in 1993. ATEC CO Ltd. was established in 1993 and in the business of FCS, industrial displayed development and manufacturing. The company is leading in the automation. The ATEC is having capacity of 25K units/M of validator, 30 K units/M of LCD MNT, 10k units/M of LCD PC and 30 K Units /M of industrial DP. They are having 14 offices and 77 service centres. The popular products are ticket vending, fare adjustments card reload, money vending, bus validator taxi validator, bus information system, auto meter recharger customer display, balance enquiry, parking fee adjustment and Desktop PC.

At the end, Prof. Cho thank to Mr. Sung-Sin Hong for his constant support and successful arrangements of industrial visit by participants of ITAM-14.



Databases, a gift for the future

Greetings,

I am proud to present this overview of the Korea Database Agency (KODB).

There is a saying that goes, “Yesterday is history, tomorrow is a mystery, but the Present is a gift.”



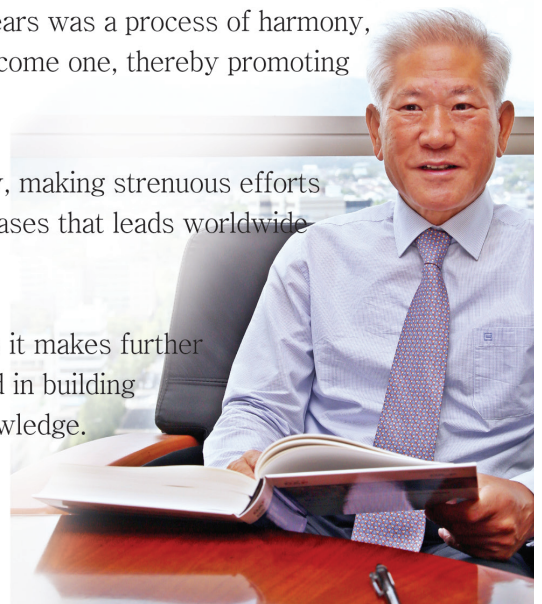
The database of yesterday was built as a key piece of infrastructure based on a government initiative that was launched in the early stage of informatization to build a nation powerful in information and communication technology (ICT). The database has been reborn as a new service with the advent of the content era and has become an essential part of our lives today. In this big data era, data has become a gift for the future that forecasts and sees through hidden mysteries of the future.

The spirit of perseverance that KODB upheld for many years was a process of harmony, where cogwheels of different shapes came together to become one, thereby promoting today’s creative economy.

KODB will promote the highly-creative database industry, making strenuous efforts for the establishment of Korea as a strong power in databases that leads worldwide innovation.

I ask for your continued interest and support for KODB as it makes further advancements as a professional agency that takes the lead in building a nation of creativity that is based on big data and big knowledge.

Thank you.



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