ASEAN Journal of Management & Innovation

Volume 7 Number 1, January – June 2020

ASEAN Journal of Management & Innovation

Volume 7 Number 1, January – June 2020

Editorial

Dear Readers,

Welcome to Volume 7, Number 1 of the ASEAN Journal of Management and Innovation (AJMI). As the pandemic continues to impact communities all over the world, AJMI Editorial Board would like to offer its heartfelt good wishes to all those who have been directly and indirectly affected by Covid-19.

As strong a foe as the virus may be, it will be vanquished by the power of the human spirit and the relentless efforts to stem its spread.

The adage that health is wealth has never been truer than today. As the pandemic is making it patently clear, remaining healthy, however, depends largely on the reliability and efficiency of a country's health care system. **Prisca C. Adaka, William P. Wall,** and **Kate Hughes** address this important issue in *Assessment of Expected and Perceived Service Quality in Nigerian Public Hospitals*. This topic takes added relevance and an increased sense of urgency with death tolls rising daily and no end in sight. The big question is whether the crisis will turn into a reckoning – not just in Nigeria and other developing countries, but also in nations with much greater resources, where Covid-19 has exposed long-ignored vexing cracks in healthcare systems.

The coronavirus outbreak is speeding up digital transformation, as people are worried about the spread of the contagion and opting to apply more technology to protect themselves from the ubiquitous virus. Social distancing is accelerating the development of teleconferencing, telemedicine, teleconsulting, online teaching, and online shopping to name a few. Take, for example, online food ordering. **Limin Ran** and **Zhongwu Li** report in *An Empirical Study on Takeout App Customers' Continuous Use Intention in China* that mobile platforms for food delivery services are growing exponentially. Given the fast increase in the number of platforms to choose from, whether customers remain loyal to a specific takeout App – and under what conditions – are timely issues to address.

With social distancing practices here to stay – at least until a vaccine is found, digital channels are likely to be a main driver for business. **Nanop Samatthiyadeekuland** and **Manjiri Kunte** do argue in *What Motivates Introverted Streamers? A Study from twitch.tv* that there is no one-fit-for-all explanation as to what exactly motivates streamers to join the ranks. Although introverted streamers are legion, little is known about their motivations. This study raises their profile.

Many companies are using enterprise resource planning (ERP) systems to support their operational processes and enjoy cost savings; however, as **Vimolluck Vatanapitukpong** explains in *Determinants of Outsourced ERP Implementation Success*: *Effects of the Task-Technology Fit Theory and Partnership Quality Perspective*, an ERP system is a complicated technology that requires a high level of expertise and partnership quality.

With more and more people turning to online shopping and home delivery services as a way to avoid the virus, the on/offline integration of the retail sector has accelerated. Enticed by the lure of e-commerce offerings, consumers are splurging online – and causing the level of household debt to rise. Keeping one's spending under control takes self-discipline and requires

basic money management skills. **Rattana Waranyasathid** and **Khin Zar Win Htin** tackle this issue in *Financial Literacy and Money Management among the Young.*

Keeping track of one's expenses has been facilitated by mobile banking; yet as **Phyo Min Tun** reports in *Mobile Banking Services in the Private Banking Sector in Myanmar,* not every country in the region has embraced e-payment with the same eagerness. In spite of extensive marketing campaigns, people in Myanmar generally remain distrustful of mobile banking (and mistrustful of e-bankers).

Covid-19 has literally brought the world to a standstill as lockdowns confined people to their homes. Even though people are on the move again, borders in much of the world remain steadfastly closed. International tourism is unlikely to resume anytime soon, forcing millions of holidaymakers to change their vacation plans and focus on domestic destinations. Among places likely to attract hordes of tourists, historical landmarks rank high. In *Influence of Customer Perceived Value on Behavioral Intention in Ancient City Bed and Breakfasts: A Case of Lijiang Ancient City Bed and Breakfasts, Yunnan Province,* **Gang Chen** and **Fuangfa Amponstira** explain that in China, must-go domestic destinations include the ancient cities. Part of the enjoyment staying in B&Bs located in old quarters, we are told, is the unique experience they offer. With the expected rush to these sought-after destinations, the findings in this research study will prove valuable to B&B owners.

The coronavirus pandemic is putting food security in the spotlight. In countries where foreign seasonal labor was not allowed to work due to Covid-19, many crops ended up rotting and planting delayed, threatening food supply. While Thailand has never had a history of food insecurity (food safety is another matter), the crisis is reminding us how critical it is for the agricultural sector to ensure steady food production. **Kanlayanee Prasertkhorawong**, **Paisarn Kanchanawong**, **Chalinda Ariyadet**, and **Sathaporn Saengsupho** argue in *The Development of Smart Farmer Training Course for Agricultural Extension* that one way to do that is to train farmers to become smart farmers and be more efficient and respectful of the environment. This is critical to ensure innovative solutions in the future and avert food chain disruptions.

The pandemic broke out in a globalized world defined by deepening interconnections. It was born in a global manufacturing hub which much of the world depends on for its supply of medicines. This has produced a backlash against globalization and is leading some countries to reassess its merits and demerits and to contemplate re-shoring some of their key industries in an effort to regain some measure of 'economic sovereignty'. However, for those inclined to use the coronavirus as an opportunity to write globalization's obituary, this misses the point. While it is now clear that global supply chains should be reorganized so as to reduce interdependence – and in some cases overdependence – it is equally clear that parts and components, semi-finished and finished products will continue to be shipped around the world. How freely they will find their way into assembly lines and manufacturing plants stretched around the planet, however, largely depends on countries' determination to resist the lure of economic nationalism.

While the human impulse to move around will soon have free rein again, borders may not be as open and unrestricted for goods as they are for people once global trade picks up. Yet, as **Zhen Yu** and **Boito Luu** reports in *The Impact of Trade Facilitation on Vietnam's Trade*

Flows, it is only when burdensome customs procedures and trade-restricting barriers in the guise of neutral measures are removed that trade flows can grow.

One of the many lessons of the pandemic is how quickly things can change. Even though enabling technology had been proliferating, few firms embraced the concept of telecommuting in the pre-Covid-19 world. Fast forward a few months and a different post-Covid-19 world is unfolding, featuring among other changes, the rapid expansion of the practice of working at home. Unlike, out-of-office workers, however, who, according to **Pattarachat Maneechaeye**, are prime candidates for burnout; those working from home may feel happier. The figures shown in *Factors Affecting Burnout in Out-of-Office Workers in Thailand: A Moderated Multiple Regression Approach*, may be a real revelation about a little-known issue.

This issue ends with the review of a book entitled, *HBR's 10 Must Reads 2020: The Definitive Management Ideas of the Year*, which, **Vasu Keerativutisest** and **Teerasak Suriyaprasiti** tell us, introduces novel strategies for organizations to achieve sustainability in today's fast changing environment – and post-Covid-19 world.

While the contours of the post-Covid-19 world remain blurry for the time being, what is clear is that much will change in our personal lives, in the conduct of business and in the types of opportunities and challenges organizations will be faced with. This is ample food for thought and undoubtedly the subject of numerous contributions to academic journals in the near future.

Jean-Marc Dautrey, JD

Editor-in-Chief

ASEAN Journal of Management and Innovation

ASEAN Journal of Management & Innovation

Volume 7 Number 1, January – June 2020

Contents

1 What Motivates Introverted Streamers? A Study from twitch.tv
Nanop Samatthiyadeekul, Manjiri Kunte

14 Influence of Customer Perceived Value on Behavioral Intention in Ancient City Bed and Breakfasts: A Case of Lijiang Ancient City Bed and Breakfasts in Yunnan Province, China
Gang Chen, Fuangfa Amponstira

25 Determinants of Outsourced ERP Implementation Success: Effects of Task-Technology Fit Theory and Partnership Quality Perspective
Vimolluck Vatanapitukpong

43 Assessment of Expected and Perceived Service Quality in Nigerian Public Hospitals.
Prisca C. Adaka, William P. Wall, Kate Hughes

63 Factors Influencing Intention to Reuse Mobile Banking Services in the Private Banking Sector in Myanmar
Phyo Min Tun

79 Financial Literacy and Money Management among the Young
Rattana Waranyasathid, Khin Zar Win Htin

90 An Empirical Study on Takeout App Customers' Continuous Use Intention in China
Limin Ran, Zhongwu Li

108 Factors Affecting Burnout in Out-of-Office Workers in Thailand: A Moderated Multiple Regression Approach
Pattarachat Maneechaeye

119 The Development of Smart Farmer Training Course for Agricultural Extension
Kanlayanee Prasertkhorawong, Paisarn Kanchanawong, Chalinda Ariyadet, Sathaporn Saengsupho

133 The Impact of Trade Facilitation on Vietnam's Trade Flows
Zhen Yu, Boito Luu

Book Review

153 HBR's 10 must reads 2020: the definitive management ideas of the year from Harvard Business Review. The editors of Harvard Business Review Press. United State of America: Harvard Business Review Press, 2020. 196 pp. ISBN 9781633698123 (pbk)
Reviewed by Vasu Keerativutisest, Teerasak Suriyaprasiti

Guideline for Authors

157 Guideline for Authors

ASEAN Journal of Management & Innovation
Vol. 7. No. 1, 1 -13

DOI: 10.14456/ajmi.2020.1
ajmi.stamford.edu
Received: January 20, 2020
Revised: April 7, 2020
Accepted: April 8, 2020

What Motivates Introverted Streamers? A Study from twitch.tv

Nanop Samatthiyadeekul
Stamford International University, Thailand
nanop.gz.s@gmail.com
Manjiri Kunte (PhD, SHRM – CP)
manjiri.kunte@stamford.edu
Stamford International University, Thailand

Abstract
Live streaming is driven by the motivation of individuals to get their content out into the world. It is notable how individuals who usually do not enjoy the company of large groups of people overcome this inherent conflict and nonetheless do it. Given the different personalities of streamers, one big question is the role that needs play in the motivation of streamers. To address this issue and determine the types of needs that affect motivation at work, this study uses the self-determination theory and personality types (introverts and extroverts) to analyze the data collected from 392 Twitch.tv streamer responses. The results show that there is a significant relationship between needs and motivation in live streaming and that personality type does have a moderating effect on this relationship. Even though this study could not establish support for all hypothesized relationships, it still provides good reference material for future studies to be used as a baseline for deeper research.

Keywords: Live Streaming, Motivation, Needs, Personality Types, twitch.tv.

1. Introduction

Live streaming pertains to the action of broadcasting real-time video content via the internet. The audience can access the content on various devices such as desktop computers, laptops, smartphones, tablets, etc. Live streaming started to become popular a few years ago thanks to the development of and easy access to new and affordable live-streaming technology (Bouchard, 2017; Murray, 2017). The first reference to live streaming appeared with live sports such as The Olympics and the Football World Cup. (vLink Live, 2012) The difficulty to attend these live events from different parts of the world was the prime reason for the rise of interest in live streaming. Subsequent technological developments made it possible to access live events with the convenience of sitting at one's computer instead of depending on a TV subscription (Tomaselli, 2010). Such ease of access accounts for the popularity of live streaming. Streaming services can be accessed through many platforms at once, unlike a TV subscription which usually restricts usage to two or three devices maximum (Patel, 2018). Live streaming is also winning market share over TV because it provides more mobility, generating excitement and the ability to multitask (Leibovich, 2018). Lastly, a live stream video can be stored for future viewing in the event an audience cannot tune in live. This is a huge plus over usual TV programs where the inability to watch at a particular time means missing the program altogether (Burroughs, 2015). Although reruns for TV programs are still available they are restricted due to their broadcast times, which can cause viewer frustration (Hampton, 2017; Patel, 2018). Due to such technology advancements, live streaming is a trend on social media around the world (Dave, 2018; Shaikh, 2019; Stout, 2019). People are sharing their activities with the world, and with individuals who are interested, more commonly known as their "viewers." The interaction between broadcaster and viewer is almost instant, and the participation and ability to talk to the broadcaster in real time, is one

of key aspects of why people enjoy it so much. Studies suggest that streaming will more than double growth by 2021 (Patel, 2018). Live Streaming is also very interesting to users because they can create their own content and go live at any time (Israele, 2017). However, being a streamer entails interaction with many unknown people who come to your site. From a personality traits perspective, this type of situation may be comfortable for extroverted people, but not so for introverts. Getting a lot of people on one's space, i.e., exposing oneself on camera (not required, but expected most of the time), talking both on and off stream, being interactive (some speakers choose not to speak at all or talk less, but it is usually not good for the stream since interaction and engagement are one of the important factors for live streaming) (Cortez, 2018), can be overwhelming for some personality types (Neris Analytics, 2011).

Like all other jobs, live streaming also requires motivation to work on the part of streamers. Live streaming shares similarities with other job positions and tasks and can be considered as a real job either full-time, part-time, or even freelancing or just as an additional source of income. Live streaming itself is considered an "art" (Wynans, 2016) and is thus no different than a career path in the entertainment business. Despite the obvious similarity between a streamer job and other jobs, live streaming has a unique job profile as certain aspects are different from normal media-related jobs (Lu, Xia, Heo, & Wigdor, 2018; Sjoblom & Hamari, 2016). Differences between streaming jobs and other jobs override their commonalities and suggest a direction for future research in terms of focus on what motivates streamers toward achieving success. Several previous studies have already shed light on this topic (e.g. Friedländer, 2017; Hilver-Bruce, Neill, Sjoblom, & Hamari, 2018). Within the gamut of factors affecting the motivation to do live streaming, each personality differs in stimulation and motivation (Bencsik, Machova, & Hevesi, 2016). To complete a task in opposition to the personality disposition, individuals need some motivation or positive stimulation.

As is known, introverts and extroverts are stimulated by different environments (Neris Analytics, 2011). Different stimuli motivate individuals, and "pushing the right buttons" has to be considered to increase an individual's will and effort to persist until his/her goals are reached (Latham & Ernst, 2006). When the objective is to provide motivation or a reason to do things, providing the wrong stimulation or motivation will have the opposite result. Individuals will start feeling too pressured or burned out, which can lead them to giving up on the end goal. This is the key element of how individuals will react in the workplace or anywhere else (Lemons, 2017). According to Gall et al. (2005) and Chen, Wu, and Chen (2010), disposition is the aspect that affects an individuals' ability to initiate and maintain action toward achieving goals. This shows that each individual will require different motivation techniques to maintain his/her efforts.

Based on all the above background information, the objective of this research is thus to compare streamers on the twitch.tv streaming platform (focusing on introverted and extroverted streamers) and the factors that motivate them, including some tasks that streaming entails which are opposed to their own personality. The study has several implications. Streamers themselves can use this research for information on how to better understand themselves, learn about various types of motivations from other streamers, or for a clearer view on whether this is something they want to pursue. For businesses within the streaming industry, the website managers can use the research findings to understand what factors motivate streamers with differing personality characteristics, what they want, and what business can they develop to support them. This will help them understand their users

and also encourage them to apply the recommendations made in this study for managing their users and customers, which can apply to the viewers as well.

2. Literature Review

This section discusses the operative concepts in this study, which include live streaming, personality types, and motivation theories. It also considers the dynamics of live streaming as a workplace and articulates the hypotheses developed as a result.

- Live Streaming

Live steaming is a very recent technological development in the field of broadcasting and social media. Live streaming can be separated into many categories, for example, Vlogging, reviewing food, and sports. However, the category of concerns for this study is "gaming." The rise of e-sports around the world caused its popularity among gamers as this is where they can show their skills to people around the world (Sharma, 2014). Live streaming thus enables them to create their own social groups and find somewhere to belong (Fortney, 2018; Herrman, 2018). Currently, gaming content is one of fastest growing markets around the world; it has larger audiences than HBO, Netflix, ESPN and Hulu combined (Nielsen, 2018; Statista, 2018; WePC, 2018). Among the many platforms supporting live streaming, the one which this research focuses on is twitch.tv.

- Motivation and the Role of Personality Types

Each person has his/her own characteristics. The combination of the various traits of each person makes everyone unique (Ryan & Deci, 2000). There are many theories explaining personality traits, but the one trait on which this study focuses is a social trait: introverted and extroverted personalities. Introverts usually are quieter and more reserved, but that does not mean they are anti-social; "introverts just need time to recharge their social battery." (Dossey, 2016, p.151) Common traits of introversion are self-awareness, thoughtfulness, being detail-oriented, and emotionally private, quiet, reserved in unfamiliar or large groups of people, and observant (Ryan & Deci, 2000). Extroverted personality types also have major traits that have been identified in many theories. Contrary to introverts, extroverts are interested in engaging with the environment. Active and social, often labeled "the life of the party," extroverts are energized by an open crowd (Holland, 2018). Common traits of extroversion include enjoying socializing, not liking to stay alone, loving to talk, friends with many people, and very open (Ryan & Deci, 2000).

Over the years, a multitude of motivation theories have explained the dynamics of the antecedents and outcomes of motivation; three in particular: need-based theories, process theories, and reinforcement theories. They seek to account for the ways in which individuals experience and express the factors affecting motivation. For this study, the process-based theory, called Self Determination Theory (hereafter referred to as "SD") will be adopted to explain the motivation of live streamers and the effect of their personalities in this equation (Deci & Ryan, 1985; Ryan & Deci, 2000).

- Motivation at Work

Motivation at work is a significant concern for all organizations. The term 'Motivation' comes from the word *motive*, which refers to when an individual has an appropriate reason to perform an activity. The same is true for any work activity. However, there are other factors that affect motivation at work (Calk & Patrick, 2017). One such factor is the personality of the individual. Several previous studies (Salgado, 2017; Taris & Schaufeli, 2015) suggest a significant relationship between personality type and motivation to work. Whereas motivation has been a stable phenomenon at work, the dynamics of work itself have changed over the years (Fishwick & Curran, 2016). This change is also attributable to the introduction

of technological advancements resulting in more diverse workplaces (Mullan & Wajcman, 2017). Live streaming offers such a diverse workspace, distinct from those previously held.

- Live Streaming as a Workspace

While live streaming may look similar to the job of TV hosts such as news reporters, a number of factors make live streaming a different and unique profession. First, live streaming is a mixed media (Sjoblom & Hamari, 2016), which means it involves two directions of communication, unlike TV, which is only one-sided communication. Live streamers have to be on point and focused, not only on their own content, but on their community as well. The community consists of the audience that is involved in the chat or in watching the stream. The community evolves over time into a stronger, more cohesive group, interacting through chats in real time. This means that, through such interactions, the content can be altered during the stream, depending on the interests of the community, ensuring that the community is involved with the streamer. Second, the difference between live streaming and TV hosting is also apparent at the level of the persona of the live streamer. Live streamers are not similar to TV hosts who are just doing their jobs; streamers usually develop their persona to flavor the content they create (Lau, 2017; Lu et al., 2018). It is notable that previous personality-related studies have shown how different personalities work differently (Lambert, n.d.; Paycor, 2018). Studies suggest that it is not a good idea to put introverts into front-stage tasks, such as sales, or extroverts into back-stage tasks, such as programming. These tasks are opposite to their core dispositions. These opposite personalities will not perform well because they are forced to do tasks for which they are not suited. Matching individuals with their tasks according to personality type increases the satisfaction from performing those tasks and thus improves job performance (Yahaya et al., 2012).

To realize effective outcomes, the right person in the right job along with the right personality is very important (Sulivan, 2001; Talent Intelligence Report, 2018). Previous live streaming-related studies (e.g., Raes, 2015; Sjoblom & Hamari, 2016) suggest several factors that affect the motivation of viewers of live streaming. The studies analyze consumption rates and why viewers pursue the content. However, these aforementioned studies focus on the viewers' perspective, not the streamers'. This highlights the issue of what motivates the streamers to provide quality content and deliver streams to viewers to keep them engaged. If streamers do not feel motivated to create or deliver quality content, then the streaming business platforms will suffer as well (Lau, 2017). With the changes in the modern workplace and the increasing significance of well-being at work (Tov & Chan, 2012), the current study attempts to explore live streaming from the streamer perspective. Specifically, as previously mentioned, the current study aims to analyze the factors affecting the motivations of live streamers with a special emphasis on personality type. The accepted concepts highlighted in previous studies point out that there is a difference in the factors related to personality, motivation, and behavior. Also, several studies suggest that these factors influence the performance of each individual. The current study uses this review as a baseline. A review of the literature indicates that no research exists on live streaming, in a business context, especially on exploring the motivation of different personalities. This illustrates the relationship between personality type, needs and motivation. However, there are few notable studies articulating the factors related to different personalities. Some of them confirm that motives are affected by other factors and that they differentiate their actions (e.g., Friedländer, 2017; Hilver-Bruce et al., 2018; Lau, 2017; Sjoblom & Hamari, 2016). Importantly, as previously stated, most of the studies on Twitch are from a viewers' perspective (e.g., Hilver-Bruce et al., 2018; Raes, 2015; Sjoblom & Hamari, 2016). The current study conducts

research from a streamers' perspective in a business context and seeks to show that different personalities require specific motivations.

- Conceptual Model and Hypotheses

This study attempts to explore the role of personality as a moderator in the relationship between factors leading to motivation and work performance. Based on the research premise, the following conceptual framework was devised:

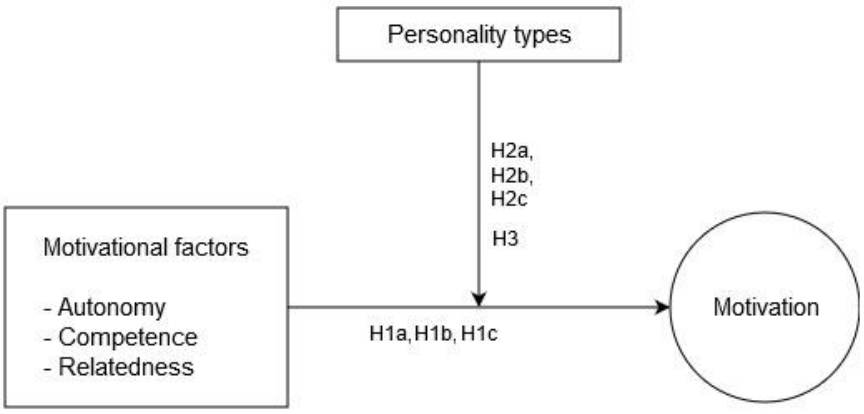

Figure 1: Conceptual Model

The hypotheses for this study are as follows:

H1

H1a: Autonomy needs are significantly related to motivation for live streaming.

H1b: Competence needs are significantly related to motivation for live streaming.

H1c: Relatedness needs are significantly related to motivation for live streaming.

H2

H2a: Personality moderates the relationship between Autonomy needs and motivation.

H2b: Personality moderates the relationship between Competence needs and motivation.

H2c: Personality moderates the relationship between Relatedness needs and motivation.

H3

H3: There is a significant difference between the need-based motivation of extroverts and introverts.

3. Methodology

The main objective of this study is to map the effect of personality types (different personality streamers) on work motivation (streaming), and the factors that motivate them to do live streaming considering their opposite personality types.

- Measurement Scales

Table 1 provides the measurement instruments used for the survey

Table 1: Measurement Scales Used in this Study

Variable Name	Name of the scale	Source of the scale	Cronbach's alpha
Dependent variable: Motivation	SIMS	Guay, Vallerand, & Blanchard, 2000	0.8
Independent variable: Factors affecting motivation (Needs)	Work related basic need satisfaction scale	Van den Broeck, Vansteenkiste, De Witte, Soenens, & Lens 2010	0.71
Moderating variable: Personality assessment scale	The I-E scale	Grove, 1995	0.6

- Data Sources and Collection

The survey was prepared in two versions, English and Thai. The method of translation from English to Thai followed Beaton et al. (2000) guidelines. The target population for this study consisted of people using the Twitch platform around the world. In this study, since the research studied the streamers' perspective, respondents from the entire population were limited only to streamers. Screening questions were used for this purpose. One of the researchers asked his fellow streamer friends to be the respondents and used their references to distribute more questionnaires to other streamers. Going by the calculation based on the number of items on the questionnaire survey, there were a total of 44 questions, and following the rule of thumb, 10 respondents for each item took the sample size to 440.

4. Data Analysis and Findings

Pearson's correlation coefficient was used to analyze correlations among the study variables. From the analysis, it is clear that there is no multicollinearity and autocorrelation between independent variables and dependent variables occurring in the model. None of the variable pairs have $r > 0.7$ or $r < -0.7$, and a correlation of 1 and -1 as shown in Table 2.

Table 2: Correlation Analysis

Correlations							
		Mean	**SD**	**1**	**2**	**3**	**4**
1	Autonomy	4.80	0.76				
2	Competence	3.99	1.05	0.42**			
3	Relatedness	4.60	0.89	0.51**	0.40**		
4	P Type Scale	2.52	4.45	0.19**	0.01	0.06	
5	Motivation	3.64	0.50	-0.04	0.18**	0.02	-0.06
	** Correlation is significant at the 0.01 level (2-tailed). n=392						

For inferential statistics, a hierarchical linear regression analysis was conducted to first identify the relationship between motivation and needs (Autonomy, Competence, and Relatedness), and see how this relationship is being moderated by personality type (Introverted and Extroverted). Table 3 presents the findings of this analysis.

Table 3: Results of the Regression Analysis

Model 1: Needs	
Variables	**β**
Autonomy	-0.14**
Competence	0.24**
Relatedness	-0.01
R^2	0.05
ΔR^2	0.05
F (*df*)	6.43 (3, 388)
Sig F-change	0**
Model 2: Personality Types	
Autonomy	-0.13**
Competence	0.24**
Relatedness	-0.01
Personality type scale	-0.04
R^2	0.049
ΔR^2	0.001
F (*df*)	4.97 (4, 387)
Sig F-change	0.44
Model 3: Moderation	
Autonomy	-0.09
Competence	-0.56
Relatedness	0.16
Personality type scale	0.12
Autonomy x Introverts (Moderator 1)	-0.06
Competence x Introverts (Moderator 2)	0.21
Relatedness x Introverts (Moderator 3)	0.03
Autonomy x Extroverts (Moderator 4)	0.13
Competence x Extroverts (Moderator 5)	0.74**
Relatedness x Extroverts (Moderator 6)	-0.25
R^2	0.22
ΔR^2	0.17
F (*df*)	10.58 (10, 381)
Sig F-change	0**
Durbin-Watson	1.879

The regression analysis suggests that needs statistically significantly predict motivation, $F_{(4, 387)} = 4.97$, $p < 0.05$, $R^2 = 0.05$. Only Autonomy and Competence added statistically significantly to this relationship, with a $p < 0.05$. From the model, a 5% variation in motivation was accurately accounted for by the predictor variables (in this case Autonomy and Competence). But the F-change of the model before the inclusion of moderators was not significant, meaning that personality type did not explain any additional variance in motivation by itself. However, this relationship was further observed to be moderated by the inclusion of personality type (Introverts and Extroverts). This was confirmed by the improvement in the predictive power of the model and a change in R^2 of 16.9%, by which the model showed a 21.7% variation in motivation against the initial 5%: $F_{(10, 381)} = 10.58$, $p < 0.05$. This improvement was found significant with an F-change. With the moderating effect of personality type, the moderation of interacting terms between Competence and Extroverts was also found significant. In summary, Competence needs were found important for extroverted people to boost their motivation while no other significant needs were found to

motivate the introverted type. The moderation effect proved to be significant because the F-change in model three was significant after the introduction of moderators. However, only Competence needs were significantly moderated by Extrovert personality traits while the effect on the other pairs appears insignificant. Overall, out of the stated hypothesized relationships, hypothesis 1a and 1b found support with the data where the stated needs are significantly related to live streaming motivation while hypothesis 1c is not significantly related to live streaming motivation. Hypothesis 2b has a partial significance backed by the data that it is only significant to extroverted streamers while hypothesis 2a and 2c are insignificant. Lastly, hypothesis 3 received support from the data where it supported by hypothesis 1 and 2 that introverted and extroverted streamers do have difference in which needs are having an effect on their motivation.

5. Discussion

From the collected data, the study was able to find the relationships between elements of motivation and needs in live streaming. Firstly, Competence needs were found to be significant in the regression model, including the model before and after moderation. This suggests that competence is important to keep streamers motivated (in this case, only extroverted ones). Competence is defined as the need for challenge and need for feelings of love and affection with the immediate environment (Deci, 1975; Ryan & Deci, 2000). Competence allows individuals to cope with challenging and complex circumstances. Like other needs pointed out by the self-determination theory, competence needs to be associated with increased interest and enjoyment, and inherent motivation as desirable outcomes. (Tamborini et al., 2010). Previous studies (e.g., Hassenzahl, Diefenbach, & Goritz, 2010; Reinecke, et al., 2012; Van den Broeck, et al., 2010) support this relationship between competence needs and positive individual and organizational outcomes. In line with these previous studies, the current study also found that competence needs significantly affect the motivation for live streaming. Contradictory to the supportive findings, the study by Raes (2015) though suggested that competence is the most important need to keep streamers motivated because the interaction between communities improves the feeling of affection. This indicates some overlap with Relatedness needs rather than Competence. Nevertheless, the results of this study help translate the support for streamer competence whereby practices such as knowledge management and communities of streamers can be introduced to fulfill the needs of competence and increase the intrinsic motivation of live streamers.

Secondly, none of the needs were significantly related to motivation for introverts in the current sample. This result contradicts previous studies on the topic of motivation at work. Nevertheless, this insignificant result paves the way for further studies by encouraging researchers to use more factors to reveal the intentions behind these actions. Notably, results of the regression analysis show that in most cases personalities are not significantly motivated by their needs, which is in keeping the study of Harbaugh (2010), who concluded that relationships between personality and behaviors do exist but are not very significant, and that introverts and extroverts have similar levels of enjoyment for online interactions. Displaying a commonality with Hodas and Butner (2016), the current study also registers the significance of personality in motivation research; however, contrary to their study results, the current study could not obtain statistically significant results. Nienaber, Bussin, and Henn (2011) suggest that there are relationships between personality types and reward preferences. One of the recommendations is for future research to factor in reward preferences as another independent variable to analyze what actually motivates introverts to do live streaming.

Lastly, this study found that different personalities have different needs to keep them going. There are indeed differences between the needs of introverts and extroverts to keep them doing live streaming. The results of the moderation analysis during regression suggest that moderation explains some additional variances. This indicates that certain changes in the motivation of live streamers can be explained by personality type. Notably, this result aligns with studies from Chen, Wu, and Chen (2010), Holland (2018), and Youshan and Hassan (2015), which point out that different personalities will require different motivation techniques or needs to promote their motivations.

6. Conclusion, Implications and Future Research Directions

This study investigated the relationship between needs and motivation in live streaming and analyzed the moderating effects of different personality types. The questionnaire survey comprised 392 Twitch.tv streamers from around the world as respondents. The relationships between needs and motivation, including personality type as a moderator, were identified and analyzed. The results suggest that each personality requires different needs to keep them motivated. Similar to prior research by Sjöblom et al. (2019), this study is not only limited to Twitch.tv and live streaming. It helps us understand the basic nature of needs in a social media driven world. Everyone nowadays can be a content creator. One example is being a live streamer on social media platform, where Twitch.tv is only one of them. The significant findings in the study point towards the role of needs in motivation and the impact of different personality types. The study confirmed that introverts and extroverts have different needs to keep them motivated. Hence, different methods to increase motivation need to be implemented for them to maximize the outcomes. Even if this study could not find a support for all hypothesized relationships, it lays a good foundation for future researchers as a reference to go deeper using more variables to determine what motivates the live streamers. The findings of this study can be treated as references leading to a deeper understanding and the results could also be applied to other types of content creation and social media engagement on different platforms.

- *Theoretical Implications*

The findings of this study offer new knowledge into the world of live streaming. This study can act as a reference for future researchers to dig deeper into the details under this topic. Since R^2 is low in the regression analysis, further research is recommended to include more independent variables such as rewards, achievements, etc.

- *Managerial Implications*

For influencer marketing and the media industry, the findings indicate the commonly shared demands in needs – to help further in understanding the needs driving live streamers. This could be used to provide or develop more elements to determine how their returns could be re-imagined (without knowing the personality of the influencer). Importantly, for streaming service providers, the findings of this study could be used to modify their services or rules to create more support and build customer loyalty toward retaining streamers and higher satisfaction levels with the platform. As mentioned in the findings, the most important need is Competence for extroverted streamers, where tweaking, modifying or creating regulations could enable extroverted streamers to enhance their capabilities rather than limiting their actions, and thus improve their motivation. The ratio of introverted and extroverted streamers gathered indicates that 22.4% of the samples were introverted. This shows that the ratio of introverted streamers is relatively high to maximize the potential of the platform and gain bigger markets. Future studies for introverts in greater detail would assist platforms such as Twitch.tv to better manage their work and motivate their streamers.

- Limitations

The aim to survey as many regions as possible was to get a broad variety of data since each region has a different culture which might influence the survey responses (Dolnicar & Grün, 2007; Yang et al., 2011). However, no restriction on a particular geographic location might generate availability bias in terms of exclusion of the effects of culture on personality and motivation (Funder, 2015; Kim, 2017). This study used the "non-probability sampling" method, which can result in biased findings due to the limited group of respondents (Mercer, 2017). It did not consider attitude, only the behavioral motivation component. Some other variables were not covered, such as other personality traits among personality types, which include conscientiousness, emotional stability, and agreeableness. In addition, streaming tools available to individual streamers over and above the basic, required tools were excluded from the study. This might have restricted the generalizability of the findings. Lastly, since Twitch.tv keeps on updating their streaming services, the findings of this study will not be generalizable for the long term and will need to be replicated in future studies with the most up-to-date service combinations to ensure continued applicability.

References

Beaton, D. E., Bombardier, C., Guillemin, F., & Ferraz, M. B. (2000). Guidelines for the process of cross-cultural adaptation of self-report measures. *Spine, 25*(24), 3186-3191.

Bencsik, A., Machova, R., & Hevesi, E. (2016). The relation between motivation and personality types. *International Business Management, 10*(3), 183-19

Bouchard, C. (2017). How to Live Stream an Event. Retrieved January 15, 2019, from https://www.gevme.com/blog/how-to-live-stream-an-event/

Burroughs, B. E. (2015). *Streaming media: audience and industry shifts in a networked society*. (Master Thesis). (University of Iowa).

Calk, R., & Patrick, A. (2017). Millennials through the looking glass: Workplace motivating factors. *The Journal of Business Inquiry, 16*(2), 131-139.

Chen, S. C., Wu, M. C., & Chen, C. H. (2010). Employee's personality traits, work motivation and innovative behavior in marine tourism industry. *Journal of Service Science and Management, 3*(02), 198.

Cortez, J. (2018). The Importance of Being Interactive While Streaming. Retrieved February 1, 2019, from https://switchboard.live/blog/interactive-live-streaming-engagement/

Dave, N. (2018). Why Live Videos On Social Media Are A Game-Changer for Marketers. Retrieved January 15, 2019, from https://www.jeffbullas.com/live-videos-on-social-media/

Deci, E. L. (1975). Notes on the theory and metatheory of intrinsic motivation. *Organizational Behavior and Human Performance, 15*(1), 130-145.

Dolnicar, S., & Grün, B. (2007). Cross-cultural differences in survey response patterns. *International Marketing Review, 24*(2), 127-143.

Dossey, L. (2016). Introverts: A defense. Explore: *The Journal of Science and Healing, 12*(3), 151-160.

Fishwick, D., & Curran, D. A. (2016). From cotton mills to composites; has the world of work really changed? *Industrial health, 54*(1), 1-3

Fortney, L. (2018). How Does "Twitch," Amazon's Video Game Streaming Platform, Make Money? Retrieved February 2, 2019, from https://www.investopedia.com/investing/how-does-twitch-amazons-video-game-streaming-platform-make-money/

Friedländer, M. B. (2017). Streamer motives and user-generated content on social live-streaming services. *Journal of Information Science Theory and Practice, 5*(1), 65-84.

Funder, D. C. (2015). *The personality puzzle*: 7th international student edition. WW Norton & Company.

Gall, T. L., Charbonneau, C., Clarke, N. H., Grant, K., Joseph, A., & Shouldice, L. (2005). Understanding the nature and role of spirituality in relation to coping and health: A conceptual framework. *Canadian Psychology, 46*(1). 88−104.

Grove, G. A. (2016). The Introversion-Extroversion Scale. Unpublished. Retrieved March 20, 2019, from https://doi.org/10.13140/RG.2.1.2717.6086

Guay, F., Vallerand, R. J., & Blanchard, C. (2000). On the assessment of situational intrinsic and extrinsic motivation: The Situational Motivation Scale (SIMS*). Motivation and Emotion, 24*(3), 175-213.

Hampton, J. (2018). How Modern Day Streaming Will Take Over Television. Retrieved January 15, 2019, from https://www.praguepost.com/technology/how-modern-day-streaming-will-take-over-television

Harbaugh, E. R. (2010). The effect of personality styles (level of introversion–extroversion) on social media use. *The Elon Journal of Undergraduate Research in Communications, 1*(2), 70-86.

Hassenzahl, M., Diefenbach, S., & Göritz, A. (2010). Needs, affect, and interactive products–Facets of user experience. *Interacting with Computers, 22*(5), 353-362.

Herrman, J. (2018). With Twitch, Amazon Tightens Grip on Live Streams of Video Games. Retrieved February 2, 2019, from https://www.nytimes.com/2018/06/17/business/media/amazon-twitch-video-games.html

Hilver-Bruce, Z., Neill J., Sjoblom M., & Hamari J. (2018). Social motivations of live-streaming viewer engagement on Twitch. *Computers in Human Behavior, 84*(1), 58-67.

Hodas, N. O., & Butner, R. (2016, November). How a user's personality influences content engagement in social media. In *International Conference on Social Informatics* (p. 481-493). Springer, Cham.

Holland K. (2018). Are You an Extrovert? Here's How to Tell. Retrieved March 20, 2019, from https://www.healthline.com/health/what-is-an-extrovert#1

Israele E. (2017). Get Camera Ready: Live Streaming is The Future of Social Media. Retrieved February 2, 2019, from https://www.business.com/articles/why-live-streaming-is-the-future-of-social-media/

Kim, S. (2017). National culture and public service motivation: Investigating the relationship using Hofstede's five cultural dimensions. *International Review of Administrative Sciences, 83*(1), 23-40

Lambert, R. (n.d.). Introverts and extroverts – how to successfully manage the two. Retrieved February 7, 2019, from https://insightsresources.seek.com.au/introverts-extroverts-successfully-manage-two

Latham, P. G., & Ernst T. C. (2006). Keys to motivating tomorrow's workforce. *Human Resource Management Review, 16*(1), 181-198

Lau, D. (2017). *Exploring motivation and identity within live streaming video gamers*. (Master thesis, University of Florida, Florida, United States). Retrieved March 29, 2019, from https://ufdcimages.uflib.ufl.edu/UF/E0/05/16/35/00001/LAU_D.pd

Leibovich, S. (2018). Digital Marketing and the Growth of Live Streaming. Retrieved January 15, 2019, from https://elevatecg.com/blog/live-streaming-trends-2018

Lemons, N. (2017). Extroverts and Introverts: Differences in Work Style and How to Manage Them. Retrieved January 16, 2019, from https://resilientrecruiter.com/extroverts-and-introverts-differences/

Lu, Z., Xia, H., Heo, S., & Wigdor, D. (2018). You watch, you give, and you engage: A study of live streaming practices in China. *In the proceedings of the 2018 CHI Conference on Human Factors in Computing Systems* (p. 466).

Mercer A. (2017). Selection bias and models in non-probability sampling. (Pew Research Center). Retrieved July 20, 2019, from https://www.niss.org/sites/default/files/event_attachments/Mercer%20NISS-WSS.pdf

Mesurado, B., Mateo, N. J., Valencia, M., & Richaud, M. C. (2014). Extroversion: nature, development and implications to psychological health and work life. *Psychology of Extraversion*, *1*(1), 1-13.

Mullan, K., & Wajcman, J. (2019). Have mobile devices changed working patterns in the 21st century? A time-diary analysis of work extension in the UK. *Work, Employment and Society*, *33*(1), 3-20.

Murray, N. (2017). How to Cut the Cord on Cable. Retrieved January 15, 2019, from https://www.nytimes.com/guides/watching/tv-streaming-cut-the-cord

NERIS Analytics (2011). Five personality aspects. Retrieved January 15, 2019, from https://www.16personalities.com/articles/our-theory

Nielsen (2018). Gaming Video Content Retrieved February 1, 2019, from https://www.superdataresearch.com/market-data/gaming-video-content/

Nienaber, R., Bussin, M. H. R., & Henn, C. (2011). The relationship between personality types and reward preferences. *Acta Commercii, special issue* (1), 56-79.

Patel, N. (2018). Why You Should Care About Live Streaming in 2018. Retrieved January 15, 2019, from https://neilpatel.com/blog/live-streaming-importance-2018/

Paycor (2018). Introverts vs. Extroverts in the Workplace. Retrieved February 10, 2019, from https://www.paycor.com/resource-center/introverts-vs-extroverts-in-the-workplace

Raes, C. (2015). *Twitch TV: motives and interaction, a consumer perspective*. (Master Thesis), (Aalborg University, Faculty of Humanities). May 2015.

Reinecke, L., Tamborini, R., Grizzard, M., Lewis, R., Eden, A., & Bowman, D. N. (2012). Characterizing mood management as need satisfaction: The effects of intrinsic needs on selective exposure and mood repair. *Journal of Communication, 62*(3), 437-453.

Ryan, R. M., & Deci, E. L. (2000). Self-determination theory and the facilitation of intrinsic motivation, social development, and well-being. *American Psychologist, 55*(1), 68-78.

Salgado, J. F. (2016). A theoretical model of psychometric effects of faking on assessment procedures: Empirical findings and implications for personality at work. *International Journal of Selection and Assessment, 24*(3), 209-228

Shaikh, M. (2019). Live Streaming - The Future Of Social Media Platforms. Retrieved August 16, 2019, from https://yourstory.com/mystory/live-streaming-the-future-of-social-media-platform

Sharma, A. (2014). Why is Twitch so popular? Retrieved May 27, 2019, from https://www.quora.com/Why-is-Twitch-so-popular

Sjoblom, M., & Hamari, J. (2016). Why do people watch others play video games? An empirical study on the motivations of Twitch users. *Computers in Human Behavior, 75*(1), 985-996.

Sjöblom, M., Törhönen, M., Hamari, J., & Macey, J. (2019). The ingredients of twitch streaming: Affordances of game streams. *Computers in Human Behavior, 92*(1), 20-28.

Statista (2018). Gaming video content market. Retrieved March 29, 2019, from https://www.statista.com/topics/3147/gaming-video-content-market/

Stout, W. D. (2019). How Live streaming in Social Media Live Can Explode Your Reach. Retrieved April 25, 2019, from https://dustinstout.com/live-streaming-social-media/*

Sulivan, J. (2001). Put the Right People in the Right Jobs. Retrieved May 12, 2019, from https://drjohnsullivan.com/uncategorized/put-the-right-people-in-the-right-jobs/

Talent Intelligence (2018). How to Choose the Right Person for the Right Job. Retrieved May 12, 2019, from http://www.talentintelligence.com/blog/how-to-choose-the-right-person-for-the-right-job

Tamborini, R., Bowman, N. D., Eden, A., Grizzard, M., & Organ, A. (2010). Defining media enjoyment as the satisfaction of intrinsic needs. *Journal of communication*, *60*(4), 758-777.

Taris, T. W., & Schaufeli, W. B. (2014). Individual well-being and performance at work: A conceptual and theoretical overview. In *Well-being and performance at work* (23-42). Psychology Press.

Tomaselli, F. (2010). How is the internet changing the way you think? Retrieved February 10, 2019, from https://www.edge.org/responses/how-is-the-internet-changing-the-way-you-think

Tov, W. & David, C. (2012). The importance of employee well-being. *Business Times*, p. 14.

Van den Broeck, A., Vansteenkiste, M., De Witte, H., Soenens, B., & Lens, W. (2010). Capturing autonomy, competence, and relatedness at work: Construction and initial validation of the work-related basic need satisfaction scale. *Journal of Occupational and Organizational Psychology*, *83*(4), 981-1002.

vLink Live (2012). What is Live Video Streaming or Livecasting? Retrieved February 6, 2019, from http://www.vlinklive.com/explore-live-streaming/frequently-asked-uestions/what-is-live-video-streaming-or-livecasting/

WePC (2018). 2019 Video Game Industry Statistics, Trends & Data. Retrieved April 30, 2019, from https://www.wepc.com/news/video-game-statistics/#gaming-video-content-market

Wynans, A. (2016). Should you make livestreaming your career? Retrieved February 5, 2019, from https://blog.gamewisp.com/should-you-make-livestreaming-your-career-98173691021a

Yang, J., Morris, M. R., Teevan, J., Adamic, L. A., & Ackerman, M. S. (2011, July). Culture matters: A survey study of social Q&A behavior. *In Fifth International AAAI Conference on Weblogs and Social Media*.

Yahaya, A., Yahaya, N., Talib Bon, A., Ismail, S., & Noor, M. N. (2012). The relationship between big five personality with work motivation, competitiveness and job satisfaction. *Elixir Psychology*, *44*(1), 7454-7461.

Youshan, B., & Hassan, Z. (2015). The effect of employees' personality on organizational performance: Study on insurance company. *International Journal of Accounting & Business Management*, *3*(1), 197-206.

ASEAN Journal of Management & Innovation
Vol. 7. No. 1, 14 - 24

DOI: 10.14456/ajmi.2020.2
ajmi.stamford.edu
Received: February 3, 2020
Revised: April 13, 2020
Accepted: April 15, 2020

Influence of Customer Perceived Value on Behavioral Intention towards Ancient City Bed and Breakfasts: A Case Study of Ancient City Bed and Breakfasts in Lijiang, Yunnan Province, China

Gang Chen
Ph.D. Student, School of Management, Shinawatra University, Bangkok, Thailand. 395798834@qq.com
Dr. Fuangfa Amponstira
Assistant Professor, School of Management, Shinawatra University**,** Bangkok, Thailand. fuangfa.a@siu.ac.th

Abstract
The paper focuses on bed and breakfasts (B&Bs) in the ancient quarters of Lijiang city, Yunnan province, China. It seeks to investigate the influence of customer perceived value on behavioral intention and examine the mediating role of customer satisfaction between customer perceived value and behavioral intention toward ancient city B&Bs. This quantitative research used convenient sampling. 400 questionnaires were distributed to Chinese tourists and the data collected analyzed with SPSS 21.0. The hypothetical model was tested with a Person correlation and multiple regression analyses. The results revealed that five dimensions of customer perceived value had a significant influence on behavioral intention. Among the five dimensions, service value was the most important factor influencing tourists' choice of staying at one of the ancient city B&Bs, followed by emotional value, cultural cognitive value, social value and functional value. As to the relationship between customer perceived value and customer satisfaction, the results showed that in addition to cultural cognitive value, the other four dimensions of customer perceived value have a significant influence on customer satisfaction. Among them, emotional value was the most important factor influencing customer satisfaction, followed by functional value, service value and social value. In addition, customer satisfaction plays a partial mediating role between customer perceived value and behavioral intention. Therefore, the enhancement of customer perceived value would help improve customer satisfaction and generate positive behavioral intention on the part of customers.

Keywords: Customer Perceived Value, Behavioral Intention, Ancient City Bed and Breakfast, Customer Satisfaction.

1. Introduction

According to data released by the China National Tourism Administration (2019), in 2016, there were only 9,431 bed and breakfasts (B&Bs) in ancient cities in China, and 13,158 by the end of 2017. By the end of 2018, the total number in Mainland China had reached 16,787, which means that in just two years the number of B&Bs in ancient cities increased by nearly 78 percent. Based on this reality, competition between B&Bs in ancient cities in China has reached unprecedented height. B&Bs are competing for more customers while patrons are pursuing maximum value. As Porter (1985) pointed out, a firm's competitive advantage comes from creating more values for customers than its competitors. Customer value has become an increasingly important factor affecting the relationship between customers and

enterprises. Companies can use various channels to transmit value and make customers recognize it. As circumstances change with times, so will customer value. The focus is shifting from an emphasis on products and services to more attention paid on providing customers with the value they want, which presupposes in the first place that firms understand what their customers want. Customer perceived value precisely provides a new perspective for enterprises to understand them. It is a very important part of understanding customers in the service industry and plays a key role in consumer behavior decision making. It also determines the future behavioral intention of customers. Research on the influence of customer perceived value on behavioral intention is receiving more attention in the ancient city B&B industry. The reason is simple. In the context of ancient city B&Bs, understanding customer perceived value and its impact on behavioral intention can translate into a significant competitive advantage. This study focuses on B&Bs on the ancient quarters of Lijiang city, Yunnan province, China. Among ancient cities in China, Lijiang ancient city is undoubtedly one of the most representative places. Located in the center of Lijiang, it has a long history that goes back more than 800 years. Lijiang is also one of the fastest growing areas for ancient city B&Bs (China National Tourism Administration, 2018).

It all began in in 1999, when, in order to alleviate the pressure of the huge influx of tourists during the Kunming World Expo, the Lijiang municipal government mobilized residents of the ancient city, who had accommodations available, to open them as B&Bs during that period. As an incentive, they offered them preferential conditions. Since then, Lijiang ancient city B&Bs have been developing rapidly. By December 2018, there were 196 ancient city B&Bs in Lijiang with the market was close to saturation (Lijiang Tourism Bureau, 2019). This study takes Lijiang ancient city B&Bs as the research object to explore the factors influencing customer perceived value on behavioral intention and the mediating role of customer satisfaction between customer perceived value and behavioral intention. The research results will provide suggestions for the sustainable development of Lijiang ancient city B&Bs and also offer references for the development strategy of ancient city B&Bs in various other places in the country.

2. Literature Review and Hypothesis Development

There is a wide body of research on behavioral intention, whose variables have been explored from multiple antecedents. One of them is customer perceived value, whose relationship with behavioral intention is at the core of this research study.

- Customer Perceived Value and Behavioral Intention

This paper explores the relationship between customer perceived value and behavioral intention from the single- as well as the multi-dimension perspectives of customer perceived value. Lin, Zhang, and Fang (2019) analyzed the relationship between customer perceived value and behavioral intention from multiple dimensions and found that different dimensions of customer perceived value would have different influences. Based on the literature reviewed, hypotheses 1a-1e can be proposed as follows:

H1a: *Functional Value has a significant positive influence on Behavioral Intention*
H1b: *Service Value has a significant positive influence on Behavioral Intention.*
H1c: *Social Value has a significant positive influence on Behavioral Intention.*
H1d: *Emotional Value has a significant positive influence on Behavioral Intention.*
H1e: *Cultural Cognitive Value has a significant positive influence on Behavioral Intention.*

- Mediating Role of Customer Satisfaction

On the consideration of customer perceived value as a direct or indirect leading variable, the indirect effect is mainly generated under the intermediary effect of customer satisfaction (Lai

& Chen, 2011). Among tourism scholars, the relationship between customer perceived value and behavioral intention has been controversial. Some scholars believe that customer perceived value has a direct influence on behavioral intention (Fan, 2014; Dava, 2014). However, some scholars point out that customer perceived value has no direct influence on behavioral intention and that it first influences customer satisfaction, while satisfaction further influences behavioral intention (Chen & Tsai, 2007; Phillips et al., 2013). In addition, some scholars argue that customer perceived value not only influences behavioral intention through customer satisfaction, but also has a direct influence behavioral intention (Chen, 2018; Lin et al., 2019). Therefore, in order to verify whether customer satisfaction plays a mediating role between customer perceived value and behavioral intention, hypotheses 2a-2e were formulated as follows:

H2a: *Functional Value has a significant positive influence on Customer Satisfaction.*
H2b: *Service Value has a significant positive influence on Customer Satisfaction.*
H2c: *Social Value has a significant positive influence on Customer Satisfaction.*
H2d: *Emotional Value has a significant positive influence on Customer Satisfaction.*
H2e: *Cultural Cognitive Value has a significant positive influence on Customer Satisfaction.*

Based on the above, the following two additional hypotheses were developed:
H3: *Customer Satisfaction has a significant positive influence on Behavioral Intention.*
H4: *Customer Perceived Value has a significant positive influence on Behavioral Intention through Customer Satisfaction.*

Figure 1 illustrates the hypothetical model and the relationships between the various constructs.

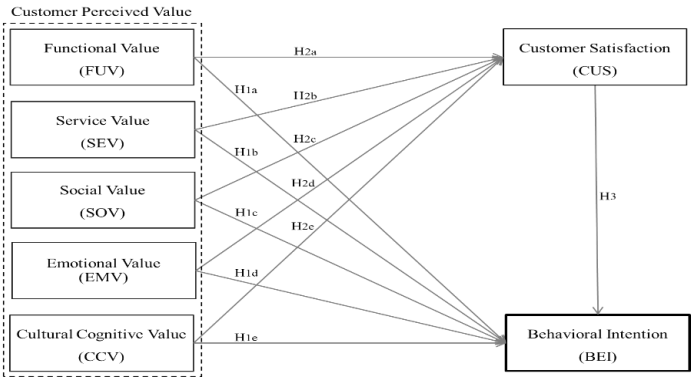

Figure 1: Proposed Hypothetical Model (created by the author for this study)

3. Methodology

- *Data Collection*

This study is designed as a quantitative research using a survey questionnaire as the main tool to collect primary data from the sample groups. The target population is tourists who have stayed in one of Lijiang ancient city B&Bs at least overnight. The survey was conducted from October to December 2019 in the form of a self-administrated questionnaire distributed to Chinese tourists by receptionists of Lijiang ancient city B&Bs as part of the check-in process. The questionnaires were collected before they checked out. In order to ensure the smooth distribution and collection of the questionnaire, the researcher rewarded the B&B managers for every valid questionnaire. A total of 400 questionnaires were collected from Chinese tourists who stayed at one of the 20 Lijiang ancient city B&Bs selected for this study. Convenient sampling was used. This research used a structured survey questionnaire which

was articulated around the three variables developed in the conceptual framework: customer perceived value, customer satisfaction and behavioral intention. The authors invited 5 management experts and scholars for validity using items objective congruence (IOC test). The total score was 126 and the average score 0.93. Since it was greater than 0.5, the questionnaire could be used (Rovinelli & Hambleton, 1977). A pilot test using a scale of 40 people was then conducted (Alreck & Settle, 1995). The Cronbach's alpha was 0.971. Its value is greater than 0.7, indicating that the scale has a high reliability. The questionnaire was acceptable (Tavakol & Dennick, 2011) and the SPSS program employed to analyze the data. The questionnaire contains two parts: part one consists of 8 questions about the respondents' demographic and travel patterns; part two is comprised of three sets of questions meant to measure customer perceived value, customer satisfaction and behavioral intention using a total of 27 items. Part 1 was analyzed and presented using frequency and percentage and Part 2 were scaled questions using a 5-point Likert scale, ranging from "strongly disagree" to "strongly agree". Each answer has a value from 1 to 5.

- Operationalization of Customer Perceived Value

As reflected in the questionnaire and, based on four previous studies, customer perceived value in this study includes five measurement dimensions: functional value, service value, social value, emotional value, and cultural cognitive value. Functional value takes its clues from Li's (2011) study and involves 4 sub-sections in the questionnaire: hardware facilities, hygienic condition, security, and price rationality. As to service value, as determined by Wang (2019), it includes the following four components: service staff's appearance, attitude, working efficiency and personalized service. As used in reference to Han (2016), social value consists of four subsets: arousing others' interest, making new friends, strengthening the relationship with the surrounding people and making more harmonious communication with others. The fourth dimension, emotional value, as described by Li (2011) involves four areas in the questionnaire: relaxation, happiness, warmth, and novelty and interesting. As to cultural cognitive value, based on Li's (2011) research study, it can be divided into four subsets in the questionnaire: relaxation, increasing knowledge, experiencing different lifestyles, and experiencing cultural customs and integrating the local culture.

- Operationalization of Customer Satisfaction

This paper uses the method of overall satisfaction measurement as referred to by Li (2011). In the questionnaire, customer satisfaction is thus apprehended from three perspectives: overall satisfaction, satisfaction compared with expectations, and satisfaction compared with the same type of accommodation.

- Operationalization of Behavioral Intention

Based on Li's (2011) study, behavioral intention in this paper is measured in reference to four dimensions: repurchase intention, premium purchase, recommendation intention, and word-of-mouth publicity. Repurchase intention refers to the tendency of customers to repeatedly purchase a certain product, which is very important for the company to maintain customers and consolidate the original market (Bolton et al., 2000; Dava, 2014). Word-of-mouth publicity pertains to the behavioral intention of customers to publicize and evaluate products to the people around them. Obviously, having a good reputation is very important for companies to expand their influence and tap potential customers (Li, 2009). Recommendation intention points to the probability that a tourist will be willing to recommend the tour to people around him after the end of a tour (Fan, 2010). Premium purchase refers to the tendency of customers to choose to buy a certain service even at a premium price. If the customer accepts a higher price, the company can obtain a higher return (Athanassopoulos, Gounaris, & Stathakopoulos, 2001).

4. Results

The demographic profile of the respondents is shown in Table 1. It covers a total of 400 valid questionnaires. The findings indicate that most of the respondents were females (56%), with the largest group among them being between 26-35 years old (36%). Their educational background was mainly vocational or undergraduate studies (62%) and their average income per month was 6,001-8,000 yuan (USD841-1120) (21%). These patrons of Lijiang ancient city B&Bs belong to the high-income and high-education crowd and some of them were at the peak of their career. For slightly more than half of them (52%), it was their first stay, the length of which was 4-7 days (55%). 40% of the respondents chose Lijiang ancient city B&Bs that cost 200-400 (USD28-56) per night.

Table 1: Demographic Profile of Respondents (N = 400)

Feature	Category	Frequency	Percentage (%)	Feature	Category	Frequency	Percentage (%)
	Male	176	44		Front Desk	48	12
Gender	Female	224	56		Official Website	80	20
	18 years or under	16	4		Call Reservation	32	8
	19-25 years	128	32		Third-Party	208	52
				Reservation	Network		
Age					Platform		
	26-35 years	144	36		Via Travel Agency	28	7
	36-45 years	64	16		Others	4	1
	46-60 years	28	7		Once	208	52
	Older than 60 years	20	5		Twice	124	31
Education	Secondary School/Vocational Certificate or less	40	10	Frequency of Stay	Three Times	40	10
	Vocational College or Undergraduate	248	62		Four or more Times	28	7
	Postgraduate Degree or above	112	28		Less than 3 days	76	19
Monthly	280 or under	48	12	Duration of	4-7 days	220	55
Income	281- 560	56	14	Stay	8-10 days	64	16
	561- 840	72	18		11-15 days	24	6
	841-1120	84	21		More than 15 days	16	4
	1121-1400	64	16				
	More than 1400	60	15				
	No Income	16	4				

- Descriptive Statistics

Table 2 shows that for most of the respondents, the most satisfying dimension in terms of the functional value of Lijiang ancient city B&Bs is the price, which they see as reasonable ($\overline{X}$ = 4.01, S.D.= 0.915). As to service value, the most satisfactory aspect is the personalized service ($\overline{X}$ = 3.92, S.D.= 0.828). They found harmonious interaction with others to be the most satisfactory aspect of social value ($\overline{X}$ = 3.78, S.D.= 0.908). With regard to the emotional value of Lijiang ancient city B&Bs, the two items, 'you feel happy with the stay', and 'you feel interested and it is a novel experience', came on top of the list of satisfactory aspects ($\overline{X}$ = 3.84). Finally, 'it helps expand your horizon' was seen by the respondents as the most positive cultural cognitive value ($\overline{X}$ =3.93, S.D.= 0.853). In addition, the highest score for customer satisfaction was the item 'you are satisfied as a whole' ($\overline{X}$ = 3.85, S.D.= 0.773) and the highest one for behavioral intention, 'you would like to actively recommend this ancient city B&B

to others' ($\overline{X}$ = 3.82, S.D.= 0.850).

Table 2: Descriptive Statistics of all Variables

	Questions Description	Mean($\overline{X}$)	S.D.	Level
FUV	Q9. Hardware facilities are complete	3.84	0.935	Agree
	Q10. Price is reasonable.	4.01	0.915	Agree
	Q11. Hygienic and clean premises.	3.86	0.950	Agree
	Q12. Security is not an issue.	3.76	0.953	Agree
SEV	Q13. Service staff (hosts) are well dressed and well-mannered.	3.88	0.814	Agree
	Q14. Service staff (hosts) have a good attitude.	3.75	0.788	Agree
	Q15. Service staff (hosts) work efficiently.	3.83	0.874	Agree
	Q16. Personalized service is good (providing free maps, recommended tourist routes, local cuisine, etc.).	3.92	0.828	Agree
SOV	Q17. Helpful to make new friends.	3.76	0.871	Agree
	Q18. Interaction with others is harmonious.	3.78	0.908	Agree
	Q19. The experience at this ancient city B&B will interest others.	3.74	0.923	Agree
	Q20. It can enhance the relationship with people around you.	3.72	0.863	Agree
EMV	Q21. You feel relaxed staying at this place.	3.72	0.935	Agree
	Q22. You feel happy with the sta.	3.84	0.935	Agree
	Q23. You feel interested and it is a novel experience.	3.84	0.936	Agree
	Q24. You just feel like at home.	3.78	0.930	Agree
CCV	Q25. It helps expand your horizon.	3.93	0.853	Agree
	Q26. It helps you experience different lifestyles.	3.90	0.851	Agree
	Q27. It helps you know a lot of cultural customs.	3.82	0.895	Agree
	Q28. It helps you fully fit in the local culture.	3.71	0.851	Agree
CUS	Q29. Compared with your expectations, you are satisfied.	3.57	0.826	Agree
	Q30. You are satisfied as a whole.	3.85	0.773	Agree
	Q31. Compared with other accommodations in the same price range, you are satisfied with this ancient city B&B.	3.68	0.842	Agree
BEI	Q32. You would like to actively publicize this ancient city B&B to others.	3.72	0.833	Agree
	Q33. You would like to actively recommend this ancient city B&Bs to others.	3.82	0.850	Agree
	Q34. If you come here again, next time you would like to stay at this ancient city B&B.	3.74	0.918	Agree
	Q35. Even if the price rises slightly in the future, you will still be willing to stay at this ancient city B&B.	3.39	0.935	Neutral

– *Correlation Analysis*

Correlation analysis is a statistical method used to study the close relationship between variables. It accurately reflects the strength of the linear relationship between two variables in a numerical way. The value of the correlation coefficient is between - 1 and + 1. The closer the absolute value is to 1, the greater the correlation between variables is. In this study, the Pearson correlation coefficient was used to analyze the correlation among the five dimensions of customer perceived value, customer satisfaction, and behavioral intention. Table 3 shows the correlation coefficients between all variables. Most of them have a linear relationship. All the coefficients are below 0.70, so there is no multicollinearity issue (Brace, Kemp, &

Snelgar, 2012).

Table 3: Correlation Coefficients

Variables	FUV	SEV	SOV	EMV	CCV	CUS	BEI
FUV	1						
SEV	.547**	1					
SOV	.475**	.512**	1				
EMV	.480**	.502**	.434**	1			
CCV	.650**	.565**	.501**	.521**	1		
CUS	.513**	.494**	.463**	.516**	.492**	1	
BEI	.594**	.635**	.557**	.607**	.636**	.592**	1

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

- Regression Analysis

As can be seen in Table 4 , when added to the model, the functional, service, social, emotional, and cultural cognitive value dimensions of the customer perceived value of ancient city B&Bs have an F value of 118.840 and reach a significant level of 0.05 (Sig. < 0.05). Adj. R^2 is 0.596. This indicates that the model is significant and the regression model successful. The regression equation has no issue because all VIF values are lower than 5. In addition, under the T test, the functional, service, social, emotional, and cultural cognitive values were significant (Sig. < 0.05) and the Unstandardized Coefficients B 0.124, 0.270, 0.165 0.240 and 0.212, respectively, all above 0, which means that all these values have a significant positive influence on behavioral intention and that the degree influence of service value is the greatest. Therefore, H1a, H1b, H1c, H1d and H1e are accepted.

Table 4: Multiple Regression Analysis of the Five Dimensions of Customer Perceived Value and Behavioral Intention

Coefficients[a]						
Model	**Unstandardized Coefficients**		**Standardized Coefficients**	**T**	**Sig.**	**VIF**
	B	**Std. Error**	**Beta**			
(constant)	-0.194	0.162		-1.198	.232	
FUV	0.124	0.040	0.137	3.084	0.002**	1.960
SEV	0.270	0.048	0.239	5.593	0.000***	1.809
SOV	0.165	0.040	0.161	4.078	0.000***	1.550
EMV	0.240	0.039	0.246	6.169	0.000***	1.565
CCV	0.212	0.048	0.202	4.381	0.000***	2.109
F	118.840					
Sig. of F	0.000***					
Adjusted R^2	0.596					

Note: Dependent Variable: Behavioral Intention (BEI), *P< 0.10, **P<0.05， ***P<0.01.

As Table 5 shows, when the functional value, service value, social value, emotional value and cultural cognitive value of customer perceived value of the ancient city B&Bs are added to the model, the F value is 53.685, reaching a significant level of 0.05 (Sig. < 0.05). Adj. R^2 is 0.398, which indicates that the model is significant and the regression model successful. When checking the multicollinearity condition by VIF values, it was found that the equation had no issue. In addition, under the t-test, the functional, service, social, and emotional values were significant (Sig. < 0.05), and the Unstandardized Coefficients B were 0.163, 0.150, 0.145 and 0.221, respectively, above 0, which shows that these values have a

significant positive influence on customer satisfaction. The degree of influence of emotional value is the greatest. Therefore, H2a, H2b, H2c and H2d are accepted. The significant value of social value is greater than 0.05. So it is not significant. H2e is not accepted.

Table 5: Multiple Regression Analysis of the Five Dimensions of Customer Satisfaction and Behavioral Intention

Coefficients[a]						
Model	**Unstandardized Coefficients**		**Standardized Coefficients**	**T**	**Sig.**	**VIF**
	B	**Std. Error**	**Beta**			
(constant)	0.793	0.185		4.290	.000	
FUV	0.163	0.046	0.192	3.531	0.000***	1.960
SEV	0.150	0.055	0.142	2.713	0.007***	1.809
SOV	0.145	0.046	0.152	3.136	0.002***	1.550
EMV	0.221	0.044	0.242	4.984	0.000***	1.565
CCV	0.083	0.055	0.084	1.498	0.135	2.109
F	53.685					
Sig. of F	0.000***					
Adjusted R^2	0.398					

Note: Dependent Variable: Behavioral Intention, *P< 0.10, **P<0.05， ***P<0.01.

As shown in Table 6, when customer satisfaction with the ancient city B&Bs is added to the model, the F value is 215.102, reaching a significant level of 0.05 (Sig. < 0.05). Adj. R^2 is 0.349, which means that the model is significant and the regression model successful. The regression equation has no issue since all VIF values are lower than 5. In addition, under the t-test, the t value was 14.666 and reached significant (Sig. < 0.05), and the Unstandardized Coefficients B were 0.633, above 0, which shows that customer satisfaction has a significant positive and direct influence on behavioral intention. Therefore, H3 is accepted.

Table 6: Regression Coefficients of Customer Satisfaction and Behavioral Intention

Coefficients[a]						
Model	**Unstandardized Coefficients**		**Standardized Coefficients**	**T**	**Sig.**	**VIF**
	B	**Std. Error**	**Beta**			
(constant)	1.325	0.162		8.161	0.000	
CUS	0.633	0.043	0.592	14.666	0.000***	1.000
F	215.102					
Sig. of F	0.000***					
Adjusted R^2	0.349					

Note: Dependent Variable: Behavioral Intention (BEI), *P< 0.10, **P<0.05， ***P<0.01.

- Regression Analysis Test Customer Satisfaction as Mediating Variable

Based on the methodology proposed by Baron and Kenny (1986), the mediating effect of customer satisfaction between customer perceived value and behavioral intention was tested. It was found that the independent variable (customer perceived value) verified the regression analysis of the dependent variable (behavioral intention). It also verified the regression analysis of the mediating variable (customer satisfaction). The independent variable and the mediating variable (customer satisfaction) were then introduced into the regression equation

at the same time to compare the regression coefficient of the independent variables and determine whether the mediating variable had a mediating effect. If it plays a mediating effect, it is either a partial or a complete mediation. The specific analysis is shown in Table 7.

Table 7: Intermediary Analysis of Customer Satisfaction in Customer Perceived Value and Behavioral Intention

Step	Model	Adjusted R^2	F	B	Beta	T	VIF
1	CPV → BEI	0.595	584.519	0.993	0.771	24.177***	1.000
2	CPV→CUS	0.399	265.499	0.762	0.633	16.294***	1.000
3	CPV	0.611	314.541	0.852	0.661	16.404***	1.667
	→CUS→BEI			0.186	0.174	4.318***	1.667

Note: Independent Variable: Customer Perceived Value(CPV), Mediating Variable: Customer Satisfaction(SUS), Dependent Variable: Behavioral Intention(BEI), *P< 0.10, **P<0.05，***P<0.01.

As computed from the three regression analysis on the influence of customer perceived value on behavioral intention, F value is 584.519, and Ad.R^2 is 0.595, which shows that the regression model fits well. The t-test analysis indicates that the value of T is 24.177, which is significant (P<0.01). The value of B is 0.993, which shows that customer perceived value has a significant positive influence on behavioral intention. An intermediary test could then be carried out. In the model, "The influence of customer perceived value on customer satisfaction", the F value is 265.499 and the Ad.R^2 is 0.399. Both show that the regression model fits well. Next, the t-test analysis indicated that the value of T was 16.294, which is significant (P<0.01). The value of B is 0.762, which shows that customer perceived value has a significant positive influence on customer satisfaction. The last intermediary test was then carried out. A mediating variable was added in model 3 and it was found that customer perceived value and customer satisfaction are significant (P<0.01), and Ad.R^2 is improved as compared with model 1. In conclusion, customer satisfaction plays a mediating role in the influence of customer perceived value on behavioral intention. Therefore, H4 is accepted.

5. Discussion and Conclusion

This empirical research discussed the influence of customer perceived value on behavioral intention and the mediating role of customer satisfaction between customer perceived value and behavioral intention toward ancient city B&Bs. It was determined that customer perceived value of Lijiang ancient city B&Bs had a significant positive influence on behavioral intention. The higher tourists' perceived value of the ancient city, the higher the likelihood of their having positive behavioral intention in the future. This finding is consistent with a number of prior studies (Lin et al., 2019; Li et al., 2018). The research showed that increasing the functional, service, social, emotional, and cultural cognitive values of Lijiang ancient city B&Bs could improve the future behavioral intention of tourists; hence the importance of these five dimensions. However, the study also found that the impact of various dimensions of customer perceived value on behavioral intention varied. Service value had the greatest impact and the attitude of ancient city B&Bs received the lowest score in the service value. This indicates that in the future the attitude of the personnel must be improved. Otherwise, there could be a customer loss. This study also found that customer perceived value had a positive influence on customer satisfaction. The existing literature, however, points to some differences in the research conclusions on the relationship between the two. Nevertheless, a majority of the research results were consistent with the research hypothesis of this paper; that is, customer perceived value was the antecedent of customer satisfaction, rather than the opposite. Customer perceived value had a direct, greater, and positive influence on customer satisfaction. Compared with customer perceived value,

customer satisfaction is a more emotional concept. Comparing the expected value with the actual perceived value has a strong emotional dimension for customers. Customers form a perception of value prior to experiencing customer satisfaction. Therefore, customer perceived value should play the role of antecedent to customer satisfaction. In addition, the study found that customer perceived value can influence behavioral intention not only through customer satisfaction, but also directly, which is consistent with prior research (Chen, 2018; Lin et al., 2019).

For B&Bs to retain customers and keep generating positive word-of-mouth and ensuring that there are willing to recommend those B&Bs, let alone encourage repurchase intention and premium purchase intention, it is necessary that they strengthen customer perceived value management and improve customer perceived value advantage from all perspectives. It would also be of much benefit to them to make sure that customer perceived value translate into real value (and not solely remain 'perceived') when designing and operating ancient city B&Bs. They should take customer perceived value as the starting point and regularly monitor and evaluate the unsatisfied value dimension and perfect it over time. Only when getting to know the real feelings of customers can ancient city B&B managers continuously adjust and improve their value-centered competitive strategies and achieve further sustainable competitive advantages.

- *Recommendations for Future Studies*

Future research could select other types of B&Bs or other service industries that are important to customer perceived value in the process of consumption. Such research projects could provide a deeper understanding of the significance of customer perceived value. Since this study only verified the relationships among customer perceived value, customer satisfaction and behavioral intention of ancient city B&Bs, other variables or mediating variables and other possible influencing or correlation factors could also be included in the framework of future studies, such as for example, customer motivation, experience value. Moreover, given that this paper does not make a comparative study of customer perceived value, customer satisfaction, and behavioral intention and the demographic variables, this could be discussed in future studies.

References

Alreck, P. L., & Settle, R. B. (1995). *The Survey Research Handbook* (2nd ed.). Chicago: Irwin.

Athanassopoulos A, Gounaris S, & Stathakopoulos V. (2001). Behavioral response to customer satisfaction: An empirical study. *Europe Journal of Marketing*, *35*(5/6), 687-707.

Brace, N., Kemp, R., & Snelgar, R. (2012). *SPSS for Psychologists*. (5th ed.). New York: Palgrave Mcmillan.

Baron, R. M., & Kenny, D. A. (1986). The moderator-mediator variable distinction in social psychological research: Concept strategic and statistical considerations. *Journal of Personality & Social Psychology*, *51*(6), 1173-1182.

Bolton, R. N., Kannan, P. K., & Matthew, D. B. (2000). Implications of loyalty program, membership and service experiences for customer retention and value. *Journal of The Academy of Marketing Science*, *28*(1), 95-108.

Chen, X. M. (2018). *Study on the Relationship Between Perceived Value and Behavior Intention of B&B Customers Based on Online Reviews* (unpublished master's thesis). Yanshan University, Heilongjiang, China.

Chen, C. F., & Tsai, D. C. (2007). How destination image and evaluative factors affect behavioral intentions? *Tourism Management*, *28*(4), 1115-1122.

China National Tourism Administration. (2019). 2016-2018 Statistical Bulletin of the National Tourism Administration on Bed and Breakfast in China. Retrieved March, 10, 2019, from http://zwgk.mct.gov.cn/?classInfoId=360

Dava, L. M. (2014). *Empirical Study on the Relation Between Customer Experience and Behavioral Intentions in Tibetan Cultural Theme B&B* (Unpublished master's thesis). Zhejiang University, Zhejiang, China.

Fan, C. C. (2014). *The Relationship of Red Tourism Motivation, Perceived Value and Behavioral Intentions: A Case of Shaoshan in Hunan* (Unpublished master's thesis). Hunan Normal University, Hunan, China.

Fan, L. L. (2010). *The Study on the Relationship Between Tourist Experience and Tourist Further Behavior in Wetland Park* (unpublished master's thesis). Zhejiang University, Zhejiang , China.

Han, J. (2016). A comparative study of the intervention modes of the impacts of tourist perceived values on TCM valuation of recreational values: A case study of Zhangguying village. *Tourism Science, 30*(05), 24-36.

Lai, W. T., & Chen, C. F. (2011). Behavioral intentions of public transit passengers: The roles of service quality, perceived value, satisfaction and involvement. *Transport Policy, 18*(8), 318-325

Li, H. L., Zhou, L. Q., & Zheng, Y. B. (2018). Influences of motivation, perceived value of the Yang Knorr tourists on their satisfaction and behavior intention. *Journal of Zhejiang University* (Science Edition), *45*(1), 92-102.

Li, J. M. (2011). *Study on the Relationships Among Tourist Perceived Value, Satisfaction and Behavioral Intention in Recreation around Metropolis* (unpublished doctoral dissertation). China University of Geosciences, Hubei, China.

Lijiang Tourism Bureau. (2019). Lijiang Ancient City B&B Information Announcement. Retrieved April 9, 2019, from http://www.ljta.gov.cn/html/infor/lvyouqiyepingdingliuchengjiminglu/2019/0409/15206.html

Li, J. J. (2009). *Impact of Customer Satisfaction in Tourism Services on Consumer Behavior Tendency* (Unpublished master's thesis). South China University of Technology, Guangdong, China.

Lin, C. S., Zhang, G. Y., & Fang, X. (2019). A study on the relationship between perceived value and behavioral intention of tourists in Meizhou Island, Fujian. *Journal of Guangxi Teachers Education University* (Natural Science Edition), *36*(1),141-149.

Phillips, W. J., Wolfe, K., Hodur, N., & Leistritz, F. L. (2013). Tourist word of mouth and revisit intentions to rural tourism destinations: A case of North Dakota, USA. International Journal of Tourism Research, *15*(1), 93-104.

Porter, M. E. (1999). How Information Gives You Competitive Advantage: The Information Revolution is Transforming the Nature of Competition. *Knowledge & Special Libraries*, *191*(3), 85-103.

Rovinelli, R. J., & Hambleton, R. K. (1977). On the use of content specialists in the assessment of criterion-referenced test item validity. *Dutch Journal of Educational Research*, 2, 49-60.

Tavakol, M., & Dennick, R. (2011). Making sense of Cronbach's alpha. *International Journal of Medical Education*, 2, 53-55.

Wang, L. (2019). *Research on the Development of B&B in Banan District of Chongqing Based on Tourists' Perceived Value* (Unpublished master's thesis). Guizhou Normal University, Guizhou, China.

ASEAN Journal of Management & Innovation
Vol. 7. No. 1, 25 - 42

DOI: 10.14456/ajmi.2020.3
ajmi.stamford.edu
Received: February 14, 2020
Revised: April 27, 2020
Accepted: May 1, 2020

Determinants of Outsourced ERP Implementation Success: Effects of the Task-Technology Fit Theory and Partnership Quality Perspective

Vimolluck Vatanapitukpong
Assumption University, Thailand
vimolluckv@gmail.com

Abstract
Many companies outsource parts of their ERP systems, drawing researchers' attention and driving them to investigate how companies successfully outsource their ERP systems. This study integrates factors from the task-technology fit theory (task characteristics, technology characteristics, utilization, and performance impacts) and from the partnership quality perspective (skills and knowledge, experience, responsibility, user involvement, and partnership quality) to examine their effects on the success of outsourced ERP system implementation in terms of performance outcomes and user satisfaction. It uses a survey for data collection and the structural equation modelling (SEM) method for data analysis. The results indicate that task-technology fit (influenced by task interdependence) affects system utilization and performance outcomes which in turn influence user satisfaction. Moreover, partnership quality (influenced by users' skills and knowledge, user involvement, and vendor responsibility) affects task-technology fit, system utilization and user satisfaction. The results also show that task-technology fit and partnership quality affect the success of outsourced ERP system implementation. Partnership quality has a greater effect on user satisfaction, whereas task-technology fit has a greater effect on performance outcomes. This study fills the gap in the system implementation success literature by integrating the task-technology fit theory and partnership quality perspective to explain the success of outsourced ERP system implementation. It also provides guidance for clients and vendor organizations on what could be done to enhance users' performance and satisfaction.

Keywords: Task-Technology Fit, Partnership Quality, ERP, Implementation Success, Outsourcing, User Satisfaction.

1. Introduction

Today, enterprise resource planning (ERP) systems are widely used by all kinds of enterprises, including small ones, and across most sectors (Aremu, Shahzad, & Hassan, 2018; Alhuthaifi, 2018; ArcherPoint, 2019). Many companies used ERP systems to support their operational processes by creating, modifying, storing and distributing information, and manage their business processes across organizational units effiectively (DeHondt & Knapp, 2008). A number of previous studies contend that companies outsourcing their system implementation process enjoy cost savings, goal achievement, and competitive advantages (e.g. Patel, Lawson-Johnson, & Patel, 2009; Philip, Wende, & Schwabe, 2013; Artelogic 2019; Cybrosys 2019). An ERP system, however, is a complicated technology that requires a high level of expertise to configure and manage it to fit an organization's objectives effectively. This largely accounts for the failure of outsourced ERP system implementation in small and medium-sized companies (SMEs) (Pinto & Slevin 1988; Sammon & Adam, 2010; Fox & Vaidyanathan, 2017; Rouhani & Mehri, 2018; Artelogic 2019; Cleveroad 2019). Many studies attempt to understand how companies successfully outsource their ERP system

implementation (e.g. Shrinivas & Wongsurawat, 2015; Artelogic 2019). Some have applied the task–technology fit (TTF) theory to explain the success of technology implementation in relation to system performance impacts (Sammon & Adam, 2010; D'Ambra, Wilson, & Akter, 2013; Tam & Oliveira 2016). The TTF theory posits that a technology should be used only if its capabilities are suited to the tasks that users must perform and if it is compatible with the existing system. (Goodhue & Thompson, 1995; Wu & Chen, 2017; Ratna et al., 2018). TTF is based on two key determinant factors; task characteristic and technology characteristic. Since the ERP system is complex as it covers all functions, integrates various business processes (Althonayan & Althonayan, 2017) and is operated by users from different business units, task interdependance (task characteristic) and user interface design (technology characteristic) are important factors for ERP system implementation. In the outsourcing context, the partnership between clients and service providers is a key determinant factor of the outsourcing success in terms of system implementation (Lee & Kim, 1999; Ali & Karn, 2014; Lee & Choi, 2003; Rhodes et al., 2016).

The higher the quality of the partnership, the higher the success of the system implementation (Lee & Kim,1999). In their study, Lee and Kim (1999) integrate partnership quality with TTF to explain how both are related and affect the success of outsourced ERP system implementation. Previous studies indicate that partnership quality leading to successful project implementation is determined by the individual characteristics of both parties, including users' skills and knowledge, user involvement, vendor experience, and vendor responsibility (DeHondt & Knapp 2008; Patel et al., 2009; Philip et al., 2013). Also, Teng and Hsu (2017) concluded that external service providers or outsourcing companies who possess the right resources, innovativeness, and skills significantly impact system implementation success. This study aims to understand how TTF and partnership quality are associated to account for the success of outsourced ERP system implementation. More specifically, it examines the effects of TTF and its two determinant factors (task interdependence and user interface) and partnership quality and its four determinant factors (user skills and knowledge, user involvement, vendor experience, and vendor responsibility) on the success of outsourced ERP system implementation as measured in terms of user performance and satisfaction. This study adds to the knowledge of system implementation success in IS literature in that it provides an understanding of how the integration of TTF and pernership quality affects the success of ERP system implementation. It also offers guidance to clients and vendor organizations as to what factors should be monitored and managed to enhance user satisfaction and performance when implementing outsourced ERP systems.

2. Theories Underpinning the Research Model

- Task-Technology Fit and its Determinants

Task-Technology Fit (TTF) is a broad concept. A broad and most agreeable definition is that TTF refers to the alignment between the demands of the tasks that must be done and the capabilities of an information technology (Goodhue, 1995). Many studies have examined the effects of TTF on individual and team performance with various technologies (e.g., Goodhue & Thompson, 1995; Fuller & Dennis 2009; Tam & Oliveira, 2016). Goodhue and Thompson (1995) used TTF to explain performance impacts and proposed a simplified TTF model that describes a fit between the capabilities of a technology and task characteristics. Their TTF model consists of five key factors: (i) task characteristics, (ii) technology characteristics, (iii) task-technology fit, (iv) utilization, and (v) performance benefits (Goodhue & Thompson, 1995).

(i) *Task characteristics* in this simplified model pertain to users' actions turning inputs into outputs related to information technology (Goodhue & Thompson, 1995). Various tasks

(e.g., task interdependence, task equivocality, etc) can be accomplished by different technologies (e.g., mobile technology, social network, cloud computing). Although a variety of tasks can be handled by an ERP system, Goodhue and Thompson (1995) focus on task interdependence, which is the main purpose of many organizations (they adopt the ERP system to handle tasks across business units). Task interdependence commonly refers to the extent to which an ongoing task associates with other tasks and work units. It expands the degree to which workers interact with and rely on others to accomplish their works (Gebauer, Gustafsson, & Witell, 2010).

(ii) *Technology characteristics* are broadly focused on the identification of information systems such as functionality and user interface design (Lee & Kim 1999; Yuan et al., 2010). These studies focus on one of the most important system features, user interface (UI), that allows users to directly interact with the system devices or applications. UI refers to user-friendly navigation structure, search function, form arrangement, ease of access, graphical interface, a user's integration of software with other applications, ease of creation, and storage and retrieval information (Alexander, Koufaris, & Hess, 2012; Gebauer et al., 2010; Ishengoma, Leonard, & Hector, 2018 ; Park, 2018).

(iii) *TTF* describes the match between the demands of a task and the technology capabilities to support the task achievement (Goodhue, 1995). A technology that has a good fit with the task will perform better than a technology that poorly fits with the task (Fuller & Dennis 2009; Ishengoma et al., 2018). A fit is viewed as a normative construct that matches the capabilities of a technology and the task requirements (Goodhue, 1995). Many survey-based TTF studies measure fit directly rather than through constructing fit measures from other variables (Vongjaturapat, 2018).

(iv) *Utilization* is the individual behavior of using the technology in completing his or her tasks. It can be measured by frequency of use, length of time, and the diversity of applications employed (Davis, 1989). Goodhue and Thompson (1995) define utilization as the beliefs of using a system and contend that TTF is an important factor in identifying whether a technology is believed to be more useful, more important, or relatively more advantageous. Previous studies have tested and confirmed a positive relationship between TTF and utilization (e.g. Goodhue & Thompson, 1995; Dishaw & Strong, 1999; Aldhaban, 2016).

(v*) Performance benefit*s are realized when the required task can be completed with the help of an appropriate technology (Goodhue, 1995). It can be defined broadly as the use of information technology to improve efficiency, effectiveness, or work quality. It refers to the impact of computer systems and services on users' productivity, effectiveness, and performance (Goodhue & Thomson, 1995).

- Partnership Quality Perspective

Partnership quality is among the most important factors driving the success of outsourcing implementation. The term "partnership" is often used interchangeably with the term "relationship" (Grover, Cheon, & Teng, 1996; Lee & Kim, 1999). Information technology outsourcing (ITO) partnership can simply refer to a state of connectedness between clients and suppliers in an ITO arrangement. Partnership can reduce the opportunism from each party and the risk of inadequate contractual provisions. It becomes an actual challenge for many organizations as the relationship between service providers and clients evolved from a contractual relationship to a more preferred strategic partnership (Lee & Kim, 1999; Grover et al., 1996). Partnership quality refers to the overall assessment of the strength of a relationship between two parties (Grover et al., 1996). The quality of the relationship between a vendor and its customers determines the probability of continued future interchange

between those parties. Lee and Kim (1999) defined partnership quality in relation to how well the outcome of a partnership matches each partner's expectations. A successful partnership positively affects customer perceived value (Rhodes et al., 2016). Applying the social exchange theory and power-political theory, they proposed and tested a partnership quality model and concluded that partnership quality is a key influential factor of outsourcing success.

- Dimensions and Determinants of Partnership Quality

Previous studies identified the measurement of partnership quality from different attributes. Lee and Kim (1999) found that interaction, communication, participation and information sharing significantly affect partnership quality. Lee and Choi (2003) argued that a good partnership quality stems from how much a client involves itself in knowledge transfer and hence have more trust in vendors. Lee and Kim (2003) found that conflict, cooperation and trust affect the interaction and efficiency outcomes of an outsourcing arrangement. In addition, Ali and Karn (2014) pointed out that an effective partnership management involved managing relationships and internal activities, collaborating with and learning from the partner, and learning about the partnership and making adjustments. They asserted that the most important task in managing the partner relationship was good communication; an important factor to resolve issue of relationship failure. Hammake (2019) determined that a vendor can better meet client expectations and understanding client needs and wants. Many studies examined the factors influencing partnership quality. They include experience, skills and knowledge, user involvement, responsibility, top management, support, vendor support, project champion, management commitment (e.g. Grover et al., 1996; Lee & Kim 1999; Mohr & Spekman 1994; Lee & Kim 2003; Swar et al., 2012). Four of these factors, the most widely cited in prior literature, namely, (i) user involvement, (ii) users' skills and knowledge, (iii) vendor responsibility, and (iv) vendor experience are used in this study.

(i) *User involvement* refers to the overall willingness of users to be involved in activities from the beginning to the end of a project. This includes initiating the project, establishing project objectives, determining user requirements, identifying sources of data/information, outlining information flow, developing input and output forms/screens, and determining a system (Karimi, Somers, & Summer, 2007; Gebauer et al., 2010).

(ii) *Skills and knowledge* can be broadly defined as users' capabilities to manage IT projects in the current business environment, understand the functionalities of IT applications, or quickly learn and apply new technologies (Mohr & Spekman 1994; DeHondt & Knapp 2008; Patel et al., 2009). Lee and Kim (2005) argued that users' skills and knowledge can be viewed as users' expertise in the specific application areas of the system and as their ability to apply their expertise to complete a task requirement effectively.

(iii) *Vendor responsibility* broadly refers to a vendor's willingness to help customers and provide prompt services (Grover et. al., 1996; Lee & Kim 1999; Philip et al., 2013). It can be seen as the vendor's ability to ensure the availability and performance of the services provided to clients.

(iv) *Vendor experience* is the degree to which vendor professionals have technical skills, knowledge, and experiences about technology functionalities used in the client's business (Lee & Kim, 1999; Lee & Kim 2005; Swar et al., 2012). Many researchers have argued that experience, professional technology training, and skills and knowledge about systems play a vital role in the success of outsourcing implementation (Lee & Choi 2003; Patel et al., 2009). The ERP system implementation is a complex and requires in-depth experience and knowledge of vendors to deal with (Sammon & Adam, 2010).

- A Gap in Previous Literature

As mentioned earlier, many studies have applied the five dimemsions of the TTF theory to explain the implementation success of various systems, including ERP systems (Althonayan & Althonayan, 2017), mobile commerce (Rivera, & Van der Meulen, 2014; Rivera, Croes, & Zhong, 2016 ; Tam & Oliveira, 2016 ; Ratna et al., 2018) and social networks (Dang et al., 2018). However, there is a lack of understanding on how the TTF theory accounst for the success of system implementation in the outsourcing context, in particular the success of outsourced ERP system implementation. In addition, some studies have applied only four of the partnership quality factors (user involvement, users' skills and knowledge, vendor responsibility and vendor experience) to explain the outsourcing success of various systems such as ERP systems (Jain & Khurana, 2016) and project management (Latif et al., 2018). Most studies, however, do not take into account the task and technology characteristics when seeking to explain outsourcing success. This study seeks to fill this gap in previous literature by integrating the TTF theory and the partnership quality perspective to explain the success of ERP system implementation in the outsourcing context.

3. Hypotheses Development and Research Model

- Factors Influencing the Task-Technology Fit (TTF) and Partnership Quality

User interface (UI) helps users to link information across other systems/applications, easily use the menu bar, and write the query to generate a complex transaction which no effect to represent the outputs (Ko et al., 2008; Ishengoma et al., 2018). It also provides users with the ability to interact (input and retrieve data) with the system and perform their required tasks easier. For instance, the ERP system consolidates data from various operational units to the centralized database and provides user interface that enables inventory staff to view a stock inquiry easily on their mobile devices. Thus, user interface enables a system to support users' required operation manner. In other words, it makes technology fit users' tasks.

H1: *User interface has a positive effect on TTF*

In today's competitive market, task interdependence providing data sharing across organizational units is necessary for business's strategic planning (Stark, Bierly, & Harper, 2014). It involves a huge amount of data, cross-communication between organization's units, and data transaction throughout an organization, which must be managed. The major purpose of an ERP system is to integrate applications for business operations and business process activities across organizational units (Karimi, Somers, & Summer, 2007; Davenport 1998). Task interdependence, therefore, suitably fits the ERP system and influences the task-technology fit.

H2: *Task interdependence has a positive effect on TTF*

User involvement is a crucial part of the outsourced ERP system implementation process (Jain & Khurana, 2016). The ERP system contains various functions and applications that require users' information by the vendor's project team. User's overall willingness to participate is necessary for the vendor team to carry out the system implemenation efficiently. User involvement therefore promotes communication and collaboration between users and the vendor project team leading to a partnership quality.

H3: *User involvement has a positive effect on partnership quality*

The ERP implementation process needs to integrate work processes across departments but users may not understand the work processes in other departments. This makes it difficult for the vendor's project team to obtain the required and useful information necessary for a successful the system implementation (Ooi, Hasliza, & Ramayah, 2013). The vendor's project team will face a problem communicating and collaborating with users who lack the required knowledge and skills in the ERP system. On the other hand, users' skills and

knowledge in outsourced tasks will help to support efficient collaboration and communication with the vendor's project team leading to the improvement of the partnership quality.

H4: *User's skills and knowledge have a positive effect on partnership quality*

In the outsourcing implementation process, vendors should hold direct responsibilities (doing the core tasks assigned in the contract) and indirect responsibilities (doing associated tasks to complete the core tasks) in carrying out the outsourcing project. For long-term outsourcing contracts (e.g., ERP system implementation), vendors are responsible for not only doing the tasks specified in the contract but also developing relationship with clients/users (Mohr & Spekman, 1994). Previous studies suggested that vendors should have sympathy and be service minded and responsive to create an environment conducive to relationships and complete their contractual tasks smoothly (Mohr & Spekman, 1994; Lee & Choi, 2003). Vendor responsibility will therefore enhance collaboration between vendors and users. The higher the vendor responsibility, the better the partnership quality.

H5*: Vendor's responsibility has a positive effect on partnership quality*

Vendors who have experience implementing similar outsourcing projects will have more knowledge about the client's business process and understand specific applications of his/her outsourced system. This makes it easier for vendors to understand a client's requirements and develop the system to meet the client's needs (Jain & Khurana, 2016). In addition, vendors are able to provide useful advice and effectively solve problems for clients based on the experience they gain from doing the same project over and over. As a result, a vendor's experience enables effective communication and collaboration with users leading to the improvement of the partnership quality.

H6*: Vendor's experience has a positive effect on partnership quality*

- *Effects of TTF and Partnership Quality on the Success of ERP System Implement*tation

To successfully outsource the system implementation, users and a vendor's project team need to have good collboration to ensure a fit between the technology developed by the vendor and the users' tasks (Alghamdi, 2018). In other words, partnership quality (a manifestation of good collaboration) is necessary to secure a task-technology fit in the outsourced system implementation process.

H7*: Partnership quality has a positive effect on TTF*

In the outsourcing implementation process, a vendor is responsible for not only performing tasks specified in the contract but also for developing relationship with clients/users (Mohr & Spekman, 1994). Partnership quality as part of an effecicient collaboration will facilitate and improve the users' utilization of the system. This study argues that the better the partnership quality, the more the system utilization.

H8*: Partnership quality has a positive effect on utilization*

In many cases, after utilizing the implemented system, contingent issues arise and need to be solved quickly. An effective collaboration and a good support from a vendor (a manifestation of partnership quality) are essential and enhance user satisfaction positive effect on utilization (Wang, Sasanipoor, & Wang 2018). This study argues that partnership quality positively influences overall user satisfaction with the system implementation.

H9*: Partnership quality has a positive effect on user satisfaction*

A task-technology fit indicates the extent to which the system (technology) is compatible with the required tasks resulting in the actual system utilization (Dishaw and Strong, 1999). Users are more likely to use a system that can perform their tasks better. The ERP system consists of many applications (modules) that can be configured to support a variety of users'

task modes. The fit between the system and the users' tasks, therefore, enables system utilization.

H10*: TTF has a positive effect on utilization*

Technology that can support users' tasks has an impact on users' performance (Goodhue & Thompson, 1995; Ghiyoung, 2014). The ERP system, if appropriately configurated for users' tasks, will enhance users' productivity and quality of works. This study therefore asserts that TTF impacts users' performance outcomes.

H11*: TTF has a positive effect on performance outcome*

Utilization of the system through daily operational process will increase an individual performance in relation to efficiency and effectiveness (Goodhue & Thomson, 1995; Ghiyoung, 2014). This study proposes that system utilization enables favorable users' performance outcomes.

H12*: Utilization has a positive effect on performance outcome*

User satisfaction and performance outcomes should be measured periodically to evaluate ERP system performance (Batada & Rahman, 2012). A number of previous studies have investigated and confirmed the effect of system performance on user satisfaction (e.g., Batada & Rahman, 2012; Wei, Liou, & Lee, 2008). The more users can use a system to perform their tasks, the more they tend to be satisfied with the system. Accordingly, this study hypothesizes that the performance outcome affects user satisfaction.

H13*: Performance outcome has a positive effect on user satisfaction*

In summary, based on the integrated effects of the TTF theory and partnership quality perspective, the factors influencing the outsourced system's implementation success can be hypothesized as follows:

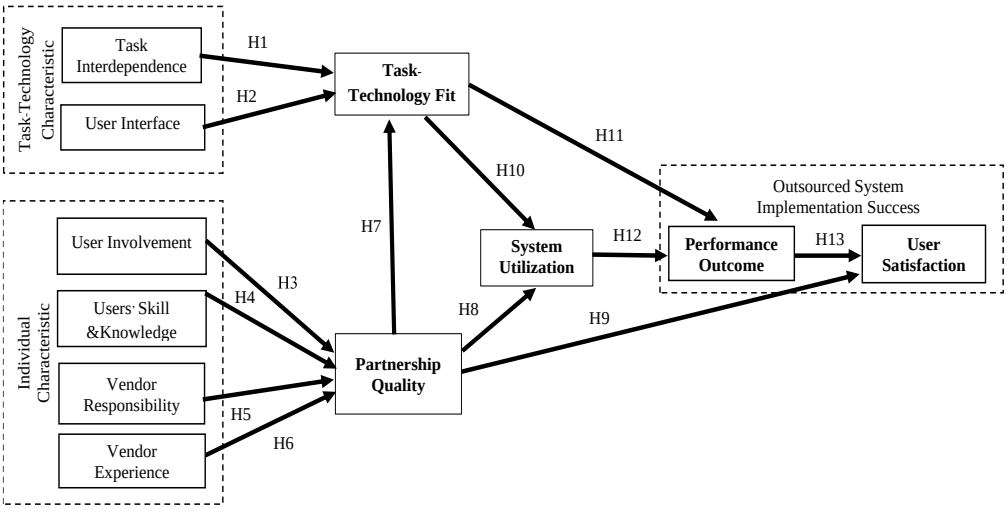

Figure 1: Research Model (Created by the Author for this Study)

4. Methodology

This study used a survey method; an effective approach to gather data about individual opinions on a large scale. The questionnaire consisted of two parts. The first part addressed the model variables, namely, system functionality, user interface, task interdependence, time criticality, user involvement, users' skill and knowledge, vendor responsibility, vendor experience, TTF, partnership quality, utilization, performance outcome, and user satisfaction. The questions, which respondents were asked to answer using a five-point Likert scale

(1=highly disagree, 5=highly agree), were adapted from previous studies by (Goodhue (1995), Lee and Kim (1999), Davis (1989), and Teo and Men (2008) (see Appendix for the list of questions). The second part focused on the respondents' demographics, including age, gender, job position, work unit/department, industry type, experience working with companies and using the ERP system, current ERP system used, and current ERP modules/applications used. Ten people knowledgeable in the field screened the items in the questionnaires for appropriateness. Their feedback was used to modify the questionnaire before it was used. The purposive sampling technique was used to collect data from 12 companies which have successfully outsourced their ERP systems. The questionnaires were directly handed to the persons authorized by their companies to answer the survey. All respondents were users of a company's ERP system and included senior managers, department managers, and department users. A survey incentive was used to increase the completeness of returned questionnaires. A total of 500 questionnaires were distributed and returned. After deleting outliers and missing values, 445 questionnaires were selected, accounting for 89 percent of the total number of questionnaire initially sent out. The sample size was greater than the threshold of 200 and more than ten times that of the parameters used in the research model for determining the appropriate sample size for the structural equation modeling (SEM) analysis technique (Barrett, 2007).

5. Results

- *Respondents' Profile*

Regarding the respondents' demographic profile, as shown Table 1, 46.7 percent of them were males and 53.3 percent females. Most of them were between 25 and 35 years old (71.7%). An overwhelming majority of them (84.5%) were staff members working in the departments of accounting, warehouse, sales/marketing, human resources, and production. 66.1 percent of them had more than 3 years of work experience and 69.2 percent more than 3 year-experience using ERP systems. Most of the respondents had used various ERP software, including SAP and Oracle as well as local software with different software modules for marketing and sales, accounting and finance, and human resources.

Table 1. Respondents' Demographic Profile

Profile	Frequency	Percent	Profile	Frequency	Percent
Gender			Work Experience		
Male	208	46.7	1-3 years	151	33.9
Female	237	53.3	3-5 years	118	26.5
			5-10 years	91	20.4
			10-20years	44	9.9
			> 20 years	41	9.2
Age			ERP Experience		
20-25 years	17	3.8	1-3 years	177	30.8
25-30 years	185	41.6	3-5 years	133	29.9
30-35 years	134	30.1	5-10 years	80	18.0
35-40 years	47	10.6	10-20 years	53	11.9
> 40 years	62	13.9	> 20 years	2	4.0
Work Position			ERP Modules		
Senior Manager	12	2.7	M/S	70	15.7
Department Manager	57	12.8	A/F	75	16.9
Department Staff	376	84.5	HRM	7	1.6
ERP Software			WHM	117	26.3
SAP	80	18.0	PDM	107	24.0

Oracle	40	9.0	L/SCM	38	8.5
Local software	325	73.0	PO/R	31	7.0

Note: M/S = marketing and sales; A/F = accounting and financial controlling; HRM = human resource management; WHM = warehouse management; PDM = production management; L/SCM = Logistic and Supply Chain Management; PO/R = Purchase Order and Request.

The structural equation modeling (SEM) analysis method was used to analyze the measurement model and the structural model. The measurement model is used to examine the relationship between the latent variable and its indicators whereas the structural model is used to examine the path strength and the causal relationship of the latent variables.

- Analysis of Measurement Model

This study used the Analysis of Moment Structure (AMOS) software to assess the important properties of the measurement model, including the goodness of the model fit and the construct reliability and validity. The model's fit was assessed on the basis of the six key indices, namely, the ratio of chi-square to degree-of-freedom (χ^2/df), goodness of fit index (GFI), adjusted goodness of fit index (AGFI), incremental fit index (IFI), comparative fit index (CFI), and root mean square error of approximation (RMSEA). The results shown in Table 2 indicate that all fit indices fulfill the threshold values, confirming the good fit of the model (χ^2/df=2.206, GFI=.914, AGFI=.877, IFI=.953, CFI=.952, RMSEA=.052).

Table 2. Fit Indices of the Measurement Model

Fit indices	**χ^2/df**	**GFI**	**AGFI**	**IFI**	**CFI**	**RMSEA**
Recommended values	≤ 3.00	≥ 0.90	≥ 0.80	≥ 0.90	≥ 0.90	≤ 0.08
Actual values	2.206	.914	.877	.953	.952	.052

Construct reliability was estimated by using composite reliability (CR), which measures the stability and equivalence of the construct (Hair et al., 2009). A value of composite reliability greater than 0.7 is acceptable (Fornell & Larcker, 1981). It indicates that at least 70% of the variance in measurement is captured by the construct. As Table 3 shows, the composite reliabilities for all constructs ranged from 0.718 to 0.932, which are acceptable reliabilities of the constructs.

Table 3. Correlation, Composite Reliability, and Average Variances Exacted

	CR	**AVE**	**UI**	**TID**	**UIV**	**USK**	**VRE**	**VEX**	**TTF**	**PNQ**	**SYU**	**PFO**	**USF**
UI	0.932	0.875	**0.935**										
TID	0.801	0.577	0.213	**0.760**									
UIV	0.920	0.852	0.069	0.248	**0.923**								
USK	0.860	0.675	0.047	0.152	0.459	**0.821**							
VRE	0.892	0.806	0.035	0.072	0.282	0.426	**0.898**						
VEX	0.764	0.644	0.044	-0.020	0.228	0.253	0.605	**0.803**					
TTF	0.718	0.562	0.058	0.182	0.334	0.339	0.379	0.471	**0.750**				
PNQ	0.852	0.661	0.024	0.117	0.289	0.394	0.467	0.409	0.678	**0.813**			
SYU	0.861	0.756	0.030	0.158	0.315	0.306	0.230	0.270	0.435	0.490	**0.870**		
PFO	0.876	0.703	0.037	0.165	0.218	0.316	0.268	0.249	0.362	0.333	0.273	**0.838**	
USF	0.785	0.646	0.035	0.170	0.261	0.240	0.172	0.259	0.330	0.311	0.447	0.556	**0.804**

CR=composite reliability; AVE=average variance exacted; Diagonal elements=square roots of AVEs; Off-diagonal elements= correlation value of factors.

Construct validity was determined by the convergent and discriminant validities. Convergent validity was measured using the average variance exacted (AVE), which determines the extent to which indicators of a latent construct converge or have a high proportion of variance in common (Hair *et al.*, 2009). All the AVEs shown in Table 3 were above 0.56, which is greater than the recommended level of 0.5. Thus, the convergent validity is satisfied. Discriminant validity indicates whether the construct is distinct from other constructs and is calculated by comparing the square root of the AVE of each construct to the correlations between the construct and all other constructs (Fornell and Larcker, 1981). As can be seen in Table 3, all the square roots of AVEs (the diagonal elements) are higher than the correlation value of the factor and all other factors (the off-diagonal elements). The discriminant validity of each construct is therefore acceptable. In summary, the results from the measurement model evaluation showed satisfactory reliability, convergent validity, and discriminant validity. A structural model analysis could thus be conducted.

- Analysis of Structural Model

The path strength and causal relationships of the latent constructs in the proposed research model were examined with the AMOS software. The model's goodness of fit indices were examined first. Table 4 indicates a poor-fit of the model as the fit indices were not satisfied with the recommended values (χ^2/df=3.703, GFI=.815, AGFI=.780, IFI=.860, CFI=.859, RMSEA=.078). The model needed to be reexamined and modified. Therefore some causal relationships in the proposed model were removed since they provided insignificant causal effects ($p<0.05$). The modification indices and the claims for new causal relationships of the latent constructs were comprehensibly investigated, based on theoretical evidence, to improve the fit-model indices and estimate the best potential causal relationships among the latent constructs. As Table 4 shows, the final modified model provided better-fit indices and indicated a good-fit model (χ^2/df=2.504, GFI=.912, AGFI=.886, IFI=.943, CFI=.943, RMSEA=.058). In addition, all causal relationships between latent constructs were statistically significant.

Table 4. Fit Indices of the Final Model

Fit indices	**χ^2/df**	**GFI**	**AGFI**	**IFI**	**CFI**	**RMSEA**
Recommended values	≤ 3.00	≥ 0.90	≥ 0.80	≥ 0.90	≥ 0.90	≤ 0.08
Result values (Proposed model)	3.703	.815	.780	.860	.859	.078
Result values (Final Model)	2.504	.912	.886	.943	.943	.058

The path diagram of the final model in Figure 2 indicates the standardized regression weights, the significant levels of the effects, and the squared multiple correlations.

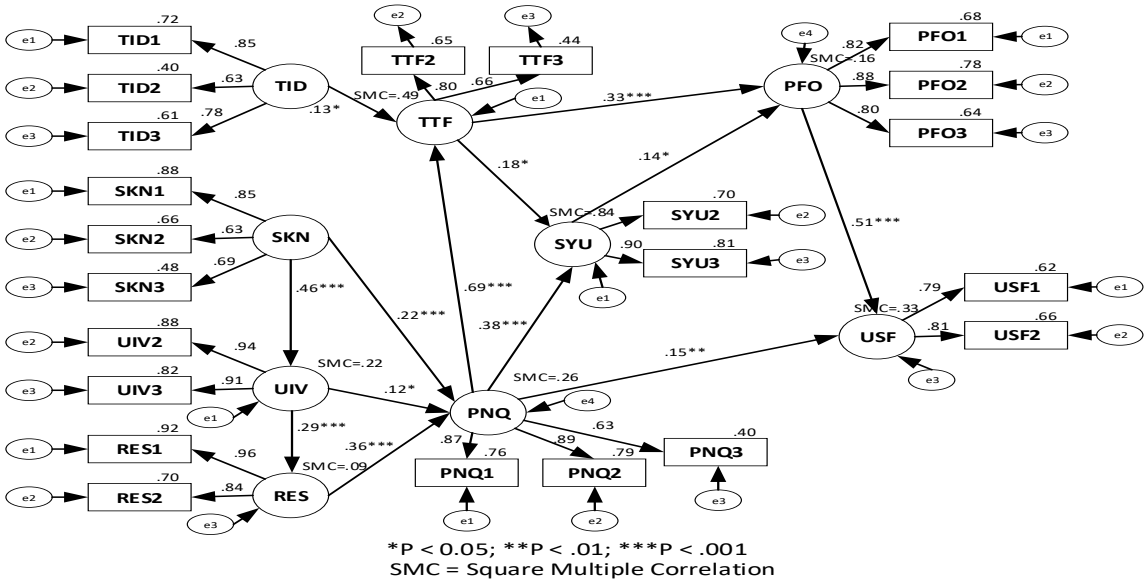

Figure 2: Final Model

6. Discussion

- Factors Influencing Task-Technology Fit and Partnership Quality

The study found that user interface (UI) does not have a significant influence on task-technology fit (TTF). H1 is therefore not supported. Respondents might perceive that UI is not the key ERP feature that they want to use or that the sytsem default UI is adequate. It was also found that task interdependence has a significant positive effect on TTF. H2 is therefore supported. The ERP software is a suite of integrated applications, which can automatically update new information into a single data repository and share data across key business functions such as manufacturing, purchasing, production planning, sales, and accounting. Respondents therefore can work and exchange data across organizational units to accomplish their tasks using the ERP system. Task interdependence fits well with the use of the ERP system. Figure 2 indicates that user involvement, users' skills and knowledge, and vendor responsibility have significant positive effects on the partnership quality. H3, H4 and H5, are therefore supported. User involvement enables a good relationship with a vendor team which in turn creates partnership quality. Users' skills and knowledge help the vendor team to obtain required and useful information (e.g., users' operational processes) necessary to implement the ERP system successfully. The vendor team also can easily communicate and collaborate with users who have adequate skills and knowledge about the ERP system. Users' skills and knowledge enhance effective communication and collaboration with vendors associated with partnership quality.

Furthermore, vendor responsibility enables users' trust in vendors, which will enhance partnership quality. Contrary to previous studies, this study found that vendor experience has no significant effect on partnership quality. H6 is therefore not supported. Thus vendor skills and expertise in specific applications of the ERP system and its implementation might create a knowledge gap and deteriorate collaboration between users and the vendor team. This study also determined that user skills and knowledge positively affect user involvement and in turn has a positive effect on vendor's responsibility. Users' skills and knowledge in organizational operations and ERP systems encourage users to actively participate in the ERP implementation process. In addition, users who actively work with the vendor team in implementing the ERP system will expect more vendor engagement and responsibility such as providing prompt services and responding to users' inquiries quickly.

- Effects of the TTF and Partnership Quality on the Success of ERP System Implementation

The study found that partnership quality has significant positive effects on TTF, system utilization, and user satisfaction. H7, H8 and H9 are therefore supported. Making the fit between ERP system and users' tasks requires synergy and both parties' efforts. Quality of partnerships manifests effective collaboration and supports the fit between users' tasks and the ERP system. Users will increase their use of the ERP system if they can get good support from vendors. This will not happen without good partnership quality. Partnership quality drives the utilization of the system. A good collaboration from vendors derived from partnership quality enhances user satisfaction. Accordingly, partnership quality influences user satisfaction. The results also show that TTF has a positive effect on system utilization and performance outcomes. Thus, H10 and H11 are supported. Users are more likely to use an ERP system that is able to perform their required tasks. A system that fits well with users' tasks will increase user performance in terms of the improvement of productivity and work quality. Furthermore, the study found that system utilization has a significant effect on performance outcomes which successively affect user satisfaction. H12 and H13 are therefore supported. Users working with the system on daily operations will increase their work performance. This study confirms the results from previous studies in that system performance positively affect user satisfaction (e.g., Batada & Rahman, 2012; Wei et al., 2008).

- Implications for Theory

The theoretical implications are twofold. Firstly, this study fills a gap in the system implementation success literature. It is among the first studies to incorporate a partnership quality perspective into the TTF theory to explain the success of outsourced ERP system implementation. Although many studies have adopted TTF to explain the success of system implementation in organizations, it lacks understanding of how TTF explains the success of system implementation in the outsourcing context. On the other hand, the perspective of partnership quality is necessary for the outsourcing success in system implementation, but it does not involve the characteristics of task and technology necessary for the system implementation success. This study tested and confirmed the effects of partnership quality and TTF on the outsourcing success of ERP system implementation associated with user performance and satisfaction.

Secondly, the study provides an important understanding of the predictive powers of TTF and partnership quality on the success of ERP system implementation in the outsourcing context. The results in Table 5 indicate that TTF has a greater effect on performance outcomes when compared to partnership quality (0.35 vs. 0.29). The result also shows that partnership quality has a greater effect on user satisfaction when compared to TTF (0.30 vs. 0.18). It can therefore be concluded that TTF and partnership quality have different and significant effects on the success of outsourced system implementation.

Table 5. Standardized Total Effects

	SKN	TID	UIV	RES	PNQ	TTF	SYU	PFO	USF
UIV	.465	.000	.000	.000	.000	.000	.000	.000	.000
RES	.137	.000	.295	.000	.000	.000	.000	.000	.000
PNQ	.322	.000	.221	.356	.000	.000	.000	.000	.000
TTF	.221	.125	.151	.245	.686	.000	.000	.000	.000
SYU	.161	.022	.110	.178	.499	.179	.000	.000	.000
PFO	.094	.044	.064	.104	.292	.350	.137	.000	.000
USF	.098	.022	.067	.108	.303	.179	.070	.511	.000

	SKN	TID	UIV	RES	PNQ	TTF	SYU	PFO	USF

- *Implications for Practice*

The study provides important implications for both client and vendor organizations. The implications for client organizations are twofold. Firstly, client organizations should opt for a technology suitable for their tasks as the fit between task and technology enables the success of system implementation. For instance, an ERP system could be designed and developed to effectively manage task interdependence in organizations (a manifestation of H1) leading to the improvement of user performance (a manifestation of H11).

Secondly, client organizations should pay attention to the importance of partnership quality when outsourcing ERP system implementation. Users from a client organization should develop a strong relationship with a vendor's project team to enhance the success of outsourced system implementation (a manifestation of H9). They should effectively collaborate and communicate with vendors such as supporting vendors' tasks and information when required. To do these, users should actively be involved and participate to support the organization's outsourcing project (a manifestation of H3). They should have sufficient knowledge and skills to work on the outsourcing project (a manifestation of H4). For instance, users should have a good knowledge of their work process and the system requirements so as to make an effective collaboration and communication with the vendor's project team. The organizations might provide training programs to enhance users' required skills and knowledge before outsourcing their ERP systems.

The implications for vendor organizations are twofold. Firstly, vendors should create a good relationship with clients, which is important for a successful system implementation in terms of user satisfaction (a manifestation of H9). Vendors should create trust and provide effective collaboration with clients. They should avoid unnecessary arguments and conflicts, which will destroy the relationship with their clients. To strengthen relationships with clients, vendor's responsibility is necessary (a manifestation of H5). For instance, vendors should provide services at the time they promise to do. They should also be willing and prompt to assist users' requirements and inquiries.

Secondly, vendors should improve the system performance to support user satisfaction (a manifestation of H13). For instance, vendors might attempt to offer and add new applications/functions on the implemented ERP system to support new users' required works and improve the quality of users' tasks.

- *Limitations and Future research*

This study has some important limitations. Firstly, it focuses only on the ERP system. This limits the generalizability of the study results regarding the success of a system implementation because each system has some unique characteristics that may alter the results of this study. In other words, different technologies (systems) have different functionalities to accomplish users' task requirements. To improve the generalizability of the study model, it is worth examining the study model across various systems such as a customer relationship management system and a supply chain management system.

Secondly, this study only collects data from participants working in SMEs. Task characteristics used in this study therefore may not suitably fit with tasks performed by large enterprises since large organizations have a greater scope of work and more complicated business processes. This will confine the generalizability of the study results. Future studies might include other task characteristics (e.g., task complexity, routine, and mobility) to understand the effect of TTF on the success of system implementation.

Thirdly, the study uses a purposive sampling method which does not randomly select a sample from a population. The study samples are selected from pre-specified companies that successfully outsourced their ERP systems in particular industries. The generalizability of the findings may thus be limited. Some probability sampling methods (e.g., a systematic sampling method and a cluster random sampling) might be considered for future studies.

Lastly, the study uses a cross-sectional data collection technique to gather data at one single point in time due to the time and cost constraints of this study. However, partnership quality can further develop as time goes by and the task requirements may change over time. The study, therefore, can result in bias of the outcome measures. It is worth examining the research model using a longitudinal study to validate the study results.

7. Conclusion

This study proposed a new model to explain the ERP system implementation success in an outsourcing context. The model integrates the task-technology fit theory and the partnership quality perspective to explain how their relationships affect the success of an outsourced ERP system implementation associated with performance outcomes and user satisfaction. The structural equation modelling (SEM) method was used to examine the research model. The results show that the task-technology fit, influenced by task interdependence, affects the system utilization and the performance outcomes, which in turn influence user satisfaction. Partnership quality, which is influenced by users' skills, knowledge, and involvement and by vendor responsibility, affects the task-technology fit, system utilization as well as user satisfaction. Partnership quality, however, has a greater effect on user satisfaction, whereas the task-technology fit has a greater effect on performance outcomes. This study fills a gap in the system implementation success literature as it broadens knowledge of the effects of the task-technology fit and the partnership quality on the success of the ERP system implementation in an outsourcing context. It also provides guidance for client and vendor organizations on what should be done and managed to enhance user performance and satisfaction.

References

Aldhaban, F. A. (2016). Exploratory study of the adoption and use of the smartphone technology in emerging regions: The case of Saudi Arabia. *Journal of Information Technology and Economic Development, 3*(1), 170-185

Alexander, B., Koufaris, M., & Hess, T. (2012). Service quality in software-as-a-service: Developing the saaS-qual measure and examining its role in usage continuance. *Journal of Management Information Systems, 28*(3), 85-126.

Alghamdi, M. (2018). Success factors of implementing enterprise resource planning systems in North American organizations. *Journal of Information Technology and Economic Development 3*(1), 85-120.

Alhuthaifi, B. (2018). Critical success factors related to enterprise resource planning (ERP) implementation in Saudi Arabia's hospitals. *Journal of Information Technology and Economic Development 2*(2), 1-16.

Ali, S., & Khan, S. U. (2014). Critical Success Factors for Software Outsourcing Partnership (SOP): A Systematic Literature Review. *Proceedings of the 9th International Conference on Global Software Engineering* (pp. 153-162). Washington, DC, USA.

Althonayan, A., & Althonayan, M. (2017). E-government system evaluation The case of users' performance using ERP systems in higher education. *Emerald, 11*(3), 306-342.

ArcherPoint. (2019). 10 ERP Trend for 2019. Retrieved November 19, 2018, from https://www.archerpoint.com/blog/Posts/10-erp-trends-2019

Aremu, A. Y., Shahzad, A., & Hassan, S. (2018). Determinants of Enterprise Resource Planning Adoption on Organizations' Performance Among Medium Enterprises. *Log Forum, 14*(2), 245-255.

Artelogic (2019). In-House vs Outsourcing Software Development. Retrieved March 19, 2019, from https://artelogic.net/blog/post/in-house-vs-outsourcing-software-development.

Barrett, P. (2007). Structural equation modelling: Adjudging model fit. *Personality and Individual Differences, 42*(5), 815–824.

Batada, I., & Rahma, A. (2012). Measuring system performance and user satisfaction after implement of ERP. *Proceedings of the 2nd International Conference on Information Management and Evaluation* (pp. 603-611). Montreal, Canada.

Celeveroad (2019). In-house vs Outsourcing: Which Software Development Practice to Follow? Retrieved June 13, 2019, from https://www.cleveroad.com/blog/inhouse-software-development-vs-outsourced.

CyBroSys (2019). In-House Software vs Outsourced. Retrieved January 14, 2019, from https://www.cybrosys.com/blog/in-house-software-vs-outsourced.

D'Ambra J., Wilson C. S., & Akter S. (2013). Application of the task-technology fit model to structure and evaluate the adoption of e-books by academics. *Journal of the American Society for Information Science and Technology, 64*(1), 48-64.

Dang, Y., Zhang, Y., Brown, S. A., & Chen, H. (2018). Examining the impacts of mental workload and task-technology fit on user acceptance of the social media search system. *Journal of the Information Systems Frontier, 5*(1), 1-22.

Davenport, T. (1998). Putting the enterprise into the enterprise system. *Harvard Business Review, 76*(4), 121–131.

Davis F. D. (1989). Perceived usefulness, perceived ease of use, and user acceptance of information technology. *MIS Quarterly, 13*(3), 318–346.

DeHondt, G., & Knapp, D. (2008, November). *Offshore systems development: Factors affecting success*. In 39th Annual Meeting of the Decision Sciences Institute (vol.3, pp. 22-25). Baltimore, Maryland, USA.

Dishaw, M. T., & Strong, D. M. (1999). Extending the technology acceptance model with task-technology fit constructs. *Information & Management, 36*(1), 9-21.

Fornell, C., & Larcker, D. F. (1981). Evaluating structural equation models with unobservable variables and measurement error. *Journal of Marketing Research, 18*(1), 39-50.

Fox, M. A., & Vaidyanathan, G. (2017). Enterprise resource planning vendor selection: A case study. *Researchgate. Issued in Information System, 18*(2), 39-47.

Fuller, R. M., & Dennis A. R. (2009). Does fit matter? The impact of task-technology fit and appropriation on team performance in repeated tasks. *Information Systems Research, 20*(1), 2-17.

Gebauer, H., Gustafsson A., & Witell, F. (2010). Competitive advantage through service differentiation by manufacturing companies. *Journal of Business Research, 64*(12), 1270-1280.

Ghiyoung, I. (2014). Effects of cognitive and social factors on system utilization and performance outcomes. *Journal of Information Management, 51*(1), 120-129.

Goodhue, D. L. (1995). Understanding user evaluations of information Systems. *Management Science, 41*(12), 1827–1844.

Goodhue, D. L., & Thompson, R. L. (1995). Task-technology fit and individual performance. *MIS Quarterly, 19*(2), 213–236.

Grover, V., Cheon, M. J., & Teng, J. T. C. (1996). The effect of service quality and partnership on the outsourcing of information systems functions. *Journal of Management Information Systems, 12*(4), 89-112.

Hair, J. F., Black, W. C., Babin, B. J., & Anderson, R. E. (2009). *Multivariate data analysis*. Upper Saddle River: Prentice Hall.

Ishengoma, F., Leonard M., & Hector, M. (2018). Critical success factors for m-government adoption in Tanzania: A conceptual framework. *The Electronic Journal of Information Systems in Developing Countries, 85*(1), 1-10.

Jain, D. M., & Khurana, R. (2016). A framework to study vendors' contribution in a client vendor relationship in information technology service outsourcing in India. *Benchmarking: An International Journal, 23*(2), 338-358.

Karimi, J., Somers, T. M., & Summer. B. (2007). A. The impact of ERP implementation on business process outcomes: A factor-based study. *Journal of Management Information Systems, 24*(1), 101–134.

Ko, H. C., Tseng, F. C., Yin, C. P., & Huang, L. C. (2008). The Factors influencing suppliers satisfaction of green supply chain management systems in Taiwan. *International Journal of Information Systems and Supply Chain Management*, *1*(1), 66-79.

Latif, K., Ismail, M. N., Nazri, M., & Nor, M. R. N. (2018). Conceptual propensity of outsourcing success through Robust model development. *Arabian Journal of Business and Management, 7*(4), 1-12

Lee, H., & Choi, B. (2003). Knowledge management enablers, processes, and organizational performance: An integrative view and empirical examination. *Journal of Management Information Systems, 20*(1), 179-228.

Lee J.-N., & Kim Y.-G. (1999). Effect of partnership quality on IS outsourcing success: Conceptual framework and empirical validation. *Journal of Management Information System, 15*(4), 29-61.

Lee, J.-N., & Kim, Y.-G. (2003). Exploring a casual model for the understanding of outsourcing partnership. *Proceedings of the 36th Hawaii International Conference on System Science,* (pp.268). Washington, DC, USA.

Lee, J.-N. & Kim, Y.-G. (2005). Understanding outsourcing partnership: A comparison of three theoretical perspectives. *IEEE Transactions on Engineering Management, 52*(1), 43-58.

Mohr, J., & Spekman R. (1994). Characteristics of partnership success: Partnership attributes, communication behaviour, and conflict resolution technique. *Strategic Management Journal, 15*(2), 135-152.

Ooi, E., Hasliza, A. H., & Ramayah, T. (2013). The effects of partnership quality on business process outsourcing success in Malaysia: Key users perspective. *Springer, 7*(2), 227-253.

Park, C. W. (2018). Exploring a new determinant of task technology fit: Content characteristics. *Journal of International Technology and Information Management, 27*(3), 100-118.

Patel, D., Lawson-Johnson, C., & Patel, S. (2009). The effect of cultural differences on software development. *Proceedings of the 5th Annual International Conference on Computing and ICT*. Kampala, Uganda.

Philip, T., Wende, E., & Schwabe, G. (2013). Exploring early warning signs of failure in offshoreoutsourced software development projects at the team level. In: 21st *European Conference on Information Systems*, (pp.5-11). Utrecht, The Netherlands.

Pinto, J. K., & Slevin, D. P. (1988). Critical success factors across the project life cycle. *Project Management Journal, 19*(3), 67-75.

Ratna, S., Astuti, E. S., Utami, H. N., Rahardjo, K., & Arifin, Z. (2018). Characteristics of tasks and technology as a driver of task-technology fit and the use of the hotel reservation information system. *VINE Journal of Information and Knowledge Management Systems, 48*(4), 575-595.

Rhodes, J., Lok, P., Loh, W., & Cheng, V. (2016). Critical success factors in relationship management for services outsourcing. *Springer, 10*(1), 59-86.

Rivera, M., Croes, R., & Zhong, Y. Y. (2016). Developing mobile services: A look at first-time and repeat visitors in a small island destination. *International Journal of Contemporary Hospitality Management, 28*(12), 2721-2747.

Rivera, J., & Van der Meulen, R. (2014). Gartner Say Annual Smartphone Sales Surpassed Sales of Feature Phone for the First Time in 2013. Retrieved April 30, 2018, from https://www.gartner.com/newsroom/id/2665715.

Rouhani, S., & Mehri, M. (2018). Empowering benefits of ERP systems implementation: Empirical study of industrial firms. *Journal of Systems and Information Technology, 20*(1), 54–72.

Sammon, D., & Adam, F. (2010). Project preparedness and the emergence of implementation problems in ERP projects. *Information & Management, 47*(1), 1–8.

Shrinivas, T., & Wongsurawat, W. (2015). Information technology (IT) outsourcing by business process outsourcing/information technology enabled services (BPO/ITES) firms in India. *Journal of Enterprise Information Management 28*(1), 60-76.

Stark, E., Bierly, P., & Harper, S. (2014). The interactive influences of conflict, task interdependence and cooperation on perceptions of virtualness in co-located teams. *Journal of Team Performance Management, 20*(5), 221-241.

Swar, B., Moon, J., Oh, J., & Rhee C. (2012). Determinants of relationship quality for IS/IT outsourcing success in the public sector. *Springer Link: Information Systems Frontier, 14*(2), 457-475.

Tam, C., & Oliveira, T. (2016). Performance impact of mobile banking: using the tasktechnology fit (TTF) approach. *International Journal of Bank Marketing, 34*(4), 434-457.

Teng, H.-M., & Hsu, P.-H. (2017). Trade-off between in-house production and outsourcing. *Journal of Industrial and Production Engineering, 34(3),* 213-220.

Teo, S. H., & Men, B. (2008). Knowledge portals in Chinese consulting firms: A task–technology fit perspective. *European Journal of Information System, 17*(6), 557-574.

Vongjaturapat, S. (2018). Application of the task-technology fit model to structure and evaluation of the adoption of smartphones for online library systems. *Journal of Science & Technology Asia, 23*(1), 39-56.

Wang, J. J., Sasanipoor, N., & Wang, M. M. (2018). How PMBOK standard and partnership quality influence IT outsourcing success: An investigation of the mediated moderation effects. *Journal of Global Information Technology Management, 21*(4), 282-300.

Wu, B., & Chen, X. (2017). Continuance intention to use MOOCs: Integrating the technology acceptance model (TAM) and task technology fit (TTF) model. *Computers in Human Behavior, 67*(1), 221-232.

Wei, C., Liou, T., & Lee, K. (2008). An ERP performance measurement framework using a fuzzy integral approach. *Journal of Manufacturing Technology Management, 19*(5), 20-25.

Yuan, Y., Archer, N., Connelly, C. E., & Zheng, W. (2010). Identifying the ideal fit between mobile work and mobile work support. *Information and Management, 47*(3), 125-137.

Appendix. Measurement items presented in the final model

Latent Construct	Abbrev	Measurement Items
Task Interdependence	TID1	My task is often completed with staff from other departments.
	TID2	My task often involves sharing knowledge or information with other departments.
	TID3	The results of my task are dependent on the efforts of people from within or outside my department
User Involvement	UIV2	I participate in identifying input/output of system needed for the company's ERP implementation
	UIV3	I actively involve throughout the ERP system implementation.
Skill &Knowledge	SKN1	I have knowledge in the specific applications of the ERP system.
	SKN2	I have overall knowledge of organizational operations.
	SKN3	I have sufficient skills and knowledge in managing the system effectively
Responsibility	RES1	They provides their services at the times they promise to do so.
	RES2	They gives prompt service to you or your team
Task-Technology Fit	TTF2	The ERP system is compatible with my workstyle
	TTF3	Using the ERP system enhances my task effectiveness
Partnership Quality	PNQ1	I get timely information from the ERP service providers about unexpected problems that could affect their ability to meet our technology needs.
	PNQ2	I have a very trusting relationship with the ERP service providers
	PNQ3	I have a long term partnership with the ERP service providers
System Utilization	SYU2	I frequently use the ERP system
	SYU3	I spend much time of my work to use the ERP system
Performance Outcome	PFO1	The ERP system increase the quality of my work.
	PFO2	The ERP system decreases the error rate of my work
	PFO3	The ERP system increase overall company's productivity
User Satisfaction	USF1	The information provided by the ERP system meets my expectations
	USF2	I am satisfied with the overall quality of the ERP systems

ASEAN Journal of Management & Innovation
Vol. 7. No. 1, 43 - 62

DOI: 10.14456/ajmi.2020.4
ajmi.stamford.edu
Received: January 21, 2020
Revised: April 2, 2020
Accepted: April 3, 2020

Assessment of Expected and Perceived Service Quality in Nigerian Public Hospitals

Prisca C. Adaka
Stamford International University, Thailand
nonnycozee@yahoo.com
Dr William P. Wall
Stamford International University, Thailand
william.wall @Stamford.edu
Dr Kate Hughes
Stamford International University, Thailand
kate.hughes@hughes-scm.com

Abstract
Although there is a proliferation of studies on the quality of health care in developed countries, this research is based in an emerging economy in Africa, Nigeria. Providing services to customers based on their needs and expectations is essential for the success of any service provider and a key factor in providing high quality service. This study uses a combination of secondary data and primary data collected from a sample of 200 Nigerian hospital patients at three public hospitals. The questionnaire is based on the five SERVQUAL dimensions (*Tangibles, Reliability, Responsiveness, Assurance,* and *Empathy),* which were adapted to fit with the study's objectives. The results were analyzed using SPSS. They revealed a strong statistical significant difference (p >.000) between patients' expectations and perceptions (experience) of service quality. The greatest discrepancy in SERVQUAL related to the *Assurance* dimension and for *Overall Service Delivery*. These differences between service expectations and perceptions implied that patients' expectations were not met after experiencing public hospital services in Nigeria. This calls for management and personnel to leverage this information and use it to develop a strategic framework, implement personnel training programs, and design a program to ensure improvements in the efficiency and effectiveness of the hospital service delivery system. Moreover, continuous evaluation is needed to ensure that increased service performance and the interest of customers are prioritized.

Keywords: Services, SERVQUAL, Service Quality, Service Provision, Customer Expectations, Customer Perception, Hospital, Nigeria.

1. Introduction

Living longer is everyone's dream. Every individual yearns to live life to the fullest and fulfill his/her lifelong goals (Olaniyan, Lawanson, & Olasehinde, 2014). This includes individuals in Nigeria, a country, where, according to Wagstaff and Claeson (2010), the health care system is so incapacitated that 10 percent of the world's maternal deaths occur there. This is the worst figure globally for childbirth death. Simply put, health care services in Nigeria are unsatisfactory and fail to meet the needs of the general public (Worlu, Kehinde, & Borishade, 2016). As Akinsola (2007) argues, health is one's greatest wealth and being healthy a prerequisite for leading a life that is productive (Shaibu & Ibrahim, 2016). The critical objectives of a health care system should be patient satisfaction and service quality. Patients have become more demanding and want more information about their health and the health services provided; if they are not satisfied with the services, they will then choose an alternative

option. Quality is an important deciding factor for health services but its intangible nature makes it difficult to measure. Generally, assessment of service quality relies on customer perception and expectations. Customer satisfaction is a key strategy for long-term success and profitability in the health care system, all the more as today, the healthcare sector has become financially lucrative and highly competitive. One factor used to assess the quality of services provided is a patient's opinion of the differences between perception and expectations. This has become a proxy for assessing the health of the organization itself. Therefore, the quality of services delivered should meet or exceed expectations. This is an important source for identifying problems and setting action plans for quality improvement in a health care organization. It is also recognized as an integral part of building a competitive advantage and long-term profitability. As the example of Nigeria suggests, the health care sector in low- and middle-income countries face many challenges. Issues such as: ensuring improved health; decreased mortality and morbidity rate; and decreased chronic diseases, are still important priorities. They reflect the overall state of health provision.

What are the trends and underlying reasons for the growth in services today? According to a recent report from the *World Economic Forum* (2018), the health care sector tends to place a larger priority on the availability of skilled, local talent. This issue is becoming more important as the population of many countries is aging. In no other part of the service sector is customer service more important than in health care. Unlike other service suppliers, where a customer may, for example, use an airline and experience poor service and never use this company again; health care provides fewer choices. Unfortunately, while many doctors and medical professionals spend large amounts of time to improve their technical skills and medical knowledge (Kraft, Porter, & Wilfond, 2015), they neglect the one thing that should matter most – customers' service experience.

For most people, health care is not a choice. It can be scary and unsettling, but because it is also a necessity, many feel that a positive service experience is not to be expected. What does the health care industry have to do with great customer service? It comes down to two simple concepts: attention and communication. Patients in a hospital want to feel as though they are the only ones there. While they do not expect luxury accommodations or gourmet food, they nonetheless expect someone to care about them, treat them with compassion, and provide specific and current information about their condition (Bruno, Dell'Aversana, & Zunino, 2017). Through marketing, hospital patients have come to expect safe and effective treatment in a clean, comfortable environment. Millions of dollars are spent annually by medical technology companies, pharmaceutical companies (and related providers) to project a positive image of the essential goods and services they provide in order to attract customers and improve profitability. These images are what hospitals invest in and what patients ultimately pay for. However, at times a company's priorities are placed above the needs and wants of its patients (Torpie, 2014).

The relationship between medical staff should be therapeutic. As far back as 2000, the World Health Organization (WHO) was advocating that more emphasis should be placed on the individual (WHO, 2000). Patient-centered care as opposed to paternalism (doctors 'know it all' and allow only limited questions from their patients) was studied by Delaney (2018), who identified the benefits of this type of approach to health care service. According to this research, there is greater collaboration between patients and medical staff when a patient is actively involved in the decision-making process. This collaboration makes it easier for patients to manage life-style changes designed to improve their overall health. Giving a patient decision-making power can also lead to his/her declining traditional medical treatment and exploring alternative medicines (Verhoef & White, 2002). Patient-centered care has become a major force in the redesign of some health care services. But, based on cost restrictions faced

by many health organizations, a compromise needs to be reached between the two alternatives. Using an experience-based strategy, design science endeavors to combine both consumer and staff input in an effort to connect the roles and experiences of the consumer and staff within their environment (Bate & Robert, 2006). This helps reduce costs for the organization and by ensuring that patients are better informed, it allows the patients to better manage and evaluate their own health and health status.

This study focuses on Nigeria public hospitals and examines their expected and perceived service quality. More specifically, it seeks:

1. to assess patients' expectations and perceptions of the service quality provided in Nigerian public hospitals;
2. to analyze the gap between patient perception and expectation of service provision (based on SERVQUAL's five service dimensions), in Nigerian public hospitals; and
3. to offer suggestions for service improvement based on the findings.

2. Literature Review

Service quality is a major challenge in management (Blackiston, 1988; Langevin, 1988; Sherden, 1988). But a higher level of service quality remains a key strategy for service providers to gain market share (Brown & Swartz, 1989; Parasuraman, Zeithaml, & Berry, 1988; Rudie & Wansley, 1985; Thompson, DeSouza, & Gale, 1985). Since services occupy a strategic place in public disclosure, it is important to establish how service quality is perceived by the public. Service quality though is a difficult concept to directly measure (Brown & Swartz, 1989; Carman, 1990; Crosby, 1979; Garvin, 1983; Parasuraman, Zeithaml, & Berry, 1985; Rathmell, 1966). Quality is not easily measured and there is a lack of uniform agreement on its definition.

- The SERVQUAL Model

"To assess customers expected and perceived service quality, there is need to understand the customer relationship with the service provider" (Zeithaml, Bitner, & Gremler, 2010, p. 151). The SERVQUAL model (Parasuraman *et al*., 1988) is the most widely used scale for measuring service. Service quality is defined by the following five dimensions:

- *tangibles:* comprised of physical facilities, equipment and appearance of personnel;
- *reliability:* encompasses the ability of providers to perform the service which was promised as accurately as possible;
- *responsiveness:* employees' willingness to provide prompt service for the customer;
- *assurance:* employees' knowledge and courtesy as well as their ability to inspire truth and confidence; and
- *empathy:* employees' ability to care and provide individualized attention to the customers.

The representation of how customers evaluate service quality is assessed by applying the SERVQUAL scale (Parasuraman *et al.,* 1988; Parasuraman, 1995) (Figure 1). This is a multi-item instrument for measuring the expectations and perceptions of service provision (Babakus & Mangold, 1992). The difference between perception and expectation is identified as a 'gap' in service provision (Parasuraman, Berry, & Zeithaml, 1991a). A 'positive' gap score indicates that customers' expectations have been met or even exceeded, whereas a 'negative' gap indicates a failure to meet expectations. Generally, the gap scores are analyzed as an aggregated score of respondents' reporting of the factors contributing to each of the five service dimensions. In summary, the results of the expectations and perceptions of the five dimensions (and their respective 'gap' scores), signal the strengths or weaknesses in the service provided, and can be used to inform the organization and managers that action needs to be taken to

decrease and prevent undesirable outcomes. SERVQUAL has been widely used as a reliable and valid instrument for measuring service quality, although it has been criticized at both methodological and conceptual levels. According to McDougall and Leveresque (1995), the five SERVQUAL dimensions can be restrained to two dimensions relating to 'core services' and 'augmented services'. These are equivalent to the technical and the functional dimensions identified in an earlier paper by Gronroos (1988). SERVQUAL has also been used to assess services in a wide range of service-oriented companies such as banking, telecommunication companies, hotels, insurance, as well as maintenance and repair of apparatus.

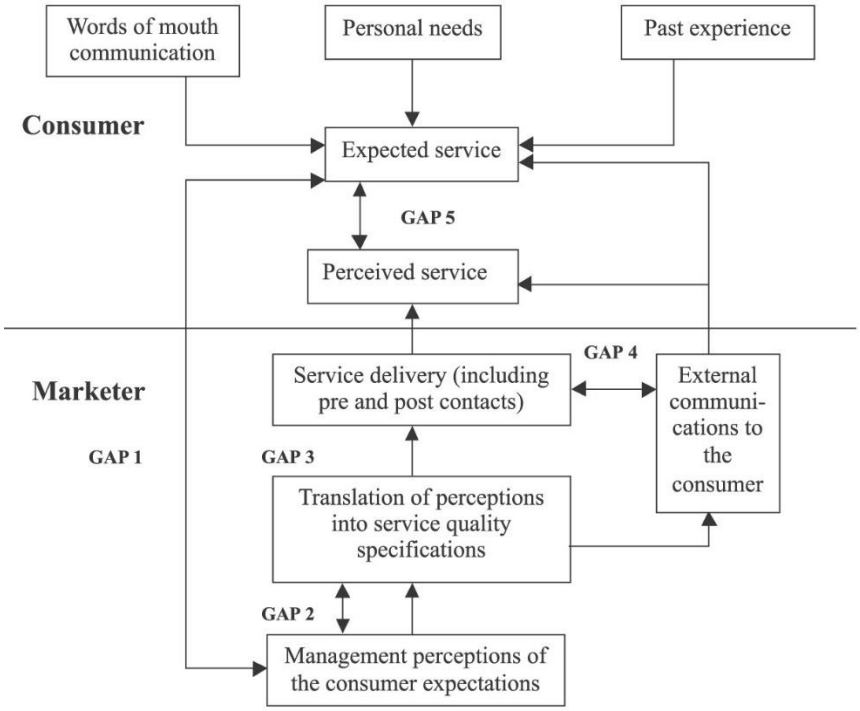

Figure 1: SERVQUAL Gap Model
Source: Parasuraman *et al*. (1985, p.44)

Overview of Service Quality Issues in Nigerian Public Hospitals

Businesses cannot survive without spending time to build customer satisfaction and brand loyalty. Service organizations cannot successfully compete without providing good service to their customers since their major goal is to serve customer needs. The health care environment has become highly competitive, and service quality performance is the way to improve competitive advantage. Cheng Lim and Tang (2000) argued that customer-based expectations of service quality play an important role when choosing a hospital. Wisniewski and Wisniewski (2005) indicated that the perception of service quality - from the patients' perspective - should be routinely monitored and assessed. Service quality is subjective and difficult to measure directly, as it is the gap between patients' priorities and their perceptions. These gaps need to be identified by management in order resolve service issues (Silvestro, 2005).

Over the past decades, public hospitals in Nigeria have failed to provide adequate care for their patients (Akinsola, 2007). This issue was identified by Ogunbekun, Ogunbekun, and Orobaton (1999) who stated that a lack of funding, low quality service, and inadequacy of the public health system as a result of the resource and financial challenges faced by public hospitals, have created a service quality delivery gap (now filled by private hospitals), resulting in low to middle class patients having limited options. Ogaji and Etokidem (2012), define

'quality of care' as a level of performance, equated to the quality of the health care provided. Public health care in Nigeria is characterized by inefficient service quality, leading patients to shun public health care providers and seek alternative help from private hospitals in the country; or to travel abroad. The interface between workers and customers is responsible for the pubic hospital sectors' objectives predominately being unmet (Harrison-Walker, 2001). Customer satisfaction is considered the most significant success indicator in health care (Pakdil & Harwood, 2005). Therefore, for hospitals to improve performance and gain a competitive advantage their patients' expected and perceived satisfaction with of the services provided must be met. For example, a study in Greece found that hospital managers measure the quality of service in order to identify specific issues. This data was used to improve hospital performance and address increased competition from private hospitals (Baralexis & Sophianou, 2005). In Ireland, a study on perceived service quality in a maternity hospital determined that the number of staff available to meet patients' needs, was correlated with patients' satisfaction with perception of service.

Customers' demand for higher standards of service is a result of the awareness that they gained from their previous experience. Wang *et al.* (2004) emphasized that in the current business environment and today's 'customer era,' the focus of service providers should be on providing customer value and service quality. Therefore, for hospitals to differentiate and increase their competitive advantage, service must be more efficient and responsive in order to meet patients' needs. Since a satisfied patient believes that the organization has the potential to understand his/her health care needs (Rathert & May, 2007), the goal of public hospitals has to be an improvement in the provision of their *Responsiveness* to the needs of patients. Due to the intangible nature of services, it is the perception of the patient of the service provision that is the primary determinant of the quality and value of that service (Duggirala, Rajendran, & Anantharaman, 2008). Lim, Nelson, and Tang (2000), argue that customer-based determinants and perceptions of service quality play an important role when choosing a hospital. Public hospitals must ensure that patients are provided with quality health care in a timely manner. It is important to keep in mind that patients' awareness of what they want – as well as their previous experience - can impact their perception (Wang, *et al.* 2004) as their different expectations are based on their prior knowledge (Reisig & Stroshine Chandek, 2001).

3. Methodology

Primary data was collected using a survey that included a set of structured, closed-answer questions that were administered to patients at three Nigerian public hospitals. Non-probability convenience sampling (Creswell, 2014) was used, since the data could not be collected from the whole target population and there was no sampling frame available (Saunders, Lewis & Thornhill, 2016). Although larger samples would be more robust and reliable, smaller sample sizes can be useful if limitations are taken into account (Barnett, 2002). Access, funding, population size and the number of variables are all important considerations in any effort to collect primary data. A small sample size can impact the reliability of the results as the data set could have higher variability (or large standard error), which leads to a biased result (Hacksaw, 2008). The size of any sample of a population is typically related to the alpha level, the type of analysis, the anticipated effect size and the level of power of the analysis (Statistical Solutions, 2019).

A standard questionnaire consisting of 20 items was used to measure the SERVQUAL dimensions of the three hospitals. It consisted of two parts: the first part asked for personal information on the respondents (age, gender, educational qualification and length of patronage) and the second part consisted of two sections relating to patients' expectations and perceptions of the five dimensions of services quality. The *Expectations Section* required respondents to

indicate on a five-point Likert scale (from strongly disagree to strongly agree), the level to which they believe the pubic hospital possessed the characteristics described in each statement. The *Perception Section* required respondents to indicate their experience of the public hospital service provision, based on the same Likert scale. The difference between the expectations and perceptions of the service quality were calculated, to identify the gap(s) in the service provision.

The questionnaire developed for this study used questions relating to the five service dimensions from the SERVQUAL Gap Model that were identified by Parasuraman *et al*. (1985). This conceptual model has been applied to a wide range of contexts and been an accepted approach to identifying the differences between *Expected* and *Perceived* service quality in multiple contexts. When using a questionnaire, content validation is critical, as it determines the degree that measures the identified constructs (Anastasia, 1988). According to Newman *et al.* (2002), the purpose of testing questions for a survey or an interview is to improve the validity and reliability of the data that is collected. Haynes, Richard, and Kybany (1995) defined content validity as the degree to which elements of an assessment instrument are representative of the targeted sample for an assessment purpose. The content validity of this questionnaire was assessed by experts with a medical background. A draft version of the questionnaire was distributed for review to a select group of experienced hospital staff, patients, and academics for checking and correction. This was to ensure that the survey questions accurately reflected the concepts they were measured. The comments were used to improve the survey and incorporated into the final version.

The management teams in the three Nigerian public hospitals granted permission for the study. The survey was distributed to adults (males and females 18 years and older), who reside in the Rivers State of Nigeria, and have previously - or are currently - using the hospital services. The aim of the study was explained to each participant who was assured that his/her response would be amalgamated and anonymized in order to keep all individual responses confidential. A total of 250 questionnaires were distributed with 200 usable surveys returned, resulting in an 80% response rate (70 usable surveys from Hospital 'A', 65 from hospital 'B', and 65 from Hospital 'C'). The questionnaires were completed either online or on a hardcopy (based on the respondents' preference) and responses entered into an excel spreadsheet.

4. Results

- Demographics

According to LeCompte and Schensul (1999), data analysis is a process used to reduce data to a story and its interpretation. The study employed descriptive statistics and identified the mean, frequency distribution, percentage and standard deviation of the responses. A brief overview of the demographic data is provided in this section. The age of the respondents demonstrates a reasonable distribution of respondents' ages between 18 years and over 50 years of age. The percentage of respondents between the ages of 18 to 25 years was 17.5%; 26-30 years old, 27%; 31-35 years old, 18.5%; 36-40 years old, 14.5%; 41-45 years old, 19.5%; and those over 45 years old, 2.5% of the total. The gender of the respondents was fairly evenly split, with 52.5% females and 47.5% males. 83% of the respondents held a Bachelors' degree or above. The employment data indicated that 80% of the respondents were in full-time employment, 15.5 % in part-time employment, 3% unemployed, 1% unable to work due to illness, and 0.5% not in the labor force. The hospital patronage of the respondents shows that almost 60% of the respondents have been associated with the hospital for more than a year (those attending for the first time were less than 7% of the total sample).

- SERVQUAL Dimensions

Descriptive statistics, such as the measure of central tendency and dispersion (standard deviation) were used. Svensson (2006) claims that using a quantitative research approach is

preferred for investigating participant perceptions and can also be used to discover hidden values, feelings, attitudes and motivation. The aim was to apply a deductive approach with an emphasis on testing the theories related to the study topic (Bell & Bryman, 2007). The response frequencies for each of the service quality expectations and perceptions in Nigerian public hospitals were based on the five service dimensions using a Likert scale: Strongly Disagree=1; Disagree=2; Neutral=3; Agree=4; and Strongly Agree=5. Each of the five service dimensions included four questions, and the respondents were asked to rate their expectations, and then provide their perceptions of the service quality provided by the public hospital they attended. To aid interpretation of the data collected for each SERVQUAL dimension, separate tables for each of the service dimensions are compiled: *Tangibility* (Table 1), *Responsiveness* (Table 2), *Reliability* (Table 3), *Empathy* (Table 4), and *Assurance* (Table 5).

The following information is provided. Every item for Respondents' expectations and perceptions of service quality has a frequency response with Strongly Disagree =1 and Strongly Agree = 5, and for every item, the minimum value recorded is 1 and the maximum value 5. The mean and Standard Deviation (SD) for the expectations and perceptions of each item are also included in the Tables. The Overall Mean and Overall Standard Deviation (SD) for Respondents' Expectations and Perceptions for each of the five dimensions of service quality are included underneath each table. Each table also includes the median value for the questionnaire responses for both expectations (all equal 2, except for item 8. *Personnel pay attention to patients and understand specific needs*), and perspectives (all equal 4). This is a consistent pattern of difference for all results.

- Tangibility

The highest mean Likert score for patients' expectations of *Tangibility* (Table 1) was for item 3, *Hospital environment is generally clean and well organized* (3.76 with a standard deviation (SD) of +/-1.08), then 4, *Hospital facilities and medical services are appealing* (3.68, SD +/-1.08), followed by item 1, *Hospital facilities are updated and easy to use* ranked (3.59, SD +/-1.12), and the lowest score was for item 2, *Hospital personnel is neat and well dressed,* ranked (3.37, SD +/-0.62). The overall sum of the mean values of the Likert responses of patients' expectations for *Tangibility* was 14.4, with a SD of +/-3.9. In contrast, the values for patients' perceptions of *Tangibility* were item 2 (2.6, SD +/-1.1) then item 4 (2.36, SD +/-1.0), followed by item 3 (2.3, SD +/-0.7). The lowest score was item 1 (2.21, SD +/-1.0). The overall sum of the mean values for perceptions of *Tangibility* was 9.9, with SD of +/-3.72.

Table 1: Participants' Rating of Expectations (Ex) and Perceptions (Pe) of the Services Provided by Nigerian Public Hospitals on the SERVQUAL Dimension of *Tangibility*

Ex: Expectation Pe: Perception	**Strongly Disagree =1**		**Disagree =2**		**Neutral =3**		**Agree =4**		**Strongly Agree =5**		**Item Mean**		**Item SD**	
Tangibility	**Ex**	**Pe**	**Ex**	**Pe**	**Ex**	**Pe**	**Ex**	**Pe**	**Ex**	**Pe**	**Ex**	**Pe**	**Ex**	**Pe**
1. Hospital facilities are updated and easy to use	11	33	27	100	36	30	84	26	42	11	3.59	2.21	1.12	1.0
2. Hospital personnel is neat and well dressed	10	24	11	78	30	46	105	37	44	15	3.37	2.6	0.62	1.1

3. Hospital environment is generally clean and well organized	13	25	12	90	32	38	95	28	48	19	3.76	2.3	1.08	0.7
4. Hospital facilities and medical services are appealing	12	25	17	106	35	34	94	22	42	13	3.68	2.36	1.08	1.0

Source: Authors (2019)
Notes: N= 200. Median Values are highlighted in grey
Tangibility Expectations - Overall Sum of Mean Values = 14.4 and Overall SD of +/-3.92
Tangibility Perceptions - Overall Sum of Mean Values = 9.9 and Overall SD of +/-3.72

- Responsiveness

The highest mean Likert score for patients' expectations of *Responsiveness* (Table 2) was item 8, *Personnel pays attention to patients and understands specific needs* (3.69, SD +/-1.0) then 5, *Hospital personnel handles complaints and questions very fast* (3.67, SD +/-1.0), followed by item 6, *Hospital personnel explains procedure before giving care* (3.63, SD +/-1.0). The lowest score was for item 7, *Hospital personnel is prompt and efficient in its response to media and non-medical services* (3.58, SD +/-0.9). The overall sum of the Likert values of patients' expectations for *Responsiveness* was 14.57, with a SD of +/-3.92. In contrast, the values for patients' perceptions of *Responsiveness* were item 7 (2.46, SD +/-0.6) then item 5 (2.42, SD +/-1.0), followed by item 8 (2.28, SD +/-1.1). The lowest score was for item 6 (2.17, SD +/-1.0). The overall sum of perceptions for *Responsiveness* was 9.34, with a SD of +/-3.72.

Table 2: Participants' Rating of Expectations (Ex) and Perceptions (Pe) of the Services Provided by Nigerian Public Hospitals on the SERVQUAL Dimension of *Responsiveness*

Ex: Expectation Pe: Perception	**Strongly Disagree =1**		**Disagree =2**		**Neutral =3**		**Agree =4**		**Strongly Agree =5**		**Item Mean**		**Item SD**	
Responsiveness	**Ex**	**Pe**	**Ex**	**Pe**	**Ex**	**Pe**	**Ex**	**Pe**	**Ex**	**Pe**	**Ex**	**Pe**	**Ex**	**Pe**
5. Hospital personnel handles complaints and questions very fast	9	31	32	98	36	39	73	19	50	13	3.69	1.0	2.42	1.0
6. Hospital personnel explains procedure before giving care	10	29	21	99	37	27	97	27	35	18	3.63	1.0	2.17	1.0
7. Hospital personnel is prompt and efficient in its response to media and non-medical services	12	20	29	110	40	35	79	28	40	7	3.58	0.9	2.46	0.6
8. Personnel pays attention to patients and	9	20	22	29	33	88	93	43	43	20	3.69	1.0	2.28	1.1

understand specific needs														

Source: Authors (2019)
Notes: N= 200. Median Values are highlighted in grey
Responsiveness Expectations - Overall Sum of Mean Values = 14.4 and Overall SD of +/-3.92
Responsiveness Perceptions - Overall Sum of Mean Values = 9.9 and Overall SD of +/-3.72

- Reliability

The highest mean Likert score for patients' expectations of *Reliability* (Table 3) was item 11, *The hospital personnel can be relied on to keep to time* (3.66, SD +/-1.1) then 9, *The hospital personnel can be relied on as being trained and qualified* (3.65, SD +/-1.03), followed by item 10, *The hospital personnel carries out service correctly and completely* (3.53, SD +/-1.05). The lowest score was for item 12, *Hospital keeps accurate records* (3.53, SD +/-0.6). The overall sum of the mean values for patients' expectations for *Reliability* was 14.47, with a SD of +/-3.73. In contrast, the values for patients' perceptions of *Reliability* were item 11 (2.54, SD +/-1.13) then item 12 (2.52, SD +/-0.4), followed by item 9 (2.5, SD +/-1.12). The lowest score was for item 10 (2.44, SD +/-1.1). The overall sum of perceptions for *Reliability* was 10.06, with a SD of +/-3.79.

Table 3: Participants' Rating of Expectations (Ex) and Perceptions (Pe) of the Services Provided by Nigerian Public Hospitals on the SERVQUAL Dimension *Reliability*

Ex: Expectation Pe: Perception	**Strongly Disagree =1**		**Disagree =2**		**Neutral =3**		**Agree =4**		**Strongly Agree =5**		**Item Mean**		**Item SD**	
Reliability	**Ex**	**Pe**	**Ex**	**Pe**	**Ex**	**Pe**	**Ex**	**Pe**	**Ex**	**Pe**	**Ex**	**Pe**	**Ex**	**Pe**
9. Hospital personnel can be relied on as being trained and qualified	11	33	27	100	36	30	84	26	42	11	3.65	2.5	1.03	1.12
10. Hospital personnel carries out service correctly and completely	10	24	11	78	30	46	105	37	44	15	3.53	2.44	1.05	1.1
11. Hospital personnel can be relied on to keep to time	13	25	12	90	32	38	95	28	48	19	3.66	2.54	1.1	1.13
12. Hospital keeps accurate records	12	25	17	106	35	34	94	22	42	13	3.53	2.52	0.6	0.4

Source: Authors (2019)
Notes: N= 200. Median Values are highlighted in grey
Reliability Expectations - Overall Sum of Mean Values = 14.47 and Overall SD of +/-3.73
Reliability Perceptions - Overall Sum of Mean Values = 10.06 and Overall SD +/-3.79

- Empathy

The highest mean Likert score for patients' expectations of *Empathy* was item 14, *Personnel understand patients' specific needs* (3.68, SD +/-1.0) then 13, *Hospital personnel are friendly and polite when handling the patients* (3.62, SD +/-1.1), followed by item 16, *Prompt attention*

to patients' beliefs and emotions and 15, *Personnel prioritize patients* (both having a Likert score of 3.6, with SDs +/-1.0 and +/-0.7 respectively). The overall sum of the mean values for patients' expectations for *Empathy* was 14.51, with a SD of +/-3.77. In contrast, the values for patients' perceptions of *Empathy* were items 14 and 15 (both 2.52, with SDs of +/-1.04) then item 16 (2.4, +/-SD 0.7). The lowest score was item 13 (2.51, +/-SD 0.9). The overall sum of the mean values of perceptions for *Empathy* was 9.95, with a SD of +/-3.67.

Table 4: Participants' Rating of Expectations (Ex) and Perceptions (Pe) of the Services Provided by Nigerian Public Hospitals on the SERVQUAL Dimension *Empathy*

Ex: Expectation Pe: Perception	**Strongly Disagree =1**		**Disagree =2**		**Neutral =3**		**Agree =4**		**Strongly Agree =5**		**Item Mean**		**Item SD**	
Empathy	**Ex**	**Pe**	**Ex**	**Pe**	**Ex**	**Pe**	**Ex**	**Pe**	**Ex**	**Pe**	**Ex**	**Pe**	**Ex**	**Pe**
13. Hospital personnel is friendly and polite when handling the patients	15	33	19	83	27	40	102	25	37	19	3.62	2.51	1.1	0.9
14. Personnel understands patients' specific needs	10	18	19	102	27	35	107	34	37	11	3.68	2.52	1.0	1.1
15. Personnel prioritizes patients' interest	12	24	17	91	46	46	88	21	37	18	3.6	2.52	0.7	1.1
16. Prompt attention to patients' beliefs and emotions	13	29	19	81	45	50	81	25	42	15	3.6	2.4	1.0	0.7

Source: Authors (2019)
Notes: N= 200. Median Values are highlighted in grey
Empathy Expectations - Overall Sum of Mean Values = 14.51 and Overall SD of +/-3.77
Empathy Perceptions - Overall Sum of Mean Values = 9.95 and Overall SD of +/-3.67

- Assurance

The highest mean Likert score for patients' expectations of *Assurance* was item 17, *The personnel has the knowledge to answer all patients' questions* (3.6, SD +/-1.2), then 19, *Hospital personnel is highly skilled* (3.52, SD +/-1.0), followed by 18. *Personnel is consistently polite with patients* (3.51, SD +/-1.0), and the lowest score was for item 20, *Hospital personnel is trustworthy* (3.44, SD +/-0.56). The overall sum of the mean values of the Likert values of patients' expectations for *Assurance* was 14.2, SD of +/-3.75. In contrast, the values for patients' perceptions of *Assurance* were items 17 and 19 (both 2.5, SDs +/-0.9 and +/-0.8 respectively) then item 18 (2.4, SD +/-0.7). The lowest score was for item 20 (2.0, SD +/-0.5). The overall sum of the mean values of perceptions for *Assurance* was 8.99, with SD of +/-2.99.

Table 5: Participants' Rating of Expectations (Ex) and Perceptions (Pe) of the Services Provided by Nigerian Public Hospitals on the SERVQUAL Dimension *Assurance*

Ex: Expectation Pe: Perception	**Strongly Disagree =1**		**Disagree =2**		**Neutral =3**		**Agree =4**		**Strongly Agree =5**		**Item Mean**		**Item SD**	
Assurance	**Ex**	**Pe**	**Ex**	**Pe**	**Ex**	**Pe**	**Ex**	**Pe**	**Ex**	**Pe**	**Ex**	**Pe**	**Ex**	**Pe**
17. Employees have the knowledge to answer all patients' questions	19	30	25	85	60	40	77	15	19	30	3.6	2.5	1.2	0.9
18. Employees are consistently polite with patients	15	31	36	93	55	34	84	11	10	31	3.51	2.4	1.0	0.7
19. Hospital employees are highly skilled	16	29	28	98	59	26	81	18	16	29	3.52	2.5	1.0	0.8
20. Hospital employees are trustworthy	18	26	24	104	62	28	77	15	19	29	3.44	2.0	0.56	0.5

Source: Authors (2019)
Notes: N= 200. Median Values are highlighted in grey
Assurance Expectations - Overall Sum of Mean Values = 14.2 and Overall SD of +/-3.75
Assurance Perceptions - Overall Sum of Mean Values = 8.99 and Overall SD of +/- 2.99

- SERVQUAL Gap

The difference between the expectations and the perceptions of the respondents on each of the 20 items representing the five service dimensions of SERVQUAL were calculated using the above data (Table 6). The findings revealed that for all items, the respondents expected more from the service performance in the Nigerian Hospitals than what they experienced. All of the 20 paired items used in the questionnaire revealed a strong positive correlation value with a p-value of less than 0.000. Using paired t-tests, all items had a large t-value with Significance (2-tailed) also less than 0.000. These results demonstrate a statistically significant difference between the pre- and post-hospital visit for all items.

Table 6: Calculated Paired (Dependence) T-Test Results Comparing Patients' Expectations and their Perceptions for all Items in the Questionnaire

Paired T-Tests	**Correlation Value**	**p-value**	**t-Value**	**Sig (2-tailed)**
*Tangibility*1. Ex-Pe	0.835	0.000	25.736	0.000
Tangibility 2. Ex-Pe	0.819	0.000	23.940	0.000
Tangibility 3. Ex-Pe	0.827	0.000	24.227	0.000
Tangibility 4. Ex-Pe	0.779	0.000	19.024	0.000
Reliability 1. Ex-Pe	0.901	0.000	22.513	0.000
Reliability 2. Ex-Pe	0.818	0.000	23.664	0.000
Reliability 3. Ex-Pe	0.827	0.000	24.227	0.000
Reliability 4. Ex-Pe	0.796	0.000	25.388	0.000
Responsiveness 1. Ex-Pe	0.810	0.000	24.385	0.000
Responsiveness 2. Ex-Pe	0.804	0.000	22.168	0.000
Responsiveness 3. Ex-Pe	0.795	0.000	22.150	0.000
Responsiveness 4. Ex-Pe	0.898	0.000	18.212	0.000
Empathy 1. Ex-Pe	0.819	0.000	21.667	0.000

Empathy 2. Ex-Pe	0.800	0.000	23.394	0.000
Empathy 3. Ex-Pe	0.838	0.000	23.083	0.000
Empathy 4. Ex-Pe	0.850	0.000	22.834	0.000
Assurance 1. Ex-Pe	0.843	0.000	12.717	0.000
Assurance 2. Ex-Pe	0.778	0.000	10.664	0.000
Assurance 3. Ex-Pe	0.798	0.000	13.316	0.000
Assurance 4. Ex-Pe	0.798	0.000	13.556	0.000

Source: Authors (2019)

The results from the paired t-tests indicate that the expectations and perceptions of service quality are significantly statistically different at a p-value of 0.000. The difference between the perceptions (post-service) and the expectations (pre-service) of participants for each of these five service dimensions impact the *overall* perception of the quality of the services provided. In order to verify the direction of the differences, the mean value for each of the five service dimensions for the patients' perception of the services were subtracted from the mean value for their expectations. A *positive* SERVQUAL gap indicates that the participants believe that they were provided quality service, while a *negative* result indicates a lack of satisfaction. The SERVQUAL Gap for the Nigerian hospitals was calculated by subtracting the sum of the responses to the four scales for each attribute for expectation from those for perception.

The findings reveal that respondents expected more from the service performance than what they experienced (Table 7). This demonstrates a negative gap in the service provision on all dimensions. Overall, on the five quality service dimensions, *Responsiveness* had the highest patient expectations compared to perceptions, with *Assurance* the lowest difference value. Patient perceptions (being post-service experiences) had *Reliability* as the highest value and *Assurance* was also the lowest value. The greatest service gap was for the *Assurance* dimension and the smallest service gap was for *Reliability*.

Table 7: SERVQUAL Gap between Patients' Expectations and Perceptions of Service Quality in Nigerian Public Hospitals on the Five Service Dimensions

Service Dimensions or Attributes	**Mean Value of Expectation (Ex) (4 scales)**	**Mean Value of Perception (Pe) (4 scales)**	**SERVQUAL Gap (Using Mean Values) = (Pe) – (Ex)**
Tangibility	3.60	2.48	-1.12
Reliability	3.62	2.52	-1.10
Responsiveness	3.64	2.34	-1.30
Empathy	3.63	2.49	-1.14
Assurance	3.51	2.25	-1.26

Source: Authors (2019)

5. Discussion

The SERVQUAL Model used to explore the pre- and post-hosptial experience of 200 patients attending Nigerian Public Hospitals shows a statistically significant difference (at p-value < 0.000), between these two perspectives. The following discussion explores some of the issues relating to each of the service dimenions.

The ServQual Gap for *Tangibility* was -1.12, indicating that there is disatisfaction with this aspect of service provision. Yavas, Benkenstien, and Stuhldreier (2004) state that *Tangible* elements are significant factors that can be used to explain customer's satisfaction and improvements on this dimension of service can lead to higher satisfaction. This dimension includes the physical aspects of services such as the appearance of the hospital, which includes cleanness, if the facilities are updated and easy to use and if the medical services are appealing.

The highest mean score was item 3, *Hospital environment is generally clean and well organized*, (3.76*)* and the lowest score was item 1, H*ospital facilities are updated and easy to use*, (3.59). These findings are supported by Du Plooy and De Jager (2007) who studied *Tangibility* and *Assurance* as determinants of service quality for public health care in South Africa. They found patients' dissatisfaction with the service dimensions measured. Personal safety and the cleanliness of facilities were regarded as the most important variables in the *Assurance* and *Tangibility* dimensions that contributed to a positive service experience in the Nigerian Public Hospitals.

The ServQual Gap for *Reliability* was -1.1. According to Dabholkar, Thorpe, and Rentz (1996), the *Reliability* dimension is the ability of personnel to provide dependably an accurate service to customers. In the Nigerian public hospitals item 11, *The hospital personnel can be relied on to keep to time*, had the highest expectation score (3.66). This is in line with the findings of Yesilada and Direktőr's (2010) study on health care service quality with a comparison of public and private hospitals in Northern Cyprus. The findings indicate gaps in the reliability of the hospitals and the patients' perceived service provisions, which fell below expectations in both hospital settings. This is in keeping with a study by Purcãrea, Gheorghe, & Petrescu (2013) who assessed the level of perceived service quality of public health care services in Romania using the SERVQUAL scale.

Parasuraman, *et al*. (1988), state that the *Responsiveness* dimension involves willingness to help customers and provide prompt service. This dimension depicts whether the hospital personnel is willing to attend to patients and provide the services needed at the right time. Respondents' overall expectation was high for the *Responsiveness* dimension. Item 8, *Personnel pays attention to patients and understands specific needs*, ranked the highest (3.69), with the lowest score of (3.58) for item 7, *Hospital personnel is prompt and efficient in its response to media and non-medical services.* This finding is supported by Purcãrea et al. (2013) who studied the assessment of perceived service quality of public health care services in Romania.

The *Empathy* dimension refers to care and individual attention to customers, including access or approachability, ease of contact, effective communication, and understanding of customers (Parasuraman, Berry, & Zeithamal, 1991b). The highest expectation score (3.68) was for item 14, *Personnel understands patients' specific needs*, and the lowest for two items (3.60) 16, *Prompt attention to patients' beliefs and emotions,* and 15, *Personnel prioritizes patients.* These findings concur with Arasli, Haktan Ekiz, and Turan Katircioglu's (2008) study on the service quality of public and private hospitals in Cyprus. Their findings show that the *Empathy* dimension is strengthened by giving priority to inpatients needs. However, a positive relationship between staff and its professionalism were not met in the hospital setting. A study by Rehaman and Husnain (2018) on the impact of the service quality dimensions relating to patients' satisfaction in the private health care industry in Pakistan revealed that the most important factors impacting service perception were *Tangibility* and *Empathy*. Kang and James (2004) claimed that customer's satisfaction can be attained by offering individualized and flexible service suited to their needs.

Assurance includes the knowledge and courtesy of the personnel and its ability to instigate customers' trust and confidence in building competence, courtesy credibility, and add security (Parasuraman, Berry & Ziethaml 1991c). Thus, the hospital personnel providing services must be knowledgeable in delivering quality service in order to meet patients' expectations. The overall expectation towards *Assurance* dimension was high, with the *17, Employees have the knowledge to answer all patients' questions* having the highest score (3.61) and the lowest being *20, Hospital employees are trustworthy* (3.44). This result is consistent with a study by

Du Plooy and De Jager (2007), who studied *Tangibility* and *Assurance* as determinants of service quality for public health care in South Africa. The findings indicate that the level of satisfaction was the highest for clear communication provided in the *Tangibility* and *Assurance* categories. Another study by Martins *et al.* (2015) on assessing obstetric perceived service quality at a public hospital found that *Assurance* was the quality dimension that contributes the most to patient perceived quality of service.

- Overall Service Quality

The findings in this study indicate that there is ~~a~~ statistically significant difference between patient expectations and perceptions of health care in Nigeria public hospitals. This could be due to different patient experiences and their knowledge of services provided elsewhere. This concurs with the study by Reisig and Stroshine Chandek (2001) who stated that different customers had dissimilar expectations as a result of their knowledge of the services provided. A negative service gap occurs when a high initial expectation of a service does not match perception after experiencing the service. Hence, it is difficult for two customers to perceive service the same way. This idea is supported by Ford, Edvardsson, Dickson, and Enquist (2012) who suggest that it is only the customer that can define both quality and value in the hospitality field.

This study also shows that there are lapses in the services delivered, hence the gaps between expected and perceived service quality as rated by respondents. In service performance, it is only when a service experienced by a customer exceeds his/her expectations that the customer is satisfied. This means that even if a hospital delivers quality service, the customer (after experiencing the service) may be unhappy and believe that the service provided was poor, the service will be perceived as being sub-standard. When a customer is not satisfied with any of the service elements, then the organization has failed to meet its customer expectations and not provided him/her with an experience of acceptable quality and value (Ford *et al.*, 2012). Hence, this study of patient experience at Nigerian public hospitals that reveal that there are major lapses in Gap 5, *The Service Quality Gap*. This identifies a discrepancy between the patients' expectations and their perceptions of the quality of services delivered. Patients in this health care system perceived the actual service performance, in the context of what they expected, and this influences their judgment of service quality. The analysis of the responses from 200 samples showed that their expectations were higher than their perception of service, hence a negative gap score.

6. Conclusion

This study investigated patients' expectations and perception of service quality provision in Nigerian public hospitals. Based on data collected from patients attending three Nigerian hospitals, it assessed their perception of service quality. The results suggest that patients define health care quality in terms of the five dimensions used in the SERVQUAL model: *Tangibility, Reliability, Responsiveness, Assurance* and *Empathy*. This model was used to determine if patients' expectations were exceeded - or not. The results identify the areas where service provision was lacking. They provide a starting point for hospital management to prioritize their efforts to reduce the gap between the current service provision and the patients' expectations and perceptions of the quality of the services delivered.

All the SERVQUAL dimensions showed a gap between patients' expectations and perception of the actual services, clearly demonstrating that more work should be done to improve service quality in Nigerian public hospitals. The initial priority should be placed on reliability and assurance as these two dimensions had the lowest results. Improvement in these two areas will be the most valuable element of service quality delivery. Providing for an ongoing assessment of the service quality gaps by hospital management and appropriate

improvements over time will result in a more effective and efficient service delivery system. It will also serve as a measure to expose hospital strengths and weaknesses and help in designing and implementing an effective service delivery system. The overall low quality of service in public hospitals outlined in this study could be attributed to a combination of funding and hospital personnel paying less-than-needed attention to service delivery methods to patients. This leads to the following recommendations for management in the hospital and policy implications.

- *Recommendations for Management:*

The negative scores in the findings of this study demonstrate the need for major improvements to meet or exceed patients' expectations. To start with, hospital management must place more emphasis on training their personnel in order to build patients' trust and confidence. This training should be embedded in the hospital's activities and aim to continuously update the personnel's knowledge of patient expectation changes to ensure ongoing implementation and evaluation of the changes. Addressing these gaps with the SERVQUAL, as applied to Nigerian hospital service providers, rationalizes the need for designing strategies and procedures increasing the likelihood of success in meeting patients' expectations through a more positive quality service evaluation. This then will impact the patient's experience and lead to a more positive long-term patient-hospital relationships. It will also help hospital management improve specific – as well as overall - services, eventuating in a gain in competitive advantage, by designing programs that ensure the daily provision of effective quality service.

- *Policy Implications for Service Quality in Nigerian Public Hospitals:*

In 2005, a National Health Insurance Scheme (NHIS) was implemented in Nigeria (Obalum & Fiberesima, 2012). The idea was to provide accessible, quality service healthcare for all Nigerians. Unfortunately, only employees in the federal formal sector, who represent approximately 5% of the working population of Nigeria have been enrolled (Tangcharoensathien et al, 2011). The overall plan was to have states nationwide adopt the plan, thereby expanding healthcare in the formal sector and later to the informal sector. However, almost 15 years later, only two states in the country have adopted this plan. A major area of contention is how to pay for the program; and once in place how to provide adequate service to those in the system. Some possibilities have been considered such as a community-based health insurance plan funded by community households or a tax-based system funded by taxes for those outside the formal system.

Since healthcare financing is a major issue in policy implementation, the Nigeria government has instituted a number of programs to address this problem. The inception of the National Health Policy in 2005 (Federal Ministry of Health, 2005) sought to provide options such as increased private sector contributions and prepay systems. This would enable an expansion of healthcare to not just the formal sector but to the rural poor, providing both promotive as well as preventative care. In 2006, the Federal Ministry of Health further clarified the *National Health Policy (*Federal Ministry of Health, 2016) to provide for equitable, quality health care while at the same time developing a system that would ensure efficiency and sustainability. The *National Health Bill* (Saka, 2012) was signed into law in 2014 in an effort to improve the country's healthcare services and provide healthcare especially to the country's most vulnerable – women, children and the elderly (Obi, 2014).

Moreover, as part of the *National Planning Commission: Vison 2020* (Udoudo & Itoro, 2016), the *National Strategic Health Development Plan 2010-2015* (Federal Ministry of Health, 2010) was conceived as a collaborative effort to ensure accessible, affordable, efficient, equitable health care provisions and consumption with improved service quality at local, state and federal levels. While all these plans represent an admirable attempt to provide and improve

service quality in Nigerian public hospitals, efficient and sustainable funding of these plans still remains a major area of contention and continue to undermine legislative efforts.

- *Significance of the Study*

This study was significant in that patients became more aware of the type and quality of services which they want service providers to deliver. Offering the right service to patients, at the correct level, may serve as competitive advantage for Nigerian public hospitals. The country's health care system continues to deteriorate despite having qualified health care professionals (Agrebeshola, 2019; World Bank, 2008). The result is that the general population has little or no confidence in the Nigerian public health care system. Yet, an organization that consistently satisfies its customers enjoys both higher retention levels and greater profitability due to increased customer loyalty (Wicks & Roethlein, 2009). As a result, service providers must ensure that they meet customers' expectations. According to Leone et al., (2005), a customer's preferences and attitudes are formed relative to their perception to the different brands competing for their attention. Therefore, the results obtained from this research will be useful for the management and staff of public hospitals to help identify the needs and wants of their patients (customers) and gain an increased understanding of how to improve their health care services.

- *Research Limitations and Recommendations for Future Study*

This research applied a quantitative approach to assess patients' perceptions and expectations of service quality in Nigerian public hospitals. A qualitative approach was appropriate to identify the relationship between variables but it is weak in terms of identifying the reasons for the relationship between variables (Chisnall, 1997) since customers have complex perceptive attitudes. Applying qualitative research for future studies will provide rich data to learn more about service perception in this context. An increased sample size could be used for more analyzes and potentially be used to determine how service quality impacts profitability and the competitive advantage of a public hospital. Lastly, in future studies the questionnaire should be provided to both the patients and hospital personnel to gather (potentially) contrasting views and decrease mono method bias.

References

Agrebeshola, B. (2019, February 7). Health Care in Nigeria: Challenges and Recommendations. Retrieved June 7, 2019, from https://socialprotection.org/discover/blog/health-care-nigeria-challenges-and-recommendations.

Akinsola, H. A. (2007). *The Principles of Health Services Administration and Management: Perspectives from Clinical and Public Health Practices*. Ibadan, Nigeria: College Press and Publishers Ltd.

Anastasia, A. (1988). *Psychological Testing* (6th ed.). New York: Macmillan Publishing.

Arasli H., Haktan Ekiz E., & Turan Katircioglu S. (2008). Gearing service quality into public and private hospitals in small islands: Empirical evidence from Cyprus. *International Journal Health Care Quality Assurance*, *21*(1), 8-23.

Babakus, E., & Mangold, W. G. (1992). Adapting the SERVQUAL scale to hospital services: An empirical investigation. *Health Services Research, 26*(6), 767-780.

Baralexis, S., & Sophianou, L. (2005). Non-financial measures of quality in Greek public hospitals. *The Southeuropean Review of Business Finance and Accounting, 3*(1), 55-76.

Barnett, V. (2002) *Survey Principles and Mmethods* (3rd Ed.). Chichester: Wiley Publishing.

Bate, P., & Robert, G. (2006). Experience-based design: From redesigning the system around the patient to co-designing services with the patient. *Quality and Safety*, *15*(5), 307–310.

Bell, E., & Bryman, A. (2007). The ethics of management research: An exploratory content

analysis. *British Journal of Management, 18*(1), 63-77.
Blackiston, G. H. (1988). Service industries: A re-naissance in quality. *Executive Excellence, 5*(9), 9-10.
Brown, S. W., & Swartz, T. A. (1989). A gap analysis of professional service quality. *Journal of Marketing, 53*(2), 92-98.
Bruno, A., Dell'Aversana, G., & Zunino, A. (2017). Customer orientation and leadership in the health service sector: The role of workplace social support. *Frontiers in Psychology,* 8, Article 1920.
Carman, J. M. (1990). Consumer perceptions of service quality: An assessment of the SERVQUAL dimensions. *Journal of Retailing, 66*(1), 33-55.
Cheng Lim, P., & Tang, N. K. H. (2000). A study of patients' expectations and satisfaction in Singapore hospitals. *International Journal Health Care Quality Assurance, 13*(7), 290-299.
Chisnall, P. M. (1997). *Marketing Research*. London, UK: McGraw Hill.
Creswell, J.W. (2014) *Educational Research: Conducting and Evaluating Quantitative and Qualitative Research,* Harlow: UK, Pearson Education Ltd.
Crosby, P. B. (1979). *Quality is Free: The Art of Making Quality Certain (Vol. 94).* New York: McGraw-Hill.
Dabholkar, P. A., Thorpe, D. I., & Rentz, J. O. (1996). A measure of service quality for retail stores: Scale development and validation. *Journal of the Academy of Marketing Science, 24*(1), 3-16.
Delaney, L. J. (2018). Patient-centered care as an approach to improving health care in Australia. *Collegian, The Australian Journal of Nursing Practices, 25*(1), 119-123.
Du Plooy, T., & De Jager, J. (2007). Measuring tangibility and assurance as determinants of service quality for public health care in South Africa. *Professional Accountant, 7*(1), 96-111.
Duggirala, M., Rajendran, C., & Anantharaman, R. N. (2008). Provider-perceived dimensions of total quality management in health care. *Benchmarking: An International Journal, 15*(6), 693-722.
Federal Ministry of Health (2005, November). *National Policy on Public Private Partnership for Health in Nigeria.* Abuja, Nigeria: Federal Ministry of Health. Retrieved April 12, 2019, from https://cheld.org/wp-content/uploads/2012/04/National-Policy-on-Public-and-Private-Partnership-for-Health-in-Nigeria.pdf.
Federal Ministry of Health (2010, July). *The National Strategic Health Development Plan (National Health Plan) 2010-2015.* Abuja, Nigeria: Federal Ministry of Health. Retrieved April 30, 2019, from https://www.uhc2030.org/fileadmin/uploads/ihp/Documents/Country_Pages/Nigeria/Nigeria%20National%20Strategic%20Health%20Development%20Plan%20Framework%202009-2015.pdf.
Federal Ministry of Health (2016). *National Health Policy: Promoting the Health of Nigerians to Accelerate Socio-economic Development.* Abuja, Nigeria: Federal Ministry of Health. Retrieved July 22, 2019, from http://www.nationalplanningcycles.org/sites/default/files/planning_cycle_repository/nigeria/draft_nigeria_national_health_policy_final_december_fmoh_edited.pdf.
Ford, R. C., Edvardsson, B., Dickson, D., & Enquist, B. (2012). Managing the innovation co-creation challenge: Lessons from service exemplars Disney and IKEA. *Organizational Dynamics, 4*(41), 281-290.
Garvin, D. A. (1983). Quality on the Line. *Harvard Business Review, 61*(September-October), 65-73.
Gronroos, C. (1988). Service quality: The six criteria of good perceived service. *Review of Business, 9*(3), 10-13.

Hacksaw, A. (2008) Editorial: Small sample studies: Strengths and limitations, *European Respiratory Journal, 32(5)*: 1141-1143.

Harrison-Walker, L. J. (2001). The measurement of word-of-mouth communication and an investigation of service quality and customer commitment as potential antecedents. *Journal of Service Research, 4*(1), 60-75.

Haynes, S. N., Richard, D., & Kubany, E. S. (1995). Content validity in psychological assessment: A functional approach to concepts and methods. *Psychological Assessment, 7*(3), 238-247.

Kang, G. D., & James, J. (2004). Service quality dimensions: An examination of Grönroos's service quality model. *Managing Service Quality: An International Journal, 14*(4), 266-277.

Kraft, S. A., Porter, K., & Wilfond, B. S. (2015). Research on medical practices and the patient-physician relationship: What can regulators learn from patients? *AMA Journal of Ethics, 17*(12), 1160–1165.

Langevin, R. G. (1988). Service quality: Essential ingredients. *Review of Business, 9*(3), 3-5.

LeCompte, M. D., & Schensul, J. J. (1999). *Analyzing and Interpreting Ethnographic Data*. Walnut creek, CA; Altamira Press.

Leone, R. P., Rao, V. R., Keller, K. L., Luo, A. M., McAlister, L., & Srivastava, R. (2006). Linking brand equity to customer equity. *Journal of Service Research, 9*(2), 125-138.

Lim, P. C., & Tang, N. K. (2000). A study of patients' expectations and satisfaction in Singapore hospitals. *International Journal of Health Care Quality Assurance, 13*(7), 290-299. https://doi.org/10.1108/09526860010378735

Martins, A. L., de Carvalho, J. C., Ramos, T., & Fael, J. (2015). Assessing obstetrics perceived service quality at a public hospital. *Procedia-Social and Behavioral Sciences, 181*, 414-422.

McDougall, G. H., & Levesque, T. J. (1995). A revised view of service quality dimensions: an empirical investigation. *Journal of Professional Services Marketing, 11*(1), 189-210.

Newman, J. C., Des Jarlais, D. C., Turner, C. F., Gribble, J., Cooley, P., & Paone, D. (2002). The differential effects of face-to-face and computer interview modes. *American Journal of Public Health, 92*(2), 294-297.

Obalum, D., & Fiberesima, F. (2012). Nigerian national health insurance scheme (NHIS): an overview. *The Nigerian Postgraduate Medical Journal. 19*(3): 167-74.

Obi, F. A. (2014, November 4). The national health bill: After ten years in the making is an end in sight? *Nigeria Health Watch*, Retrieved April 15, 2019 from https://nigeriahealthwatch.com/the-national-health-bill-after-ten-years-in-the-making-is-an-end-in-sight/#.XtueIudS_lI.

Ogaji, D., & Etokidem, A. (2012). Setting agenda for quality improvement in a public hospital in Nigeria using the consumers' judgement. *IOSR Journal of Business and Management, 1*(4), 1-6.

Ogunbekun, I., Ogunbekun, A., & Orobaton, N. (1999). Private health care in Nigeria: Walking the tightrope. *Health Policy and Planning, 14*(2), 174-181.

Olaniyan, O., Lawanson, A. O., & Olasehinde, N. (2014). Socio-economic inequalities in adult mortality among the geopolitical zones in Nigeria. *African Journal of Health Economics, 3*(2014), 84-97.

Pakdil, F., & Harwood, T. N. (2005). Patient satisfaction in a preoperative assessment clinic: An analysis using SERVQUAL dimensions. *Total Quality Service Management & Business Excellence, 16*(1), 15-30.

Pakdil, F., & Harwood, T. N. (2005). Patient satisfaction in a preoperative assessment clinic: an analysis using SERVQUAL dimensions. *Total Quality Management & Business Excellence, 16*(1), 15-30.

Parasuraman, A. (1995). Measuring and monitoring service quality in *Understanding Services Management* by Glynn, W. and Barnes, J. (Ed.), Chichester, UK: Wiley, 43-177.

Parasuraman, A., Zeithaml, V., & Berry, L. (1985). A conceptual model of service quality and

its implications for future research. *Journal of Marketing, 49*(4), 41–50.
Parasuraman, A., Zeithaml, V., & Berry, L. L. (1988). SERVQUAL: A multiple item scale for measuring customer perceptions of service quality. *Journal of Retailing, 64*(1), 12-40.
Parasuraman, A., Berry, L. L., & Zeithaml, V. A. (1991a). Understanding customer expectations of service. *Sloan Management Review, 32*(3), 39–48.
Parasuraman, A., Berry, L. L., & Zeithaml, V. A. (1991b). Perceived service quality as a customer-based performance measure: An empirical examination of organizational barriers using an extended service quality model. *Human Resource Management, 30*(3), 335-364.
Parasuraman, A., Berry, L. L., & Zeithaml, V. A. (1991c). Refinement and reassessment of the SERVQUAL scale. *Journal of Retailing, 67*(4), 420.
Purcãrea, V. L., Gheorghe, I. R., & Petrescu, C. M. (2013). The assessment of perceived service quality of public health care services in Romania using the SERVQUAL scale. *Procedia Economics and Finance, 6*, 573-585.
Rathert, C., & May, D. R. (2007). Health care work environments, employee satisfaction, and patient safety: Care provider perspectives. *Health Care Management Review, 32*(1), 2-11.
Rathmell, J. M. (1966). What is meant by services? *Journal of Marketing, 30*(4), 32-36.
Rehaman B., & Husnain, M. (2018). The impact of service quality dimensions on patient satisfaction in the private healthcare industry in Pakistan, *Journal of Hospital & Medical Management, 4*(1), 2471-978.
Reisig, M. D., & Stroshine Chandek, M. S. (2001). The effects of expectancy disconfirmation on outcome satisfaction in police citizen counters. *Policing: An International Journal of Police Strategies & Management, 24*(1), 88-99.
Rudie, M. J., & Wansley, H. B. (1985). The Merrill Lynch Quality Program in *Services Marketing in a Changing Environment* (pp. 7-9). Chicago IL: American Marketing Association.
Saka, M. J. (2012). An overview of the Nigerian national health bill. *Savanna Journal of Medical Research and Practice, 1*(1):1-9.
Saunders, M., Lewis, P., & Thornhill, A. (2016) *Research Methods for Business Students* (6th ed.), Harlow, UK: Pearson Education Ltd.
Shaibu, U. M., & Ibrahim, M. K. (2016). Access and utilization of government health facilities by rural farm household: Evidence from Kogi State, Nigeria. *International Journal of Agricultural Science, Research and Technology in Extension and Education Systems (IJASRT in EESs), 7*(1), 11-17.
Sherden, W. A. (1988). Gaining the service quality advantage. *Journal of Business Strategy, 9*(2), 45-48.
Silvestro, R. (2005). Applying gap analysis in the health service to inform the service improvement agenda. *International Journal of Quality & Reliability Management, 22*(3), 215-233.
Statistics Solutions (2019). What to do When Your Sample Size is Not Big Enough, Retrieved 15 May, 2019 from https://www.statisticssolutions.com/what-to-do-when-your-sample-size-is-not-big-enough/.
Svensson, G. (2006). New aspects of research into service encounters and service quality. *International Journal of Service Industry Management, 17*(3), 245-257.
Tangcharoensathien V., Patcharanarumol W., Ir. P., Aljunid, S.M., Mukti, A. G., & Akkhavong, K. (2011). Health-financing reforms in Southeast Asia: Challenges in achieving universal coverage. *Lancet, 377:*863-73.
Thompson, P., DeSouza, G., & Gale, B. T. (1985). The strategic management of service quality. *Quality Progress, 18*(6), 20-25.
Torpie, K. (2014). Customer service vs. patient care. *Patient Experience Journal, 1*(2), 6-8.
Udoudo, M. P., & Ubi-Abai, I. P. (2016). Vision 20:2020 and economic development in

Nigeria: Gleaning from past national development plans. *International Journal of Development Strategies in Humanities, 6(2):*201-215.

Verhoef, M. J., & White, M. A. (2002). Factors in making the decision to forgo conventional cancer treatment. *Cancer Practic*e, *10*(4), 201–207.

Wagstaff, A., & Claeson, M. (2010). *The Millennium Development Goals for Health: Rising to the Challenges*. Washington, DC: The World Bank.

Wang, Y., Po Lo, H., Chi, R., & Yang, Y. (2004). An integrated framework for customer value and customer-relationship-management performance: A customer-based perspective from China, *Managing Service Quality*, *14*(2/3), 169–82.

Wicks, A. M., & Roethlein, C. J. (2009). A satisfaction-based definition of quality, *Journal of Business and Economic Studies*, *15*(1), 82-111.

Wisniewski, M., & Wisniewski, H. (2005). Measuring service quality in a hospital colposcopy clinic, *International Journal of Health Care Quality Assurance, 18*(3), 217-229.

WHO. (2000). *The World Health Report 2000 - Health Systems: Improving Performance*, World Health Organization. Geneva, Switzerland. Retrieved June 15, 2019, from https://www.who.int/whr/2000/en/whr00_en.pdf?ua=1.

World Bank. (2008). *World Development Report 2008: Agriculture for Development*. Washington, DC. © World Bank. Retrieved June 15, 2019, from https://openknowledge.worldbank.org/handle/10986/5990.

World Economic Forum. (2018). *Future of Jobs Report 2018*. Geneva, Switzerland. Retrieved April 23, 2019, from http://www3.weforum.org/docs/WEF_Future_of_Jobs_2018.pdf.

Worlu, R., Kehinde, O. J., & Borishade, T. T. (2016). Effective customer experience management in health-care sector of Nigeria: A conceptual model. *International Journal of Pharmaceutical and Healthcare Marketing*, *10*(4), 449-466.

Yavas, U., Benkenstein, M., & Stuhldreier, U. (2004). Relationships between service quality and behavioural outcomes: A study of private bank customers in Germany. *International Journal of Bank Marketing*, *22*(2), 144-15.

Yesilada, F., & Direktőr, E. (2010). Health care service quality: A comparison of public and private hospitals. *African Journal of Business Management, 4*(6), 962-971.

Zeithaml, V. A., Bitner, M. J., & Gremler, D. D. (2010). *Service Marketing Strategy*. Wiley International Encyclopedia of Marketing. New York, NY: Wiley.

January - June 2020 ASEAN JOURNAL OF MANAGEMENT & INNOVATION

ASEAN Journal of Management & Innovation
Vol. 7. No. 1, 63 - 78

DOI: 10.14456/ajmi.2020.5
ajmi.stamford.edu
Received: November 29, 2019
Revised: April 6, 2020
Accepted: April 8, 2020

Factors Influencing Intention to Reuse Mobile Banking Services in the Private Banking Sector in Myanmar

Phyo Min Tun
Assumption University, Thailand
phyomintun.sg@gmail.com

Abstract
This research paper aims to identify the key factors influencing the intention to reuse mobile banking (MB) services in Myanmar. It focuses on customers of private banks as their continuous use of MB services has been a critical goal for those banks to achieve. The research model on which this study relies is an integrated model that incorporates six factors, namely, social influence, word-of-mouth (WOM), trust, system quality, user satisfaction, and perceived efficacy, and assesses their degree of influence on customer behavior with regard to MB. This study innovates in that the trio factors of social influence, word-of-mouth, and user satisfaction are used in the MB context for the first time in this context. Structural equation modeling (SEM) was used to analyze the data and test the hypotheses. The analysis of the survey data collected from 275 MB users of private banks in Myanmar indicate that customer intention to reuse mobile banking services is significantly influenced by social influence, user satisfaction and perceived efficacy. The effects of WOM, trust and system quality on reuse of mobile banking, however, were found to be insignificant. These findings are in keeping with the prior literature on these issues.

Keywords: Mobile Banking, Private Bank, Financial Product, Reuse.

1. Introduction

Myanmar remained a cash-based economy long after neighboring countries started to embrace digital banking. One of the reasons for Myanmar people's reluctance to go digital was the lack of transparency of entire sectors of the economy, including the banking sector. It is only in the 1990s, after new legislation was passed by the Central Bank of Myanmar (CBM), which among others, allowed the creation of private banks and restored some degree of accountability that the financial system changed and reliance on banks and financial institutions increased. Whatever trust was regained though was short-lived as in early 2003, Myanmar experienced a severe banking crisis which hit a number of private financial institutions. The collapse of a cohort of informal finance companies in the wake of the crisis triggered a decline of people's trust in private financial institutions (Turnell, 2003). Unsurprisingly, when banks launched mobile- and internet-based financial products to facilitate transactions, customer response was rather unenthusiastic. However, with more innovative technologies emerging, mobile banking (MB) is gaining currency as the private banking sector now offer a wide variety of financial services. Based on mobile applications, they provide services such as disbursements, airtime top-ups, e- commerce and remittances.

MB services in Myanmar, however, are still in their earliest phases and the need to encourage people to switch to MB still very strong. Currently, according to CBM data, there are 27 private banks in Myanmar. They represent 80% of the banking sector market shares. Established and funded by private organizations, most of them belong to large conglomerates (JICA, 2012). They play a leading role in terms of innovation, most notably with regard to MB (Foerch, Ki, Thein, & Waldschmidt, 2016). Many bank users, however, are still unaware of the benefits and efficacy of innovative banking technologies such as MB.

Moreover, the number of banks which can provide MB services in Myanmar remains limited. A number of concomitant conditions need to be met for MB to be successful and grow. For one thing, there cannot be glitches in the technology. For another, internet infrastructure must be reliable. Moreover, people must have some degree of digital literacy and possibly prior experience in mobile technology. But clearly, there is room for growth. This, however, presupposes in the first place that banks have a good understanding of customers' behavior, reuse behavior in particular. This research focuses on MB services provided by private banks in Myanmar. More specifically, it aims to investigate the factors that are apt to influence MB reuse behavior among customers of those private banks. To this end, the following questions need to be addressed:

1. What factors motivate MB users' intention to reuse MB services provided by private banks?
2. What are the relationships among these influencing factors?
3. Which influencing factors have the most significant effects on the intention to reuse MB?

2. Literature Review

- *Mobile Banking*

MB is an innovative system to facilitate convenient financial transactions for customers through mobile devices (Lee & Chung, 2009). It is one of the various services provided by banks to support financial services to their customers (Tiwari & Buse, 2007). Amin et al. (2006) refer to MB as users' "pocket banking;" a term that offers a vivid representation of its convenience. Thanks to the rapid growth of mobile phone technology, users have access to feature-rich smart phones that are likely to encourage their intention to use MB. Thus MB has become a focal point for banks and mobile operators (Goswami & Raghavendran, 2009) as it provides real-time banking services and accessibility to financial information and services (Jacob, 2007) through MB applications. Benefits driving MB adoption includes 24- hour service, access from any location, and time saving (Shuhidan, Hamidi, & Saleh, 2017). Goswami and Raghavendran (2009) identified the following additional advantages: user-friendly interface, dynamic facility, and security.

- *System Quality*

DeLone and McLean (2003) identified three key factors affecting IS quality. System quality is one of them. It exerts considerable influence on intention to use as determined by the IS success model. System quality is also regarded as an antecedent of user beliefs (Petter, DeLone, & McLean, 2008). Moreover, according to Seddon (1997), system quality pertains to the consistency of the interface and ease of use. The latter is a prominent feature in system quality operationalization (Ifinedo, 2006; Rai & Welker, 2002; Seddon, 1997). The system stability and response time are especially important for customers as they ensure smooth transactions of the mobile services (Bharati & Chaudhury, 2004).

- *Perceived Efficacy*

An individual often evaluates the implications of his/her behavior and make a decision based on the desirability of perceived usefulness (Song, Koo, & Kim, 2007). In this study, perceived usefulness refers to perceived efficacy as a user is more inclined toward technology adoption when he/she believes that technology provides efficacy that offers several benefits such as immediate, convenient and affordable transactions. MB provides efficacy as it saves users' time. They do not have to wait at physical branches to conduct transactions (Masinge, 2010). In turn, a system generating perceived efficacy is one in which a user sees the presence of a beneficial use- performance connection. The reason bank customers use MB is

that they find the system has efficacy in that it decreases the time for making a transaction and provides more accuracy.

- Trust

Trust refers to the psychological expectation that a trusted party will not behave opportunistically (Kim, Shin, & Lee, 2009). Users will rely on their perception of system quality to build trust because of their lack of prior experience (Lowry et al., 2008). MB can be considered as online storefront since banks are faceless on the MB and the system quality of MB creates first impressions (Lee & Chung, 2009). Users are more likely to trust MB and be ready to do transactions when they discover the high system quality of a particular MB (McKnight, Choudhoury, & Kacmar, 2002). In this study, trust is defined as trust in MB services (Brahim & Dridi, 2015).

- User Satisfaction

Oliver (1980) defines satisfaction as the result of a process that involves a cognitive comparison of expectations before consumption with real experience. In other words, it is an emotional state directly resulting from the comparison between experiences and expectations. For businesses essentially operating in IT, the main issue is user satisfaction (Lwin, Ameen, & Nusari, 2019). User satisfaction with regard to banking services requires functional quality, relational quality and problem- solving quality (Arbore & Busacca, 2009). From an IS perspective, user satisfaction is a common measurement for IS success and an essential factor for evaluating IS effectiveness (Lee & Chung, 2009).

- Social Influence

A customer prefers to seek suggestions or opinions regarding a new channel like MB from referent groups before using the system. Some people may adopt an innovation because of perceived social pressure, not because of its usefulness (Igbaria et al., 1996). Social pressure may be perceived as coming from individuals, whose opinions and beliefs are important, and from peers who are in social environment (Talukder, Quazi, & Sathye, 2014). Even though social influence may be apprehended in terms of social pressure, normative pressure, social norms or social factors (Venkatesh et al., 2003; Makanyeza, 2016), it usually uses a measurement scale similar to Subjective Norms.

- Word-of-Mouth

'Word-of-mouth' (WOM) is a familiar term in the literature of social commerce (s-commerce) context. It can be defined as comments, feedbacks, or opinions concerning products or services. According to Kuan and Bock (2007), WOM plays a more important role in building trust in online rather than offline environment. WOM is normally thought more neutral and more reliable, because it is mostly directly generated by consumer rather than by businesses. Mehrad and Mohammadi (2017) determined that WOMs have a greater impact on the behavior of customers than traditional promotion or advertising because they represent a type of direct and individual behavior that is independent of the organization, which means that the information transmitted is more credible.

- Behavioral Intention to Reuse

Most studies on IS adoption and use are based on the theory of reasoned action (TRA) (Fishbein & Ajzen, 1975) and its extensions, such as the technology acceptance model (TAM) (Davis, 1989) and the theory of planned behavior (TBA) (Ajzen, 1991). Although behavioral intention is part of the TAM, which is adapted from TRA, the attitude construct has been eliminated from the final TAM version by Venkatesh and Davis (1996). According to Rogers' (1995) diffusion theory, users will only embrace innovation if it offers unique benefits compared to current alternatives. On the other hand, behavioral intention refers to the extent to which an individual is ready to behave and execute the expected behavior

(Sripalawat, Thongmak, & Ngramyarn, 2011). The intention to reuse construct arises when customers are reasonably satisfied with prior experiences, which enable them to return and reuse again (Noh & Lee, 2016).

3. Hypotheses and Research Model Development

Singh, Srivastava, and Srivastava (2010) determined that the decisions of individuals regarding the adoption of mobile commerce services were often influenced by family members and friends even though none of them may be well versed in technology. Basing their research on previous study results, Gharaibeh and Mohd Arshad (2018) determined that social influence has a significant and positive impact on behavioral intention in the MB context. Potential customers are likely to find information regarding new innovative channels like MB from referent groups (Sripalawat, Thongmak, & Ngramyarn, 2011). Therefore, following hypothesis is proposed in this study.

H1: *Social influence positively influences intention to reuse MB*

Social groups with a high level of social interactions and collective practices are likely to exert greater social influence on members and shape their attitudes and behaviors (Tsai & Bagozzi, 2014). They usually generate more WOM than groups with weak ties. Tsai, Kuo, and Tan (2017) explicitly stated that social influence is a critical factor on the effectiveness of word-of-mouth. Therefore, the following hypothesis can be articulated:

H2: *Social influence positively influences WOM*

Wang and Lin (2011) found that social influence has an effect on the perception of people regarding system quality. They empirically determined the effect of social influence on the perception of people on IS quality and concluded that people might have completely different interpretations of the same system due to their own perceptions of others' behaviors. This leads to the following hypothesis:

H3: *Social influence positively influences system quality*

Users will perceive MB to be useful when they see family members, friends, and colleagues use it and hear recommendations from them. As Lewis, Agrawal, and Sambamurthy (2003) explained, this is especially true of perceived efficacy. Several empirical studies have shown that there is direct relationship between social influence and perceived efficacy (Venkatesh & Davis, 2000; Rose & Fogarty, 2006). Thus:

H4: *Social influence positively influences perceived efficacy*

As we saw earlier, Kuan and Bock (2007) determined that WOM is an important factor that impacts customer trust. Customers are more likely to trust and use services through experiences and opinions from others rather than through advertising (Park, Chaiy, & Lee, 1998). This is also the case with MB users and other innovative services of banks. Beyari, Abareshi, and Elferjani (2017) found that users' trust and behavioral intention are influenced by WOM, which is likely to generate trust. As a result, the following hypothesis is proposed:

H5: *Word of Mouth positively influences trust*

Since MB service providers are faceless, system quality becomes the online storefront that creates first impressions for users (Lee & Chung, 2009). If the system quality leaves something to be desired, users will feel that service providers have not spent enough investment and effort on their MB system. This will affect users' assessment of the benevolence and credibility of service providers (Zhou, 2011). Previous studies show a strong link between system quality and trust (Chemingui & Lallouna, 2013; Zhou, 2011). Hence, it is posited that:

H6: *System quality positively influences trust*

According to Lee and Chung (2009) and Ali and Younes (2013), the relationship between system quality and user satisfaction is significant. Poor system quality can ruin the experience of users as it raises their difficulty using MB and may lead to user dissatisfaction over MB services (Carlos & Tiago, 2017). The level of satisfaction with the IS will be increased if that system meets the requirements of the users. Therefore, a higher system quality leads to a greater user satisfaction (Tam & Oliveira, 2017), which leads to the following hypothesis:

H7: *System quality positively influences user satisfaction*

Perceived efficacy is one of the most important factors influencing end-user satisfaction (Mahmood et al., 2000). The higher the level of perceived technological efficacy, the more satisfied users will be (Sitorus et al., 2019). Users who perceive that an IS provides value to them are more likely to be satisfied with that system (Bhattacherjee, 2001). The following hypothesis can therefore be proposed:

H8: *Perceived efficacy positively influences user satisfaction*

As verbal interpersonal communication to exchange or pass information based on personal opinions and experiences, WOM encourages customers to make usage decisions regarding products or services (Harrison, 2001). Through WOM, customers play a critical role in promoting products or services for m-commerce. Mehrad and Mohammadi (2017) determined that WOM has a significantly positive impact on intention to continue using MB. Therefore, the following hypothesis can be formulated:

H9: *WOM positively influences intention to reuse MB*

In the m-commerce environment, trust is more critical and complex than in general and traditional commerce (Vasileiadis, 2014). Many users still hesitate to submit private information, especially finance-related information, through open electronic networks due to a lack of trust in data security (Chen & Tan, 2004). Thus, the behavioral intention of MB users to adopt the service is therefore influenced by the level of trust toward MB service providers (Alalwan, Dwivedi, & Rana, 2017) because there is a risk of monetary loss whenever users have to rely on electronic information. Transactions become vulnerable to incompleteness. This gives rise to the following hypothesis.

H10: *Trust positively influences intention to reuse MB*

System quality represents the overall technical quality of mobile systems (Talukder et al., 2014). System quality affects the intention to engage in m-commerce (Bahaddad, 2017). There is a positive relationship between system quality and behavioral intention factors (DeLone & McLean; 2003). If the system quality of a MB app exceeds a customer's expectations, he/she will be more likely to use it again (Noh & Lee, 2016). Therefore, the following hypothesis has been developed:

H11: *System quality positively influences intention to reuse MB*

When users are satisfied, they are more likely to reuse the system, whereas dissatisfied users will avoid use the system (Susanto, Chang, & Ha, 2016). Satisfaction is one of the positive emotions experienced by users when using the mobile financial app (Humbani & Wiese, 2019). Bhattacherjee (2001) stated that there is positive relationship between user satisfaction and usage intention in the MB context. Thus:

H12: *User satisfaction positively influences intention to reuse MB*

According to Venkatesh et al. (2003), the efficacy of new technologies is a major concern of customers and a crucial factor in determining customers' adoption of innovation. Thus it is one of the determinants of intention to adopt new mobile services. It is also a feeling about the potentiality of a new service to provide benefits that help enhance performance when using the service (Adams et al., 1992). Furthermore, when an individual perceives that an

innovation offers more efficacy than the current practices of the firm, it is more likely to be reused. A significant relationship between perceived efficacy and intention to reuse MB is therefore reasonable to hypothesize.

H13: *Perceived efficacy positively influences intention to reuse MB*

Each of the 13 research hypotheses associated with the effects and relationships are presented in Figure 1.

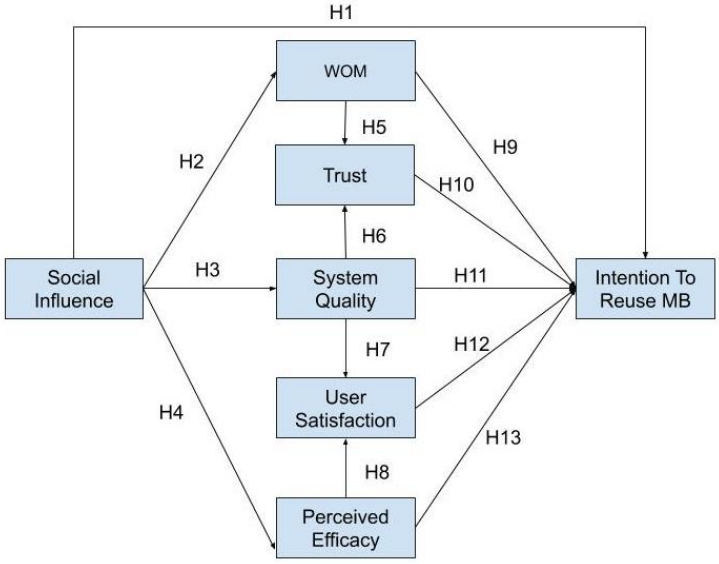

Figure 1: Research Model with Hypotheses

4. Research Design

This quantitative study used the confirmatory research technique to test the research hypotheses discussed above. Since a survey is a good technique to get attitudes and gain understandings on casual effect relationships (Neuman, 2006), an online survey was created with Google Form as a research instrument. A self-administered structured questionnaire (Appendix A) was designed to measure the variables in the proposed research model and the other variables used to collect demographic data. The questionnaire includes three indicators for each factor and uses 5-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree). Moreover, there was a filter question to ensure that the respondent had prior experience in MB. The remaining part of questionnaire is used to obtain measures of the indicators for each of the model variable described in Table 1.

Table 1: Summary of Model Variables

Factors	Indicators	Reference
System quality (SYSQ)	SYSQ1, SYSQ2, SYSQ3	Merve (2018)
Social Influence (SI)	SI1, SI2, SI3	Talukder et al. (2014)
Perceived efficacy (PEF)	PEF1, PEF2, PEF3	Talukder et al. (2014)
Trust (TR)	TR1, TR2, TR3	Zulfauzy (2018)
User satisfaction (SATIS)	SATIS1, SATIS2, SATIS3	Kohli, Devaraj, & Mahmood (2004)
Word-of-mouth (WOM)	WOM1, WOM2, WOM3	Mehrad and Mohammadi (2017)
Behavioral Intention (BI)	BI1, BI2, BI3	Talukder et al. (2014)

5. Data Analysis and Results

- Profile of Respondents

Data were collected from customers of private banks in Myanmar. 275 customers participated in this study. 28 respondents were not considered for data analysis because they had never used MB before (a prerequisite in this study). Outliers were also eliminated. This brought the number of valid questionnaires available for data analysis down to 235. This valid data set is more than a typical sample size of 200, considered adequate for a structural equation modeling (SEM) analysis (Kline, 2011). The respondents' profiles are presented in Table 2. The sample consists of 49% females and 51% males. 82% of the respondents are above 25 years old. 62% of them have a bachelor degree, 6% have a lower diploma and 23% obtained a master degree. 9% pursued a Ph.D. Most of the respondents (53%) are employees. 30% are self-employed, 12% are civil servant and only 5% are students.

Table 2: Profile of Respondents

Demographic		Frequency	Percent
Gender	Male	120	51
	Female	115	49
Age	18-20 years	4	2
	21-25 years	38	16
	26-30 years	57	24
	31-35 years	64	27
	36-40 years	41	18
	>= 41 years	31	13
Current Education Level	Diploma	14	6
	Bachelor Degree	145	62
	Master Degree	55	23
	Ph.D	21	9
Occupation	Self-Employed	70	30
	Employee	124	53
	Civil Servant	29	12
	Student	12	5

- Construct Reliability and Convergent Validity Analysis

To ensure the appropriateness of the research instrument, the convergent validity and reliability of all the multiple-item scales were examined as suggested by Kline (2011). All the data were analyzed by creating structural and measurement models in AMOS software. All indicators had significant factor loadings higher than 0.50, which exceeded the recommended level of 0.50. Since each factor loading on each construct was greater than 0.50, the convergent validity for each construct was established, thereby providing evidence of construct validity for all the constructs in this study. In the measurement model, the analysis result of the average variances extracted (AVE) ranged from 0.52 to 0.82, which is in excess of the 0.5 threshold. Both composite reliabilities (CR) and Cronbach's Alpha ranged from 0.76 to 0.93, both above the recommended cutoff of 0.70. Therefore, all the factors and variables are reliable for examining the behavioral intention to reuse MB (Table 3).

Table 3: Results of Validity and Reliability Analyses

Factors	Indicators	Factor Loading	AVE	CR	Cronbach's Alpha
System Quality	SYSQ1	0.58	0.52	0.76	0.74
	SYSQ2	0.81			
	SYSQ3	0.76			
Social Influence	SI1	0.77	0.56	0.79	0.79
	SI2	0.77			
	SI3	0.71			
Perceived Efficacy	PEF1	0.82	0.61	0.82	0.82
	PEF2	0.79			
	PEF3	0.74			
Trust	TR1	0.81	0.65	0.85	0.85
	TR2	0.79			
	TR3	0.82			
User Satisfaction	SATIS1	0.89	0.78	0.92	0.92
	SATIS2	0.92			
	SATIS3	0.84			
Word-of-mouth	WOM1	0.86	0.70	0.87	0.87
	WOM2	0.82			
	WOM3	0.83			
Behavioral Intention	BI1	0.93	0.82	0.93	0.93
	BI2	0.93			
	BI3	0.84			

- Measurement and Structural Model Analysis

A model is considered suitable if the covariance structure implied by the model is similar to the covariance structure of the sample data, as indicated by an acceptable value of goodness-of-fit index (GFI) (Cheung & Rensvold, 2002). Firstly, the measurement model was verified and evaluated then the structural model analyzed and fitted. According to Kline (2011), fit statistics greater than or equal to 0.9 for GFI, CFI and NFI, greater or equal 0.80 for AGFI indicate a good model fit. In addition, the recommended value of $\chi 2/df$ is smaller than 3 and RMSEA values smaller than 0.05, which is acceptable. The results of the indexes of model fitness are described in Table 4. All of these values exceed their common acceptable range, suggesting high construct reliability and convergent validity of the internal structure of research model.

Table 4: Fit Indices of Measurement and Structural Models

	$\chi 2/df$	GFI	AGFI	CFI	NFI	RMSEA
Acceptable Value	< 3	>= 0.90	>= 0.80	>= 0.90	>= 0.90	< 0.05
Measurement Model	1.33	0.92	0.89	0.98	0.93	0.04
Structural Model	1.39	0.91	0.88	0.98	0.92	0.04

- Hypothesis Results

The hypotheses were tested as described in Figure 1. The results of hypothesis testing are shown in Table 5. Perceived efficacy (β=0.317, p<0.01), social influence (β=0.397, p<0.05) and user satisfaction (β=0.372, p<0.001) with regard to MB services, all evidenced a positive relationship with intention to reuse. Therefore, H1, H12 and H13 were supported. Social influence positively affected WOM (β=0.220, p<0.05), system quality (β=0.691, p<0.001) and perceived efficacy (β=0.810, p<0.001), which means that H2, H3 and H4 were supported. Furthermore, the system quality of MB exerted a significant positive effect on trust (β=0.391, p<0.001) and user satisfaction (β=0.827, p<0.001). Therefore, H6 and H7 were validated as well. In addition, WOM (β=0.291, p<0.001) positively affected trust and perceived efficacy (β=0.312, p<0.001) positively affected user satisfaction. Thus, H5 and H8 were supported. The results, however, indicated that H9, H10 and H11 were not accepted. Therefore, system quality, trust and WOM did not significantly affect the intention to reuse MB. All the results of hypothesis testing are presented in Figure 2.

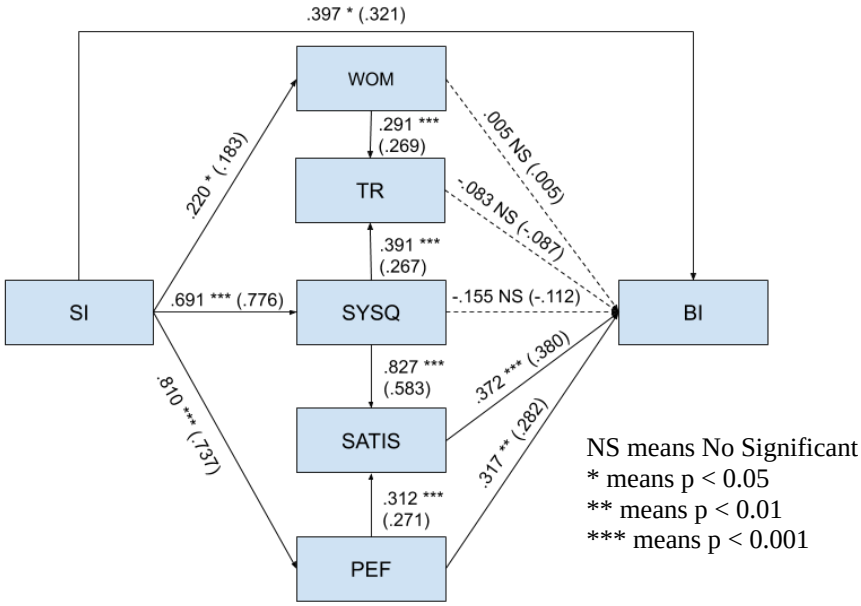

Figure 2: Results of Analysis of Structural Modeling with Hypotheses

Table 5: Results of Model Hypotheses Test

Hypothesis	Factors	Path Coefficient	Result
H1	SI -> BI	.397 *	Supported
H2	SI -> WOM	.220 *	Supported
H3	SI -> SYSQ	.691 ***	Supported
H4	SI -> PEF	.810 ***	Supported
H5	WOM -> TR	.291 ***	Supported
H6	SYSQ -> TR	.391 ***	Supported
H7	SYSQ -> SATIS	.827 ***	Supported
H8	PEF -> SATIS	.312 ***	Supported
H9	WOM -> BI	$.005^{ns}$	Not Supported
H10	TR -> BI	$-.083^{ns}$	Not Supported
H11	SYSQ -> BI	$-.155^{ns}$	Not Supported
H12	SATIS -> BI	.372 ***	Supported
H13	PEF -> BI	.317 **	Supported

* means p < 0.05, ** means p < 0.01, *** means p < 0.001

6. Theoretical Implications

From a theoretical perspective, the results of this study add to the research on users' behavioral intention to reuse in the MB context. Also, this research study has several implications for future MB research. First, the results indicate that social influence, user satisfaction, and perceived efficacy have significant effects on behavioral intention to reuse MB. This study also indicates that motivations, such as user satisfaction and perceived efficacy, have a greater effect on users' intention to reuse a technology than social pressure, such as social influence. Second, this study does not confirm the direct effect of system quality, trust and word-of-mouth on intention toward MB reuse. However, when users feel satisfaction after they experienced the quality of the system (SYSQ -> SATIS -> BI) or perceived its efficacy (PEF -> SATIS -> BI) they will enhance their positive intentions toward reuse of the technology. Third, while this study indicates that social influence is antecedent of word-of-mouth, system quality and perceived efficacy, there is a small direct effect of social influence on word-of-mouth. In addition, trust of technology will develop due to the emergence and spread of word-of-mouth from individuals who are important to users (SI -> WOM -> TR). Furthermore, the opinions and perceptions of family, friends, and colleagues have a significant effect on the quality of system and will build trust of the technology (SI -> SYSQ -> TR).

7. Discussion and Conclusion

The purpose of this study was to investigate which factors affected customer intention to reuse MB services offered by private banks in Myanmar. One of the novelties of this paper is the introduction of word-of-mouth, social influence, user satisfaction; psychological trio factors in the MB context. Social influence is the factor that affects behavioral intention to reuse MB the most. This means that family, friends, and colleagues all exert a strong influence on the decision of an individual to reuse MB. This finding is consistent with previous studies. MB users tend to rely more on the opinions of others to make their decision (Sripalawat et al., 2011). The more suggestions users receive, the more they will be motivated to use MB. Moreover, the findings indicate that social influence has a strong positive relationship with system quality, WOM, and perceived efficacy. This suggests that banks should be aware of the role played by colleagues, family members and friends in promoting and encouraging the dissemination of WOM (Tsai et al., 2017). It was also found that social influence contributes to behavioral intention by enhancing perceived system quality (Wang & Lin, 2011). Social influence also has a bearing on the perceived efficacy of technology, a determination consistent with the findings of Leiva, Climent, and Cabanillas (2017). Thus, banks need to pay special attention to the impact of social influence on the use of MB.

Another important result in this study is the strong effect of WOM on trust, particularly in the MB context. Since trust was strongly impacted by WOM, it is relevant to emphasize that banks should pay special attention to users and review their feedback thoroughly as WOM will reveal the level of trust that users have in the MB services they offer (Mehrad & Mohammadi, 2017). System quality seems to be an important way to improve users' trust. The research results imply that the system should have a design appropriate for MB and provide secure access to financial information in addition to responding quickly, being easy to use, uninterrupted, and free of errors. Banks need to focus on a range of user’s preferences to develop a MB app that achieves user satisfaction. On the basis of the data analysis results, it can be argued that user satisfaction will grow if the factors at the origin of perceived efficacy and system quality are appropriately managed. User satisfaction has traditionally been used as a surrogate for IS success and been examined in a number of previous studies

(e.g. Tam & Oliveira, 2016; Carlos & Tiago, 2017). To improve system quality, learning how to use MB should be made easy and the functionalities provided perceived as being appropriate. These insights should guide MB app developers in their efforts to enhance system quality as user satisfaction has emerged as one of critical predictors of the intention to reuse MB. It is also imperative that developers ensure that user experiences are consistent. Avoiding erratic system performance will enhance users' intention to stick to MB since satisfaction flows from meeting users' expectations of the service (Humbani & Wiese, 2019). Furthermore, perceived efficacy was found to be a significant predictor of behavioral intention. So, to increase users' perceived efficacy, banks need to make sure that MB make the work of users easier and enable them to easily find the information they require; not the other way round. Any technical barrier is likely to be perceived as a clear sign of inefficacy (Sitorus et al., 2019). Banks will most likely expand their activities and record greater user satisfaction should they implement the findings of this research study.

In this study, system quality was found not to directly affect intention to reuse MB. However, this is achieved indirectly through user satisfaction, which, as we just saw, is a direct function of system quality, itself seen primarily in terms of ease of use. This finding is consistent with the finding of a prior study by Talukder et al. (2014), who concluded that the technical aspect of mobile technology is not an important predictor of motivation to reuse MB. However, users are willing to reuse MB when they are satisfied with the system quality of MB. WOM was found to have no effect on the intention to reuse MB and this research study determined that this was due to the fact that users generally tend not to rely on informal information to reuse MB. Trusting MB services has an insignificant value, which contradicts the conclusion of a previous research study conducted by Alalwan et al. in 2017. Trust in this study does not seem to affect the intention to reuse MB. This may be related to the earliest phase of MB services, when their use was not widespread (Chemingui & lallouna, 2013).

To summarize, the research model is empirically validated based upon the data collected from Myanmar. The findings revealed that social influence, user satisfaction, and perceived efficacy were the three factors that significantly impacted the intention to reuse MB. They also indicated that system quality, WOM, and trust were non-significant with regard to the intention to reuse MB. Private banks should establish the best practices in the industry in order to enhance the confidence in their customers to reuse – and continued to use MB services. This paper focused on constructs that are compatible with mobile financial services and suggests certain directions for future research, most notably, that when bank customers think that using MB is a pleasant experience (and not an ordeal) that makes their lives easier, they generally intend to reuse MB services. Thus, it is up to MB app developers and software engineers to make sure that users' experience will be positive and therefore result in their intention to reuse MB services in future.

- Limitations of this Study and Future Research

This study reflects the perceptions of MB users only. The perception of non-users is not considered although knowing what keeps them from using MB could prove equally valuable. The finding of this study may also not be generalized to other contexts because this research mainly investigated behavior intention of users of MB services. Focusing solely on investigating the aspects of customers of private banks in Myanmar can be considered another limitation of this study. Moreover, this research study was conducted in Myanmar, which is a least developed country (LCD) as determined by the World Bank, which means that it may not readily applied to other countries in the region without modifying the research model. Furthermore, most of the respondents in this study are over 25 years old. Therefore, findings may be different in younger age groups who might have different opinions and considerably more experience with mobile technology as determined by Akturan and Tezcan

(2012). That said, the findings of this investigation can be reasonably extended to settings such as internet banking or mobile financial services as they relate to financial transactions. Also, this study could be extended by supplementing factors such as service quality and perceived risk in order to make the research model more compatible in other contexts. Researchers conducting research in this context could extend the model by moderating variables such as age, gender, occupation, education or income level. Finally, researchers could separate the two aspects of trust, namely, trust in MB technology and trust in MB service providers and examine if one aspect is more important than the other in the mobile banking context.

References

Adams, D., Nelson, R., & Todd, P. (1992). Perceived usefulness, ease of use, and usage of information technology: A replication. *Management Information Systems Quarterly, 16*(2), 227-247.

Ajzen, I. (1991). The theory of planned behavior. *Organizational Behavior and Human Decision Processes, 50*(2), 179-211.

Akturan, U., & Tezcan, N. (2012). Mobile banking adoption of the youth market: Perceptions and intentions. *Marketing Intelligence & Planning, 30*(4), 444-459.

Alalwan, A. A., Dwivedi, Y. K., & Rana, N. P. (2017). Factors influencing adoption of mobile banking by Jordanian bank customers: Extending UTAUT2 with trust. *International Journal of Information Management, 37*(3), 99-110.

Ali, B., & Younes, B. (2013). The impact of information systems on user performance: An exploratory study. *Journal of Knowledge Management, Economics and Information Technology, 3*(2), 128-154.

Amin, H., Hamid, M., Tanakinjal, G., & Lada, S. (2006). Undergraduate attitudes and expectations for mobile banking. *Journal of Internet Banking & Commerce, 11*(3), 7.

Arbore, A., & Busacca, B. (2009). Customer satisfaction and dissatisfaction in retail banking: Exploring the asymmetric impact of attribute performances. *Journal of Retailing and Customer Services, 16*(4), 271-280.

Bahaddad, A. A. (2017). Evaluating m-commerce systems success: Measurement and validation of the DeLone and McLean model of IS success in Arabic societies (GCC Case Study). *Journal of Business Theory and Practice*, 5(3), 156-193.

Beyari, H., Abareshi, A., & Elferjani, I. (2017). An exploration of the factors that impact customer experience in social commerce websites. *Proceedings of the 8th International Conference on Internet Technologies & Society* (pp. 51-58). Sydney: IADIS Press.

Bharati, P., & Chaudhury, A. (2004). An empirical investigation of decision-making satisfaction in web-based decision support systems. *Decision Support Systems, 37*(2), 187-197.

Bhattacherjee, A. (2001). Understanding information systems continuance. An expectation confirmation model. *MIS Quarterly, 25*(3), 351-370.

Brahim, S. B., & Dridi, M. (2015). Factors behind resisting mobile-banking adoption: The case of Tunisian consumers. *International Journal of Sciences: Basic and Applied Research (IJSBAR), 24*(1), 185-199.

Carlos, T., & Tiago, O. (2017). Understanding mobile banking individual performance of the DeLone & McLean model and the moderating effects of individual culture. *Internet Research, 27*(3), 538-562.

Chemingui, H., & lallouna, H. B. (2013). Resistance, motivations, trust and intention to use mobile financial services. *International Journal of Bank Marketing, 31*(7), 574-592.

Chen, L., & Tan, J. (2004). Technology adaptation in electronic commerce: key determinants of virtual store acceptance. *European Management Journal, 22*(1), 74-86.

Cheung, G. W., & Rensvold, R. B. (2002). Evaluating goodness-of-fit indexes for testing measurement invariance. *Structural Equation Modeling: A Multidisciplinary Journal, 9*(2), 233-255.

Davis, F. D. (1989). Perceived usefulness, perceived ease of use, and user acceptance of information technology. *MIS Quarterly, 13*(3), 318-339.

DeLone, W., & McLean, E. (2003). The DeLone and McLean model of information systems success: A ten-year update. *Journal of Management Information Systems, 19*(4), 9-30.

Fishbein, M., & Ajzen, I. (1975). *Belief, attitude, intention and behaviour: An introduction to theory and research.* Reading, MA: Addison-Wesley.

Foerch, T., Ki, O., Thein, S., & Waldschmidt, S. (2016). *Myanmar's Financial Sector A Challenging Environment for Banks* (3rd ed.). Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH.

Gharaibeh, M. K., & Mohd Arshad, M. R. (2018). Determinants of intention to use mobile banking in the north of Jordan: Extending UTAUT2 with mass media and trust. *Journal of Engineering and Applied Sciences, 13*(8), 2023-2033.

Goswami, D., & Raghavendran, S. (2009). Mobile-banking: can elephants and hippos tango? *Journal of Business Strategy, 30*(1), 14-20.

Harrison, W. L. (2001). The measurement of word-of-mouth communication and an investigation of service quality and customer commitment as potential antecedents. *Journal of Service Research, 4*(1), 60-75.

Humbani, M., & Wiese, M. (2019). An integrated framework for the adoption and continuance intention to use mobile payment apps. *International Journal of Bank Marketing, 37*(2), 646-664.

Ifinedo, P. (2006). Extending the Gable et al. enterprise systems success measurement model: A preliminary study. *Journal of Information Technology Management, 17*(1), 14-33.

Igbaria, M., Parasuraman, S., & Baroudi, J. (1996). A motivational model of microcomputer usage. *Journal of Management Information Systems, 13*(1), 127-144.

Jacob, K. (2007). Are mobile payments the smart cards of the aughts? *Chicago Fed Letter No. 240 (2007), Federal Reserve Bank of Chicago, Chicago, IL.*

JICA. (2012). *Republic of the Union of Myanmar Data Collection Survey on Modernization of the Financial System.* Daiwa Institute of Research Ltd; NTT Data Corporation; Fujitsu Ltd.

Kim, G., Shin, B., & Lee, H. (2009). Understanding dynamics between initial trust and usage intentions of mobile banking. *Information Systems Journal, 19*(3), 283-311.

Kline, R. B. (2011). *Principles and practice of structural equation modeling* (3rd ed.). New York, NY: The Guilford Press.

Kohli, R., Devaraj, S., & Mahmood, A. (2004). Understanding determinants of online consumer satisfaction: A decision process perspective. *Journal of Management Information Systems, 21*(1), 115–135.

Kuan, H.-H., & Bock, G.-W. (2007). Trust transference in brick and click retailers: An investigation of the before-online-visit phase. *Information & Management, 44*(2), 75-87.

Lee, K. C., & Chung, N. (2009). Understanding factors affecting trust in and satisfaction with mobile banking in Korea: A modified DeLone and McLean's model perspective. *Interacting with Computers, 21*(5), 385-392.

Leiva, F. M., Climent, C. S., & Cabanillas, F. L. (2017). Determinants of intention to use the mobile banking apps: An extension of the classic TAM model. *Spanish Journal of Marketing - ESIC*, 27, 25-38.

Lewis, W., Agrawal, R., & Sambamurthy, V. (2003). Sources of influence on beliefs about information technology use: an empirical study of knowledge workers. *MIS Quarterly, 27*(4), 657-679.

Lowry, P., Vance, A., Moody, G., Beckman, B., & Read, A. (2008). Explaining and predicting the impact of branding alliances and web site quality on initial consumer trust of e-commerce web sites. *Journal of Management Information Systems, 24*(4), 199-224.

Lwin, N., Ameen, A., & Nusari, M. (2019). Mobile banking adoption among customers within private commercial banking sector in Yangon, Myanmar. *International Journal of Management and Human Science (IJMHS), 3*(2), 44-59.

Mahmood, M., Burn, J. M., Gemoets, L. A., & Jacquez, C. (2000). Variables affecting information technology end-user satisfaction: A meta-analysis of the empirical literature. *International Journal of Human-Computer Studies, 52*(4), 751-771.

Makanyeza, C. (2016). Determinants of consumers' intention to adopt mobile banking services in Zimbabwe. *International Journal of Bank Marketing, 34*(5), 623-648.

Masinge, K. (2010). Factors influencing the adoption of mobile banking services at the Bottom of the Pyramid in South Africa. *Institute of Business Science*. University of Pretoria.

McKnight, D. H., Choudhoury, H., & Kacmar, C. (2002). Developing and validating trust measures for e-commerce: An integrative typology. *Information Systems Research, 13*(3), 334–359.

Mehrad, D., & Mohammadi, S. (2017). Word of mouth impact on the adoption of mobile banking in Iran. *Telematics and Informatics, 34*(7), 1351-1363.

Merve, O. (2018). *Factors Affecting Mobile Banking Usage Intention, User Satisfaction and Word-of-Mouth Intention.* Institute of Social Sciences, Graduate School Of Marketing. Istanbul Bilgi University.

Neuman, W. L. (2006). *Social research methods: Qualitative and quantitative approaches* (6th ed.). Boston: Sage, Allyn and Bacon,

Noh, M. J., & Lee, K. T. (2016). An analysis of the relationship between quality and user acceptance in smartphone apps. *Information Systems and e-Business Management, 14*(2), 273-291.

Oliver, R. (1980). A cognitive model of the antecedents and consequences of satisfaction decisions. *Journal of Marketing Research*, *17*(4), 460-469.

Park, J., Chaiy, S., & Lee, S. (1998). The moderating role of relationship quality in the effect of service satisfaction on repurchase intentions. *Journal of Korean Marketing Association, 13*(2), 119-139.

Petter, S., DeLone, W., & McLean, E. (2008). Measuring information systems success: Models, dimensions, measures, and interrelationships. *European Journal of Information Systems, 17*(3), 236-263.

Rai, A. L., & Welker, R. (2002). Assessing the validity of IS success models: An empirical test and theoretical analysis. *Information Systems Research, 13*(1), 50-69.

Rose, J., & Fogarty, G. (2006). Determinants of perceived usefulness and perceived ease of use in the technology acceptance model: Senior consumers' adoption of self-service banking technologies. *Academy of World Business, Marketing & Management Development, 2*(10), 122-129.

Rogers, E. (1995). *Diffusion of innovations* (4th ed.). New York, NY: The Free Press.

Seddon, P. B. (1997). A respecification and extension of the DeLone and McLean model of IS success. *Information Systems Research, 8*(3), 240-253.

Shuhidan, S. M., Hamidi, S. R., & Saleh, I. S. (2017). Perceived Risk towards Mobile Banking: A case study of Malaysia Young Adulthood. *International Research and*

Innovation Summit. 226, pp. 1-7. IOP Conference Series: Materials Science and Engineering.

Singh, S., Srivastava, V., & Srivastava, R. K. (2010). Customer acceptance of mobile banking: A conceptual framework. *SIES Journal of Management, 7*(1), 55-64.

Sitorus, H. M., Govindaraju, R., Wiratmadja, I. I., & Sudirman, I. (2019). Examining the role of usability, compatibility and social influence in mobile banking adoption in Indonesia. *International Journal of Technology, 10*(2), 351-362.

Song, J., Koo, C., & Kim, Y. (2007). Investigating antecedents of behavioral intentions in mobile commerce. *Journal of Internet Commerce, 6*(1), 13-34.

Sripalawat, J., Thongmak, M., & Ngramyarn, A. (2011). M-banking in metropolitan bangkok and a comparison with other countries. *Journal of Computer Information Systems, 51*(3), 67-76.

Susanto, A., Chang, Y., & Ha, Y. (2016). Determinants of continuance intention to use the smartphone banking services: An extension to the expectation-confirmation model. *Industrial Management & Data Systems, 116*(3), 508-525.

Talukder, M., Quazi, A., & Sathye, M. (2014). Mobile phone banking usage behaviour: An Australian perspective. *Australasian Accounting, Business and Finance Journal Volume, 8*(4), 83-104.

Tam, C., & Oliveira, T. (2017). Understanding mobile banking individual performance: The DeLone & McLean model and the moderating effects of individual culture. *Internet Research, 27*(3), 538-562.

Tiwari, R., & Buse, S. (2007). *The mobile commerce prospects: A strategic analysis of opportunities in the banking sector*. Hamburg: Hamburg University Press.

Tsai, C.-H., Kuo, C.-C., & Tan, M. J. (2017). The cause and effects of word of mouth from consumer intention and behavior perspectives: A SEM model approach. *Journal of Economic and Social Thought, 4*(2), 212-231.

Tsai, H.-T., & Bagozzi, R. P. (2014). Contribution behavior in virtual communities: Cognitive, emotional, and social influences. *MIS Quarterly, 38*(1), 143-163.

Turnell, S. (2003). Myanmar's banking crisis. *ASEAN Economic Bulletin, 20*(3), 272-282.

Vasileiadis, A. (2014). Security concerns and trust in the adoption of m-commerce. *Social Technologies, 4*(1), 179–191.

Venkatesh, V., & Davis, F. D. (1996). A model of the antecedents of perceived ease of use: Development and test. *Decision Sciences, 27*(3), 451-481.

Venkatesh, V., & Davis, F. (2000). A theoretical extension of the technology acceptance model: Four longitudinal field studies. *Management Science, 46*(2), 186-204.

Venkatesh, V., Morris, M. G., Davis, G. B., & Davis, F. D. (2003). User acceptance of information technology: Toward a unified view. *MIS Quarterly, 27*(3), 425-478.

Wang, S.-M., & Lin, J. C.-C. (2011). The effect of social influence on bloggers' usage intention. *Online Information Review, 35*(1), 50-65.

Zhou, T. (2011). An empirical examination of initial trust in mobile banking. *Internet Research, 21*(5), 527-540.

Zulfauzy, A. I., & Rachmawati, I. (2018). Analysis of factors influencing adoption of mobile banking in Indonesia. *International Journal of Science and Research (IJSR), 7*(2), 868-874.

APPENDIX A

Indicators	Questions
SYSQ1	Mobile Banking allows me to easily find the information I am looking for.
SYSQ2	Mobile Banking is easy to use.
SYSQ3	Mobile Banking offers appropriate functionality
SI1	People think I should use mobile banking.
SI2	People think using mobile banking is valuable.
SI3	People's opinions about mobile banking are important.
PEF1	Mobile banking enables me to accomplish things quickly.
PEF2	Using mobile banking improves my performance.
PEF3	Using mobile banking increases my productivity.
TR1	Mobile banking keeps its promises.
TR2	Mobile banking services meet my needs.
TR3	Mobile banking is trustworthy.
SATIS1	I am satisfied with the way that mobile banking has carried out transactions.
SATIS2	I am satisfied with the service I have received from mobile banking.
SATIS3	Overall, I was satisfied with mobile banking.
WOM1	I will talk about the strengths of the mobile banking with people I know.
WOM2	I will talk about mobile banking to be quite positive.
WOM3	If you ask me about mobile banking, I will definitely recommend it.
BI1	I intend to use mobile banking.
BI2	I intend to increase my use of mobile banking.
BI3	I intend to use mobile banking continuously.

ASEAN Journal of Management & Innovation
Vol. 7. No. 1, 79 - 89

DOI: 10.14456/ajmi.2020.6
ajmi.stamford.edu
Received: February 11, 2020
Revised: March 30, 2020
Accepted:

Financial Literacy and Money Management among the Young

Rattana Waranyasathid
Assumption University, Thailand
rattanawrn@msme.au.edu
Khin Zar Win Htin
Assumption University, Thailand
khinzar@hotmail.com

Abstract
The aim of this study is to analyze the relationship between financial literacy, both basic and advanced, and money management among the youth. This includes saving and cash management. Data sets were collected using questionnaire surveys from undergraduate students in Bangkok. A regression analysis was conducted to test the relationship of financial literacy (the independent variable) and money management (the dependent variables). The results indicate that in the case of students who have basic financial literacy, i.e., understand inflation, the effects of interest rates, and how risk diversification works, there is a close relationship to money management. In contrast, in the case of students who have advanced financial literacy, i.e., have a solid grasp of risk-return tradeoffs, basic asset pricings, and knowledge in bonds, stocks and mutual funds, there is a weak relationship between literacy and money management. This is a rather surprising finding as it seems that more financially knowledgeable students should be more aware of how to manage money. These findings will be useful for policymakers and institutional educators to improve their curricula, which could help to improve the financial well-being of undergraduate students.

Keywords: Money Management, Savings and Cash Management, Financial Literacy, Basic and Advanced Financial Literacy.

1. Introduction

The increasing availability of hi-speed internet connection facilitates impulsive online shopping (Vijaindren, 2017). Young adults face a lot of temptations to spend while having limited income. This is especially the case with undergraduate students. The exponential rise of online shopping sites contributes to reckless behavior in spending or overspending due to poor money management. Indeed, online shopping is cited as one of the main reasons why Malaysian millennial have more debt problems compared to young adults 15 to 20 years ago (Vijaindren, 2017). There is also a strong relationship between the rise in overspending of younger consumers and the availability of credit (Soman & Cheemam, 2002). According to Modigliani's (1986) lifecycle saving hypothesis, at the early stages of their careers, most young people's incomes cannot cover their expenditures so they end up spending more than they have and will then rely on credit cards to maintain their lifestyles. However, once they move past this early stage, some of them will still have debt and this will be the case throughout their lives (O'Loughlin & Szmigin, 2006). One of the reasons for the continuation of debt is the lack of financial literacy (Reswari, Sudarto, & Widyastuti, 2018). Individuals should thus be taught at a young age how to handle money wisely and responsibly. This would save them from being immersed in debt, which can be costly and is never an easy problem to fix. When financial literacy is taught at university, the money management behavior of undergraduates improves.

This is a crucial step to ensure that they most likely will adopt proper money management behavior at later stages of their lives (Bamforth, Jebarajakirthy, & Geursen, 2017). Educators, policy makers, and various other stakeholders should thus be aware of the importance of money management and the development of financial literacy. Money management is a combination of people's abilities to handle personal finance activities such as spending, saving, investment, and budgeting toward financial wellbeing (Atkinson & Messy, 2012). Roughly speaking, money management can be defined as a financial behavior essentially observable with and relevant to monetary issues (Xiao, 2008). Decent money management requires financial literacy, which is essential to understand various financial products and services for making proper financial decisions. An individual with low financial education and therefore low financial literacy would have a hard time practicing personal finance (Navickas, Gudaitis, & Krajnakova, 2014). Today, financial literacy and money management thus play a key role in many aspects of one's life and also benefit individuals, households, small company owners, and the community at large. Once a person is able to manage his/her money wisely, debt-traps can be minimized and short- and long-term financial planning toward financial freedom be achieved. One way to shape one's money management behavior is through financial knowledge or financial education. As Brown et al. (2016) argue, financial education programs are likely to have a significant impact on the financial decision-making of youth.

On the other hand, a lack of money management can influence one's spending patterns and lead to an accumulation of debt (Heath & Soll, 1996; Tokunaga, 1993). In 2017, Gurria, the secretary of the Organization for Economic Cooperation and Development (OECD) declared that financial literacy is an essential life skill. This study focuses on financial literacy and money management in the context of Thailand. According to a survey conducted by the Bank of Thailand (BOT), the financial literacy level of Thai people is below average. The survey was conducted with parents, many of whom have to shoulder costly fees for the education of their children. Thailand's low financial literacy impacts the educational level of the young (parents overburdened with debts cannot send their children to university). These figures are in line with the OECD findings, which confirmed the positive relationship between knowledge and behavior and led to the conclusion that financial education could improve financial behavior. This study, however, focuses on youth, a population on which little research in term of financial literacy has been conducted. More specifically, it aims to explore the level of financial literacy and its influence on money management of Thai undergraduate students and therefore help to fill the knowledge gap about money management of the young in Asian countries.

2. Literature Review and Hypothesis Development

- Money Management

Sundarasen, Rahman, Othman, and Danaraj (2016) define money management as a combination of individuals' aptitude to realize, analyze, handle, and communicate personal finances towards financial wellbeing. A number of previous studies have broken down money management into four major components: cash management, credit management, saving/investment management, and insurance management (Hilgert, Hogarth, & Beverly, 2003; Ksendzova, Donnelly, & Howell, 2017; Srivalosakul, Suwanragsa, & Tangjitprom, 2018). However, in their research study with students as their sample, Ksendzova et al. (2017) found no effect on the investment management and insurance management dimensions. Moreover, parenting and upraising children in Asia are different from the West. Asian parents still support their children even when they are more than 18 years old. Undergraduate students' incomes mainly come from allowances as they do not work in

general. They rarely consider buying insurance or make investment by themselves. In Southeast Asian countries like Thailand, parents take responsibility in raising their children, taking care of their education and ensuring general financial support. The present study therefore focuses on only two dimensions of money management: cash management and saving management. This differs from previous studies. For the purpose of this study, money management is defined as a financial behavior focusing on planning personal finances and savings.

- Cash Management

Xiao (2008) refers to cash management as financial behavior activities that are frequently carried out to review monthly bills, record monthly expenses, etc. Later studies define cash management as individuals' behavior to estimate their income, follow a monthly budget, record monthly expenses, and evaluate spending on a regular basis (Ksendzova et al., 2017; Srivalosakul et al., 2018). Compulsive shopping is more likely to be reduced when people know how to manage money (Ksendzova et al., 2017; Srivalosakul et al., 2018). Effective money management, i.e., tracking spending, budgeting, saving, and investing, can prevent excessive consumption and is likely to bring personal debt under control (Godwin & Koonce, 1992; Srivalosakul et al., 2018). Spending patterns of individuals are more likely to be successful due to the successful regulation of finances through budgeting (Kidwell & Turrisi, 2004; Kotze & Smit, 2008). This is in line with the findings of Chen and Volpe (1998) who determined that individuals who are more financially literate are likely to record their financial activities. One of the best ways to increase money management skills is to keep record of all revenues and expenditures quarterly or monthly. Reviewing one's budget regularly helps to control irrational purchases and save more money for investment (Navickas et al., 2014). Thus, in this study cash management refers to an individual's behavior to keep track of his/her expenses.

- Saving Management

Bime and Mbanasor (2011) defined saving as the amount of disposable income from which expenses are deducted. Rikwentishe, Pulka, and Msheliza (2015) determined that saving is the decision to put off current consumption in order to fulfill future needs. According to Jonubi and Abad (2013), saving is about transferring money from surplus economic units to deficit economic units through financial intermediaries. This benefits the entire nation. Some studies have also described saving management as an individual's behavior to set aside money for saving, emergencies, unexpected expenses, and long-term expenses such as home and education (Ksendzova et al., 2017; Srivalosakul et al, 2018). Saving management for the purpose of this study can thus be defined as an individual's effort to set aside money from the daily spending.

- Financial Literacy

Financial literacy is a person's ability to apply economic information and financial knowledge to make financial decisions in planning debt and accumulating wealth and pensions (Lusardi & Mitchell, 2007). Thanks to their solid background and financial skills, financial literate individuals are more likely to manage money wisely (Noctor, Stoney, & Stradling, 1992). Financial literacy is inputs to explain variations in the financial outcomes of money management. Hung, Parker, and Yoong (2009) defined financial literacy as "the knowledge of basic economic and financial concepts, as well as the ability to use that knowledge and other financial skills to manage financial resources effectively for a lifetime of financial well-being" (p.12). Individuals with financial literacy are more knowledgeable in money management and less likely to be a victim of fraud. Financial literacy empowers people to achieve financial freedom. It is beneficial not only for household prosperity but for the community as well. This study classified financial literacy in accordance with Lusardi

(2008), who identified financial literacy as either basic financial literacy or advanced financial literacy. Basic financial literacy is fundamental financial "knowledge about how interest rates work, the effects of inflation, and the concept of risk diversification" (Lusardi, 2008, p.4). Individuals who are financially literate understand the basic concepts about how to manage money and assets (Hogarth, 2002; Abdeldayem, 2016). In countries with low financial literacy, household savings and investment behavior are dominated by basic rules of thumb (Abdeldayem, 2016). Xu and Zia (2012) found that individuals who were high in financial illiteracy made wrong financial decisions and had poor money management skills. Moreover, low financial literacy is one of the criteria on which individuals are more likely to be rejected to access loan (Kebede & Kuar, 2015).

Advanced financial literacy enables an individual to make decisions pertaining to saving and investment, including understanding the relationship between risk and return, how bonds, stocks, and mutual funds work, and basic asset pricing (Lusardi, 2008). A Health and Retirement Study (HRS) which measured how individuals make their saving decisions claimed that those who display higher financial literacy are more likely to save and invest in complex assets, such as stocks and bonds (Abdeldayem, 2016). According to Shahrabani (2012), young people have more knowledge about money management. They also master essential basic financial skills such as personal budget and are likely to avoid and solve financial problems. Financial literacy enables individuals to cope up with macro-economic shocks through savings and wise money management. Advanced financial literacy is helpful to handle financial problems (Klapper, Lusardi, & Panos 2015).

Several studies have determined that a low level of financial literacy encourages financial misconduct practices (Robb & Woodyard, 2011; Aren & Aydemir, 2014) and limits an individual's has ability to make good financial decisions (Chen & Volpe, 1998) and exercise tight control over their personal debt (Sharahbani, 2012). They also found that financially illiterate people are less efficient improving household financial management (Hilgerth et al, 2003). There is a positive correlation between financial literacy and money management (Bernheim, Garrett, & Maki (2001). Moreover, financial literacy can make a significant difference on money management after graduating (Behrman, Mitchell, Soo, & Bravo, 2012). Therefore, it is hypothesized that:

H1: *There is relationship between financial literacy and money management.*

A number of studies have determined that in order to achieve financial wellbeing, it is important to have a good financial plan, stringent cash management, and consistent recording of income and expenditures (Livingstone & Lunt 1992; Srivalosakul et al., 2018); so that individuals' debt and excessive consumption can be avoided (Godwin & Koonce, 1992; Srivalosakul et al., 2018), and consumer debt be reduced (Ksendzova et al., 2017; Srivalosakul et al., 2018). Regular recording of income and expenditures helps individual to achieve the financial wellbeing (Livingstone & Lunt, 1992) and mitigate debt and excessive consumption (Godwin & Koonce, 1992). Individuals with low financial literacy are more likely to have unnecessary spending and not be able to contribute to savings (Suwanaphan, 2013). If students have good basic financial knowledge, they will develop a good grasp of their financial issues and would avoid piling up their parents' debt burden of children. Therefore, the following hypothesis can be developed:

H2: *There is a relationship between basic financial literacy and cash management.*

Self-occupied professionals have financial discipline among themselves. They control their excessive spending and impulse purchases and are independent in nature who can take bold decisions in life (Madrian et al., 2017). This can be hypothesized as follows:

H3: *There is a relationship between advanced financial literacy and cash management.*

A rise in saving is possible if individuals have financial literacy in saving programs (Clark & Madeleine, 2008). People who have at least a basic level of financial literacy will still be able to build up their understanding of saving (Lusardi & Mitchell, 2007). Adequate financial literacy made households likely to plan for both the short- and long-term such as retirement programs and unforeseen situations (Jappelli & Pistaferri, 2010). Thus, the following hypothesizes can be articulated:

H4: *There is a relationship between basic financial literacy and saving management.*

There is evidence showing of the linkage between saving decision and solid financial credentials (Ameriks, Caplin, Leahy, 2003; Lusardi & Mitchell, 2007; Jonubi & Abad, 2013; Bernheim et al., 2001; Hastings, Mitchell, & Chyn, 2011; Srivalosakul et al., 2018). Boon, Yee, and Ting (2011) studied 160 individuals in a commercial area of Malaysia and found that there was a strong relationship between advanced financial literacy and saving management. Thus, this study hypothesizes that:

H5: *There is a relationship between advanced financial literacy and saving management.*

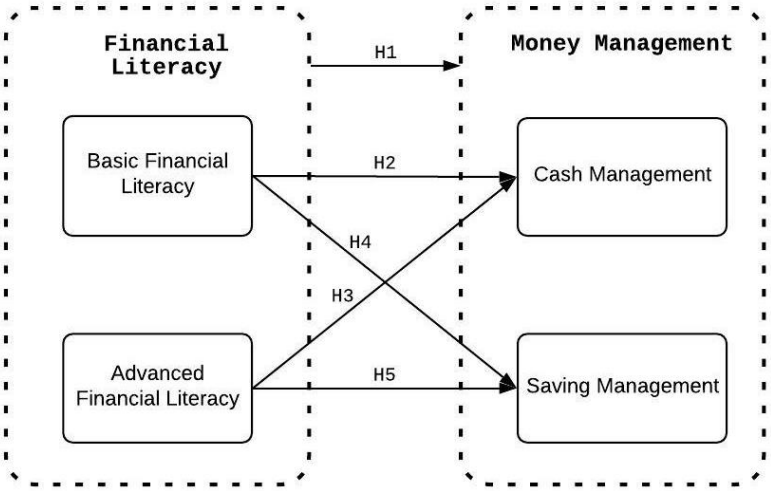

Figure 1: Conceptual Framework (created by the authors for this study).

3. Research Methodology

- *Data Collection*

The study collected data from 224 undergraduate students from a private international university in Thailand. Most of the respondents are Gen Millennial or Generation Y since they are between 18-25 years old (McCrindle, 2008). Online surveys, hosted on a platform on Google Survey, were appropriate to these tech-savvy generations. Respondents were approached in class and their consent for an online survey sought.

Table 1: Sample Profiles (n = 224)z

	Demographic Factors	Frequency	Percentage
Gender	Female	134	59.8
	Male	90	40.2
Age	Less than 18-20	39	17.4
	21-22	130	58.0
	23 and over	55	24.5

Allowance	Less than 20,000 Baht	145	64.7
	20,000-40,000 Baht	64	28.6
	40,001-60,000 Baht	12	5.4
	Over 60,000 Baht	3	1.3
Faculty	Business School	196	87.5
	Others	28	12.5

Table 1 summarizes the sample profiles. Out of two hundred twenty-four students, 59.8% of the respondents were females and 40.2% males. The majority of them (58%) were between 21 and 22 years old. Most of them (64.7%) had an allowance of less than 20,000 baht (USD635) per month.

- Questionnaire Development

The study is an exploratory quantitative type of research. The dependent variables include cash management (CM) and saving management (SM) and the independent variables, basic financial literacy and advance financial literacy. The survey instrument consists of three parts. Part I General Information was designed to explore money management behavior. Part II Financial Literacy measures two levels of financial literacy. Part III is meant to obtain the demographic characteristics of the respondents (gender, age, education, and income).

- Measurement Reliability and Validity

The measurement of money management behavior was based on two dimensions, cash management (CM) and saving management (SM). It was adopted from the study of Ksendzova et al. (2017). The respondents were asked to rate part I and part II using a five-point Likert scale (0 = Never, 1 = Rarely, 2 = Seldom, 3 = Sometimes, 4 = Frequently and 5 = Always). Financial literacy was measured in two ways. First basic financial literacy was measured via questions fundamental concepts such as the effect of interest rates, inflation, diversification of risk, etc. The questions were adopted from Lusardi and Mitchell (2007). Advanced financial literacy was assessed by testing respondents' understanding of, for example, the relationship between risk and return, how bonds, stocks and mutual funds work, and basic asset pricing, etc. These questions were adopted from Van Rooij, Lusardi, and Alessie (2011). All the questions had been validated as "having a good internal consistency and retest reliability" (Kramer, 2016, p.202).

Table 2: Reliability, Means and SD of Measures

Construct	Item measures	Factor Loadings	Cronbach's Alpha	Variance Extracted	Mean	SD
Cash Management	CM1-CM4	.641-.817	.822	32.842	3.08-3.37	.908-1.020
Saving Management	SM1-SM4	.738-.836	.893	38.528	3.23-3.42	.883-1.019

Note: KMO measures of the study's sampling adequacy is .907, which exceeds the suggested cut-off value of 0.60 (Tabachnick and Fidell, 2001). The Bartlett's test of sphericity is at chi square = 1006.582, and p value = .000. Total variance extracted = 71.369.

The reliability of the measurements was tested by Cronbach alpha. The test showed an internal consistency of (α = .822) for cash management and (α = .893) for savings management respectively. According to Nunnally (1978), if the Cronbach's alpha (α) value is above the threshold 0.70, this indicates acceptable reliability. Furthermore, all the item

measured had standardized factor loadings above 0.5 at a significance level of 0.001, indicating that there was convergent validity (see Table 2).

4. Study Results

Multiple and simple regression analysis were conducted to test H1-H5. The results show that hypotheses H1 (β =.172, p=.010), H2 (β = .219, p =.004), and H4 (β =0.167, p =.027) are supported. However, H3 (β =.005, p= .951) and H5 (β =.030, p =.688) are not supported. The overall adjusted R square is 3%, which is quite low (see Table 3). The hypothesized regression results can be interpreted to mean that financial literacy had a positive significant effect on money management. However, only basic financial literacy had a positive significant effect on cash management and saving management. Advanced financial literacy had no significant effect on cash management and saving management. This points to the fact that efforts to raise the level of financial literacy should focus on basic financial knowledge which has far more practical daily applications than advanced financial knowledge.

Table 3: Hypothesis Testing Results

<table>
<tr><th rowspan="2">Independent Variables</th><th colspan="5">Dependent Variables</th></tr>
<tr><th colspan="2">Cash Management</th><th colspan="2">Saving Management</th><th>Money Management</th></tr>
<tr><td>Basic financial literacy</td><td rowspan="3">.219(.004)</td><td rowspan="3">.005(.951)</td><td rowspan="3">0.167(.027)</td><td rowspan="3">.030(.688)</td><td rowspan="3">.172(.010)</td></tr>
<tr><td>Advanced financial literacy</td></tr>
<tr><td>Financial Literacy</td></tr>
<tr><td>Hypotheses</td><td>H2</td><td>H3</td><td>H4</td><td>H5</td><td>H1</td></tr>
<tr><td>Results</td><td>Supported</td><td>Not Supported</td><td>Supported</td><td>Not Supported</td><td>Supported</td></tr>
<tr><td>ANOVA results</td><td colspan="2">F value = 5.657,
p value= 0.004
Adj R square = 4%</td><td colspan="2">F value = 3.820,
p value = 0.023,
Adj R square = 2.5%</td><td>F value =6.778,
p value = 0.010,
R square = 3.0%</td></tr>
</table>

5. Discussion and Conclusion

This study examined the relationship between financial literacy and money management behaviors among the young, represented by university students. The results demonstrate that financial literacy affects money management behaviors. The findings are consistent with the studies of Murendo and Mutsonziwa (2017) and Parcia and Estimo (2017). However, in this study, only basic financial literacy had any effect on money management. This is in keeping with Hilgert et al., (2003) who surveyed 1,004 households and found that households with low financial literacy were more aware of money management. Surprisingly, the study found no effect of advanced financial literacy on money management. This finding though is consistent with Reswari et al.'s (2018) conclusion. A possible explanation is that since the respondents do not work and are financially supported by their parents, they have no opportunity to practice advanced financial literacy such as investing in financial products, e.g. bonds and stocks.

The results in this study have implications for financial education programs and for students' personal lives. Institutional educators and policy makers could use of the results of this study to enhance university students' financial literacy and well-being by designing effective curricula for undergraduate studies. Providing proper financial education at the undergraduate level could instill good financial habits such as cash management, saving

management and more knowledge in investments in financial markets. For students, financially balancing day-to-day activities could be done primarily through personal financial management. Financial literacy can serve as a basis for positive engagement in economic events and as a guide for improving investments, making the right shopping choices, opting for sound expenditures, and managing assets and loans. Moreover, it can help students evaluate their financial status wisely, responsibly recognize their economic conditions, be concerned about financial matters, and eventually feel less anxious about it. The present study had some limitations mainly due to small sample size of undergraduate students from a private university, not nationwide coverage. Thus, data do not represent geographical or socioeconomic diversity. Questionnaires were collected conveniently online by Google form.

References

Abdeldayem, M. M. (2016). Is there a relationship between financial literacy and investment decisions in the Kingdom of Bahrain? *Management and Administrative Sciences Review, 5*(4), 203-221.

Ameriks, J., Caplin, A., & Leahy, J. (2003). Wealth accumulation and the propensity to plan. *The Quarterly Journal of Economics*, *118*(3), 1007-1047.

Aren, S., & DİNÇ AYDEMİR, S. (2014). A literature review on financial literacy. *FinansalArastirmalar ve Calismalar Dergisi*, *6*(11), 33-49.

Atkinson, A., & Messy F. (2012), *Measuring financial literacy: Results of the OECD/ international network on financial education (INFE) pilot study*, OECD working papers on finance, insurance and private pensions, no. 15, Paris: OECD Publishing.

Bamforth, J., Jebarajakirthy, C., & Geursen, G. (2017). Undergraduates' responses to factors affecting their money management behavior: Some new insights from a qualitative study. *Young Consumers*, *8*(3), 290-311.

Behrman, J. R., Mitchell, O. S., Soo, C. K., & Bravo, D. (2012). How financial literacy affects household wealth accumulation. *American Economic Review*, *102*(3), 300-304.

Bernheim, B. D., Garrett, D. M., & Maki, D. M. (2001). Education and saving: The long-term effects of high school financial curriculum mandates. *Journal of Public Economics*, *80*(3), 435-465.

Bime, M. J., & Mbanasor, J. A. (2011). Analysis of rural credit market performance in northwest region, Cameroon. *Agris on-line Papers in Economics and Informatics*, *3*(665-2016-44836), 23-28.

Boon, T. H., Yee, H. S., & Ting, H. W. (2011). Financial literacy and personal financial planning in Klang Valley, Malaysia. *International Journal of Economics and Management*, *5*(1), 149-168.

Brown, M., Grigsby, J., Van Der Klauw, W., Wen, J., & Zafar, B. (2016). Financial education and the debt behavior of the young. *The Review of Financial Studies*, *29*(9), 2490-2522.

Chen, H., & Volpe, R. P. (1998). An analysis of personal financial literacy among college students. *Financial Services Review*, *7*(2), 107-128.

Clark, R., & d'Ambrosio, M. (2008). *Adjusting retirement goals and saving behavior: The role of financial education. Overcoming the Saving Slump: How to Increase the Effectiveness of Financial Education and Saving Programs,* Chicago: University of Chicago Press.

Godwin, D. D., & Koonce, J. C. (1992). Cash flow management of low-income newlyweds. *Financial Counseling and Planning*, *3*(1), 17-42.

Gurria, A., (2017). Students and Money Financial Literacy Skills for the 21st Century. 4th OECD/GFLEC Global Policy Research Symposium to Advance Financial Literacy. 24 May 2017 OECD Conference Centre. Paris, France. Retrieved January, 23, 2019 from

https://www.oecd.org/daf/fin/financial-education/PISA-Financial-Literacy-Launch-Summary-Record.pdf

Hastings, J., Mitchell, O. S., & Chyn, E. (2012). Fees, Framing, and Financial Literacy in the Choice of Pension Manager. *Financial Literacy: Implications for Retirement Security and the Financial Marketplace*, *63*, 101-115.

Heath, C., & Soll, J. B. (1996). Mental budgeting and consumer decisions. *Journal of Consumer Research*, *23*(1), 40-52.

Hilgert, M. A., Hogarth, J. M., & Beverly, S. G. (2003). Household financial management: The connection between knowledge and behavior. *Federal Reserve Bulletin*, *89*(7), 309-322.

Hogarth, J. M. (2002) Financial literacy and family and consumer sciences. *Journal of Family & Consumer Sciences*, *94*(1), 15-28.

Hung, A., Parker, A., & Yoong, J. (2009). *Defining and measuring financial literacy* (WR-708). Washington DC: Rand Corporation.

Jappelli, T., & Pistaferri, L. (2010). The consumption response to income changes. *Annual Review of Economics*, *2*(1), 479-506.

Jonubi, A., & Abad, S. (2013). The impact of financial literacy on individual saving: an exploratory study in the Malaysian context. *Transformations in Business & Economics*, *12*(1), 41-55.

Kebede, M., & Kuar, J. (2015). Financial literacy and management of personal finance: A review of recent literatures. *Research Journal of Finance and Accounting*, *6*(13), 92-106.

Kidwell, B., & Turrisi, R. (2004). An examination of college student money management tendencies. *Journal of Economic Psychology*, *25*(5), 601-616.

Klapper, L., Lusardi, A., & Panos, G. (2015). *Financial literacy and entrepreneurship.* Global Financial Literacy Excellence Center, (Working paper No. 3).

Kotzé, L., & Smit, A. (2008). Personal financial literacy and personal debt management: The potential relationship with new venture creation. *The Southern African Journal of Entrepreneurship and Small Business Management*, *1*(1), 35-50.

Kramer, M. M. (2016). Financial literacy, confidence and financial advice seeking. *Journal of Economic Behavior & Organization*, 131, 198-217.

Ksendzova, M., Donnelly, G. E., & Howell, R. T. (2017). A brief money management scale and its associations with personality, financial health, and hypothetical debt repayment. *Journal of Financial Counseling and Planning*, *28*(1), 62-75.

Livingstone, S. M., & Lunt, P. K. (1992). Predicting personal debt and debt repayment: Psychological, social and economic determinants. *Journal of Economic Psychology*, *13*(1), 111-134.

Lusardi, A. (2008). Household saving behavior: The role of financial literacy, information, and financial education programs (Working paper No. 13824). Retrieved January, 2019 from National Bureau of Economic Research website: https://www.nber.org/papers/w13824.pdf

Lusardi, A., & Mitchell, O. S. (2007). Financial literacy and retirement planning: New evidence from the Rand American Life Panel. (Working paper No. 157) Retrieved January, 2019 from Retirement Research Center Michigan website: https://deepblue.lib.umich.edu/handle/2027.42/57569

Madrian, B. C., Hershfield, H. E., Sussman, A. B., Bhargava, S., Burke, J., Huettel, S. A., & Rick, S. (2017). Behaviorally informed policies for household financial decision making. *Behavioral Science & Policy*, *3(*1), 26-40.

McCrindle, M. (2008). *The ABC of XYZ: Generational diversity at work*. NSW, Australia: McCrindle Research Pty Ltd.

Modigliani, F. (1986). Life cycle, individual thrift, and the wealth of nations. *Science*, *234* (4777), 704-712.

Murendo, C., & Mutsonziwa, K. (2017). Financial literacy and savings decisions by adult financial consumers in Zimbabwe. *International Journal of Consumer Studies*, *41*(1), 95-103.

Navickas, M., Gudaitis, T., & Krajnakova, E. (2014). Influence of financial literacy on management of personal finances in a young household. *Business: Theory and Practice*, *15*(1), 32-40.

Noctor, M., Stoney, S., & Stradling, R., (1992). Financial literacy: A discussion of concepts and competences of financial literacy and opportunities for its introduction into young people's learning, *Report prepared for the National Westminster Bank*, London: National Foundation for Education Research.

Nunnally, J. C. (1978). *Psychometric theory* (2nd Ed.), McGraw-Hill, New York.

O'Loughlin, D., & Szmigin, I. (2006). "I'll always be in debt": Irish and UK student behavior in a credit led environment. *Journal of Consumer Marketing*, *23*(6), 335-343.

Parcia, R. O., & Estimo, E. T. (2017). Employees' financial literacy, behavior, stress and wellness. *Journal of Human Resource Management*, *5*(5), 78-79.

Reswari, D., Sudarto, S., & Widyastuti, E. (2018). The influence of financial literacy toward financial behavior. *Journal of Research in Management, 1*(2), 11-17.

Rikwentishe, R., Pulka, B. M., & Msheliza, S. K. (2015). The effects of saving and saving habits on entrepreneurship development. *European Journal of Business and Management*, *23*(7), 111-119.

Robb, C. A., & Woodyard, A. (2011). Financial knowledge and best practice behavior. *Journal of Financial Counseling and Planning*, *22*(1), 60-70.

Shahrabani, S. (2012). The effect of financial literacy and emotions on intent to control personal budget: A study among Israeli college students. *International Journal of Economics and Finance*, *54*(9), 156-163.

Soman, D., & Cheema, A. (2002). The effect of credit on spending decisions: The role of the credit limit and credibility. *Marketing Science*, *21*(1), 32-53.

Srivalosakul, P., Suwanragsa, I., & Tangjitprom, N. (2018). More knowledge, more experience, less debt? The mediating role of money management on the effects of financial knowledge and experience on consumer debt. *Asian Administration & Management Review*, *1*(2), 17-30.

Sundarasen, S. D. D., Rahman, M. S., Othman, N. S., & Danaraj, J. (2016). Impact of financial literacy, financial socialization agents, and parental norms on money management. *Journal of Business Studies Quarterly*, *8*(1), 140-156.

Suwanaphan, S. (2013, June). Personal financial literacy of academic support-employee in Chiang Mai-University. *Proceedings from Management-Knowledge and Learning International Conference*, (1061-1065), Croatia.

Tabachnick, B. G., & Fidell, L. S. (2001). *Using Multivariate Statistics*, *4th ed.*: *Principal components and factor analysis*. Boston: Allyn & Bacon.

Tokunaga, H. (1993). The use and abuse of consumer credit: Application of psychological theory and research. *Journal of Economic Psychology*, *14*(2), 285-316.

Van Rooij, M., Lusardi, A., & Alessie, R. (2011). Financial literacy and stock market participation. *Journal of Financial Economics*, *101*(2), 449-472.

Vijaindren, A. (2017, July 9). Impulse Buying: Gen-Y Face Online Shopping Debt Trap. New Straits Times. Retrieved February 2, 2020, from https://www.nst.com.my/news/exclusive/2017/07/255745/impulse-buying-gen-y-face-online-shopping-debt-trap

Xiao, J. J. (2008). *Applying behavior theories to financial behavior.* In Handbook of Consumer Finance Research (pp. 69-81). New York: Springer.

Xu, L., & Zia, B. (2012). *Financial literacy around the world: an overview of the evidence with practical suggestions for the way forward*. (Policy Research Working Paper No. 6107) Retrieved January 12, 2019, from The World Bank website: https://openknowledge.worldbank.org/bitstream/handle/10986/9322/WPS6107.pdf?sequence=1

ASEAN Journal of Management & Innovation
Vol. 7. No. 1, 90 - 107

DOI: 10.14456/ajmi.2020.7
ajmi.stamford.edu
Received: December 12, 2019
Revised: April 7, 2020
Accepted: April 22, 2020

An Empirical Study on Takeout App Customers' Continuous Use Intention in China

Limin Ran
International College, National Institute of Development Administration, Bangkok, Thailand
Flight College, Anyang Institute of Technology, Anyang, China
1178986958@qq.com
Zhongwu Li
International College, National Institute of Development Administration, Bangkok, Thailand
JamesChonLee@hotmail.com

Abstract
The rapid advances of mobile internet technology and people's rising living standards have promoted the development of mobile takeout Apps. This paper aims to explore the factors that affect the continuous use intention of mobile takeout App customers in China, where the number of takeout Apps is fast growing. To determine the relationships among these factors and their level of influence, the paper used a nine-variable research model with herd behavior as a moderator variable and delivery service quality as a mediator variable. On the basis of the 509 valid questionnaires, the relationships among the variables and the influence on dependent variables were determined with Warp PLS7.0. Mplus 8.3 was used to test the mediated effects of the intermediary variables. The results indicate that information asymmetry directly affects customers' continuous use intention without the intervention of the intermediate variables and that perceived quality highly influences continuous use intention through the perceived value construct. Herd behavior, however, has no positive moderating effect on the relationship between satisfaction and continuous use intention. A number of suggestions were made to online takeout operators with the view to improving customer ordering experience and customer relationships.

Keywords: Information Asymmetry, Herd Behavior, Perceived Quality, Perceived Value, Continuous Use Intention.

1. Introduction
In recent years, the dramatic advances of smart phone and mobile network technology have greatly contributed to the promotion and development of mobile network Apps. As Jia et al. (2019) pointed out, more and more firms and individuals are becoming actively involved in the development and use of mobile Apps. The rapid growth of mobile applications has led to improvements in the ecosystem of many services, most notably food takeout services. Takeout Apps are online platforms for ordering food. Today, they basically cover every city in China. They also cover a wide and growing range of products. Ji and Zhang (2018) studied takeout Apps in China and found that they not only include original Chinese and Western fast food, but also Japanese and Korean cuisine and pastry and drinks and have even expanded their services to fruits and vegetables, medicine, seafood and so forth. Take out Apps bring great convenience to people's life and work, which is why they are so popular. Currently, the three

most commonly used takeout Apps in China are the following mainstream platforms: Meituan, Are You Hungry, and Baidu takeouts. There are many others, which basically operate as small secretariat for ordering food. They include among others Word-of-Mouth, Public Comment, Home Food Meeting, Superman, and Click me. More takeout Apps are emerging, with many of them available in virtually every city in China (Liu, 2019). As a matter of fact, takeout vendors are competing head-on in first and second tier cities. Given the cut-throat competition in those cities, third and fourth tier cities are rapidly becoming the new growth drivers. The amount of business they generate was expected to increase from 65.88 billion dollars in 2018 to 86.19 billion dollars in 2019. It is estimated that the transaction scale of China mobile internet catering takeout market will reach 105.43 billion dollars in 2020. The scale of the Chinese online takeout market is very considerable as is the potential for growth (Shi & Chu, 2019). This study focuses on the continuous use intention of Chinese who use mobile takeout Apps. Respondents are Chinese from various cities across China. The proposed conceptual theoretical model includes nine variables that are based on the theories of information asymmetry, the technology acceptance model, perceived quality and perceived value. This quantitative paper introduces delivery service quality as part of the perceived quality construct and herd behavior as moderator variable.

2. Literature Review

Early research on the continuous use intention of information systems mainly focused on "initial acceptance" and on the rational behavior theory (TRA), Information System Function (ISF), and the Technology Acceptance Model (TAM). This changed in 2001 when Bhattacherjee proposed a continuous use model for information systems (ECM-ISC). Since then, the body of research on “acceptance after use” has been growing and a number of operative concepts, which are based on the TRA，ISF, and TAM frameworks, have developed, notably those discussed below.

- Continuous Use Intention

Continuous use intention has also been referred to as ‘incorporation’ (Kwon & Zmud, 1987), ‘routinization’ (Cooper & Zmud, 1990), or ‘confirmation’ (Rogers, 1995; Bhattacherjee, 2001). Whatever this concept is named, there is a general agreement on the assumption that continuous use intention pertains to a normal and continuous activity (Lee & Kwon, 2011; Youn, Yoo, & Lee, 2020). Continuous use intention can thus be defined as a subjective intention generated continuing to access or to use, for example, an information system. Based on the studies from Youm (2017), Ju and Koh (2018), and Tsai & Hung (2019), this paper therefore defines the continuous use intention of mobile takeout Apps users as a customer's subjective intention of continuously using mobile takeout Apps.

– *Information Asymmetry*

Information asymmetry is a common economic phenomenon. Miller and Rock (1985) determined that information was distributed unevenly and asymmetrically among corresponding economic individuals. Various types of personnel have different understandings of relevant information. Those who have sufficient information are often in a better position, whereas those who lack more information are in a more disadvantaged position (Aboody & Lev, 2000). Customers’ information asymmetry in mobile take outs can be problematic (Cui, Jo, & Na, 2018). Mobile takeout vendors sell goods information but the issue is whether it is

authenticity and reliability (Miller & Rock, 1985). Another issue is whether consumers can use certain channels to obtain the knowledge they want (Wang & Wang, 2013).

- ***Herd Behavior***

Herd behavior originated in the field of social psychology. It assumed that individuals tended to make the same decisions as others in the group. The concept was subsequently extended to the field of consumer behavior (Allen, 1965). Sun (2013) stated that in terms of social behavior, herd behavior mainly refers to individual decision-making that is in line with the majority of behaviors. Individuals tend to observe and/or refer to others when making decisions and often change their behavior under group pressure. This is known as the "herding effect" (Hong & Xu, 2015). When people do not have the energy to gather enough relevant information for analysis, to avoid risk and get the best possible outcome, they let themselves be influenced by the behavior of others and imitate the decision-making behavior of others (Yin, 2019).

- Perceived Quality

The term 'perceived quality' was originally quoted by Olson and Jacoby in 1972. It refers to whether consumers perceive the quality of a product as high or low. It also pertains to services (Wheatley, Chiu, & Goldman, 1981). Zeithaml (1988) researched service quality and came to the conclusion that consumers' perceived value will positively affect their behavior intention. Bhattacherjee (2001) determined that the less information customers have on the goods they buy, the lower their perceived quality. A number of scholars have adopted this theoretical relationship in their studies of intention behavior towards the continuous use of information systems and confirmed that perceived quality had a positive effect on user satisfaction. For example, Kuo, Wu, and Deng (2009) explored the post-purchase willingness of users of mobile value-added services and concluded that perceived quality had a positive effect on customer satisfaction. In their study of the online relationship between customer satisfaction and continuous use intention, Anderson and Srinivasan (2003) pointed out that perceived quality could have a negative effect on perceived value. Liu (2019) studied the continuous use online banking and found that online banking users' perceived value had a significant positive impact on customer satisfaction.

In this framework, perceived quality includes four dimensions: platform system quality, platform service quality, merchant product and service quality, and delivery service quality. Platform system quality refers to the stability, reliability, system interface friendliness, ease of operation, payment security associated with mobile takeout Apps (Huang, 2019). DeLone and McLean (1992) proposed the Information System Success Model, known as the D & M model. They introduced the important variable of system quality into the model. Platform service quality can be defined as customers' subjective judgment on the timeliness, pertinence and responsiveness of takeout services provided by mobile takeout Apps (Hsu & Lin, 2015; Huang, 2019). De Lone & Mc Lean (2003) revised and improved the original model "D & M Model" and forme a new D & M model to which quality of service was added. Merchant product and service quality is a function of mobile takeout customers' subjective evaluation of the security, delicacy, timeliness of service and service recovery of the products or services provided by the mobile takeout Apps (Qi, 2019). Delivery service quality refers to customers 'subjective evaluation of the speed and quality of delivery of products or services provided by the mobile takeout Apps (Zhao & Wu, 2018). Since the quality of service variable fully takes into account

customers' service identification and feeling, improves customers' position in the information system, and makes the revised information system success model more comprehensive and accurate (Zhou, 2013), the four variables that it includes can be used in this research as accurate measurement of mobile takeout Apps.

- ***Perceived Value***

Zeithaml (1988) has argued that it is vital for an enterprise to be customer-oriented and value-oriented. In the field of marketing, it is generally assumed that in making purchasing decisions, perceived value is a critical reference for consumers. The higher the customer perceived value, the more likely they are to make a purchase (Sheth, Newman, & Gross, 1991; Ji, 2013). User perceived value is viewed as an evaluation of the overall utility of a product or service and is based on the trade-off between the perceived gain and loss of the product or service (Kaufman, 1998). In analyzing the influence of perceived value on intention towards mobile takeout Apps, this paper therefore uses perceived value of mobile takeout Apps to measure the perceived benefits to users.

- ***Satisfaction***

Cardozo (1965), who was the first to expand the concept of customer satisfaction into the field of marketing, concluded that in assessing customer satisfaction, there is a strong relation between customer input and his or her level of satisfaction. Customer satisfaction refers to a customer's perception of the extent to which his or her expectations or needs, which can be implied or expressed, have been met (Yang, 2016). It can be seen as a psychological experience that reflects a consumer's level of satisfaction with the goods or services that he or she consumes, which can be above or below satisfaction (Fang, 2018). In this paper, the degree of satisfaction relates to the feedback from and the evaluation by the customer to the takeout food and beverage's characteristics as well as the service level of the merchant.

3. Research Framework and Hypotheses

Based on the concepts and theories discussed above, this research paper proposes the following conceptual framework:

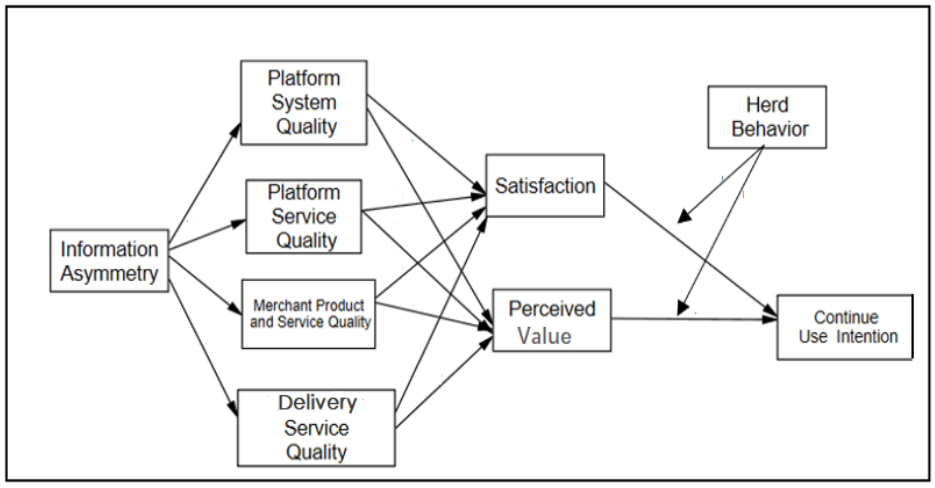

Figure 1: Conceptual Framework (Created by the Authors for this Study)

There are nine variables: one independent variable, *information asymmetry* (IA); one dependent variable, *continuous use intention* (CUI); four mediate variables: *platform system quality* (PSQ), *platform service quality* (PTSQ), *merchant product and service quality* (MPSQ), *delivery service quality* (DSQ), *perceived value* (PV), and *satisfaction* (SAT); and one moderate variable, *herd behavior* (HB).

This study developed the following research hypotheses:

H1：Information asymmetry has negative effects on perceived quality.

H1a: Information asymmetry has a negative effect on platform system quality.

H1b: Information asymmetry has a negative effect on platform service quality.

H1c: Information asymmetry has a negative effect on merchant product and service quality.

H1d: Information asymmetry has a negative effect on delivery service quality

H2: Perceived quality have positive effects on satisfaction.

H2a: System quality has a positive effect on satisfaction;

H2b: Service quality has a positive effect on satisfaction;

H2c: Merchant product and service quality have a positive effect on satisfaction;

H2d: Delivery service quality has a positive effect on satisfaction;

H3: Perceived quality has positive effects on perceived value.

H3a: Platform system quality has a positive effect on perceived value.

H3b: Platform service quality has a positive effect on perceived value.

H3c: Merchant product and service quality have a positive effect on perceived value.

H3d: Delivery service quality has a positive effect on perceived value.

H4: Satisfaction has a positive effect on continuous use intention.

H5: Perceived value has a positive effect on continuous use intention.

It has been confirmed that herd behavior has a positive effect on continuous use intention (Cao, Jiang, & Hu, 2015; Hong & Xu, 2015). Based on scholars' research, this paper proposes the following hypotheses:

H6: Herd behavior has a positive moderating effect on the relationship between influencing factors and continuous use intention.

H6a：Herd behavior has a positive moderating effect on the relationship between satisfaction and continuous use intention.

H6b：Herd behavior has a positive moderating effect on the relationship between perceived value and continuous use intention.

4. Methodology

- Data Collection

This research study is descriptive in nature and based on primary data obtained through a quantitative survey (Javed, Ahmed, & Anjum, 2019). The questionnaire is divided into three parts. The first part ensures the pertinence of the tested sample. The second part is the core scale test and uses a 7-point Likert scale for all items (Allen & Seaman, 2007). It includes 36 items in total. 4 items pertain to information asymmetry, 4 to platform system quality, 4 to platform service quality, 4 to merchant product and service quality, 4 to delivery service

quality, 3 to satisfaction, 5 to perceived value, 4 to herd behavior, and 4 to continuous use intention. The third part is about demographic characteristics of the respondents (gender, age, education level, occupation, level of the city and so). According to the 44th statistical Report on the Development of Internet in China released by CNNIC (2019), as of June 2019, the number of mobile phone takeout customers in China reached 421 million. In this study, the respondents, mobile takeout Apps users, are from Chinese cities at different tiers. It utilized the stratified sampling method. Based on Israel's (1992), 530 survey questionnaires were received and 509 found to be valid. The effective recovery rate was 96.04%.

- Empirical Analysis

Becker, Klein, and Wetzels (2012) suggested that PLS-SEM analyses should be conducted to assess reflective and formative latent factors. PLS-SEM is primarily intended for causal-predictive analysis. It provides reliable and valid measures (Castro & Roldán, 2013). PLS-SEM is therefore an appropriate technique for this empirical study (Chin, 2010). PLS is particularly suitable to test complex theoretical frameworks (Hair Jr et al., 2016). As Kock (2016) argued, traditional PLS is preferable since this study uses second order frameworks and does not have a sufficiently large data set. Two other sources of inspiration for the framework design and reports on the role of moderator variables are Baron and Kenny (1986) and Efron and Tibshirani (1986) who first proposed the Bootstrap method, which is a repeated sampling method. It increases the sample size and makes the results more accurate. This paper therefore used Warp PLS 7.0 with bootstrapping set to 999 times. To evaluate the reliability of the scale, this research paper relied on Composite Reliability (CR), the Average Variance Extraction (AVE), and the Cronbach's Alpha (CA) coefficient Reliability refers to the consistency and stability of the sample measurement results.

Generally, the CR of the scale is ideal when its value is above .800 or .900 (Werts, 1974). This indicates high reliability (Hair et al., 1998). The AVE value reflects the degree of convergence of a potential variable. If the AVE value is above .500, this shows that the convergence ability of potential variables is ideal. The CA coefficient is used to reflect the consistency between potential variables and observation variables. If the CA coefficient is lower than .600, the reliability of potential variables is not up to standard. The CA coefficient is ideal when above .800 or .900. The reliability test results are shown in Table 1. The minimum AVE value is .707 and the minimum CR value .921. As to the CA, the minimum coefficient is .886. This shows that the overall reliability of the questionnaire is good.

Table 1: Variable Reliability Test

Codes	AVE	CR	Cronbach a
IA	.787	.937	.91
PSQ	.784	.935	.908
PTSQ	.746	.921	.886
MPSQ	.774	.932	.903
DSQ	.775	.932	.903
SAT	.832	.937	.899
PV	.753	.939	.918
HB	.757	.926	.893
CUI	.77	.93	.9

HB*SAT	1	1	1
HB*PV	1	1	1

Notes: IA= Information asymmetry; PSQ= Platform system quality; PTSQ= Platform service quality; MPSQ= Merchant product and service quality; DSQ= Delivery service quality; SAT= Satisfaction; PV= Perceived value; HB, Herd behavior; CUI= Continuous use intention; HB*SAT= Herd behavior affects between satisfaction and continuous use intention; HB*PV= Herd behavior affects between perceived value and continuous use intention.

Validity and reliability measurements are two critical aspects of an analysis. As shown in Table 2, in this study the size of the loading factors are all greater than .700 (Chin, 1998). They also all are at P < .001 significant level. Therefore, this framework has high convergence validity.

Table 2: Loading Factor Test of Variables

Codes	Scale items	Loading	P-value
IA1	The information revealed by takeout Apps merchants and platforms is true and reliable.	.886	<.001
IA 2	The information disclosed by the delivery persons is true and reliable.	.888	<.001
IA 3	I can easily use the network to get the information I need.	.884	<.001
IA 4	I can use the information I have to find takeout food that I want to get.	.891	<.001
PSQ1	The takeout App I am using has friendly interface, is easy to operate and use.	.887	<.001
PSQ2	The takeout App I am using is very stable, has fast response and high transmission speed.	.894	<.001
PSQ3	The takeout App I am using can better guarantee the privacy of user information and offer security.	.878	<.001
PSQ4	The takeout App I am using takes up less mobile phone memory and consumes less energy (saving power and traffic).	.882	<.001
PTSQ1	The takeout App I am using can provide timely, effective and active response to users' requirements.	.869	<.001
PTSQ2	The takeout App I am using can provide personalized recommendations and guidance to better meet the personalized needs of users.	.861	<.001
PTSQ3	The takeout staff has strong service orientations and professional skills.	.855	<.001
PTSQ4	The takeout App I am using can deal with transactions, refunds and complaints quickly.	.87	<.001
MPSQ 1	The products provided by the takeout App I am using can meet my personal needs.	.879	<.001
MPSQ 2	Merchants in the takeout App I am using can provide safe and hygienic food.	.88	<.001
MPSQ 3	The products provided by the takeout App I am using are high quality.	.879	<.001
MPSQ 4	The take-out package provided by the takeout App I am using can keep the freshness better.	.882	<.001
DSQ1	The delivery personnel in the takeout App I am using is polite, well dressed and trustworthy.	.874	<.001
DSQ2	The food provided by the takeout App I am using can be delivered within the promised schedule;	.874	<.001
DSQ3	Delivery staffs keep complete and clean food packaging during delivery.	.882	<.001

DSQ4	Delivery staff in the takeout App I am using can respond to customer inquiries in a timely and professional manner.	.891	<.001
SAT1	The products or services in the takeout App I am using are very satisfactory.	.916	<.001
SAT2	I am very satisfied using the takeout App I am using.	.906	<.001
SAT3	The takeout App I am using provides high-quality services or products and it gives me a better purchase experience.	.914	<.001
PV1	Using takeout App can buy high quality products that meet their value.	.838	<.001
PV2	Using takeout App, I feel that things are more cost-effective than other takeout Apps.	.884	<.001
PV3	Using the discounts and red envelopes provided by takeout Apps can give me more value.	.872	<.001
PV4	I use takeout App to get many people's approval.	.877	<.001
PV5	The food purchased through takeout Apps is suitable for my family or friends.	.868	
HB1	I use takeout App because people around me are using it.	.884	<.001
HB2	I use takeout App because it has become the top one in the takeout Apps.	.875	<.001
HB3	I will pay attention to the welfare of other takeout Apps.	.85	
HB4	I selected this mobile takeout App because it has become a popular discussion topic.	.87	<.001
CUI1	Let me choose one more time and I will continue to use the takeout App I am using.	.858	<.001
CUI2	I will use the takeout App that I am using regularly in the future.	.884	<.001
CUI3	I actively recommend the takeout App that I am using to my family and friends when I use it personally.	.889	<.001
CUI4	I will continue to use the takeout App that I am using now in the future.	.879	<.001

Table 3 shows the results of the Discrimination Validity Test. The arithmetic square root of the AVE of each observation variable is greater than the correlation coefficient between the observation variable and other variables. There is therefore good discriminant validity among the constituent concepts.

Table 3: Discrimination Validity of Scale Test

	IA	PSQ	PTSQ	MPSQ	DSQ	SAT	PV	HB	CUI	HB*SAT	HB *PV
IA	**.887**										
PSQ	.458	**.885**									
PTSQ	.634	.464	**.864**								
MPSQ	.531	.415	.568	**.88**							
DSQ	.541	.484	.62	.541	**.88**						
SAT	.395	.283	.403	.338	.367	**.912**					
PV	.55	.443	.606	.52	.531	.39	**.868**				
HB	.635	.452	.644	.612	.643	.4	.613	**.87**			
CUI	.506	.384	.519	.472	.493	.347	.486	.521	**.877**		

HB*SAT	-.362	-.243	-.414	-.384	-.361	-.336	-.352	-.491	-.249	**1**	
HB*PV	-.582	-.484	-.625	-.556	-.571	-.336	-.53	-.685	-.494	.511	**1**

- Structural Framework

Kock (2010) determined that the PLS estimation depended on: the average path coefficient (APC); the average R^2 (ARS); the average full collinearity (AFVIF); the goodness-of-fit (GOF); Simpson's paradox index (SPV); the R^2 contribution index (RSCR): and the statistical suppression index (SSR). In addition, Kock (2017) explained that the APC can be associated with the strength of the paths in the whole framework to estimate the Warp PLS. While the ARS has the power to explain the whole framework, whether a framework has explanatory power depends on the R^2 value of each concept. A framework had strong explanatory power if the R^2 value is more than 10% (Chin, 1998; Ringle, 2004). The p-value for the APC and the ARS should be equal to or less than .05. The AFVIF is used to measure vertical, lateral collinearities and multi-collinearity. The p-value is reasonable if it is equal to or less than 3.3 (ideally) or equal to or less than 5 (acceptable) (Cassel, Hackl, & Westlund, 2000; Diamantopoulos & Siguaw, 2006). A global criterion of goodness-of-fit (GOF) can be proposed as the geometric mean of the average communality and the average R^2:GoF=$\sqrt{\overline{\text{Communality}} * \overline{R^2}}$. The value of GOF can be small greater than .1, medium greater than0.25, or large greater than 0.36 (Tenenhaus, Amato, & Esposito Vinzi, 2004). As to the SPV index, it is used to measure the degree of symptom-free paradox in a framework. The acceptable value is equal to or greater than 0.70, which indicates that at least 70% of the paths in the framework are symptom-free (Kock & Gaskins, 2016). The RSCR index is used to measure the extent to which the framework is not influenced by negative R^2. An acceptable value is equal to or greater than 0.90, which means that the sum of positive R^2 influence in the framework is at least 90% of the sum of absolute R^2 influence in the framework (Kock & Gaskins, 2016). Finally, the SSR index is a measure of the degree to which a framework is not affected by statistical inhibition. An acceptable value is equal to or greater than .70 and an ideal value is 1.0 (MacKinnon et al., 2000). As Table 4 shows, the results of the PLS analysis for all the above indicators meet the required values discussed.

Table 4: Framework Fit Indicators

Statistical Test	Suitable Standard or Critical value	Test Data	Judgment of Model Fitness
Average path coefficient (APC)	P<0.001(Significant)	0.269	YES
Average R-square (ARS)	P<0.001(Significant)	0.329	YES
Average adjusted R-squared (AARS)	P<0.001(Significant)	0.326	YES
Average full collinearity VIF(AFVIF)	Acceptable if <= 5, Ideally <= 3.3	2.004	YES
A global criterion of goodness-of-fit (GOF)	Small >= 0.1, Medium >= 0.25, Large >= 0.36	0.518	YES
Sympson's paradox ratio (SPR)	Acceptable if >= 0.7, Ideally = 1	0.938	YES
R-square contribution ratio (RSCR)	Acceptable if >= 0.9, Ideally = 1	0.991	YES

5. Results and Discussion

As can be seen in Table 5, takeout consumers were mostly young and middle-aged white-collar workers employed in government enterprises and institutions in second or third tier cities. Among them, university students appeared to gradually become a consumer group soon to become prominent. This indicates that the matching degree of the framework is very good.

Table 5: Summary of Demographic Information

Characteristics	Descriptive Statistics
Gender	Males: 239 (47%) Females: 270 (53%)
Age	Below 20: 50 (9.8%) 21 and 40: 390 (76.6%) Above 41: 69 (13.6%)
Lever of education	Below junior college education: 32 (6.5%) Bachelor: 444 (87.2%) Above Master: 33 (6.5%)
Occupation	Students: 112(22%) Government enterprises and institutions: 292(57.4%) Others: 105(20.6%)
City tier	First tier cities: 43 (8.4%) Second tier cities: 250 (49.1%) Third tier cities: 143 (28.1%) Below fourth tier cities: 73 people (14.3%)

Next, whether the path coefficient of the constructed framework is significant was tested. The results are shown in Table 6. They indicate that out of all the hypotheses results shown in the table, two hypothetical paths were not supported; H2a (H2a: SAT ← PSQ，β = .052, P=.143, P>.05), and H6a (H6a: CUI ←HB*SAT,β =.042, P=.327, P>.05). The other fourteen hypothetical paths proposed in this paper were supported. It appears that H2a (*System quality has a positive effect on satisfaction)* was not supported for the following reasons. At present, the biggest problem in the operation of takeout App platforms is their homogeneity as their ordering service, platform interface and all other elements are similar. Since the level of imitation is very high, it is difficult for them to develop a unique competitive advantage. Since they cannot come up with their own distinctive service advantages, the quality of the system platform will not affect satisfaction.

Table 6: Test Results of Research Hypothesis

Hypothetical Relationship	Path Coefficient（β）	P Value	Supported or Not
H1a: PSQ <-- IA	.474	<.001	Yes
H1b: PTSQ <-- IA	.655	<.001	Yes
H1c: MPSQ <-- IA	.582	<.001	Yes
H1d: DSQ <-- IA	.579	<.001	Yes
H2a:SAT <-- PSQ	.052	.143	**No**

H2b:SAT <-- PTSQ	.202	<.001	Yes
H2c: SAT <--M PSQ	.123	.011	Yes
H2d:SAT <-- DSQ	.155	.002	Yes
H3a:PV <-- PSQ	.14	<.001	Yes
H3b:PV <-- PTSQ	.339	<.001	Yes
H3c: PV <-- MPSQ	.186	<.001	Yes
H3dh: PV <-- DSQ	.149	.003	Yes
H4: CUI <-- SAT	.136	.006	Yes
H5: CUI <-- PV	.124	.027	Yes
H6a:CUI <--HB*SAT	.042	.327	**No**
H6b:CUI <--HB*PV	-.362	<.001	Yes

As to H6a (*Herd behavior has a positive moderating effect on the relationship between satisfaction and continuous use intention),* it was not supported because customers themselves decide whether to continue using mobile takeout App based on their actual perception of the mobile takeout platform they use as well as others (Fang, 2018). If a customer sees that his/her friends are using a better one, he/she will switch to that mobile takeout App. As a result, he/she may give up points and possibly lots of promotional activities accumulated on the original the mobile takeout App. However, while there may be other mobile takeout Apps that appear to be better, switching often involves to re-downloading software, registering information, re-applying for a variety of members and so wasting a lot of time, energy, and money, all of which may end up increasing one's willingness to continue using the same mobile takeout App.

- Moderating Effect of Herd Behavior

According to Kock (2016), a moderating relationship involves three latent variables: a moderating variable and a pair of variables that are connected through a direct link. The moderating variable can impact results by strengthening or weakening a relationship which would exist at a different level if it were not for the moderator. The results of hypothesis testing shown in Table 6 indicate that satisfaction has a positive effect on continuous use intention (H4: CUI ← SAT，β＝.136, P=.006). Based on the findings, this means that continuous use intention will increase by .138 units if satisfaction increases by one unit. As H6a shows, herd behavior, however, has no positive moderating effect on the relationship between satisfaction and continuous use intention (H6a: CUI ← HB*SAT, β＝.042，P=.327，P>.05). Moreover, Table 6 hypothesis testing results reveal that perceived value has a significant positive effect on continuous use intention (H5: CUI ←PV，β＝.124, P=.027, P<.0). Therefore continuous use intention will increase by .124 units if perceived value increases one unit. The result of H6b testing (H6b: CUI ← HB*PV, β＝-.362，P<.001) points to the fact that shew that herd behavior had a significant negative effect on the relationship between perceived value and continuous use intention.

It will thus reduce the relationship between them by .362 units. If perceived value increases by one unit, because of the significant negative herd behavior effect, continuous use intention will be reduced by (.124-.362); that is .138 units. In order to show the moderated effect more directly, the relationship between perceived value and continuous use intention in high herd behavior and low herd behavior situations was described in a graph (Chen, Tan, & Lu, 2015). As can be seen in Figure 3, when the herd behavior is higher, the positive effect of perceived

value on intention of continuous use decreases. The reasons are as follows. The greater the value consumers perceive when choosing takeout, the less likely the herd behavior effect. In choosing a dish from a takeout merchant or from a takeout platform, customers will not simply follow what other do (herd behavior) but will buy takeout based on how they feel. So it is important to make customers actually feel that the food they buy is worth it, and give them value. This is the fundamental premise on which takeout vendors and platforms should operate.

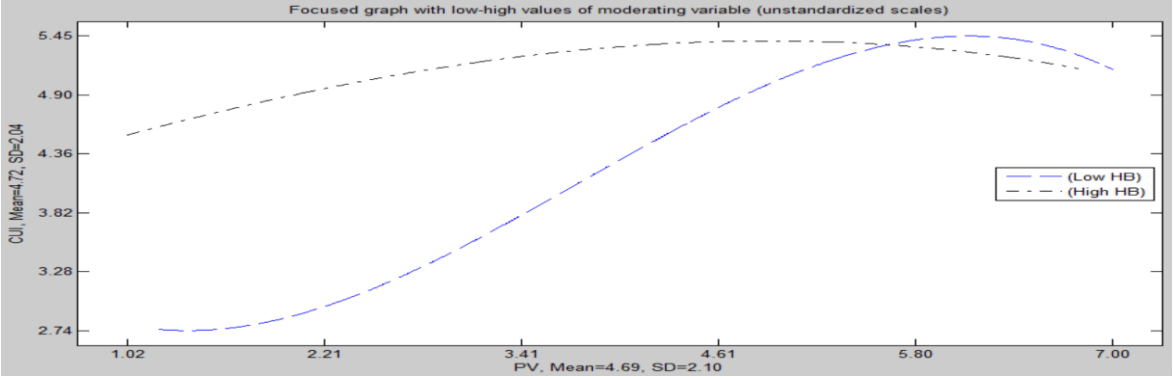

Figure 3: Graph of Low-High Value of Herd Behavior

- Mediating Effects of Intermediary Variables

Although several tests have been developed over time to test the mediating effects of variables (MacKinnon et al., 2002; Hayes, 2009), at present, the bootstrap confidence interval method appears to be the most accurate way to test mediation and other intervening effects (Biesanz, Falk, & Savalei, 2010). Its principle is that if confidence intervals do not contain several zeros, the original hypotheses will be rejected and the existence of mediating effects proved. This paper used Mplus 8.3 to test the mediating effect of the intermediary variables. When bootstrap was 1000, the values of the 95% confidence interval were below. If the path containing the hypothesis is not supported, the mediating effect of the mediator variable needs not be tested (Hayes, 2013). As can be seen from Table 8, the presence of total effects means that there are indirect effects. It also means that the mediating effects of these mediator variables partially exist. Therefore, it can be said that, one the one hand, information asymmetry (IA) directly affects customer continuous use intention and on the other, indirectly affects customer continuous use intention through perceived quality and perceived value.

Table 8: Test Results of Mediating Effect

Paths	**Bootstrapping 95% Confidence Interval**		**Whether Mediating or No Mediating Effect**
	Lower	**Upper**	
	Total Effects		
IA ->CUI	0.548	0.742	**YES**
	Indirect Effects		
IA->PSQ ->CUI	-0.032	0.089	NO

IA->PTSQ ->CUI	-0.001	0.284	NO
IA->MPSQ ->CUI	0.016	0.194	**YES**
IA->DSQ ->CUI	0.009	0.206	**YES**
IA->PSQ->SAT->CUI	-0.001	0.012	NO
IA->PTSQ->SAT->CUI	-0.001	0.044	NO
IA->MPSQ->SAT->CUI	0.000	0.022	NO
IA->DSQ->SAT->CUI	-0.001	0.026	NO
IA->PSQ->PV->CUI	0.001	0.024	**YES**
IA->PTSQ->PV->CUI	0.007	0.100	**YES**
IA->MPSQ->PV->CUI	0.002	0.042	**YES**
IA->DSQ->PV->CUI	0.001	0.043	**YES**
	Direct	**Effects**	
IA ->CUI	0.017	0.474	**YES**

6. Conclusion and Recommendations

Using logical relationships among expectation recognition, perceived quality, perceived value, user satisfaction, and continuous use intention, this paper constructed a theoretical framework of continuous use intention and introduced 'herd behavior' as the moderator. The population tested was young Chinese people using takeout Apps in China. The results show that information asymmetry directly affects customers' continuous use intention without the intervention of intermediate variables. H1 (*Information asymmetry has negative effects on perceived quality*) is supported. Since information asymmetry negatively affects perceived quality, a few strategies can be proposed here to improve customers' continuous use intention. To mitigate or avoid the negative impact of information asymmetry, the following recommendations can be made:

- Product information posted by takeout merchants on the web should be authentic and credible. They should not release false information or sell counterfeits and inferior products
- Takeout platform service providers should strictly monitor the accuracy and timeliness of store information, product information, and rules of use provided by all service providers.
- Takeout merchants, takeout platform service providers, and takeout delivery persons should focus on improving communication with customers and on delivering information to them in a timely manner. By promptly responding to their various inquiries, they would meet their needs, influence their purchase behavior, and achieve "Double Win" with them.

Two other areas which this study shows to be in need of attention are perceived quality and perceived value. As explained earlier, H2 (*Perceived quality have positive effects on satisfaction*), H3 (*Perceived quality has positive effects on perceived value*), H4 (*Satisfaction has a positive effect on continuous use intention*), and H5 (*Perceived value has a positive effect on continuous use intention)* are supported. Since perceived quality highly influences continuous use intention through the perceived value construct, this paper suggests that takeout

App firms implement the following steps:

- *Exercise strong regulatory control over merchants* – Takeout platform service providers should establish stricter admission and exit systems to try their best to prevent unscrupulous merchants from cheating on consumers in the takeout transaction market.
- *Simplify system functions* – Make takeout platform system function user-friendly and through big data analysis provide consumers with different specific functions and services. In short, make takeout Apps simpler and more convenient.
- *Add online customer service functions* – Before- or after-purchase functions should be added so that consumers can easily contact the service provider and the seller for product information, rules of use, etc, before buying the goods.

  Hire reliable delivery staff – Takeout platforms should choose honest and reliable takeout delivery staff who is willing to cooperate. When hiring delivery personnel, they should pay closer attention to their ethics, character, and any other relevant aspects of their personalities. They should also develop strict rules and regulations to limit the bad behavior of delivery persons and ensure their strict enforcement.

- *Significance of this Study*

In this study, nine factors influencing continuous use intention of takeout Apps were discussed as well as the relationships among them and their level of influence. In terms of theoretical significance, the pertinence of the findings further evidence the feasibility of the framework used and add to the research lore in this field. In terms of practical significance, with the popularization of mobile networks, mobile takeout markets are fast expanding and ever more competitive. With takeout Apps being keys to the existence of enterprises and becoming a critical tool for improving customers' continuous use intention, this paper will help provide decision-making references for online takeout operators, improve customer relationships, and promote customers' continuous use intention.

- *Research Limitations and Future Studies*

This research study has several shortcomings. Firstly, the study sample was limited to China's cities at all tiers; this, even though the penetration rate of mobile network in rural areas in China is fast rising. So, future studies should extend research to Chinese rural areas. Secondly, the sample was limited to college students and office workers who are familiar with internet and takeout Apps. Although the sample reflects the behavioral intentions of mainstream takeout buyers and captures the consumption characteristics of the takeout group, obviously, it does not include of the characteristics of all takeout consumers. Future papers should therefore expand the scope of their investigation and test a broader spectrum of hypotheses and, given the growing popularity of mobile Internet, the age of the study subjects be extended to 60 years old. Thirdly, the overall framework only explains 30% of continuous use intention, which means that 70% of the factors of customer loyalty need to be further researched and verified in the future.

References

Aboody, D., & Lev, B. (2000). Information asymmetry, R&D, and insider gains. *The Journal of Finance, 55*(6), 2747-2766.

Allen, I. E., & Seaman, C. A. (2007). Likert scales and data analyses. *Quality PVogress, 40*(7), 64-65.

Allen, J. R. (1965). A review of the origin and characteristics of recent alluvial sediments. *Sedimentology, 5*(2), 89-191.

Anderson, R. E., & Srinivasan, S. S. (2003). E-Satisfaction and e-loyalty: A contingency framework. *Psychology & Marketing, 20*(2), 123-138.

Baron, R. M., & Kenny, D. A. (1986). The moderator–mediator variable distinction in social psychological research: Conceptual, strategic, and statistical considerations. *Journal of Personality and Social Psychology, 51*(6), 1173.

Becker, J.-M., Klein, K., & Wetzels, M. (2012). Hierarchical latent variable models in PLS-SEM: Guidelines for using reflective-formative type models. *Long Range Planning, 45*(5-6), 359-394.

Biesanz, J. C., Falk C. F., & Savalei, V. (2010) Assessing Mediational Models: Testing and interval estimation for indirect effects. *Multivariate Behavioral Research*, *45*(4), 661-701.

Bhattacherjee, A. (2001). Understanding information systems continuance: An expectation-confirmation model. *Mis Quarterly, 25*(3), 351-37.

Cao H. H., Jiang J. H, & Hu L. B. (2015). Social network persistence: Herd behavior and habit regulation. East China Economic Management, 294,156-162.

Cardozo, R. N. (1965). An experimental study of customer effort, expectation, and satisfaction. *Journal of Marketing Research, 2*(3), 244-249.

Cassel, C. M., Hackl, P., & Westlund, A. H. (2000). On measurement of intangible assets: A study of robustness of partial least squares. *Total quality management, 11*(7), 897-907.

Castro, I., & Roldán, J. L. (2013). A mediation model between dimensions of social capital. *International Business Review, 22*(6), 1034-105.

Chen, C., Tan, K., & Lu, J. F. (2015). Transformational leadership and innovation behavior: A mediated model moderated. *Management Science. 28*(4), 327-409.

Chin, W. W. (1998). Commentary: Issues and opinion on structural equation modeling. In: *JSTOR*. *MIS Quarterly 22*(1) 1-10.

CNNIC.(2019, August 30). The 44th Statistical Report on Internet development in China, 2019. Retrieved December 12, 2019 from http://www.199it.com/archives/930850.html.

Cooper, R. B., & Zmud, R. W. (1990). Information technology implementation research: A technological diffusion approach. *Management Science, 36*(2), 123-139.

Cui, J., Jo, H., & Na, H. (2018). Does corporate social responsibility affect information asymmetry? *Journal of Business Ethics, 148*(3), 549-572.

DeLone, W. H., & McLean, E. R. (1992). Information systems success: The quest for the dependent variable. *Information systems research, 3*(1), 60-95.

Delone, W. H., & McLean, E. R. (2003). The DeLone and McLean model of information systems success: A ten-year update. *Journal of Management Information Systems, 19*(4), 9-30.

Diamantopoulos, A., & Siguaw, J. A. (2006). Formative versus reflective indicators in organizational measure development: A comparison and empirical illustration. *British Journal of Management, 17*(4), 263-282.

Efron, B., & Tibshirani, R. (1986). Bootstrap methods for standard errors, confidence intervals, and other measures of statistical accuracy. *Statistical Science*, 54-75.

Fang, F. (2018). A study on the influence of customer participation on customer satisfaction in O2O takeout industry. Master's degree thesis. Tianjin: *Tianjin Polytechnic University*.

Hair, J. F., Anderson, R. E., Tatham, R. L., & Black, W. C. (1998). *Multivariate data analysis*. New Jersey, USA: Englewood Cliff.

Hair Jr, J. F., Hult, G. T. M., Ringle, C., & Sarstedt, M. (2016). *A PVimer on partial least squares structural equation modeling (PLS-SEM).*Los Angeles: SAGE publications Press.

Hayes, A. F. (2009). Beyond Baron and Kenny: Statistical mediation analysis in the new millennium. *Communication monographs, 76*(4), 408-420.

Hayes, A. F. (2013). *Introduction to mediation, moderation, and conditional process analysis: A regression-based approach*. New York: Guilford Press.

Hong, H., & Xu, D. (2015). Research on the influencing factors of the intention to use mobile social applications continuously: On the interaction of network externality and herd behavior (Dissertation). *Economic Management, 10*(5), 40-50.

Hsu, C.-L., & Lin, J. C.-C. (2015). What drives purchase intention for paid mobile Apps? An expectation confirmation model with perceived value. *Electronic Commerce Research and Applications, 14*(1), 46-57.

Huang, Y. H. (2019). *A study on the mechanism of the effect of the continuous use behavior of booking tourism APP users (Dissertation).* Fujian agricultural and Forestry University, 34-75.

Javed, S., Ahmed, N., & Anjum, D. (2019). Human resource management practices and its impact on job satisfaction among employees in higher education sector. *International Journal of Marketing and Human Resource Management, 10*(2), 1–12.

Ji, F. T., & Zhang, Y. (2018). Analysis of Meituan takeout marketing strategy. *Market Research, 3*(20), 121-130.

Ji, W. J. (2013). *Research on the influencing factors of online consumers' purchase intention.* Jinan: Shandong University. 21, 221-330.

Jia, Y. T., Peng, F. F., Jiang, H. Y., & Liu, K. (2019). Business model of O2O takeout platform and its development prospect analysis: Take Meituan takeout as an example. *Logistics Engineering and Management, 6*(10), 197-215.

Ju, S.-H., & Koh, B.-R. (2018). The effect of personal media contents characteristic on perceived value and use intention of continuous: The interaction effect of novelty seeking. *Journal of Korean Convergence Society, 9*(9), 167-176.

Kaufman, J. J. (1998). *Value management: Creating competitive advantage* (Vol. 21). Thomson Crisp Learning.

Kock, N. (2010). Using WarpPLS in e-collaboration studies: An overview of five main analysis steps. *International Journal of e-Collaboration, 6*(4), 1-11.

Kock, N. (2016). Visualizing moderating effects in path models with latent variables. *International Journal of e-Collaboration, 12*(1), 1-7.

Kock, N. (2017). Structural equation modeling with factors and composites: A comparison of four methods. *International Journal of e-Collaboration, 13*(1), *1-9.*

Kock, N., & Gaskins, L. (2016). Simpson's paradox, moderation, and the emergence of quadratic relationships in path models: An information systems illustration. *International Journal of Applied Nonlinear Science, 2*(3), 200-234.

Kuo, Y.-F., Wu, C.-M., & Deng, W.-J. (2009). The relationships among service quality, perceived value, customer satisfaction, and post-purchase intention in mobile value-added

services. *Computers in Human Behavior, 25*(4), 887-896.

Kwon, T. H., & Zmud, R. W. (1987). *Unifying the fragmented models of information systems implementation.* Boland RJ, Hirschheim RA, eds. Critical Issues in Information Systems Research. New York: John Wiley & Sons.

Larcker, F. (1981). Structural equation models with unobservable variables and measurement error: Algebra and statistics. *Announcement, 18*(3), 382-388.

Lee, Y., & Kwon, O. (2011). Intimacy, familiarity and continuance intention: An extended expectation–confirmation model in web-based services. *Electronic Commerce Research and Applications, 10*(3), 342-357.

Liu, Z. E. (2019). Look at the development trend of takeout industry from "escaping from Meituan Tide". *Modern Business, 3*(20), 267-291.

MacKinnon, D. P., Krull, J. L., & Lockwood, C. M. (2000). Equivalence of the mediation, confounding and suppression effect. *Prevention Science, 1*(4), 173-181.

MacKinnon, D. P., Fairchild, A. J., & Fritz, M. S. (2007). Mediation analysis. *Annu. Rev. Psychol., 58*, 593-614.

MacKinnon, D. P., Lockwood, C. M., Hoffman, J. M., West, S. G., & Sheets, V. (2002). A comparison of methods to test mediation and other intervening variable effects. *Psychological Methods, 7*(1), 83.

Miller, M. H., & Rock, K. (1985). Dividend policy under asymmetric information. *The Journal of Finance, 40*(4), 1031-1051.

Oliver, R. L. (1980). A cognitive model of the antecedents and consequences of satisfaction decisions. *Journal of Marketing Research, 17*(4), 460-469.

Olson, J., & Jacoby, J. (1972). *Perceived quality: How customers view stores and merchandise.* New York: Lexington Press.

Qi, Y. W. (2019). *Research on the repeat purchase behavior of online delivery customers (*(*Dissertation)*). Zhengzhou: Zhengzhou University, 20.

Ringle, C. M. (2004). Gütemaße für den Partial Least Squares Ansatz zur Bestimmung von Kausalmodellen. *Universität Hamburg,* 260-269.

Rogers, C. R. (1995). *A way of being*. New York: Houghton Mifflin Harcourt.

Sheth, J. N., Newman, B. I., & Gross, B. L. (1991). *Consumption values and market choices: Theory and APPlications*: Cinicinnati, OH: South-Western Pub.

Shi, X. Y., & Chu, F. R. (2019). Marketing strategy analysis of Meituan takeout. *Chinese and Foreign Entrepreneurs. 12*(12), 227-255.

Sun., H. (2013). A longitudinal study of herd behavior in the adoption and continued use of technology. *Mis Quarterly (No.4)*, 1013-A1013.

Tenenhaus, M., Amato, S., & Esposito Vinzi, V. (2004). *A global goodness-of-fit index for PLS structural equation modelling.* Paper presented at the proceedings of the XLII SIS scientific meeting, 430-439

Tsai, J., & Hung, S.-Y. (2019). Examination of community identification and interpersonal trust on continuous use intention: Evidence from experienced online community members. *Information & Management, 56*(4), 552-569.

Wang, D. H., & Wang, G. L. (2013). Empirical research on consumer's perceived value about online shopping in the condition of information asymmetry. *Economic Management, 35*(1), 142-152.

Werts, R. L.， & Joreskog, K. (1974). Intraclass reliability estimates: Testing structural assumptions. *Research Article, 34*(1), 25-33.

Wheatley, J. J., Chiu, J. S., & Goldman, A. (1981). Physical quality, price, and perceptions of product quality-implications for retailers. *Journal of Retailing, 57*(2), 100-116.

Yang, G. F. (2016). Study on the influencing factors of MOOC users' continuous use behavior. *Open Education Research, 22*(1), 100-111.

Yin, J. J. (2019). *Research on user's persistent intention of mobile short video APP.* (Dissertation). Shandong University of Finance and Economics, 25.

Youm, D.-S. (2017). The effect of motivation for using mobile social network games on the game attitude, continuous use intention and intention to recommend the game. *Journal of Digital Convergence, 15*(1), 453-459.

Youn, J.-Y., Yoo, J.-Y., & Lee, J.-S. (2020). The effect of motivation and user characteristics on use satisfaction and continuous use intention in YouTube Vlog. *The Journal of Korean Contents Association, 20*(4), 189-201.

Zhao, W. R., & Wu, J. Y.（2018）Research on the satisfaction its influencing factors of online takeout consumer under o2o. *Logistics Engineering and Management.40*(11), 108-109.

Zeithaml, V. A. (1988). Consumer perceptions of PVice, quality, and value: A means-end model and synthesis of evidence. *Journal of Marketing, 52*(3), 2-22.

Zhou, F. (2013). Empirical study on the delivery service quality of private express in B2C Red Sea. *Logistics Technology, 32*(12), 215-217.

ASEAN Journal of Management & Innovation
Vol. 7. No. 1, 108 - 118

DOI: 10.14456/ajmi.2020.8
ajmi.stamford.edu
Received: February 6, 2020
Revised: March 30, 2020
Accepted: May 5, 2020

Factors Affecting Burnout in Out-of-Office Workers in Thailand: A Moderated Multiple Regression Approach

Pattarachat Maneechaeye
Thai Aviation Services Limited Company, Thailand.
pattarachat@gmail.com

Abstract
This study seeks to analyze the factors affecting out-of-office workers' burnout in Thailand and develop a most suitable and practical burnout prediction model. To these ends, a moderated multiple regression approach was used. The population in this study was professional out-of-office employees and the research tools questionnaires and the convenience sampling method. A total of 420 good samples were collected and analyzed. 80 per cent of the main data set was used as a training set and randomized into a model fitting procedure. The 20 percent remaining data was then called as an unseen set randomized into a model prediction evaluation. The model can be moderately generalized. The findings in this study indicate that negative work-related factors contribute to raising the level of burnout. Given the moderating role of employee position, if an operational level employee experienced a high level of career satisfaction, there would be a lower level of burnout. However, at the managerial level, employee position had no effect on the relation between career satisfaction and burnout. Organizations should take appropriate steps to increase the level career of satisfaction among operational level staff so as to mitigate burnout risk. In future studies on this issue, longitudinal research should be conducted in order to gain more insights regarding burnout.

Keywords*:* Burnout, Isolation, Moderated Multiple Regression, Out-of-Office Workers.

1. Introduction

The fields of work where employees are not required to be in an office at all times are expanding. Whereas traditionally, these professions were widely related to jobs where employees were required to be at their customers' offices, thanks to internet, advanced mobile technology, and the digital disruption associated with it, today, more and more workers are also encouraged to work at home. While working outside one's office offers obvious benefits such as high autonomy and flexible working hours, it can nevertheless present a number of issues regarding work-related isolation and personal life conflicts. High-performing human capital requires heavy investment. Developing human resources (HR) and human capital has become an essential factor in promoting organization targets and goals (Luthans, Avey, Avolio, & Peterson, 2010). In order to meet customers' high expectations, an organization needs to continuously invest in its employees and keep training them to make sure that they work effectively and efficiently for the clients.

One big question is: What will happen to these HR investments in developing and training staff if employees are not satisfied with their current work and, for a number of other reasons as well, end up experiencing burnout and eventually leave the organization? It has been well established that generally while employee job satisfaction and career satisfaction can boost employee performance, isolation and work-life family conflicts can have a negative effect (Yu, Liu, & Ren, 2019; Selvarajan et al., 2019). On the face of it, based on these findings, it seems that out-of-office workers may be more insulated from burnout than office workers. This is a

pertinent question given that teleworking is now becoming a new normal due to the digital transformation of the workplace. Indeed, today, many professions are not required to work in the office owing to the technological advancement of internet and mobile device. While much of the work continues to be essentially the same, these people can work remotely to fulfill their work assignments. For example, medical representatives still travel to various hospitals to engage the targeted health care professional customers but do not need to go back to their office as they can send back reports to their managers by email. Management consultants work mostly at client sites to gain insights in their advisory roles for their business and remotely consult with their managers by using teleconference systems. While these jobs away from the office can promote job autonomy and generate much personal satisfaction, they might also yield some negative feelings related to an autonomous working style such as isolation and work-family conflict due to a job demand (Tremblay & Genin, 2008; Federici, 2013). This study focuses on out-of-office workers in Thailand. It aims to investigate various factors that affect burnout by following a moderated multiple regression approach. The end-goal is to develop a suitable and practical burnout prediction model in the context of out-of-office workers. While much academic research looks at the factors affecting turnover intention, few studies zero in on how to predict burnout in an out of office workers.

2. Literature Review

- Burnout

Generally, burnout is a direct outcome of stress from work. The term is used to refer to the mental and physical exhaustion at work faced by workers (Simha, Elloy, & Huang, 2014). It is a state of exhaustion that stems from excessive stress from over-work, especially when workers feel negatively overwhelmed and cannot meet expectations. Burnout is definitely latent and a continuing exposure to this negative work phenomenon can deteriorate employees' physical and mental fitness and cause errors to the job. As burnout grows, employees start to lose motivation and interest at work, which leads to a poorer job performance (Simha et al., 2014).

- Work-Family Conflict

As a form of a work-related conflict, work-family conflicts can significantly affect employees' personal or family life, especially when they have challenging work assignments. High expectations and a demanding professional life are often likely to impact an individual's personal life (Hawksley, 2007). This can be thought as a work-related dilemma as a position at work may demand a high level of personal contribution to meet job expectations. High demands at work might affect an employee's personal life, especially his/her family (D'Souza et al., 2006). Even though a flexible work arrangement could possibly help reduce this type of conflict, out-of-office workers are not necessarily spared either as the workload at home may be substantial (Hunter, Clark, & Carlson, 2019) .

- Work Isolation

Work isolation refers to a lack of social and emotional interaction with co-workers at the workplace that can lead to a feeling of loneliness (Schrempft, Jackowska, Hamer, & Steptoe, 2019). In the context of a telework environment, for example, there is a lack of interaction and communication with teammates and supervisors, which can lead to an isolation problem (Golden, Veiga, & Dino, 2008). Employee that always works outside the office often face communication and human interaction problems, which can lead to a stressful situation due to job expectations and demands.

- Job and Career Satisfaction

Job satisfaction can be described as worker's mental and physical satisfaction with his/her work (Locke, 1969). It has also been described in other studies as the realization of a work value in an individuals' mind resulting in a pleasurable and satisfactory emotional state (Iaffaldano &

Muchinsky, 1985). Job satisfaction is an important concept in many work practices as it is positively correlated to employee mental and physical well-being (Inauen, Jenny, & Bauer, 2015). As to career satisfaction, it can broadly be defined as overall satisfaction related to one's professional title (Spurk, Abele, & Volmer, 2015). For example, if you work as a medical representative, you are satisfied with what you have done in that capacity not just with the job itself but with the overall assignment that relate to this title. Past research indicates that career satisfaction is predicted by work-family enrichment (Rastogi, Karatepe, & Mehmetoglu, 2019)

- The Job Demand and Job Resource Theory

The job demands and resources (JDR) theory is a classic theory that is widely cited as the reference framework for work-related problems in various organizations (Demerouti et al., 2001). It comprises two components; job demand and job resource. Job demand means that the organization requires employee to invest their time and effort into their works whereas job resource refers to the supporting context related to work (Lesener, Gusy, & Wolter, 2019). Even in cases where job demand is an unfavorable factor, well-planned job resource could mitigate this risk. The theory essentially concerns two main types of position: operational or managerial level. Generally, managerial level employees who work in an organization for a certain amount of time have higher overall satisfaction at work due to the power they have, their ability to manage the task, and higher job resources. Based on the job demand and resource theory, one big question is: Are managerial level employees less affected by burnout than operational level employees for all the reasons discussed above? Accordingly, the following hypotheses can be developed:

H1: *Employees experiencing a high level of work-family conflict will have a high burnout level.*

H2: *Employees experiencing a high level of isolation will have a high burnout level.*

H3: *Employees highly satisfied with their careers will have a low burnout level.*

H4*: Employees highly satisfied with their jobs will have a low burnout level.*

H5: *Employees working in managerial positions will have a low burnout level.*

3. Methodology

- Population and Data Collection

This study uses a cross-sectional design. The population consists of employees whose professional engagements require them to work outside their office and includes salespersons, auditors, medical representatives, and sales agents. The convenience sampling method was applied. Only those who often work outside their office were selected for sampling. In this research, 500 questionnaires were initially sent out. After screening and drop outs, 420 qualified for analysis. The study uses self-administered questionnaires which are divided into six parts: burnout, work-family conflict, isolation, career satisfaction, job satisfaction, and general demographic data. The burnout scale consists of 5 items and uses the Maslach Burnout Inventory (MBI) (Maslach, Jackson, Leiter, Schaufeli, & Schwab, 1986) to measure burnout (Cronbach's Alpha = 0.92). It contains statements such as "I feel tired when I get up in the morning and have to face another day on the job." The second part, work-family-conflict, also consists of a 5-item scale. Based on Netemeyer, Boles, and McMurrian's (1996) work, it measures the level of conflict (Cronbach's Alpha = 0.89) and includes statements such as "The time spent at work detracts me from family or my social life." In the third part, Isolation, the 5-item scale measures one's level of isolation at work (Cronbach's Alpha = 0.88). The statements are derived from Golden, Veiga, and Dino's (2008) research. One example is "I always miss an opportunity to be in an activity as a part of a team." The next part, Career Satisfaction, uses the 5-item scale devised by Greenhaus, Parasuraman, and Wormley (1990) to measure career satisfaction (Cronbach's Alpha = 0.90) and includes such statements as "I am satisfied with my career achievement." Part five rates Job Satisfaction based on a reduced

version of Weiss, Dawis, and England's (1967) Minnesota Satisfaction Questionnaire (MSQ) (Cronbach's Alpha = 0.91). One of the components reads as follows: "I am satisfied with my current job." Finally, in Part six, Position, the following dichotomous scale was used and sub-divided into operational or managerial position: "What is your current position in an organization?"

- Data Analysis

The 420 samples selected were analyzed by using a moderated multiple regression approach that tested the hypothesis of the study. The reason for opting for this approach was that it allows the testing of multiple predictors and the series of moderators for interaction effects at once. The analysis process was conducted by using R language (R Core Team, 2019).

4. Results

The results were separated into 2 parts: (i) descriptive statistics for both nominal and continuous demographic data, and (ii) inferential statistics for fitting the moderated multiple regression model. In both cases the analytical process was done using R language.

- Descriptive Statistics

After filling in a missing value by column average, smoothing out noisy data, identifying and screening outlier, resolving duplicated data, and correcting inconsistencies, a clean dataset of 420 samples was analysed. 80 percent of main dataset was identified as a training set and randomized into a model fitting procedure. The remaining 20 percent data was then used as a testing set (or unseen set) and randomized into a model prediction performance evaluation. As shown in Table 1, the majority of the respondents consists of females (56.9%) and holds degree above a Bachelor degree (55.2%). Slightly more than half of them work in the public sector (50.5%) and hold operational level positions (59.5%). A majority of them are single (63.8%). Moreover, as indicated in Table 2, the mean age of the population is 37.22 years old, with a standard deviation of 11.27, and the current average work tenure is 9.42 years, with a standard deviation of 10.45. Moreover, the sample had average work experience of 13.84 years, with a standard deviation of 11.07, and on average they earn a monthly income of THB 52,503.83 (USD1,650), with standard deviation of THB 43,621.53 (USD1,385).

Table 1: Descriptive Statistics for Nominal Demographic Data

Demographic Data (*n* = 420)	**Frequency**	**Percentage**
1. Sex		
- Male	181	43.1
- Female	239	56.9
2. Education		
- Bachelor Degree	188	44.8
- Above Bachelor Degree	232	55.2
3. Workplace		
- Private Sector	208	49.5
- Public Sector	212	50.5
4. Current Position		
- Operational	250	59.5
- Managerial	170	40.5
5. Marriage		
- Single	287	63.8
- Married	133	31.7

Table 2: Descriptive Statistics for Continuous Demographic Data

Demographic Data (*n* = 420)	**Mean**	**SD**
1. Age (Year)	37.22	11.27
2. Current Workplace Tenure (Year)	9.42	10.45
3. Total Work Experience (Year)	13.84	11.07
4. Estimated Monthly Salary (Baht)	52,503.83	43,621.53

- Inferential Statistics

As shown in Table 3, all the variables were internally inconsistent (alpha was more than 0.70) and the data distributed normally (skewness and kurtosis were in a range of plus and minus two). The predictors variance inflation factor (VIF) was not more than 5, indicating no multicollinearity. Moreover, all variables were moderately correlated. Isolation and Burnout were the most positively correlated variables and Isolation and Job Satisfaction, the most negatively correlated.

Table 3: Mean, Standard Deviation, Alpha, Skewness, Kurtosis, VIF and Correlation Matrix

Variable	**M**	**SD**	**Alpha**	**VIF**	**Skew**	**Kur**	**WFC**	**ISL**	**CRS**	**JST**	**BOT**
1. WFC	3.18	0.94	0.89	2.375	-0.27	-0.36	-	0.43**	-0.13**	-0.18**	0.53**
2. ISL	2.83	0.82	0.88	2.454	-0.12	-0.01	0.43**	-	-0.15**	-0.20**	0.44**
3. CRS	3.62	0.82	0.90	4.000	-0.69	1.17	-0.13**	-0.15**	-	0.74**	-0.43**
4. JST	3.59	0.86	0.91	4.189	-0.62	0.52	-0.18**	-0.20**	0.74**	-	-0.50**
5. BOT	2.93	1.00	0.92	-	-0.08	-0.57	0.53**	0.74**	-0.43**	-0.50**	-

WFC: Work-Family Conflict, ISL: Isolation, CRS: Career Satisfaction, JST: Job Satisfaction, BOT: Burnout, **$p < 0.01$

By using an ordinary least square estimation, a moderated multiple regression model could be developed. As indicated in Table 4 below, overall, this model was significant (F=38.26, *p*-value < 0.000). The series of predictors could explain the amount of variance in burnout by 51.3%. With a variable importance of 5.531, the most critical predictor of the level of burnout was work-family conflict.

Table 4: Fitting a Moderated Multiple Regression Model

Number	**Term**	**Estimate**	**Standard Error**	**t value**	***p*-value**	**Variable Importance**
1	Intercept	3.370	0.360	9.341	0.000***	-
2	WFC	0.350	0.063	5.531	0.000***	5.531
3	POSI	-1.151	0.537	-2.144	0.032*	2.144
4	ISL	0.252	0.071	3.521	0.000***	3.521
5	CRS	-0.344	0.094	-3.627	0.000***	3.627
6	JST	-0.271	0.090	-3.014	0.002**	3.014
7	POSI: WFC	-0.006	0.094	-0.067	0.946	0.066
8	POSI: ISL	0.042	0.105	0.398	0.691	0.397
9	POSI: CRS	0.416	0.146	2.842	0.004**	2.842
10	POSI: JST	-0.153	0.134	-1.139	0.255	1.139

R-square = 0.513, Adjusted R-square = 0.504, F-statistic = 38.26, *p*-value < 0.000***

*$p < 0.05$, **$p < 0.01$, ***$p < 0.000$, POSI: Position (Operational or Managerial)

As part of developing the most suitable prediction model to evaluate and predict the level of burnout among workers, the full model was stepped wise in both forward and backward

directions (Galvao et al., 2008). A stepwise moderated multiple regression was devised. As reported in Table 5, there were only 7 predictors left in the equation. One of them was the interaction between position and career satisfaction. The entire function was significant (F=57.34, *p*-value < 0.000). The series of predictors could explain the amount of variance in burnout by 51.11 percent. All predictors were statistically significant, including interaction. The most important predictor of the level of burnout was still work-family conflict with a variable importance of 7.433 and the least important one, the interaction between position and career satisfaction with a variable importance of 2.914.

Table 5: Stepping Wise a Moderated Multiple Regression Model

Number	Term	Estimate	Standard Error	t value	*p*-value	Variable Importance
1	Intercept	3.367	0.312	10.769	0.000***	-
2	WFC	0.347	0.046	7.433	0.000***	7.433
3	POSI	-1.135	0.372	-3.050	0.002**	3.049
4	ISL	0.272	0.052	5.181	0.000***	5.181
5	CRS	-0.285	0.082	-3.487	0.000***	3.487
6	JST	-0.341	0.066	-5.111	0.000***	5.111
7	POSI: CRS	0.287	0.098	2.915	0.003**	2.914
R-square = 0.511, Adjusted R-square = 0.502, F-statistic = 57.34, *p*-value < 0.000***						

*$p < 0.05$, **$p < 0.01$, ***$p < 0.000$, POSI: Position (Operational or Managerial)

The final stage in developing a model by training dataset was to compare any differences from both the full and reduced models. Both models were put into a Chi-squared test of difference. The result showed that there was no significant difference between the two models. Therefore, the reduced model was more suitable for further use and considered more parsimonious.

Table 6: Comparison of the Full and Reduced Models

Full Model	BOT=3.370+0.350(WFC)-1.151(POSI)+0.252(ISL)-0.344(CRS)-0.271(JST)-0.006(POSI*WFC)+0.042(POSI*ISL)+0.416(POSI*CRS)-0.153(POSI*JST)				
Stepwise	BOT=3.367+0.347(WFC)-1.135(POSI)+0.272(ISL)-0.285(CRS)-0.341(JST)+0.287(POSI*CRS)				
Model	**Residual df**	**RSS**	**df**	**Sum of Square**	***p*-value**
1	326	165.76	-	-	-
2	329	166.62	-3	-0.860	0.638

After selecting the most suitable and parsimonious of the two models, a model diagnosis was conducted by checking autocorrelation and heteroscedasticity. As shown in Table 7, the Durbin-Watson Test of Autocorrelation revealed a non-significance, indicating that there was no autocorrelation problem.

Table 7: Durbin Watson Test of Autocorrelation

Test Statistics	Autocorrelation	D-W Statistic	*p*-value
Durbin-Watson test of autocorrelation	0.104	1.786	0.052

Unlike autocorrelation, heteroscedasticity, however, was found to be a problem in the regression model as indicated by the non-constant variance score test used to check the amount of residual variance and whether they were dispersed evenly along the fitted value. Table 8

below shows non-significance, which means that the number of residual variances were dispersed evenly along the fitted value.

Table 8: Non-Constant Variance Score Test of Heteroscedasticity

Test Statistics	df	Chi-squared	*p*-value
Non-constant Variance Score Test	1	1.940	0.163

In accordance with the machine learning concept, after the most suitable regression model was fitted and diagnosed, it was tested by an unseen dataset or testing set. To evaluate the prediction performance of the model in this study, 20 percent of the main dataset were randomized and kept as a testing set. In a regression model predicting a continuous value, four metrics are used to evaluate a prediction performance (mean absolute error, mean square error, root mean square error, and r-square) with scores ranging from 0 to 1. Whereas the first three metrics were considered to be an absolute measure of fit as the lower the number, the better the absolute fit, r-square was a relative measure of fit as the higher the number, the better the relative fit. These fit measures as shown in Table 9 indicate a moderate level of generalization of the prediction model.

Table 9: Prediction Evaluation Performance Metrics

Mean Absolute Error (MAE)	Mean Square Error (MSE)	Root Mean Square Error (RMSE)	R-square (based on unseen dataset)
0.570	0.538	0.733	0.395

The burnout prediction model can be visualized in Figure 1.

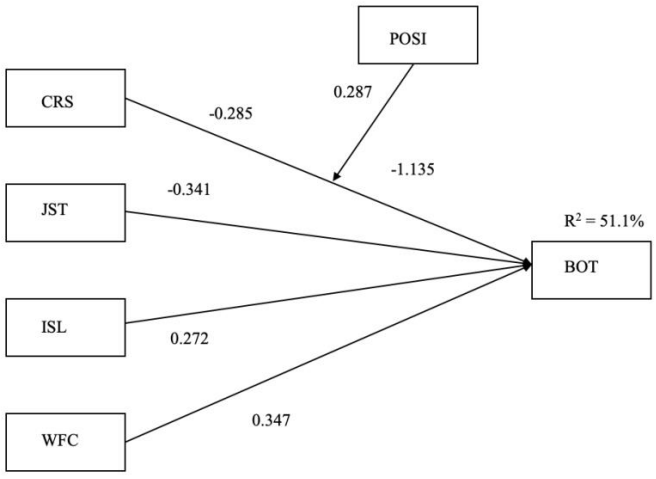

Figure 1: Moderated Multiple Regression Model in this Study (WFC: Work-Family Conflict; ISL: Isolation; CRS: Career Satisfaction; JST: Job Satisfaction; POSI: Position; BOT: Burnout)

As to the moderated multiple regression model, the interaction between career satisfaction and position was significant as represented in Figure 2, which shows the interaction of job position with career satisfaction (CRS) and burnout (BOT). Operational level staff was coded as 0 (solid line) and mangerial officer coded as 1 (dotted line). The interaction between job position and career satisfaction was significant, which is why the operational level and managerial level lines crossed each other (Hayes, 2017) .

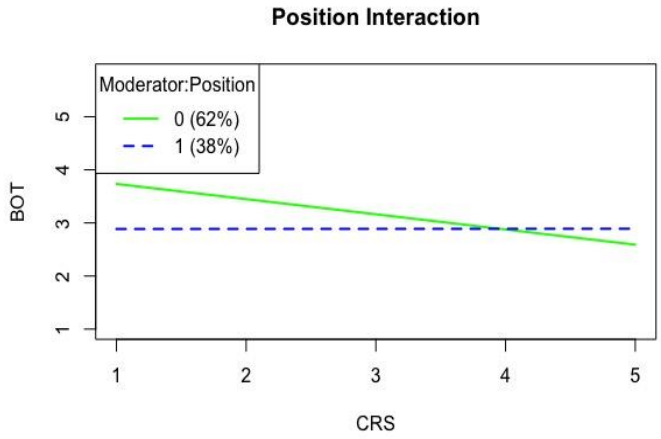

Figure 2: Job Position Interaction Effect in This Model
(created by the author for this study)

5. Discussion of Results

As mentioned earlier, the moderated multiple regression model was developed by training dataset and indicated a well-fitted with empirical data. All predictor coefficients in this model were statistically significant and no problem was found with the general assumption. Work-family conflict was determined to be the most influential factor affecting burnout. When tested on an unseen dataset, the model displayed a moderate level of generalization as shown by the prediction evaluation performance of the four metrics discussed above. This indicates that this model could be used to predict a level of burnout within the same context. The unique selling point of this study is the interaction effect of job position. Given the interaction effect indicated by the model, for operational level staff, the higer the level of career satisfaction, the lower the level of burnout. For managerial staff, job position had no effect on the relationship between career satisfaction and burnout.

As the results show, job satisfaction and career satisfaction negatively affect burnout. Thus, a high level of these two predictors could prevent employees from being burnout. Companies should provide good work-related resources to employees, such as career development plans or fair support so as to build morale and boost job and career satisfaction. This would benefit the firm as when satisfied with their job and their career, employees tend to perform their job better. Isolation and work-family conflict positively affected burnout. Those negative predictors were related directly to burnout. Isolation problems could be mitigated by work-related social support even in the case of employees working remotely from teammates as this could be done for example via teleconference. For one, this would make employees feel like they were still a part of a team.

As to work-family conflict, companies should consider the possibility of putting into place a flexible working schedule in order to allow employees to manage both their work and their personal lives on their own. The interaction effect of position on career satisfaction and burnout sheds light on the mystery regarding operational level employees' feelings toward work. As this study shows, the more satisfied with their careers operational level staff are, the less likely they are to feel 'burned out'. This finding suggests that companies should ensure that they instil pride, reward good performances, and provide sound, realistic and attractive career plans at every operational level. For example, managers should praise employees when they do good work and make them realize that company is proud of their career and possibly reward them with a bonus or a promotion. If the front-line staff feels proud to be part of the firm, the level

of burnout at operational level staff may be reduced. Finally, in this study, all hypotheses were accepted. They are summarized in Table 10.

Table 10: Summary of Hypothesis Testing Results

Hypothesis	Result	Explanation
H1	Accepted	The higher the level of work-family conflict, the higher the burnout level.
H2	Accepted	The higher the level of isolation, the higher the burnout level.
H3	Accepted	The higher the level of career satisfaction, the lower the burnout level.
H4	Accepted	The higher the level of job satisfaction, the lower the burnout level.
H5	Accepted	Managerial officers suffer less from burnout as compared to other employees.

6. Conclusion and Recommendations

Of all the factors discussed, work-family conflict affects a worker's level of burnout more than any other factors. This finding is consistent with the conclusion of a previous study conducted by Selvarajan, Singh, Cloninger, and Misra (2019) in which it was found that work-family conflict is closely related to employee burnout. Employees' stress and burnout have a direct impact on an organization as they significantly reduce one's job performance. They can cause serious health problems to employees (both mental and physical) and ultimately lead to an intention to leave the organization, rendering all previous company's staff training investment irrelevant and a loss to the organization. Another factor contributing to increasing the level of burnout in this study is work-related isolation. It had a negative impact on employee burnout. On the other hand, unsurprisingly, it was found that career satisfaction and job satisfaction did not negatively affect burnout. When people feel satisfy with their job and career, there is a small probability that they will feel burnout from their occupation (Hoff, Carabetta, & Collinson, 2019). It is well documented that managerial level officers have a lower level of burnout compared to operational staff (Lyness & Judiesch, 2001).

This research also determined that if operational level employees had a high level of career satisfaction, there would be a lower level of burnout. At the managerial level, however, employee position had no effect on the relation between career satisfaction and burnout. An organization should therefore focus on increasing career satisfaction among operational level staff. The following are suggestions for further studies, which are based on the limitations of this study. Firstly, this research used a quantitative methodology. In order to go deeper down into each employee's mind about burnout, a qualitative research should be done so as to gain more insights regarding burnout. Secondly, this is a cross-sectional study that gives a snap shot at a present time. In order to develop a more profound understanding of all the issues involved in a burnout situation, a longitudinal study should be done.

References

D'Souza, R. M., Strazdins, L., Broom, D. H., Rodgers, B., & Berry, H. L. (2006). Work demands, job insecurity and sickness absence from work. How productive is the new, flexible labour force? *Australian and New Zealand Journal of Public Health*, *30*(3), 205–212.

Demerouti, E., Bakker, A. B., Nachreiner, F., & Schaufeli, W. B. (2001). The job demands-resources model of burnout. *Journal of Applied Psychology*, *86*(3), 499.

Federici, R. A. (2013). Principals' self-efficacy: Relations with job autonomy, job satisfaction, and contextual constraints. *European Journal of Psychology of Education*, 28(1), 73–86.

Galvao, R. K. H., Araujo, M. C. U., Fragoso, W. D., Silva, E. C., Jose, G. E., Soares, S. F. C., & Paiva, H. M. (2008). A variable elimination method to improve the parsimony of MLR models using the successive projections algorithm. *Chemometrics and Intelligent*

Laboratory Systems, *92*(1), 83–91.
Golden, T. D., Veiga, J. F., & Dino, R. N. (2008). The impact of professional isolation on teleworker job performance and turnover intentions: Does time spent teleworking, interacting face-to-face, or having access to communication-enhancing technology matter? *Journal of Applied Psychology*, *93*(6), 1412.
Greenhaus, J. H., Parasuraman, S., & Wormley, W. M. (1990). Effects of race on organizational experiences, job performance evaluations, and career outcomes. *Academy of Management Journal*, *33*(1), 64–86.
Hawksley, B. (2007). Work-related stress, work/life balance and personal life coaching. *British Journal of Community Nursing*, *12*(1), 34–36.
Hayes, A. F. (2017). *Introduction to mediation, moderation, and conditional process analysis: A regression-based approach*. Guilford publications.
Hoff, T., Carabetta, S., & Collinson, G. E. (2019). Satisfaction, burnout, and turnover among nurse practitioners and physician assistants: a review of the empirical literature. *Medical Care Research and Review*, *76*(1), 3–31.
Hunter, E. M., Clark, M. A., & Carlson, D. S. (2019). Violating work-family boundaries: Reactions to interruptions at work and home. *Journal of Management*, *45*(3), 1284–1308.
Iaffaldano, M. T., & Muchinsky, P. M. (1985). Job satisfaction and job performance: A meta-analysis. *Psychological Bulletin*, *97*(2), 251.
Inauen, A., Jenny, G. J., & Bauer, G. F. (2015). Discriminating Five Forms of Job Satisfaction: Investigating Their Relevance for Occupational Health Research and Practice. *Occupational Health Research and Practice. Psychology*, *6*, 138–150. https://doi.org/10.4236/psych.2015.62013
Lesener, T., Gusy, B., & Wolter, C. (2019). The job demands-resources model: A meta-analytic review of longitudinal studies. *Work & Stress*, *33*(1), 76–103.
Locke, E. A. (1969). What is job satisfaction? *Organizational Behavior and Human Performance*, *4*(4), 309–336.
Luthans, F., Avey, J. B., Avolio, B. J., & Peterson, S. J. (2010). The development and resulting performance impact of positive psychological capital. *Human Resource Development Quarterly*, *21*(1), 41–67.
Lyness, K. S., & Judiesch, M. K. (2001). Are female managers quitters? The relationships of gender, promotions, and family leaves of absence to voluntary turnover. *Journal of Applied Psychology*, *86*(6), 1167–1178. https://doi.org/10.1037/0021-9010.86.6.1167
Maslach, C., Jackson, S. E., Leiter, M. P., Schaufeli, W. B., & Schwab, R. L. (1986). *Maslach burnout inventory* (Vol. 21). Consulting psychologists press Palo Alto, CA.
Netemeyer, R. G., Boles, J. S., & McMurrian, R. (1996). Development and validation of work–family conflict and family–work conflict scales. *Journal of Applied Psychology*, *81*(4), 400.
Rastogi, M., Karatepe, O. M., & Mehmetoglu, M. (2019). Linking resources to career satisfaction through work–family enrichment. *The Service Industries Journal*, *39*(11–12), 855–876.
Schrempft, S., Jackowska, M., Hamer, M., & Steptoe, A. (2019). Associations between social isolation, loneliness, and objective physical activity in older men and women. *BMC Public Health*, *19*(1), 74.
Selvarajan, T. T., Singh, B., Cloninger, P. A., & Misra, K. (2019). Work–family conflict and counterproductive work behaviors: Moderating role of regulatory focus and mediating role of affect. *Organization Management Journal*, *16*(1), 42–54.
Simha, A., Elloy, D. F., & Huang, H. C. (2014). The moderated relationship between job burnout and organizational cynicism. *Management Decision*, *52*(3), 482–504. https://doi.org/10.1108/MD-08-2013-0422

Spurk, D., Abele, A. E., & Volmer, J. (2015). The Career Satisfaction Scale in Context: A Test for Measurement Invariance Across Four Occupational Groups. *Journal of Career Assessment*, *23*(2), 191–209.

R Core Team (2019, November 15). R: A language and environment for statistical computing. Retrieved November 15, 2019, from http://www. R-project. org/

Tremblay, D.-G., & Genin, E. (2008). Money, work–life balance and autonomy: why do IT professionals choose self-employment? *Applied Research in Quality of Life*, *3*(3), 161–179.

Weiss, D. J., Dawis, R. V, & England, G. W. (1967). Manual for the Minnesota satisfaction questionnaire. Minnesota Studies in Vocational Rehabilitation, *22 Bulletin, 45*, 487-495

Yu, S., Liu, C., & Ren, H. Y. X. Y. J. (2019). Work-Related Identity Discrepancy and Employee Turnover Intention: The Mediation Effect of Job Satisfaction. *International Journal of Business and Social Science*, *10*(11), 30-37.

ASEAN Journal of Management & Innovation
Vol. 7. No. 1, 119 - 132

DOI: 10.14456/ajmi.2020.9
ajmi.stamford.edu
Received: January 21, 2020
Revised: April 2, 2020
Accepted: April 3, 2020

The Development of Smart Farmer Training Course for Agricultural Extension

Kanlayanee Prasertkhorawong
Research Scholar, Interdisciplinary Agriculture Program, Maejo University, Thailand
dkd.prasertkhorawong@gmail.com
Paisarn Kanchanawong, Ph.D.
Assistant Professor, Interdisciplinary Agriculture Program, Maejo University, Thailand
paisarn77@gmail.com
Chalinda Ariyadet, Ph.D.
Assistant Professor, Interdisciplinary Agriculture Program, Maejo University, Thailand
Chalinda.bio@gmail.com
Sathaporn Saengsupho, Ph.D.
Assistant Professor, School of Administrative Studies, Maejo University, Thailand
drsathaporn@gmail.com

Abstract
The purpose of this mixed methodology research was to generate a training curriculum for farmers that met their needs. The sample group was farmers from the Phrae province located in Northern Thailand, most of them between 46-60 years old. 400 of them took a proficiency test and another 28 of them were submitted to pre- and post-learning performance analyses. Some farmers and experts in smart farming were also interviewed. The proficiency test indicated that most of the farmers did not meet the required qualifications as smart farmers and needed specific training (or retraining for some of them). At a 95% confidence level, the performance of the 28 post-learners ranged from 34 to 9 points out of a maximum of 35 points. The average score was 24.79 points, indicating that the training substantially increased their level of smart farming competency as the curriculum contents dealt with modern technology and issues of much relevance to them. The data from the tests and the various discussions and interviews was used as a guideline for generating the curriculum outline. One issue that kept surfacing was the lack of smart phones, which given the need for farmers to use information technology to access valuable data was problematic. Given the increasing digital orientation of today's economy, farmers' access to affordable smart phones should be a priority as it will help cement the content of the trainig courses.

Keywords: Curriculum Development, Smart Farming, Smart Farmers, Training Course, Agricultural Extension Department.

1. Introduction

Thailand's agricultural sector faces a number of problems due to both domestic and international factors. Domestic constraints include natural disasters, deteriorated agricultural resources, and a lack of knowledge in agricultural resource management, machinery, marketing, and innovative technology. There are also constraints in terms of price intervention, overcapacity, and decreasing prices of agricultural commodities. Another issue likely to become more worrisome in the future is the imbalanced farming population structure as many people working the land are part of the elderly society, which may create deficiency in the number of agricultural operators. According to the Department of Agricultural Extension, in 2018, there were approximately 12,401,600 farmers in Thailand;

1,700 of them were under the age of 20 (0.01%). 2,549,400 were between 20-45 years old (20.56%), 5,754,400 between 46-60 years old (46.40%), and 4,096,100 over 61 years old (33.03%). In short, the vast majority of farmers, and thus a large proportion of those to be trained to become Smart Farmers, are over 46 years old, which means they have well-entrenched farming techniques, which may be a real challenge to change. Farmers also have to contend with a number of challenges from abroad (Srimuk, 2015). These include importing agricultural commodities from neighboring countries that are competing with domestic products, the entry of new players in the global agricultural market, the lowering of trade barriers, and the expansion of free trade zones, most notably the soon-to-be-concluded 15-member Regional Comprehensive Economic Partenership (RCEP) (Office of Agricultural Economics Ministry of Agriculture and Cooperatives, 2016; Prasertkhorawong, 2014). In response to all these challenges, the Ministry of Agriculture and Cooperatives, the main bureau in charge of improving the agricultural sector in Thailand, has been seeking concrete solutions and, starting in 2012, has issued a series of explicit policies and guidelines for the administrators and officers of the Ministry to implement (Office of Agricultural Economics Ministry of Agriculture and Cooperatives, 2016). They are seen as essential steps toward the improvement of the sector.

One concept that has emerged as part of the endevaors undertaken to be better prepared to face all the challenges ahead is that of "Smart Thai Farmer" with a "Smart Officer" as a partner. In a nutshell, a Smart Farmer can be defined as a farmer who knows how to access the right information in order to make the right decisions regarding commodities, marketing management, and product quality awareness (The Committee to Impel the Smart Farmers Project and Smart Office, Ministry of Agriculture and Cooperatives, 2013). As to "Smart Officers", they are members of the Department of Agricultural Extension under the section of the Ministry of Agriculture and Cooperatives in charge of the Smart Farmer improvement program (Project and Budget Group, Planning Division, Department of Agricultural Extension, 2017). They have genuine respect for the farming profession, have good academic credentials and are well-versed in the use of technologies and the application of policies that can strengthen the operations of farmers and help them transit to the green economy and zero waste agriculture. They also have pride in being civil servants. Although being a relative of farmers is not a requisite, it helps smart officers understand farmers well and get a good grasp of what they have to deal with on a daily basis. The work of the Department of Agricultural Extension can be summarized as the management of agricultural knowledge.

The department runs a Smart Farmer Development Program and has articulated a training curriculum for improving the performance of farmers (Agricultural Economic Monitoring and Forecast Center, 2015; Farmer Development Division Department of Agricultural Extension, 2018). It provides agricultural skills to young farmers as well as older ones throughout their careers (Singkhawanit, 1 9 8 8). Its chief aim is to increase their farming capacity and develop their potential to become smart farmers. The program developed by the department targets various groups of farmers both in terms of principles and practice. As part of the implementation of the Smart Farmer Development Project, between the fiscal year 2014- 2017, 1,014,786 farmers registered into the Smart Farmer program. They were divided into different groups as follows: 981,649 smart farmers, 25,539 smart farmer models and 7,598 young smart farmers (Ministry of Agriculture and Cooperatives, 2018). A smart farmer is a 'normal' farmer who registers in to the Smart Farming program and is over 45 years old. A smart farmer model refers to a farmer who has more potential than other farmers registered. A young farmer is a farmer who belongs to neither of these categories and is 17-45 years old. In the fiscal year 2018, the year of reference for this study, a total of 233,058 farmers were evaluated (Farmer Development Division Department of Agricultural

Extension, 2018). This paper seeks to determine whether the current Smart Farmer curriculum meet the needs and expectations of farmers and generate the level performance expected by the Department of Agricultural Extension. More specifically, this study seeks to address the following research question: Does the training program provide farmers with enough knowledge and adequate understanding for them to be able to upgrade their performance as general farmers and become Smart Farmers?

2. Literature Review

- Curriculum Development

A curriculum is a learning plan (Taba, 1980). It is about the selection and arrangement of content. Curriculum development is about creating or developing courses. It refers to a project plan for a specific group of people, with specific objectives, content, methods of teaching and evaluation in order to complete the goals set by the institution (Saylor & Alexander, 1974). As determined by Saylor and Alexander (1974), the steps are as follows: (i) goals, objectives, and domain, (ii) curriculum design; (iii) curriculum implementation, and (iv) curriculum evaluation. Specifically, after setting their goals and objectives, curriculum designers need to select teaching methods and teaching materials that will help students learn as specified. They also need to be clear about the duration of each part of the content. At the curriculum evaluation stage, the focus should be on assessing the curriculum as well as the quality of teaching and the learning behavior of students (Khrasanati, 2004). In this research study, the curriculum evaluated is based on this approach.

- Smart Farmer

According to The Committee to Impel the Smart Farmers Project (2013) and to The Smart Office, Ministry of Agriculture and Cooperatives (2013), Smart Farmers are farmers who: (i) are knowledgeable in their field; (ii) can obtain the right information to make the right decisions; (iii) understands product management and marketing; (iv) are aware of product quality and consumer safety issues; (v) are environmentally and socially responsible; and (vi) takes pride in what they do. In other words, they are farmers who take into account the safety of consumers, societial needs, including food security, and the quality of the environment. Smart Farmer development along these guidelines is central to the training of smart farmers. The knowledge required goes well beyond the field of agriculture and includes seemingly unrelated fields such as marketing and cost accounting. Being a smart farmer also presupposes having access to relevant information, which in turn assume that the farmer knows which channels to go through to obtain the proper information. Therefore, it is necessary to have an effective mechanism to help farmers secure access to these various forms of knowledge (Srimuk, 2015). Obviously, given the breadth of the knowledge and skills targeted as defined by the 6 aforementioned fundamental qualifications and the average age of farmers, turning a "Thai Farmer into a Smart Farmer" can be challenging and requires steady efforts.

- Department of Agricultural Extension

The Deaprtment of Agricultural Extension is a service designed to develop farmers' skills and promote the sustainability of their operations. It provides knowledge, experience, and agricultural skills to farmers throughout their careers (Singkhavanich, 2010). Since developing new skills and becoming a smart farmer is seen as a life-long process. Agricultural Extension officials are associated with a specific farmers' community and spend most of their time working with farmers in that community. As the individuals who work the most closely with farmers, they understand their needs and cahllenges better than anyone else. One of their main objectives is to ensure harmonious relationships with their

communities. For these reasons, people who are hired for this job must understand the basic principles of human behavior in rural society and have a solid graps of societal influences on farmers. Simply put, they must be flexible and open-minded as the people with whom they have to work may adhere to different beliefs, values, cultures and traditions. As Khemthong (2011) pointed out, they have specific needs which agricultural officials cannot ignore. Agriculture Extension officers must provide an environment conducive to learning and therefore develop a climate of mutual trust and respect (Hirunratsamee, 2010).

3. Research Framework and Metholod

Figure 1 shows the conceptual framework used in this research study. Central to the framework is the six qualifications articulated by the Ministry of Agriculture and Cooperatives (2013).

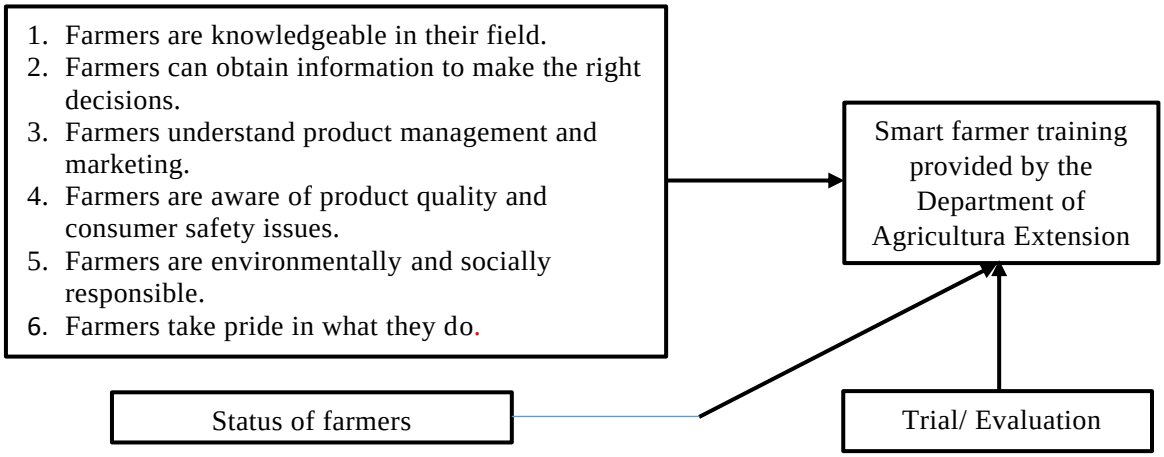

Figure 1: Conceptual Framework and Research Methodology

- Population

The population studied in this research consisted of farmers from the Phrae province, north of Thailand. This province was selected for the following reasons:

(1) Phrae is one of the provinces that have been allotted a budget for implementing the Smart Farmer Development Project since 2015;
(2) This province is where one of the researchers in this study work as a government official in the Department of Agricultural Extension;
(3) The researchers have been involved with this project from the very beginning of its implementation.

There are 71,150 farmers in that province (Pornhan, 2018; Ministry of Agriculture and Cooperatives, 2018). A representative sample of 400 farmers was selected from all the districts across the Phrae province as shown in Table 1 to test the Smart Farmer program for curriculum improvement purposes. They were farmers who had either not yet joined a farmer program or had previously joined the Smart Farmer Development Project of the Department of Agricultural Extension but had failed to test. For these reasons, they fell in the Developing Smart Farmer (DSF) group of general farmers. Nonprobability sampling was used to select the 400 farmers.

Table 1: Size of Sample Group in Each District

District	Farmers	Sample	
Mueang Phrae	15,118	85	
Rong Kwang	8,618	48	
Long	10,262	58	
Soong Men	9,571	54	
Den Chai	4,020	23	
Song	10,401	58	
Wang Chin	10,046	56	
Nong Muang Khai	3,114	18	
Total	71,150		400

Source: Department of Agricultural Extension (2018: Online)

In addition to this 400-farmer sample, a smaller sample of 30 farmers was also selected. However, since 2 farmers failed to show up at the training sessions, the sample was eventually reduced to 28 farmers. The main criteria for selecting these 28 Phrae province farmers was that they had never had any prior training in the fields covered in the Smart Farmer curriculum. They attended the Smart Farmer program and took the assessment tests before and after taking the course in order to determine their level of knowledge of 6 qualifications set out by the Ministry of Agriculture and Cooperatives and the level of difficulty (Item Difficulty). Purposive sampling was used for selecting this small group of farmers.

- Instruments

Several instruments were used in this mixed methodology research study. They included a proficiency test, performance analysis forms, interviews, a questionnaire, and a seminar.

- Proficiency Test

A proficiency test consisted of 30 multiple choice questions was administered to the 400 farmers selected for this research. It aimed to test their level of understanding of the smart farmer concept and to help researchers improve the curriculum and ensures it meets the needs of farmers. The results would provide guidelines for curriculum development in the future. The researchers selected questions which had a level of complexity between 0.3-0.7.

- Performance Analysis Forms

Performance analysis forms were used to test farmers before and after studying smart farming (13 topics, 18 hours, covering 6 sets of skills). They covered the 6 essential qualifications requirements articulated by the Ministry of Agriculture and Cooperatives. 8 experts wrote the questionnaires. Yamane's (1973) model test was used to determine the mean average, percentage, and Chi-square. Standard deviation used 5 criteria were used: small (1.81 - 2.60), moderate (2.61 - 3.40), very (3.41 - 4.20) and most (4.21 - 5.00).

- Farmers' in-Depth Interviews

In-depth structured interviews were conducted with 10 farmers. The aim of the interviews was to measure the extent to which farmers understood about the smart farmer development project and collect their opinions on curriculum. Content analysis, systematic synthesis, and perception analyses were used used to analyze the interviews.

- Satisfaction Questionnaire

A 10-item satisfaction questionnaire was designed by 4 experts from the Agricultural Extension Department and education experts and was used to test the level of satisfaction of the 28 farmers who undertook training. Standard deviation and meaning evaluation were used

for the following 5 criteria: smallest (1.00 - 1.81), small (1.81 - 2.60), moderate (2.61 - 3.40), very (3.41 - 4.20) and most (4.21 - 5.00).

- Villagers' Forum

The researchers formerly organized a group discussion whose purpose was to improve and modify if necessary the Smart Farmer Training Course. Referred to as a 'Villager Platform', it focused on guidance to fit farmers' development. Content analysis was employed to categorize, interpret and summarize the content of the discussion.

- Content Validity

To ensure the quality of the various instruments used in this study, the validity of the content of the proficiency test taken by farmers was tested. The 30 questions were validated by 5 experts. The Performance analysis forms used before and after studying were checked by 5 Agricultural Extension experts for content validity. 41 questions were initially validated. However, when analyzing the consistency index (Item Objective Congruence Index = IOC), it was found that 1 item had an IOC value that was lower than 0.50. The test was then revised and based on expert advice, 40 questions were kept.

4. Results and Discussion

This section reports the results of the proficiency test taken by the 400 farmers selected for this research, the various experimentations undergone by 28 farmers as well as the findings from the interviews with 10 of them, experts' advice, and the villagers' platform.

- Farmers' Performance on the Proficiency Test

A majority of the farmers who took the test were females (54.75%). Over half of them were between 46-60 years old (56.50%) and had completed primary education (67.50%) but did not pursue their studies further. The average farm unit in this sample consisted of 4 people and the average farmland amounted to 12,800 square meters (8 rai in Thai measurement unit). 82.00 percent of the farmers followed their father's footsteps. Their agricultural income averaged 92,528.90 baht (USD2,950) per year and their non-agricultural income 31,595.40 baht (USD1,000), which means that when both sources of income were combined, these farmers had an average annual income of 123,413.40 baht (USD3,950) against household's expenditure of 121,026.90 baht (USD3,880). 83.50 percent of their agricultural income came from crops, mainly rice (56.50%), field crops (23.25%) and vegetable (32.75%). Livestock production (essentially poultry, cattle, pigs, and fishery) provided the remaining agricultural income. Some farmers also supplemented their income with the production of insects, frogs, and shrimps.

Moreover, most of the 400 farmers tested have joined King Rama IX's project and 51.50 percent operate under the royal umbrella of the Agricultural Career Restoration program set up for flood-affected farmers. Other projects with which some of them are involved include: the Efficiency Enhancement and Adjustment Program for maize production (37.00% of the farmers tested), the project to stop burning in agricultural areas (29.00%), large agricultural extension projects (23.50%) and various projects for the promotion and development of agricultural careers (21.00%). The following is a summary of the farmers' performance. As shown in Table 2, 48.25 percent of them scored in the 0-10 point range (grade F, failing), 26.75 percent in the 11-15 point range (grade D, very weak), 20.00 percent in the 16-20 point range (Grade C, fair), and only 5.00 percent in the 21- 25 point range (grade B, good). The highest score was 23 points and the lowest one only 4 points. The average score was 11.98 points out of a full score of 30 points.

Table 2: Performance Level of the 400 Farmers Tested

n = 400

Competency of farmers according to scoring criteria based on grades			Samples	
Grade	**Result**	**Score Range**	**Number of Farmers**	**Percentage**
A	Excellent	26 – 30	0	0.00
B	Good	21 – 25	20	5.00
C	Fair	16 – 20	80	20.00
D	Very low	11 – 15	107	26.75
F	Fail	0 – 10	193	48.25

Farmer's performance (30 points) Min. = 4 points Max. = 23 points Mean = 11.98 points

The results of the Chi-Square, used grade cut based on criteria, and sig. analysis indicate that personal circumstances did not relate to the competency level of farmers. This is because the Competency Test is a test that measures their knowledge and understanding in very specific areas covering the six qualifications outlined by the Ministry of Agriculture and Cooperatives. While in theory, age could possibly be a factor, all the farmers have the same questions and very similar backgrounds that place them on an even-playing field.

- Results from Experimentation and Valuation of Training Curriculum

60.71 percent of the 28 farmers who were tested before and after learning about the 6 smart farmer basic qualifications were females aged between 46 and 60 years old. The mediam age was 43.57 years old. A majority of them (64.29%) did not study past primary school. 96.43% of the farmers essentially used mobile phones to keep up with information provided by the Department of Agricultural Extension Ministry of Agriculture and Cooperatives. Very few had smart phones as most of them could not afford their higher prices. As was expected, scores before and after learning substantially differed. As Table 3 shows, the 28 farmers graduated from the Smart Farmer program. 53.57 percent of them obtained scores ranging from 22 to 28 (good, grade B) and no one had a score below 7 (failing, Grade F). The highest score was an impressive 34 points and the lowest one, 9 points. The average score was 24.79 points.

Table 3: Scoring Before and After Studying

n = 28

Grade	Result	Score Range	Ability	Farmer	Percentage
A	Excellent	29 – 35	Before Class	0	0.00
			After Class	9	32.14
B	Good	22 – 28	Before Class	2	7.14
			After Class	15	53.57
C	Fair	15 – 21	Before Class	10	35.72
			After Class	1	3.57
D	Very low	8 – 14	Before Class	9	32.14
			After Class	3	10.72
F	Fail	1 – 7	Before Class	7	25.00
			After Class	0	0.00

Before class: Min = 4 points; Max. = 23 points; Mean = 12.89 points
After class: Min. = 9 points; Max. = 34 points; Mean = 24.79 points

These scores sharply contrasted with those obtained by the 28 farmers before learnin smart farming; 13 farmers had received a low score or failed. As indicated in Table 4, the mean score almost doubled after they took the course.

Table 4: Overall Comparison of Farmers' Performance Scores Before and after Studying

Experiment	N	Mean	Std. Deviation	t	Sig. (2-tailed)
Before Class	28	12.89	6.93	-8.99	.000**
After Class	28	24.78	6.16		

*At the statistical significance level of 0.05

Clearly, the level of understanding before and after studying dramatically improved. As Table 5 shows, when comparing the level of understanding of each of the features of the 6 smart farmer qualification criteria before and after studying, it was found that farmers obtained much higher scores after learning, than before on every criterion at the significance level of 0.05. There was no exception, they improved across the board.

Table 5: Criteria-Based Assessment of Understanding Before and After Learning

n =28

Qualification Criterion	Evaluation	Mean	Std. Deviation	t	Sig. (2-tailed)
1. Knowledgeable in their field	Before Class	1.96	0.74	-9.88	.000**
	After Class	3.75	0.59		
2. Have information to make decisions	Before Class	1.86	0.71	-7.88	.000**
	After Class	3.61	0.96		
3. Have product & marketing management skills	Before Class	1.73	0.70	-10.99	.000**
	After Class	3.73	0.65		
4. Be aware of product quality and consumer safety.	Before Class	1.66	0.62	-11.94	.000**
	After Class	3.75	0.62		
5. Responsibility for the environment/society	Before Class	1.80	0.64	-14.38	.000**
	After Class	3.75	0.61		
6. Proud of being a farmer	Before Class	1.77	0.75	-12.51	.000**
	After Class	3.89	0.66		

*At the statistical significance level of 0.0; n =28.

One the forms the 28 farmers had to fill out was related to the utlitization of the criteria in their daily practice once the training was completed. As Table 6 shows, the criterion that ranked first was the pride they would take in being farmers as they would value more than ever the philosophy of sufficiency economy and its implications in terms of the societal role of farmers. This is also why the assessment score was the second highest for the second component of this crieteria. The training helped them realized how critical it was for them to do what they do and try to better their farming operations. Related to these two components of criterion 6 and ranked number 3 was being knowledgeable in their field. Specifically, they valued the fact that as part of their training, the lecturers would help them create an individual farm production plan (IFPP) customized to meet their specific needs. Also ranked high on their priority list was being aware of product quality and consumer safety (criterion 3), which is closely related to access to information to make decisions (criterion 2), ranked fouth. Using information technology and applications as required by criterion 2 for farm management, production management, financial planning, and accounting, may even become more important in the future as the digital economy keeps growing. Awaresss of product quality and consumer safety, whose main construct is good agricultural practices standards GAP

(criterion 4.2) came next, followed by responsibility for the environment/society. One of the dimensions of this criterions is the use of technology and the latest innovation for the creation of agricultural products that are safe for consumers and do pollute the environment (Green Economy). With the clean food narrative gaining currency, the debate over the use of farm chemicals is likely to intensify in the future. However, as the ranking of this smart famer qualification criterion show, farmers are still ambivalent and scekptical of techniques that would avoid the heavy use of farm chemicals in trafitional farming.

Table 6: Utilization of Qualification Criteria

n = 28

Qualification Group	Subject	Ranking	$\bar{x}$	Std. Deviation	Meaning
1. Knowledgeable in their field	1	3	4.14	0.65	well
2. Have information to make decisions	1	4	4.07	0.77	well
3. Have product & marketing management skills	1	3	4.14	0.65	well
	2	6	4.00	0.72	well
4. Be aware of product quality and consumer safety	1	3	4.14	0.71	well
	2	5	4.04	0.58	well
	3	7	3.96	0.64	well
	4	8	3.89	0.69	well
5. Responsibility for the environment/society	1	9	3.82	0.72	well
	2	6	4.00	0.82	well
	3	7	3.96	0.84	well
6. Proud of being a farmer	1	1	4.25	0.75	Great
	2	2	4.18	0.77	well

- After-Training Satisfaction Level

As the scores detailed in Table 7 show, the farmers surveyed were satisfied with all aspects of the training. The overall assessment score was ($\bar{x}$ = 4.45), which suggests that farmers' expectations have been met. The two lowest scores pertain to the appropriateness of the schedule and the clarity of the objectives on which training is based; two issues which in spite of the good scores obtained should nevertheless be looked at in the future so that farmers' level of satisfaction with regard to these topics increases. In light of the above discussion, that the competence of lecturers is ranked first is not surprising. Recall from above that farmers greatly value the fact during the training lecturersassist them in creating their own business plans, using parameters suitable for their own farms.

Table 7: After-Training Satisfaction Level

n = 28

Item	Ranking	$\bar{x}$	Std. Deviation	Meaning
1. Lecturers are competent.	1	4.64	0.49	Great
2. Training and facilities are appropriate.	2	4.61	0.50	Great
3. Criteria and training conditions are appropriate.	3	4.54	0.51	Great
4. Overall structure and course details are appropriate	4	4.50	0.51	Great
5. The rationale of the training makes sense	5	4.46	0.51	Great
6. Criteria for certification are appropriate	6	4.43	0.50	Great
7. Snacks, drinks, and lunch are adequate	6	4.43	0.57	Great
8. Before and after class competency analysis are appropriate	7	4.36	0.49	Great

9. Training schedule is appropriate.	8	4.29	0.53	Great
10. Training is based on clear objectives.	9	4.25	0.44	Great
Total		4.45		Great

- Findings from Interviews with Farmers

The interviews for knowlege conducted with 10 of those general farmers revealed that in spite of the much improved scores after completing the training sessions, there were gaps remaining in their understanding of the 6 qualifications criteria. Only three interviewees could knowledgeably talked about the six fundamental requirements and thoroughly articulate their content. Other could only classify certains aspects of them. Yet, all the farmers interviewed by the Department of Agricultural Extension expressed a strong desire to enhance their potential, become smart farmers, and develop their technologyical skills and ability to be innovative. While they knew the fundamental requirements but not their detailed aspects, they all wanted to improve the performance of their farms based on the targets set by the Ministry of Agriculture and Cooperatives. In their opinion, this can be achieved with even more support from the Department of Agriculture Extension. According to them, support should come in two ways. More training sessions in the future along the same format, which as we just saw above, they found quite satisfactory at all levels, and material support. If smart farmer sessions were more frequent, farmers could have more opportunities to build up on their knowledge from previosu sessions session and reflect upon what they have learned so far and what they still have to learn based on their own daily practice. This may prompt them to come back to the training with novel questions and issues

They stressed the need for the Department of Agricultural Extension to provide some support for them to acquire natural fertilizers (as opposed to farm chemicals) as well as various pieces of equipment various agricultural pieces of equipment. This support could come in the form of subsidiaries, low-interest bank loans, or group purchases. As mentioned earlier, the use of information technology and applications as required by criterion 2 for farm management, production management, financial planning, and accounting, however, was hampered by the lack of smartphones. Since they were too expensive and beyond the means of farmers, only a few of them could afford them. In this particular straining session, lecturers solved the problem by asking farmers to work in groups. But as the interviewees pointed out, smartphones are not just useful in the classroom. In fact they would be even more useful one farmers are back home as they could retrieve valuable information of the daily management of their farms and the transition towards greener farming, an essential component of smart farming. In other words, subsidized smartphone and tabmlest would the easiest and most practical way to access vital agricultural technology information

- Finidngs from the Villagers' Platform

The results of the villagers' platform, which, as we saw earlier, brought together 3 agricultural promotion lecturers and the 28 farmers, can be summarized as follows. Consistent with findings from the satisfaction form, the admission criteria, the training method and its principles were all found to be appropriate by both farmers and experts. All the participants also concurred that the structure and description of each course and the training schedule were equally appropriate and did not warrant any particular remark. Regarding the evaluation and certification process (performance analysis before and after examination and various assessment forms), it was unanimously agreed that the amount of time allocated to complete the performance analysis before and after studying was adequate and that the difficulty level of the tests was acceptable (this applied to the 35 items of the test). Other issues discussed included the operational budget, the lecturers in each topic, snacks, drinks, and lunch, and the overall facilities, all of which were found to meet

expectations. The farmers and the three scholars from the Department of Agricultural Extension made some suggestions as to how to enhance the benefits of the Agricultural Extension Program. Farmers thought it would be appropriate to have more training in the near future in order to review their knowledge, increase their understanding, and encourage farmers in their respective areas to seek knowledge about how smart farming fit in their operations and can be applied to their own farms. As to the three scholars, they reiterated the fact that the training course for smart farmers was critical for the development of Thai farmers and their ability to raise their mastery of technical skills and knowledge, without which they would not be able to raise the yield of their farms and their income level, let alone their sustainability over time. They also suggested that since the final topic of the training is usually completed at 4:30 pm, farmers should not be required to take tests right after studying. This also should apply to various assessment forms and surveys which they are typically asked to fill out at that time as well. They recommended that, instead, farmers take the questionnaires and forms home and send them back the next day, which in their view would make the assessment of their own understanding more realistic. Given that farmers expect more routine training session in the future, this makes sense as it enables farmers to know exactly what they would need to emphasize in the next training sessions.

- Experts' Advice

The focus group discussion between the researchers in this study and the 8 officers from the Department of Agricultural Extension (hereinafter referred to as 'experts') can be summarized as follows. All of them found the overall design appropriate. In terms of objectives, since the training involves working around personalized business plans as we saw earlier, and given the breadth of the topic, all the experts saw the need for some rewording of criterion 1 as follows: "Knowledge of all the subjects covered in the training program." All the experts agreed that the training criteria and conditions were suitable. All of them also found the expected results of the training to be fair objectives. Moreover, the 8 experts concurred that the terminology was defined appropriately and the curriculum was relevant. They found the training schedule suitable for the program but recommended that for the conduct of practical activities, farmers be divided into 6 groups of 5 people. While all the experts found the budget for the training sessions adequate, half of them suggested that there should be an allowance for the transportation and storage of documents for all farmers. In their opinion, the allowance will encourage to fill out documents more efficiently. Finally, even though the experts found that the application forms which farmers had to fill out to register for the training sessions were adequate, they also suggested that some slight modifications should be made in the future to reflect the fact that the digitalization of our daily lives is a reality. For instance, since many farmers use Facebook and Line, the application forms should include personal details such as 'Line ID' or Facebook ID'. This could stimulate – and facilitate – online dialogues between farmers and the officers after taking the Smart Farmer program. This last point is important as there is no doubt in the mind of the researchers that digitization will accelerate in the years to come and forms and training should reflect this trend.

5. Conclusion, and Recommendations

The Phrae province farmers involved in this study were between 46-60 years old. This figure is consistent with the report of the Department of Agricultural Extension, which stated that out of a total population of farmers of 12,401,600 in 2018, almost half of them (5,754,400) were between 46-60 years old (Ministry of Agriculture and Cooperatives, 2018). All the demographics in this study are also in line with basic information in other provinces (Prasertkhorawong, 2014). The aging farming population makes it even more critical for

farmers to acquire new skills as smart farmers and run their farms more efficiently. This is one of the reasons why farmers involved in the program did want the Department of Agricultural Extension to expand their knowledge of agriculture and introduce new technologies and innovation so that they could transit from general farming to smart farming. The framework of the 12th National Economic and Social Development Plan (2017-2021) rests on the shift from traditional to modern agricultural management through the widespread use of technology and innovation under Thailand 4.0 policy. Obviously, this important transition toward the implementation of the 20-year strategy of agriculture and cooperatives (2017-2036) will not be possible without the widespread use among farmers of more sophisticated technology support. (Office of Agricultural Economics Ministry of Agriculture and Cooperatives, 2016).

Dealing with an older population, however, presents challenges as suggested by the performance of the 400 farmers tested. As we saw, out of a maximum score of 30 points, the highest score was 23 and the lowest 4 (the average score at 11.98 points). Almost half of the farmers (48.25%) received a score between 0-10 points, which means they failed the training. In other words, most farmers failed to develop the knowledge and ability to become smart farmers as determined by the qualifications articulated by the Ministry of Agriculture and Cooperatives. For those who had never been involved in the Smart Farmer program before, that they failed is quite understandable. However, for those who attended training before, this raised important questions. One of them relates to resistance to change. While the 10 farmers interviewed stressed the importance of the program and the need to keep up with new technology and new trends away from the heavy use of farm chemicals (consumers may eventually refuse to buy products they perceive as ‘unsafe’), it may nevertheless prove to be difficult to change almost overnight years of practices passed down from one generation to another. Much of the burden of making farmers accept and ‘embed’ change rests with lecturers and scholars from the Department of Agricultural Extension. Clearly, the transition to smart farming is not easy. First and foremost, it requires a change in attitude, especially attitude towards change (Singkhavanich, 2010). This is consistent with Khemthong (2011), who discussed the importance of psychology as applied to farmers. When transfering knowledge to farmers, officers need to have a good understanding of the basic principles of human behavior in rural society.

Importantly, the agricultural extension scholars needs to provide flexibility with regard to the courses selected as farmers’ adaptation to the techniques of smart smarting is an evolving process that constantly raises new issues. In other words, it is critical for lectures to keep asking these two interrelated questions: "What do students want to learn?" and “What should we do to make sure they learn what they need?” The key point here is that the content of the subjects taught must be about the learners, the conditions under which they will implement what they learn, and societal problems. Agricultural extension scholars must act as caretakers and assist learners in exploring their own needs and interests and help them solve problems arising therefrom. They must also seek new knowledge which they would want to have access to if they were actually practicing themselves. Dealing with an older population also points to the need to prepare the next generation of farmers and turn them as smart farmers as early as possible in their careers. This may be made easier by the fact that they are more inclined to use technology and social networks. They may also be more flexible. On the other hand, though, they may have to grasp with generational issues as any change they may want to implement in their farming practices may met with resistance from older family members. Hence the importance to continue to train older people as well along the directives set forth by the Minister of Agriculture and Cooperatives.

The farmers who attended the training were able to score higher after studying than before at a significant level of 0.05. Interestingly enough, most of those who tested in this research study were still unable to efficiently use a tablet or a smartphone. As discussed earlier, this lack of mastery of basic information technology is largely due to the fact that many cannot afford to buy such relatively high price products. This keeps them from searching information on technology and agricultural innovations via the internet which farmers should nevertheless receive. Yet, the framework of the 12th National Economic and Social Development Plan (2017 - 2021) rests on the shift from traditional to modern agricultural management through the widespread use of technology and innovation under Thailand 4.0 policy. The transition is especially critical during the first 5 years of the 20-year strategy of agriculture and cooperatives (2017-2036) (Office of Agricultural Economics Ministry of Agriculture and Cooperatives, 2016). The government should therefore focus on policies designed to support farmers to acquire communication devices that would help them search for information on agricultural technology and innovations. Searching data online and using helpful and relavant applications is already critical now and it will be even more so in the future; hence the need for a policy ensuring farmers access to inexpensive and good quality devices to support their transition to smart farming.

- *Recommendations*

The Department of Agricultural Extension has developed a distinguished training program suitable for farmers and their present needs. However, developments such as more frequent and more intense weather events (which may become the 'new normal') may create the need for new and innovative training initiatives. It is therefore important that all those involved in the Agricultural Extension program remain alert to new dvelopments and flexible in their approach to training and in their working relationships with farmers the way they have so far. While many farmers have been able to participate in this program, many have not yet. So it is may be helpful to increase the number of sessions, which would also enable 'repeats'. All these are important considerations for policy formulation and future plans drafted by the Department of Agricultural Extension Ministry of Agriculture and Cooperatives in the next fiscal year. For all the reasons discussed throughout this research paper, with which readers are now familiar, the government should focus on policies designed to support farmers to acquire communication devices that would help them search for information on agricultural technology and innovations. This could come in the form of subsidies, low-interest loans, tax rebates, or leases. Finally, this reseach studied was limited to Phrae province in northern Thailand, which, while exhibiting national characteristics in some ways, may also not include others, which it would also be worthwhile exploring. Furture studies may thus want to consider a geographically broader population.

References

Agricultural Economic Monitoring and Forecast Center (KU - OAE Foresight Center: KOFC). (2015). Smart Farmers and progressing to Thailand 4.0 at the same time?. Retrieved November 20, 2017, from https://www.kasetkaoklai.com.

Department of Agricultural Extension. (2018). Result of registration and improvement of farmer registration year 2018 (according to the registration place) Date of update 7 February 2018. Retrieved July 8, 2018 from http://farmer.doae.go .th /ecoplant/eco_report /report1_regis_61

Farmer Development Division Department of Agricultural Extension. (2018). The development of Smart Farmers as per the policy to add (PDF documents). Retrieved February 8, 2018, from http://ssnet.doae.go.th/

Hirunratsamee, P. (2010). *Foundation of Agricultural Extension.* Nonthaburi: Sukhothai Thammathirat Open University Press.

Khemthong, P. (2011). *Human Relation and Appropriate Psychology for Farmer*. Department of Agricultural and Cooperative Promotion. Nonthaburi: Sukhothai Thammathirat Open University Press.

Khrasanati, S. (2004). *The development of training courses on bilateral education management For those supervising the training of bilateral students.* (Master of Education degree), Srinakharinwirot University.

Ministry of Agriculture and Cooperatives. (2018). Farmers assessment goals in the Smart Farmer system (www.thaismartfarmers.net) Separate provinces (PDF documents). Retrieved January 18, 2018, from www.thaismartfarmers.net/assets/file_download/Target_thaismartfarmers.net_.pdf

Office of Agricultural Economics Ministry of Agriculture and Cooperatives. (2016). National Economic and Social Development Plan Twelfth Edition, 2017 - 2021 (PDF document). Retrieved October 11, 2017, from http://www.oae.go.th/download/journal/development_plan2559.pdf

Pornhan, L. (2018, August 15). *The expert in agricultural extension of Phrae Provincial at Agricultural Office who has to take responsible for the Smart Farmers Development project for the provincial level, Department of Agricultural Extension.* [Interview]

Policy Driven Committee, Smart farmers and Smart Office, Department of Agricultural Extension. (2013). Guide to Driving Policies Smart Farmers and Smart Office Department of Agricultural Extension Ministry of Agriculture and Cooperatives. (PDF document). Retrieved November 20, 2017, from http://www.trat.doae.go.th/data/smart%20farmers/SF&SOdoae.pdf

Prasertkhorawong, K. (2014). *Agricultural Resources Management by Sufficiency Economy by farmers in Lampang Province*. (Master of Agriculture degree), Sukhothai Thammathirat Open University.

Project and Budget Group, Planning Division, Department of Agricultural Extension. (2017). Agricultural Extension Program Handbook Fiscal Year 2018 Smart Farmers (Word documents). Retrieved December 3, 2017, from http://ssnet.doae.go.th/2017/10/24/

Saylor, J. G., & Alexander, W. M. (1974). *Planning curriculum for schools*. New York: Holt, Rinehart and Winston.

Srimuk, S. (2015). Agricultural reform : Smart farmers. *Academic articles Office of the Academic Secretariat of the Senate*, *5*, 1-2.

Taba, H. (1980). *Curriculum development : Theory and practice*. Second edition. New York: Macmillan.

The Committee to Impel the Smart farmers Project and Smart Office, Ministry of Agriculture and Cooperatives. (2013). Guide to Driven Policies Smart farmers and Smart Office Policy Part 1 Framework for early stage implementation. (PHP document). Retrieved November 20, 2017, from http://www2.opsmoac.go.th/ewt_dl_link.php?nid=7293

Singkhavanich, T. (2010). *Foundation of Agricultural Extension.* Nonthaburi: Sukhothai Thammathirat Open University.

Yamane, T. (1973). *Statistics: An introductory analysis*. Third editio. New York: Harper and Row Publication.

ASEAN Journal of Management & Innovation
Vol. 7. No. 1, 133 - 152

DOI: 10.14456/ajmi.2020.10
ajmi.stamford.edu
Received: December 12, 2019
Revised: May 26, 2020
Accepted: June 22, 2020

The Impact of Trade Facilitation on Vietnam's Trade Flows

Zhen Yu
Department of World Economics, Wuhan University, China.
Yuzhenwhu@126.com
Boito Luu
Department of World Economics, Wuhan University, China.
Cathy_lau88@yahoo.com.vn

Abstract
In today's globalized economy, countries actively participate in Free Trade Agreements (FTAs) in order to bring their advantageous products to the global market through cross-border trade. The extent of the benefits of FTAs though is largely of function of the level of implementation of the trade facilitation (TF) measures contained in these agreements as simplified customs procedures and improved customs clearance efficiency can help traders substantially reduce their costs. This paper focuses on Vietnam which has been active in the last two decades expanding its trade linkages with various countries around the world. Due to these international trade arrangements, Hanoi has been committed to implementing TF measures agreed upon. The purpose of this paper is to determine the impact of TF measures on Vietnam's trade flows during the period 2007-2018 in two cases; in the presence of FTAs and with no FTA concluded. Vietnam's import and export data sets from that period ara analyzed using the gravity model and the Generalized Method of Moments (GMM). The results show that during that period TF had a positive impact on Vietnam's trade flows and that its affect was consistent with and without FTAs. Since TF implementation is staill at a relatively early stage, when TF reforms really take place, reduced trade costs are likely to further increase trade volume. In short, TF has gradually become major factors of trade growth.

Keywords: Free Trade Agreement, Trade Facilitation, Vietnam's bilateral Trade Flows, Economic Benefits.

1. Introduction

Vietnam's economy has been on an upward trajectory for over a decade thanks in no small part to the policies implemented under the so-called "Đổi Mới" – the Vietnamese term used to describe Vietnam's economic reforms from the early 1990s onward. Focusing on the modernization of the agricultural and industrialization sectors, all the measures taken to transition from a state economy to some forms of market economy have steadily raised the country's Gross Domestic Product (GDP) (Pham & Vuong, 2009; Vuong & Napier, 2014). Also contributing to the country's rising living standards is its accession to the 10-member Association of South East Asian Nations (ASEAN) on July 28, 1995. Among other benefits, it has led to the elimination of tariffs on most ASEAN-originating goods traded across the region and made Vietnamese products cheaper across the trade bloc, promoting Vietnamese trade in the process. Vietnam's trade linkages are not, however, simply limited to Southeast Asian nations. Over the last 15 years, Hanoi has been expanding its network of preferential trading partners, both collectively, negotiating as part of ASEAN as one unit (ASEAN+1), and individually, negotiating its own bilateral agreements with various countries around the world (unlike members of the European Union who can only negotiate collectively, ASEAN member states can enter into bilateral accords on their own). According to the Vietnam Chamber of Commerce and Industry (VCCI), as of 2019, Vietnam has concluded 16 free Agreements

(FTAs) both collectively and individually. FTAs bring many preferential tariff benefits to participating members (Vuong, Semerak, & Vuong, 2019) and have had a positive impact on Vietnam's import and export flows. During the period 2007-2018, both the country's imports and exports increased exponentially. As shown in Figure 1, however, trade with FTA partners grew more rapidly than with non-FTA partners, rising from USD400 million in 2006 to USD1.6 billion in 2018. Clearly, FTAs provide Vietnam with more trade opportunities. Preferential Trade Arrangements (PTA) not only substantially

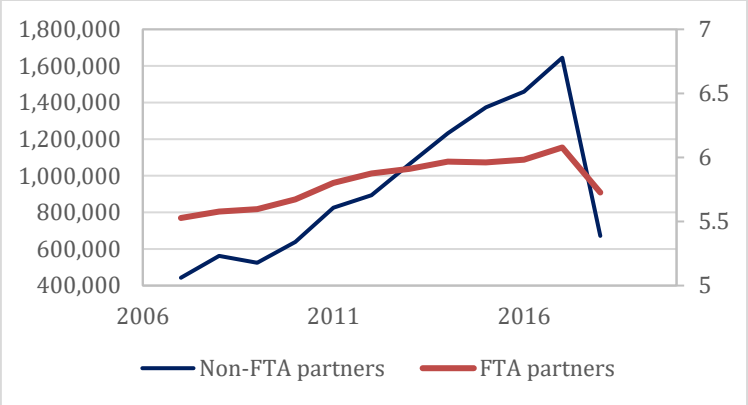

Figure 1: Vietnam's Total Import-Export Value (Mil.USD)
Source: General Statistics Office of Vietnam

reduce or eliminate tariffs, they also facilitate trade by eliminating non-tariff barriers. Indeed, trade facilitation (TF) measures are an integral part of trade negotiations. There is, however, no standard definition of TF as its scope is determined by FTA negotiations (ADB & UNESCAP, 2009). According to Chauffour and Maur (2011), the biggest benefit of TF is the reduction of transaction costs, which in turn increases job opportunities and income generation, thereby promoting economic development (Ramos, Zarzoso, & Suarez-Burgest, 2012; Herzer, 2013; Sakyi, Villaverde, & Maza, 2015). In the medium and long term, TF has a positive impact on improving trade capacity as it increases foreign direct investment and enhances the participation of domestic enterprises in the global supply chains (ADB & UNESCAP, 2013). Customs procedural reform can shave off 2.8% of the trade costs for middle-income countries and 2.2% for low-income countries (Moïsé & Sorescu; 2013).

Although Vietnam has become one economy relatively open, the complexity and lack of transparency of customs border processes and inconsistent regulations have created many challenges in improving the competitive environment. The problem is rooted in specialized inspection, which as part of the customs clearance procedures, is carried out by functional ministries. The result is that different types of Vietnamese specialized inspections relate to many ministries, which significantly delay customs clearance and create unnecessary costs to importers and exporters. According to Doing Business (2016) statistics, the amount of time needed to import goods into Vietnam and comply with all kinds of inspection requirements (documentary compliance) amount to 76 hours as compared to 3 hours in Singapore as shown in Table 1. As to border compliance, it adds up to 56 hours, versus 33 hours in Singapore. In the meantime, the amount of time needed to export goods amounts to 50 hours of documentary compliance and 55 hours of border compliance. This is still the case in spite of Hanoi's commitment to the World Trade Organization (WTO) and the WTO Trade Facilitation Agreement (TFA) and a host of FTAs. As noted earlier, Vietnam is slowly implementing its international obligations but while the country has policies, plans and projects, they are not linked together (Pham et al., 2013). This creates instability for investors and businesses.

Hollweg and Wong (2009) examined the differences in the logistics regulatory environment of ASEAN+6 economies and concluded that the countires that have the most limited logistic services in the ASEAN+6 area are China, Indonesia, Laos, Malaysia, Philippines, and Vietnam.

Table 1: Time Required for Export/Import of Goods within ASEAN (hours) in 2016

	Export Time		Import Time	
	Border compliance	Documentary compliance	Border compliance	Documentary compliance
VNM	55	50	56	76
THA	44	11	50	4
SGP	10	2	33	3
PHL	42	36	120	96
MMR	142	144	230	48
MYS	28	10	36	7
LAO	9	60	11	60
IDN	53.3	61.3	99.4	106.2
KMH	45	132	8	132
BRN	117	155	48	132

Source: Doing business (2016). VNM, Vietnam; THA, Thailand; SGP, Singapore; PHL, Philipines; MMR: Myanmar; LAO, Laos, IDN, Indonesia; KMH, Cambodia; BRN, Brunei.

This paper seeks to examine the impact of TF on Vietnam's trade flows during the period 2007-2018. More specifically, using the gravity model and the Generalized Method of Moments (GMM) method, it considers the impact of TF on Vietnam's trade flows either with or without the presence of FTAs. TF for the purpose of this research is defined through 4 effects, i.e. customs effect (CE), regulatory effect (RE), port effect (PE) and infrastructure effect (IE), which are aggregated through different indicators. The paper is organized as follows: Section 2 provides an overview of the research literature on TF. Section 3 examines the methodology and presents the variables used in this paper. The results of the impact of TF on Vietnam's trade flows are then shown in Section 4 and discussed in Section 5. This paper concludes in Section 6, which also provides policy recommendations.

2. Key Concepts

- *Trade Facilitation (TF)*

As noted in the introduction, TF measures are integral to the negotiation process and commonly regarded as an indispensable part of trade negotiations and the conclusion of Preferential trade arrangements. TF is a key issue for national economic growth (OECD, 2017). There is, however, no standard definition of FT as its scope varies with the scale of the measures adopted in negotiated trade agreements (ADB & UNESCAP, 2009). TF can nevertheless broadly be defined as a range of trade measures (Chauffour & Maur, 2011). It can thus be said that TF consists in reducing procedural barriers, implementing cooperation, and coordinating between governmental and inter-governmental border agencies (Goldin & Reinert, 2007). In other words, TF is a series of port efficiency, transport issues or measures designed to simplify the requirements of cross-border trading systems (Wilson, Mann, & Otsuki, 2004). The extent of the measures involved has gradually expanded over time (Chauffour & Maur, 2011). Their main purpose is to ensure the quick release and clearance of goods in order to accelerate the flow of goods, imports and transportation (Jordaan, 2004). As traders seek the best strategies to reduce their trade costs and transfer quality products to other parts of the world for further trade, TF contributes to a reduction in import and export costs as well as a surge in global trade (OECD, 2018). The 1996 WTO's Trade Facilitation Agreement (WTA) has created important

opportunities to increase the speed and efficiency of border processes. However, although the WTF has received the support of most countries, its implementation has been uneven. Logistics is closely related to TF, especially border management processes and customs procedures (Korinek & Sourdin, 2011). With the growing importance of global supply chains, the need to simplify the application procedure is of priority for all countries. In this paper, Yet, while WTO members have gradually improved their logistics policies, many of the policies adopted are not strictly enforced (Nguyen, Nguyen, & Hoang, 2016).

- TF's Economic Benefits

In recent years, there have been much research on the economic benefits of TF (Ramos et al., 2012; Herzer, 2013; Sakyi et al., 2015; Ramanayake & Lee, 2015). It is widely acknowledged that TF increases trade flows and brings cheaper goods to the rest of the world as it reduces trade costs through the demolition of trade barriers (Dollar & Kraay, 2004; Ramos et al., 2012; Tuffour et al., 2016). TF increases both import and export activities (Ramanayake & Lee, 2015) and ensures a higher predictability of transaction processes (Dreger & Herzer, 2013), therefore increasing national competitiveness. By reducing trading costs, TF increases participation in global value chains that characterize today's international trade. TF is thus an important growth factor. It not only capital increases investment but also reduces poverty (Ravallion, 2001; Dollar & Kraay, 2004; Winters et al., 2004; Sakyi et al., 2017). Enterprises use the best price of the goods to transfer them to the world in the shortest time and fastest speed. In the process of trade transactions, minimizing trade barriers and trade costs will promote more exports and imports. TF, however, may have knock-on effect on economic activity, employment opportunities, competition, education, health and technology transfer if TF measures are not fully implemented and enforced (Heshmati & Peng, 2012; Herzer, 2013; Sakyi et al., 2015). The burden is multiplied for small and medium enterprises (SMEs) because most of them are less aware of new regulations and have less access to new technologies (Ramanayake & Lee, 2015). Wilson (2003) measured the impact TF on economic development using port effect, regulatory effect, customs effect and e-business. Otsuki (2011) assessed the benefits of TF by looking at the port environment, regulatory environment, customs environment, and the service sector infrastructure. In this research paper, TF is therefore defined through four effects: customs effect (CE), regulatory effect (RE), port effect (PE) and infrastructure effect (IE). As detailed in the next section, each of them includes a number of indicators.

- The Gravity Model

The basic gravity model explains the export size of country *i* to country *j* on the basis of three factors: the total export capacity of country *i*, the import demand of the country *j*, and various elements likely to constrain trade flows between countries (Cheewatrakoolpong & Rujanakanoknad, 2011). The gravity model is a popular approach to model bilateral trade flows. Tinbergen (1962) and Pöyhönen (1963), for example, used the gravity model to explain the bilateral trade flows of various European trading partners. The gravity model was also used by Jordaan, (2014) to consider the impact of TF factors on South African exports to African countries. Wilson (2003) examined the relationship between TF and trade flows with GDPs per capita in the Asia-Pacific region through the prism of the gravity model and concluded that improvements in customs and e-business utilization significantly expanded trade, albeit to a lesser degree than efficient ports or regulations would. Cheewatrakoolpong and Rujanakanoknad (2011) looked at the impact of the improvement of TF on Thai transportation and trade within ASEAN. The results indicate that compliance with the implementation of TF reforms is effective in improving Thailand's export value. Some studies combined the gravity model and the Computable General Equilibrium (CGE) model to quantify the benefits of improved TF (e.g. UNCTAD, 2001; Fox, Francois, & Londono-Kent, 2003). For instance, Hertel, Walmsley, and Itakura (2001) used a CGE analysis to measure the impact of standard

harmonization in e-business and automated customs procedures on trade and concluded that reforms contributed to increasing trade flows between countries. Walkenhorst and Yasui (2003) estimated the benefits of reducing trade transaction costs based on the CGE model as did Walmsley and Minor (2016). Both studies determined that customs efficiency is needed to increase the benefits of trade. Some research papers have also used the Generalized Method of Moments (GMM) to assess the impact of TF on trade. For example, Sakyi et al. (2017) used the GMM method to determine the impact of TF on trade and economic growth in Africa and on the welfare of African countries (Sakyi et al., 2018). These results contributed to confirming previous findings showing that the improvement of the customs and legal environment in importing countries as well as their domestic infrastructure generally increase trade flows. To determine the TF impact on Vietnam's trade flows during the period 2007-2018 with or without the presence of FTAs, this paper used the gravity model and the System-GMM method to eliminate endogeneity problems.

3. Measuring the Impact of Vietnam's Trade Facilitation

- *Estimation Model*

This section focuses on the research methodology adopted in this study. It explains the empirical method employed and the variables used based on the four effects through which TF is defined. It is important to note first that the values used in this paper are the average values of the various indicators through which the four effects are aggregated. It is also worth noting that different studies have included different structural elements to the basic gravity model so as to better reflect reality. For example, Wilson (2003) included tariffs and other standard variables, Otsuki, Wilson, and Sewadeh (2001a, 2001b) used fixed effects to control price differences and unobservable factors. The model used in this research study, however, uses less data. Although a bit more rudimentary, it is more applicable to developing countries where price data is less reliable and incomplete. Therefore, the estimation model used in this paper is a gravity model that includes Vietnam's TF and trade partners as well as the GDP of the countries considered. Three additional parameters included in the equation distinguish countries in three ways: those that have preferential trade arrangments with Vietnam from those that do not, those that have a common language, and those are adjacent as opposed to distant. As Jordaan (2004) pointed out, when two countries use English as their primary language of communication, this can translate into trading advantages. In addition, when two trading partners enjoy geographical advantages, the latter will increase the exports and imports of both countries. Therefore, the estimated model used in this research paper is provided by the following equation:

$$\ln\text{Tradeflow}_{ijt} = \beta_0 + \beta_1 \ln\text{TF}_{ijt} + \beta_3 \ln\text{GDP}_{it} + \beta_4 \ln\text{GDP}_{jt} + \ln\text{DIST}_{ij} + \ln\text{D}_{FTA} + \ln\text{D}_{lang} + \ln\text{D}_{Adj} + \varepsilon_{ijt}$$

Where:

- *t* denotes the transaction year from 2007 to 2018. The reason for choosing this research period is because 2007 is the year Vietnam joined the World Trade Organization (WTO). Among other benefits, accession to the WTO provided Vietnam with opportunities to conclude FTAs with a number of nations around the world, including with ASEAN and its main partners in Asia-Pacific, and the United States and the European Union. As to 2018, at the time this research was conducted, it was the last year that data from sources such as the World Bank and the General Statistics office of Vietnam were published and available.
- Tradeflow_{ijt} represents the value of exports and imports from country *i* to *j* and vice versa, for a period of time *t*.
- *i* represents Vietnam and *j* Vietnam's trading partner.
- TF_{ijt} stands for customs and regulatory effects and port efficiency, infrastructure effects.

- GDP_{it} and GDP_{jt} denote the gross national product of *i* and j in time *t.*
- $DIST_{ij}$ represents the geographical distance between the Vietnam's capital city and that of its trading partners. As noted earlier, TF is a two-way activity. It is not only an effort by trading partners to reduce or eliminate uncessary and burdensome border procedures, but also a similar cooperative effort by Vietnam to facilitate and speed up customs clearance. Therefore, each TF indicator will be the average TF of both Vietnam and its trading partners.
- D_{FTA}, D_{lang}, D_{Adj} are the dummy variables, where D_{FTA} has a value of 1 for countries with which Vietnam has signed an FTA and vice versa. D_{Adj} is worth 1 if the trading partner country is adjacent to Vietnam. In an opposite situation, it is 0.

As we just saw above, in this paper TF is defined through four effects : customs effect (CE), regulatory effect (RE), port effect (PE) and infrastructure effect (IE). They all relate to the efficiency of customs procedures, clearance, transparency (or the lack thereof), and the burden of an inflation of legal documents and bureaucratic management. These four effects tend to increase the cost and time of cross-border commodity transactions. These four effects are aggregated through various indicators as follows:

- *Customs Effect (CE)* – The data for this indicator is based on the Global Enabling Trade Report (GETR) and includes:
  - Burden of customs procedures
  - Customs services index
- *Regulatory Effect (RE)* – This indicator averages the following six index inputs from the Worldwide Governance Indicators (WGI) and the World Bank World Development Indicators (WB WDI):
  - Control of Corruption
  - Government Effectiveness
  - Regulatory Quality
  - Rule of Law
  - CPIA business regulatory environment rating
  - CPIA policy and institutions for environmental sustainability rating
- *Port Effect (PE)* – Each country's PE aggregates inputs from the Liner Shipping Connectivity Index (LSCI) and the Global Enabling Trade Report (GETR) as follows:
  - Effectiveness and efficiency of clearance
  - Liner Shipping Connectivity Index. This indicator includes transshipments, common direct connections, geometric means of direct connections, level of competition in shipping services, and ships size.
- *Infrastructure Effect (IE)* – Each country's IE indicator consists of three inputs from the Global Competitiveness Report (GCR) and the World Bank World Development Indicators (WB WDI) :
  - Quality of port infrastructure
  - Quality of trade and transport-related infrastructure
  - Efficiency of customs clearance process

Table 2 shows the mean and standard deviation of the indicators of these four effects TF as described above.

Table 2: Descriptive Statistics of TF Indicators

Category	Indexed input	Mean	Std.Dev.	Min	Max
CE	Burden of customs procedures	.287680	.150036	0	1
	Customs services index	.356525	.136883	0	1
RE	Control of Corruption	.591515	.184324	0	1
	Government Effectiveness	.583956	.181555	0	1
	Regulatory Quality	.622336	.175799	0	1
	Rule of Law	.643190	.177562	0	1
	CPIA business regulatory environment rating	.351525	.402477	0	1
	CPIA policy and institutions for environmental sustainability rating	.336548	.370695	0	1
PE	Effectiveness and efficiency of clearance	.292529	.173672	0	1
	Liner Shipping Connectivity Index	.291099	.166349	0	1
IE	Quality of port infrastructure	.540538	.211306	0	1
	Quality of trade and transport related infrastructure	.273302	.123652	0	1
	Efficiency of customs clearance process	.428815	.174589	0	1

Source: Compiled by author based on WGI, GETR, WB WDI, GCR and LSCI

- Data Sources

The import and export data used in this study were obtained from the General Statistics Office of Vietnam. They covered the period 2007-2018. As we just saw, the indicators through which the CE, RE, PE and IE variables were aggregated were collected from annual survey results published on the WGI, GETR, GCR, and LSCI. The GDP value was computed based on data provided by the Vietnam Statistics Office and the World Bank. Moreover, the geographic distance data between Vietnam and its trading partners was compiled based on Geodatasoure database; a complete database of latitude and longitude coordinates and regional and national information on 249 countries or territories on 6 continents. The adjacency value was determined via Googlemap and FTA data provided by Vietnam Chamber of Commerce and Industry (VCCI). Table 3 describes the variables used for this analysis and their sources.

Table 3: Variables Defined and Data Sources

Variable	**Definition**	**Source**
Dependent Variables		
Vietnam's exports	Value of exports from Vietnam to trading partners	GSOV
Vietnam's imports	Value of import from to trading partners	GSOV
Main Variables		
TF indicators		
CE	Burden of customs procedures	GETR
	Customs Services index	GETR
RE	Control of corruption	WB WGI
	Government effectiveness	WB WGI
	Regulatory quality	WB WGI
	Rule of law	WB WGI
	CPIA business regulatory environment rating	WB WDI
	CPIA policy and institutions for environmental sustainability rating	WB WDI
PE	Effectiveness and efficiency of clearance	GETR
	Liner Shipping Connectivity Index	LSCI

IE	Quality of port infrastructure	GCR
	Quality of trade and transport related infrastructure	WB WDI
	Efficiency of customs clearance process	WB WDI
GDPi	Gross national product of Vietnam	GSOV
GDPj	Gross national product of trading partners	WB WDI
Control Variables		
Distance	Distance between Vietnam and trading partners	Geodatasoure
FTA	Bilateral FTAs with Vietnam, it has a value of 1 and vice versa	VCCI
Language	English as first language, it has a value of 1 and vice versa	Wikipedia
Adjacency	If partner country is neighboring country , the value is 1 and vice versa	Google map

Note: GSOV, General Statistics office of Vietnam; GETR, Global Enabling Trade Report; WB WGI, World Bank World Governance Indicators; WB WDI, World Bank World Development Indicators; LSCI, Liner Shipping Connectivity Index; GCR, Global Competitiveness Report; VCCI, Vietnam Chamber of Commerce and Industry

4. Estimates of Impact on Vietnam's Trade Flows

This section presents the results of the application of the empirical model to Vietnam's exports and imports. The empirical results are presented in Tables 3 through 8, where Tables 3 and 4 show the baseline specification results, Tables 5 and 6, the TF impact on Vietnam's export flows in terms of fixed effect, and Tables 7 and 8, the empirical results of the System-GMM regression. Table 9 shows the robustness check results. As explained earlier, the main variable of interest for this analysis is the TF variable, which is reported through four main variables/indicators: CE, RE, PE and IE. Each table includes the results of 12 empirical models as follows:

- models (1-3) present the CE impact on Vietnam's exports and imports;
- models (4-6), the RE impact;
- models (7-9), the PE impact; and
- models (10-12), the IE impact.

Tables 3 and 4 present the baseline specification results. They show how TF impacts Vietnam's exports and imports. Table 3 focuses on the TF impact on export flows and Table 4 on its impact on import flows. Models 1, 4, 7, 10 in those two tables show the value of four TF indicators without FTA variables. It can be seen that the variables are positive and statistically significant. Models 2, 5, 8 and 11 show the value of four TF indicators in the presence of FTAs. As is the case when there is no FTA, these variables are positive and statistically significant both in terms of output and input flows. Models 3, 6, 9 and 12 show the impact of TF indicators in the concomitant presence of the following four factors: FTAs, geography, language, and distance. Again, the results are positive for both Vietnam's export and import flows. The four TF coefficients in the export and import flows are positive with the import flow of Vietnam at the p-value of 1%. However, the CE variables in both tables bear the (-) sign. This shows that customs issues have not yet been fully dealt with, which results in delays in the clearance process and negatively affects Vietnam's export and import flows.

Tables 5 and 6 show the results of the effects of four TF coefficients on export and import flows. This analysis used the fixed-effect model to analyze trade between Vietnam and its trading partners. The Hausman test was performed to confirm the random and fixed effects, which were consistent with this analysis. The Hausman test shows a p-value of 0.0167. Since p-value <0.05, this research paper chooses the fixed effects model as the main model to analyze the impact of TF on trade flows between Vietnam and trading partners. The RE, PE and IE variables are positive and statistically significant. The CE variable, however, is not statistically significant. As with the previous analysis in Tables 3 and 4, the RE, PE and IE coefficients do not change significantly in the presence of FTAs. This is not saying though that Vietnam's

conclusion of FTAs does not benefit the economy; it does. The TF indicators, however, do not show it clearly. A third approach in this study, one meant to eliminate endogeneity problems due to the correlation between explanatory variables and error terms, is to use the System-GMM estimation tool, which is based on a large cross-section and a small-time dimension. Tables 7 and 8 outline the results of this method. As with the previous four tables, the results are also arranged in 12 models. Models 1-3 show the results of the CE variable, models 4-6 the results of the RE variable, models 7-9 the results of the variable PE and models 10-12 those of the IE variable. Save for the CE variable, whose results are the opposite of those shown in the previous tables, all the other results in those two tables are similar to the previous tables and therefore positive and statistically significant. At 1%, the impact a 5.043 percent RE improvement will increase exports by 0.749 percent and Vietnam's GDP by 0.521 percent. The impact of the TF is also evident on the import side as a 4.734 percent improvement of the RE will increase imports by 0.687 percent and increase Vietnam's GDP by 0.618 percent. Using the System-GMM method, the results show that Vietnam's import and export are affected by TF. In general, the impact of TF on Vietnam's trade is positive and statistically significant. The results are not much different when Vietnam's trade linkages are taken into account. There is no difference when distance, adjacency and language are part of the equation. Again while the importance of these variables cannot be denied, in this particular analysis, they seem to have no clear impact.

Finally, to test the robustness of the empirical model, the TF indicator was replaced by the following four indicators : Cost to import, border compliance (USD); Cost to export, documentary compliance (USD); Cost to export, border compliance (USD); and Cost to import, documentary compliance (USD). The estimated sample was also determined for the period 2007-2018. TF improves individual well-being as it reduces trade costs and therefore directly reduces the final price that people pay for the goods they consume (World Bank, 2017). The variable TF is the average of the four cost variables related to exports and imports. Therefore, the TF variable is predicted to have a (-) sign.

Table 9 shows the results of the estimation of the impact of TF on Vietnam's imports and exports. The table consists of 6 models; models (1-3) show the TF impact on Vietnam's exports and models (4-6), its impact on Vietnam's imports. Through these models, the TF impact can be seen clearly. There is a real export flow as the TF coefficients, below the p-value of 1% are positive and statistically significant in models (1) and (2). There is no difference when FTAs have been concluded between trading partners, which means that the improvement of Vietnam's TF is not due to the existence FTAs. The implication is that TF is an essential element for improving Vietnam's trade flows. As predicted above, the sign of the TF coefficient is negative, although there is no clear sign on the import side of Vietnam but the (-) sign of the TF coefficient indicates that countries' customs effects will negatively affect import and export flows, Vietnam's exports in particular.

To summarise, during the period 2007-2018, the impact of TF on Vietnam's export flows is clear and positive. However, there is no clear impact on Vietnam's import flows. In addition, TF increases Vietnam's trade flows, regardless of the existence of FTAs, whose presence has no effect. These finidngs are entirely consistent with previous studies (e.g. Wilson, 2003; Wilson et al., 2004; Chauffour & Maur, 2011; Jordaan, 2014).

Table 3: TF Impact on Vietnam's Export Flows (Baseline Specification)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
CE	-3.183***	-3.141***	-3.345***									
	(1.006)	(1.000)	(0.974)									
RE				6.020***	6.107***	5.872***						
				(0.707)	(0.689)	(0.697)						
PE							9.345***	9.705***	9.596***			
							(0.360)	(0.456)	(0.433)			
IE										4.397***	4.232***	3.875***
										(0.856)	(0.871)	(0.880)
GDPit	1.638***	1.634***	1.641***	2.037***	2.038***	2.003***	-1.921***	-2.056***	-2.029***	0.862***	0.877***	0.909***
	(0.323)	(0.292)	(0.284)	(0.298)	(0.265)	(0.261)	(0.285)	(0.287)	(0.278)	(0.310)	(0.280)	(0.277)
GDPjt	3.43e-05***	3.45e-05***	3.79e-05***	5.32e-05***	5.58e-05***	5.72e-05***	5.16e-06*	6.61e-06**	9.72e-06***	-1.19e-06	9.06e-07	5.48e-06
	(6.14e-06)	(6.12e-06)	(6.00e-06)	(5.73e-06)	(5.94e-06)	(5.95e-06)	(2.98e-06)	(3.24e-06)	(3.13e-06)	(7.70e-06)	(7.95e-06)	(8.12e-06)
FTA	N	Y	Y	N	Y	Y	N	Y	Y	N	Y	Y
language	N	N	Y	N	N	Y	N	N	Y	N	N	Y
Distance	N	N	Y	N	N	Y	N	N	Y	N	N	Y
adjacency	N	N	Y	N	N	Y	N	N	Y	N	N	Y
Constant	-1.407	-1.831	-6.914***	-9.682***	-10.21***	-12.80***	26.06***	26.84***	23.98***	3.056	2.492	-1.191
	(2.725)	(2.456)	(2.464)	(2.699)	(2.434)	(2.351)	(2.360)	(2.356)	(2.308)	(2.588)	(2.327)	(2.434)
R^2	0.117	0.297	0.337	0.239	0.418	0.438	0.455	0.535	0.559	0.165	0.337	0.358
No. of Name	73	73	73	73	73	73	73	73	73	73	73	73

Note: Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1

Table 4: TF impact on Vietnam's Import Flows (Baseline Specification)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
CE	-7.291*** (0.933)	-7.211*** (0.872)	-7.406*** (0.845)									
RE				8.174*** (0.825)	8.104*** (0.753)	7.977*** (0.758)						
PE							9.708*** (0.428)	8.468*** (0.521)	8.421*** (0.505)			
IE										4.003*** (1.001)	3.875*** (0.985)	3.553*** (1.003)
GDPit	1.621*** (0.378)	1.608*** (0.305)	1.613*** (0.296)	1.904*** (0.357)	1.878*** (0.283)	1.854*** (0.280)	-2.422*** (0.368)	-2.003*** (0.342)	-1.998*** (0.335)	0.533 (0.388)	0.536* (0.321)	0.562* (0.318)
GDPjt	6.47e-05*** (6.02e-06)	6.61e-05*** (5.86e-06)	6.98e-05*** (5.74e-06)	8.31e-05*** (6.31e-06)	8.76e-05*** (6.17e-06)	8.96e-05*** (6.18e-06)	2.48e-05*** (3.55e-06)	3.19e-05*** (3.94e-06)	3.51e-05*** (3.86e-06)	2.18e-05** (8.80e-06)	2.58e-05*** (8.90e-06)	3.04e-05*** (9.16e-06)
FTA	N	Y	Y	N	Y	Y	N	Y	Y	N	Y	Y
language	N	N	Y	N	N	Y	N	N	Y	N	N	Y
Distance	N	N	Y	N	N	Y	N	N	Y	N	N	Y
adjacency	N	N	Y	N	N	Y	N	N	Y	N	N	Y
Constant	-1.543 (3.185)	-2.229 (2.556)	-7.088*** (2.563)	-11.29*** (3.232)	-11.82*** (2.606)	-13.29*** (2.580)	28.99*** (3.062)	25.03*** (2.815)	22.81*** (2.812)	4.724 (3.247)	3.901 (2.657)	0.871 (2.817)
R^2	0.260	0.538	0.565	0.316	0.589	0.601	0.387	0.544	0.560	0.169	0.450	0.463
No. of Name	73	73	73	73	73	73	73	73	73	73	73	73

Note: Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1

Table 5: TF Impact on Vietnam's Export Flows (Fixed-effect)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
CE	1.320 (1.175)	1.320 (1.175)	1.343 (1.182)									
RE				1.836*** (0.271)	1.836*** (0.271)	1.835*** (0.271)						
PE							2.819*** (0.579)	2.819*** (0.579)	2.855*** (0.580)			
IE										1.729** (0.835)	1.729** (0.835)	1.727** (0.834)
GDPit	1.293*** (0.195)	1.293*** (0.195)	1.300*** (0.198)	1.613*** (0.189)	1.613*** (0.189)	1.619*** (0.194)	0.430 (0.307)	0.430 (0.307)	0.430 (0.308)	1.176*** (0.186)	1.176*** (0.186)	1.183*** (0.191)
GDPjt	1.14e-05 (1.15e-05)	1.14e-05 (1.15e-05)	1.23e-05 (1.18e-05)	2.27e-05* (1.33e-05)	2.27e-05* (1.33e-05)	2.33e-05* (1.38e-05)	4.75e-06 (1.09e-05)	4.75e-06 (1.09e-05)	5.94e-06 (1.14e-05)	1.28e-05 (1.15e-05)	1.28e-05 (1.15e-05)	1.34e-05 (1.18e-05)
FTA	N	Y	Y	N	Y	Y	N	Y	Y	N	Y	Y
language	N	N	Y	N	N	Y	N	N	Y	N	N	Y
Distance	N	N	Y	N	N	Y	N	N	Y	N	N	Y
adjacency	N	N	Y	N	N	Y	N	N	Y	N	N	Y
Constant	0.777 (1.482)	0.777 (1.482)	390.4 (638.2)	-2.895* (1.721)	-2.895* (1.721)	242.2 (545.6)	7.897*** (2.414)	7.897*** (2.414)	554.2 (474.4)	1.298 (1.393)	1.298 (1.393)	260.0 (501.3)
R^2	0.240	0.240	0.240	0.297	0.297	0.297	0.258	0.258	0.259	0.259	0.259	0.259
No. of Name	73	73	73	73	73	73	73	73	73	73	73	73

Note: Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1

Table 6: TF Impact on Vietnam's Import Flows (Fixed-effect)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
CE	1.264 (0.944)	1.264 (0.944)	1.248 (0.947)									
RE				1.242*** (0.287)	1.242*** (0.287)	1.244*** (0.287)						
PE							1.151** (0.563)	1.151** (0.563)	1.134** (0.567)			
IE										1.118* (0.573)	1.118* (0.573)	1.121* (0.573)
GDPit	1.152*** (0.144)	1.152*** (0.144)	1.147*** (0.146)	1.406*** (0.156)	1.406*** (0.156)	1.396*** (0.160)	0.872*** (0.236)	0.872*** (0.236)	0.872*** (0.237)	1.118*** (0.148)	1.118*** (0.148)	1.108*** (0.152)
GDPjt	-2.88e-05*** (9.34e-06)	-2.88e-05*** (9.34e-06)	-2.94e-05*** (9.38e-06)	-2.14e-05* (1.16e-05)	-2.14e-05* (1.16e-05)	-2.23e-05* (1.17e-05)	-3.20e-05*** (9.01e-06)	-3.20e-05*** (9.01e-06)	-3.26e-05*** (9.09e-06)	-2.81e-05*** (9.44e-06)	-2.81e-05*** (9.44e-06)	-2.90e-05*** (9.46e-06)
FTA	N	Y	Y	N	Y	Y	N	Y	Y	N	Y	Y
language	N	N	Y	N	N	Y	N	N	Y	N	N	Y
Distance	N	N	Y	N	N	Y	N	N	Y	N	N	Y
adjacency	N	N	Y	N	N	Y	N	N	Y	N	N	Y
Constant	2.301** (1.127)	2.301** (1.127)	-271.9 (440.7)	-0.378 (1.429)	-0.378 (1.429)	-392.9 (384.1)	4.829** (1.844)	4.829** (1.844)	-250.3 (373.4)	2.424** (1.136)	2.424** (1.136)	-379.5 (369.0)
R^2	0.185	0.185	0.185	0.212	0.212	0.213	0.185	0.185	0.185	0.192	0.192	0.192
No. of Name	73	73	73	73	73	73	73	73	73	73	73	73

Note: Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.

Table 7: TF Impact of TF Vietnam's Export Flows (System-GMM)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
EX(-1)	1.024*** (0.241)	1.011*** (0.256)	1.012*** (0.258)	0.749*** (0.0326)	0.724*** (0.0354)	0.773*** (0.0576)	1.982*** (0.462)	1.974*** (0.468)	0.482*** (0.152)	0.803*** (0.101)	0.763*** (0.121)	0.635*** (0.212)
CE	21.96*** (3.495)	21.99*** (3.495)	21.93*** (3.499)									
RE				5.043*** (0.533)	5.049*** (0.529)	3.621*** (0.384)						
PE							-27.04*** (9.906)	-27.50*** (9.748)	9.818*** (1.093)			
IE										5.181*** (1.544)	5.386*** (1.600)	11.67*** (1.621)
GDPit	-2.344*** (0.656)	-2.323*** (0.670)	-2.315*** (0.667)	0.521*** (0.157)	2.83e-05*** (4.82e-06)	0.120 (0.155)	6.456** (2.521)	6.627*** (2.470)	-3.315*** (0.365)	-0.899*** (0.191)	-0.833*** (0.219)	-1.003*** (0.362)
GDPjt	-6.28e-05*** (1.81e-05)	-6.26e-05*** (1.83e-05)	-6.31e-05*** (1.86e-05)	2.79e-05*** (4.54e-06)	0.341** (0.156)	2.13e-05*** (4.37e-06)	3.69e-05** (1.86e-05)	3.80e-05** (1.85e-05)	-7.24e-06 (8.45e-06)	-2.82e-05*** (9.36e-06)	-2.85e-05*** (9.22e-06)	-6.42e-05*** (1.22e-05)
FTA	N	Y	Y	N	Y	Y	N	Y	Y	N	Y	Y
language	N	N	Y	N	N	Y	N	N	Y	N	N	Y
Distance	N	N	Y	N	N	Y	N	N	Y	N	N	Y
adjacency	N	N	Y	N	N	Y	N	N	Y	N	N	Y
Constant	15.01*** (2.676)	9.613*** (1.035)	17.24*** (3.637)	-4.862*** (1.509)	-5.081*** (1.518)	-0.838 (1.313)	-60.34** (24.19)	-61.68*** (23.75)	31.04*** (2.902)	8.432*** (0.673)	8.140*** (0.726)	10.79*** (2.181)
No. of Name	73	73	73	73	73	73	73	73	73	73	73	73
AR(2)	-0.96	-0.98	-0.97	2.46	2.52	1.32	-1.82	-1.88	-0.03	0.87	0.90	1.24
AR(2) p-value	0.336	0.326	0.330	0.014	0.012	0.186	0.069	0.060	0.972	0.386	0.367	0.217
Hansen Stat	2.67	2.72	2.80	0.85	0.83	2.87	2.30	2.31	11.01	0.22	0.14	0.24
Hansen p-value	0.751	0.744	0.592	0.357	0.363	0.090	0.130	0.128	0.001	0.638	0.711	0.624

Note: Robust standard errors in parentheses*** p<0.01, ** p<0.05, * p<0.1

Table 8: TF Impact on Vietnam's Import Flows (System-GMM)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
IM(-1)	1.086*** (0.117)	1.115*** (0.140)	1.380*** (0.189)	0.740*** (0.0428)	0.687*** (0.0438)	0.758*** (0.0517)	0.641*** (0.101)	0.635*** (0.115)	0.545*** (0.0770)	0.825*** (0.0842)	0.786*** (0.0950)	0.775*** (0.106)
CE	7.597*** (2.159)	7.691*** (2.232)	17.01*** (3.535)									
RE				4.734*** (0.551)	4.753*** (0.515)	4.049*** (0.503)						
PE							9.262*** (1.056)	9.137*** (1.053)	10.29*** (0.937)			
IE										8.115*** (2.334)	7.815*** (2.194)	11.45*** (1.751)
GDPit	-1.444*** (0.298)	-1.493*** (0.339)	-2.456*** (0.495)	0.554*** (0.178)	0.618*** (0.178)	0.319* (0.169)	-3.438*** (0.303)	-3.394*** (0.300)	-3.602*** (0.297)	-1.058*** (0.174)	-0.988*** (0.177)	-1.230*** (0.202)
GDPjt	-2.31e-05** (1.01e-05)	-2.47e-05** (1.12e-05)	-6.12e-05** (2.59e-05)	3.32e-05*** (5.33e-06)	3.52e-05*** (4.81e-06)	2.65e-05*** (4.68e-06)	-5.29e-06 (8.47e-06)	-4.49e-06 (8.51e-06)	1.69e-06 (8.06e-06)	-4.60e-05*** (1.56e-05)	-4.14e-05*** (1.53e-05)	-6.26e-05*** (2.01e-05)
FTA	N	Y	Y	N	Y	Y	N	Y	Y	N	Y	Y
Language	N	N	Y	N	N	Y	N	N	Y	N	N	Y
Distance	N	N	Y	N	N	Y	N	N	Y	N	N	Y
Adjacency	N	N	Y	N	N	Y	N	N	Y	N	N	Y
Constant	9.661*** (1.335)	9.829*** (1.488)	15.62*** (2.864)	-5.210*** (1.528)	-5.406*** (1.502)	-2.076 (1.342)	31.08*** (2.589)	30.69*** (2.541)	32.88*** (2.669)	8.376*** (0.867)	8.105*** (0.764)	10.98*** (2.050)
No. of Name	73	73	73	73	73	73	73	73	73	73	73	73
AR(2)	0.97	0.97	0.95	1.68	1.73	1.50	0.83	0.83	0.76	1.62	1.61	1.59
AR(2) p-value	0.330	0.332	0.344	0.092	0.084	0.133	0.404	0.405	0.446	0.105	0.107	0.113
Hansen Stat	0.63	0.52	2.68	3.23	1.63	13.89	1.68	2.31	4.47	1.14	1.53	7.36
Hansen p-value	0.426	0.471	0.262	0.072	0.202	0.001	0.195	0.129	0.107	0.285	0.216	0.007

Note: Robust standard errors in parentheses*** p<0.01, ** p<0.05, * p<0.1

Table 9: Robustness Check (2007-2018)

	EXPORT			IMPORT		
	(1)	(2)	(3)	(4)	(5)	(6)
EX(-1)	1.531*** (0.348)	1.581*** (0.404)	1.010*** (0.205)			
IM(-1)				0.658*** (0.177)	0.587*** (0.196)	0.976*** (0.202)
TF	-3.820*** (1.353)	-3.677*** (1.288)	-0.262 (0.819)	1.582 (1.228)	1.159 (0.851)	-0.238 (0.561)
GDPit	-3.517*** (0.551)	-3.667*** (0.564)	-2.161*** (0.336)	-1.587*** (0.310)	-1.313*** (0.263)	-1.772*** (0.140)
GDPjt	-0.000368** (0.000145)	-0.000352*** (0.000132)	-2.58e-05 (7.94e-05)	0.000149* (7.64e-05)	0.000121** (4.95e-05)	-1.98e-05 (6.48e-05)
FTA	N	Y	Y	N	Y	Y
Language	N	N	Y	N	N	Y
Distance	N	N	Y	N	N	Y
Adjacency	N	N	Y	N	N	Y
Constant	38.30*** (4.432)	38.68*** (4.534)	19.43*** (4.309)	11.77*** (2.210)	11.11*** (1.913)	17.11*** (1.631)
No. of Name	73	73	73	73	73	73
AR(2)	1.25	1.18	0.41	0.90	0.87	1.05
AR(2) p-value	0.212	0.238	0.681	0.368	0.385	0.293
Hansen Stat	0.39	0.44	1.09	1.85	1.4	4.45
Hansen p-value	0.825	0.804	0.296	0.173	0.237	0.035

Note: Robust standard errors in parenthese. *** p<0.01, ** p<0.05, * p<0.1

5. Discussion and Conclusion

The paper examined the impact of TF on Vietnam's trade flows during the period 2007-2018. It estimated the TF through four effects: port, customs, infrastructure, and regulatory effects. This article chose the fixed effects model to analyze the impact of TF on the trade flows between Vietnam and its trading partners. Moreover, the System-GMM estimation tool was used to eliminate endogeneity problems due to the correlation between explanatory variables and error terms. This reinforced the accuracy of previous calculations. The TF coefficients are positive and statistically significant at the 1% level. Finally, to test the robustness of the empirical model, the TF indicators were replaced by four other indicators. At 1% level, TF was positive and statistically significant, and there was no difference in the presence of FTAs. This implies that TF is a necessary element for enhancing Vietnam's trade flows.The results showed that port, infrastructure, and regulatory improvements have caused Vietnam's trade flows to increase during the period 2007-2018. This finding is entirely consistent with previous studies that found TF contributed to improving trade. Customs clearance, however, has not been a factor in boosting trade flows (the CE variable was not statistically significant). Vietnam's trade flows were not significantly affected by FTAs. This is because most of the FTAs concluded by Vietnam are still in their implementation phase, including the TF measures they contain. This means that Vietnam's policy of increasing its trade linkages will not have a clear positive effect on the country's import and export activities until later when TF measures are implemented and fully enforced.

One of the reasons Vietnam has been active in the past two decades concluding FTAs and implementing a number of trade liberalization measures is to make the export sector highly competitive. They are critical to Vietnam's long-term growth. To maximize the effects of these policies and fully deliver on its commitment to reduce trade barriers, Vietnam, however, needs to improve its import environment. Obviously, the country cannot expect favorable conditions entering foreign markets and at the same time continue to impede imports. For one thing, in the name of reciprocity, the implementation of TFA commitments requires Hanoi to keep innovating and reforming its customs procedures. Customs authorities have a fundamental role to play in this transformation. But building a coordination mechanism between customs and state management agencies as part of implementing TFAs will remain a big challenge for Vietnam in the coming years. All the more as the temptation to protect domestic companies is likely to continue to inform its policies as more favorable customs procedures for imported goods facilitates the entry of foreign goods and therefore increases the competitive pressure on domestic manufacturers. Greater TF means more challenges for domestic enterprises as fierce competition from abroad mounts. The dilemma to be resolved is as follows: reform customs procedures according to TFA commitment and increase competition at home or slowly and haltingly change the rules and run the risk of hurting exports.

This is one of the major challenges in TF reforms of Vietnam. Part of the answer and a first step in the right direction may be to make Vietnamese firms more competitive and streamline their oeprations. However, in order to maximize the benefits and opportunities which the expansion of trade links with major traders around the world, Vietnam also needs to improve the export capacity of domestic enterprises. This may require more FDI incentives for companies to invest in the country. When firms invest in Vietnam, they generally bring high-tech machinery and equipment and transfer technology know-how, something which the country badly needs. In turn, this exposure to new technologies promotes export activities and facilitates Vietnam's science and technology sector gradual integration into the world's science and technology and create conditions for fast and sustainable development of Vietnam enterprises. But more FDI also means more imports, either components, equipment or semi-

finished products; hence the imperative need for the country to continue improving TF and ensure a smoother entry of goods.

- *Recommendations*

TF is one of those terms that frequently features in FTAs; for good reasons. As has been stressed in this paper, if truly implemented, TF commitments by the parties to an FTA can bring many practical positive effects for those countries and increase the bottom line of businesses. For a start, well-managed TF can create social welfare and employment opportunities (Sakyi et al., 2017). For this to happen on a large scale in Vietnam, though, this means that the government needs to to resolve inspection issues, often a bottleneck, and strongly transform state management methods from pre-check to post-check by using risk management principles and assessing the level of legal compliance of both organizations and individuals. In addition, overlapping processes in the clearance process need to be thoroughly eliminated. As discussed earlier, due to the system of specialized inspection, multiple functional ministries are involved, creating costly and burdensome overlapping procedures. Reforming administrative procedure, minimizing post-clearance time and implementing automated customs supervision management system at all at all points of entry and exit are necessary steps toward full TF compliance.

Improving domestic infrastructure will also contribute to reducing logistics-related trade costs and creating new trade opportunities. While there has been progress as shown in the computations, there is much left to be done. Combining with improving port infrastructure, speeding up the shipping process will among other things help Vietnamese companies fully take advantage of the country's trade linkages (except for Singapore, no other ASEAN member state has concluded FTAs with both the EU and the US with which it also enjoys tariff preferential treatment under the Generalized System of Preferences). These preferential arrangements create many production location opportunities, all the more as the China-US trade war is causing some companies to relocate their production sites outside China. A clear strictly'enforced action plan to streamline customs procedures and improve the movement of goods within the country will go a long way in making Vietnam a FDI destination of choice for those companies.

- *Limitations*

This paper has limitations. For a start, it is based on data obtained from various statistical sources. The main advantage of these data sources is that these data warehouses are easily accessible and fairly reliable. As such, they are valuable tools to support the work of journalists and academia and expand research on global issues. They also help national policymakers to compare the progress of the projects they are in charge of and provid a tool to assess the advances of their economies. But these data warehouses also have certain limitations. Firstly, they cannot reflect all aspects of a country's economy. Secondly, their accuracy is still an issue as highlighted by the disparity between host country statistics and world organizations' databases. Therefore, when processing and estimating data, deviations are almsot inevitable and the actual situation may not fully be shown. Finally, since this research study only included bilateral FTAs, future research on the impact of TF on trade flows should focus on multilateral agreements such as, for example, the 15-member pan-Asian Regional Comprehensive Economic Partnership (RCEP), currently in its last round of negotiation, and the 11-member Comprehensive and Progressive Trans-Pacific Partnership (CPTPP), which, as its names indicates, include countries on both sides of the Atlantic.

References

ADB & UNESCAP (2009). Designing and implementing trade facilitation in Asia and the Pacific. Asian Development Bank and the United Nations. Retrieved 2009, https://www.unescap.org/tid/ti_report2009/home.asp.

ADB & UNESCAP (2013). Designing and implementing trade facilitation in Asia and the Pacific. Asian Development Bank and the United Nations. Retrieved September 6, 2013, from https://www.unescap.org/sites/default/files/0%20-%20Full%20Report.pdf.

Chauffour, J. P., & Maur, J. C. (2011). *Preferential trade agreement policies for development: A handbook*. Washington, DC: World Bank.

Cheewatrakoolpong, K., & Rujianakanoknad, J. (2011). The impact of AEC trade facilitation improvement on Thailand's goods in transit and inter-state trade. *Chulalongkorn Journal of Economics* 23, 19-37.

Doing Business (2016). Measuring regulatory quality and efficiency. 2016 International Bank for Reconstruction and Development. Retrieved October 27, 2015, from https://www.doingbusiness.org/en/reports/global-reports/doing-business-2016

Dollar, D., & Kraay, A. (2004). Trade, growth, and poverty. *The Economic Journal*, *114*(493), F22–F49.

Dreger, C., & Herzer, D. (2013). A further examination of the export-led growth hypothesis. empirical economics, *45*(1), 39-60.

Fox, A. K., Francois, J. F., & Londono-Kent, M. P. (2003). Measuring border crossing costs and their impact on trade flows: The United States-Mexican trucking case. GTAP resource, No. 1282.

Goldin, I., & Reinert, K. (2007). *Globalization for development: trade, finance, aid, and migration and policy*. Washington, DC: World Bank.

Hertel, T.W., Walmsley, T., & Itakura, K. (2001). Dynamic effect of the "new age" free trade agreement between Japan and Singapore. *Journal of Economic Integration*, *16*(4), 446-484.

Herzer, D. (2013) . Cross-country heterogeneity and the trade-income relationship. World Development, 44(c), 194-211.

Heshmati, A., & Peng, S. (2012). International trade and its effects on economic performance in China. *China Economic Policy Review, 1*(2), 35-61.

Hollweg, C., & Wong, M.H. (2009). Measuring regulatory restrictions in logistics services. ERIA Discussion Paper Series, No. 2009-14.

Jordaan, A.C. (2014). The impact of trade facilitation factors on South Africa's exports to a selection of African countries. *Development Southern Africa*, *31*(4), 591-605.

Korinek, J., & Sourdin, P. (2011). To what extent are high-quality logistics services trade facilitating?. OECD Trade Policy Paper, No. 108.

Moïsé, E., & Sorescu, S. (2013). Trade facilitation indicators: the potential impact of trade facilitation on developing countries'trade. OECD Trade Policy Paper, No. 144.

Nguyen, A. T., Nguyen, T. T., & Hoang, G. T. (2016). Trade facilitation in ASEAN countries: Harmonisation of logistics policies. *Asian-Pacific Economic Literature, 30*(1), 120-134.

OECD (2017). Trade facilitation and the global economy: state of play in 2017. Paris: OECD Publishing.

OECD (2018). Trade facilitation and the global economy. Paris: OECD Publishing.

Otsuki, T. (2011). Quantifying the benefits of trade facilitation in ASEAN. OSIPP Discussion Paper, 2011E006.

Otsuki, T., Wilson, J. S., & Sewadeh, M. (2001a). What price precaution? European harmonisation of aflatoxin regulations and African groundnut exports. *European Review of Agricultural Economics, 28*(2), 263-284.

Otsuki, T., Wilson, J. S., & Sewadeh, M. (2001b). Saving two in a billion: Quantifying the trade effect of European food safety standards on African exports. *Food Policy, 2*6(5), 495-514.

Pöyhönen, P. (1963). A tentative model for the volume of trade between countries. Welwirtschaftliches Archiv, *90*(1), 93-99.

Pham, M.C., & Vuong, Q.H. (2009). *Kinh te Viet Nam: thang tram va dot pha*. Hanoi: National Political Publisher.

Pham, M. D., Mishra, D., Cheong, K.C., Arnold, J., Trinh, A.M., Ngo, H. T.N., & Nguyen, H. T. P. (2013). Trade facilitation, value creation and competitiveness: policy implication for Vietnam's economic growth, summary report. World Bank Other Operational Studies 16786. Washington, DC: World Bank.

Ramanayake, S. S., & Lee, K. (2015). Does openness lead to sustained economic growth? Export growth versus other variables as determinants of economic growth. *Journal of the Asia Pacific Economy*, *20*(3), 345-368.

Ramos, L.M, Zarzoso, I. M., & Suarez-Burgest, C. (2012). Trade policy versus trade facilitation: an application using "good old" ols. *Economics E-Journal*, *6*(2012), 1-38.

Ravallion, M. (2001). Growth, inequality and poverty: Looking beyond averages. *World Development, 29(*11), 1803-1815.

Sakyi, D., Villaverde, J., & Maza, A. (2015). Trade openness, income levels, and economic growth: The case of developing countries, 1970-2009. *The Journal of International Trade & Economic Development, 24*(6), 860-882.

Sakyi, D., Villaverde, J., Maza, A., & Bonuedi, I. (2017). The effects of trade and trade facilitation on economic growth in Africa. *African Development Review*, *29*(2), 2017, 350-361

Sakyi, D., Bonuedi, I., & Opoku, E. E. (2018). Trade facilitation and social welfare in Africa. *Journal of African Trade, 5*(2018), 35-53.

Tinbergen, J. (1962). *Sharing the world economy: Suggestions for an international economic policy.* New York: Twentieth Century Fund.

Tuffour, A. J., Balchin, N., Calabrese L., & Mendez-Parra, M. (2016). Trade facilitation and economic transformation in Africa. Retrieved March 15, 2018, from http://set.odi.org/wp-content/uploads/2016/03/SET-ACET-ATF-Trade-Facilitation-Paper.pdf

UNCTAD (2001). E-commerce and development report. New York and Geneva: United Nations. Retrieved November 19, 2001, from https://unctad.org/en/Docs/ecdr2001overview_en.pdf.

Vuong, Q. H., & Napier, K. N. (2014). Resource curse or destructive creation in transition: Evidence from Vietnam's corporate sector. *Management Research Review*, 37(7), 642-657.

Vuong, T.T., Semerak, V., & Vuong, Q.H. (2019). The Vietnamese economy at the crossroads. *Southeast Asia and the ASEAN Economic Community*, 2019, 91-143.

Walkenhorst, P., & Yasui, T. (2003). Quantitative methods for assessing the effects of non-tariff measures and trade facilitation. Paris.

Walmsley, T. L., & Minor, P. (2016). Willingness to Pay in CGE models: Estimating the benefits of improved customs efficiencies within the WTO trade facilitation agreement. Working paper Rev2. Washington, DC: World Bank.

Wilson, J.S. (2003). Trade facilitation and economic development: measuring the impact. Policy Research Working Paper 2988, Washington, DC: World Bank.

Wilson, J.S., Mann, C., & Otsuki,T. (2004). Assessing the potential benifit of trade facilitation: a global perspective. Policy Research Working Paper 3224, Washington, DC: World Bank.

Winters, L. A., McCulloch. N., & McKay, A. (2004). Trade liberalization and poverty: the evidence so far. *Journal of Economic Literature, 42(*1), 72-115.

World Bank. (2017). Trade Logistics and Facilitation Brochure. Washington, DC: World Bank.

ASEAN Journal of Management & Innovation
Vol. 7. No. 1, 153-156

DOI: 10.14456/ajmi.2020.11
ajmi.stamford.edu
Received: November 11, 2019
Revised: January 7, 2020
Accepted: March 23, 2020

BOOK REVIEW

HBR's 10 Must Reads 2020: The Definitive Management Ideas of the Year

Harvard Business Review Press, 2020. 196 pp. ISBN 9781633698123 (pbk).

Reviewed by Vasu Keerativutisest, Teerasak Suriyaprasiti
Stamford International University, Thailand.
vasu.keerativutisest@stamford.edu

Significant developments, such as rapid urbanization, changing demographics, technology disruption, scientific advances and the economic power shift to emerging markets, have given rise to new approaches to business that reflect these transformations and aim to help organizations maintain their competitive advantage. Some of these most salient ideas are discussed in *HBR's Ten Must Reads 2020: The Definitive Management Ideas of the Year*, a compilation of ten must-read articles from the Harvard Business Review. The book also includes a bonus article from Michael E. Porter and Nitin Nohria.

Article 1 – *The Surprising Power of Questions*, Alison Wood Brooks and Leslie K. John: In this article, the authors advocate the need for modern managers and leaders to utilize questioning skills beyond just asking for status updates and business information. According to them, as recommended by Albert Einstein, we should question everything. Questioning, they argue, will add value to the company by uncovering insights likely to scale-up learning, foster innovation, improve performance, build trust among members, and reduce business risks. They identify several reasons why people do not ask enough questions. These include inadequate questioning skills, overconfidence, and being apathetic and egocentric. They also recommend the use of the Socratic Method so as to become better questioners and suggest paying attention to group dynamics, using the right tone, getting the sequence right, keeping questions open-ended, and favoring follow-up questions. The authors further advise deciding before starting a conversation whether that information should be shared or kept private (Brooks & John, 2020).

Article 2 – *Strategy Needs Creativity*, Adam Brandenburger: This article describes ways that can help executives and entrepreneurs introduce a new strategy to reduces distance from the existing business position to the desired aspiration. The author introduces four approaches to deliver breakthrough strategies. They focus on context, constraint, combination, and contrast (Netflix, for example, contrasts the video rental service by introducing streaming videos). A combination strategy links products and services previously separated, such as, for example, the WeChat platform that combines mobile payment to enable users to sell and buy products. A constraint strategy turns limitations into opportunities; (Tesla sells cars online instead of using traditional dealership networks). Finally, a context strategy looks at similar problems in different industries and solves a problem with those insights (Brandenburger, 2020).

Article 3 – *What Most People Get Wrong about Men and Women*, Catherine H. Tinsley and Robin J. Ely: This article presents the result of a meta-analysis of women and men in the workplace. It indicates that they are similar in several key aspects such as confidence, risk acceptance, and negotiation skills. The authors also recommend a four-step approach to improve the conditions that undermine women and reinforce gender stereotypes. These include questioning the narrative, generating a plausible alternative explanation, changing the context and assessing the result, and promoting continual learning. These steps will give employees equal opportunity to deliver their full potential (Tinsley & Ely, 2020).

Article 4 – *Collaborative Intelligence: Humans and AI Are Joining Forces*, H. James Wilson and Paul Daugherty: In this article, the authors examine several modern organizations that have

managed to realize the value of collaboration between artificial intelligence (AI) and human beings. Stitch Fix, Pfizer, Morgan Stanley, General Electric, Singapore Government, HSBC, and Mercedes-Benz are among the leading organizations in which AI and humans collaborate to improve organizational performance in terms of personalization, decision making, scale, speed, and flexibility. They enable organizations to implement the following five strategies to achieve these outcomes: re-imagining business processes, embracing employee involvement, actively directing AI strategy, responsible data collection, and redesigning work process to integrate AI.

Article 5 – *Stitch Fix's CEO on Selling Personal Style to the Mass Market*, Katrina Lake: This article explores the business model of companies that differentiate themselves from traditional fashion retail brands through personalization for broad markets using big data and machine learning for manufacturing apparels. In this model, data scientists play a critical role in managing algorithms for selecting clothing for each particular customer. These algorithms are key elements that help the company achieve mass customization with efficient outbound logistics, better inventory turnovers, and lower capital cost (Lake, 2020).

Article 6 – *Strategy for Start-Ups*, Joshua Gans, Erin L. Scott and Scott Stern: This article discusses the four domains of decision-making that are crucial for start-ups. These include customers, technology, identity, culture, capability, and competitors. The authors further propose an entrepreneurial strategy compass that guides go-to-market entrepreneurs. This compass separates strategic opportunities into two attitude dimensions: attitude toward incumbents (competition or collaboration) and attitude toward innovation ('storm a hill' or 'build a moat'). Based on these attitude dimensions, new ventures can choose the following strategies as go-to-market strategies: an intellectual property strategy, an architectural strategy, a value chain strategy, and a disruption strategy (Gans, Scott, & Stern, 2020).

Article 7 – *Agile at Scale*, Darrell K. Rigby, Jeff Sutherl, and Andy Noble: The authors of this article argue that agile teams can achieve better quality, faster product development, higher productivity, and lower risk and thus bring better results. As explained in the article, this self-governing team approach is widely utilized in several technology companies such as Netflix and Spotify. However, conventional companies can also make the transition from traditional structures to more-agile enterprises. This concept helps those organizations achieve better results, increase collaboration, and reduce bureaucratic procedures. The authors recommend a number of steps to improve the agility of businesses. They include instilling agile principles and values throughout the enterprise, modularizing toward seamless business processes, acquiring talents, developing and motivate for the better results. This article raises awareness of an organization development area and provides a step-by-step guide for progress into agile organizations (Rigby, Sutherland, & Noble, 2020).

Article 8 – *Operational Transparency*, Ryan W. Buell: This article looks at the enormous impact of automation on organizational efficiency as well as on customers as the introduction of the automated teller machine (ATM) in the late 1960s has detached customers from operations. The operational transparency concept helps organizations deliberate the designs of windows into and out of the organization's activities to help customers understand and appreciate the value-added. As explained in the article, transparency boosts customer value perception (Buell, 2020).

Article 9 – *The Dual-Purpose Playbook*, Julie Battilana, Anne-Claire Pache, Metin Sengul, and Marissa Kimsey: The article considers the push for corporations to pay more attention to sustainability, including the impact of their activities on the environment, communities, customers, and employees, as opposed to just focusing on economics performance. A growing number of business leaders now understand that they must embrace financial goals together

with social goals. The authors recommend a hybrid-organizing approach to a successful dual-purpose implementation. It includes setting and monitoring goals alongside economic indicators, structuring the organization to support financially- and socially-oriented activities, hiring and socializing employees to embrace both approaches, and practicing dual-minded leadership (Battilana, Pache, Sengul, & Kimsey, 2020).

Article 10 – *How CEOs Manage Time*, Michael E. Porter and Nitin Nohria: This tenth article discusses the time management challenges of top executives. The authors tracked the daily activities of 27 large company CEOs for 13 weeks. The findings reveal that CEO's time management is vital for their performance and the company's outcomes. But CEOs are quite busy as they must integrate decision making along with the company's strategy and culture, balance internal and external constituencies, proactively drive an agenda, effectively cope with unfolding events, be mindful of constraints, focus on tangible decision, and combine power and legitimacy. Based on interviews with executive assistants, the authors conclude that four key roles played by executive assistants include helping and maintaining the balance of work, personal and family time, recognizing the value of spontaneity, including all essential players in meetings, and understanding leader's agenda. The concepts developed and findings reported will help business leaders understand their roles and best use their time (Porter & Nohria, 2020).

Article 11 – *When No One Retires*, Paul Irving: Under this thought-provoking title, the author of this article explores one of the possible outcomes of the dramatic advances in the medical field, which among other consequences is causing people to live much longer. As the world is undergoing an unprecedented demographic shift, this megatrend will affect every aspect of business and lead to a shift in the workforce profile. The author presents a longevity strategy for fostering a vibrant multigenerational workforce. Best practice for managing multigenerational workforces involves the following steps: redefining working days and working hours, improving ergonomically and developing an age-friendly working environment, considering and monitoring the age mixes in departments and teams. Workforces from different generations can augment and learn from each other, which leads to success over the long term (Irving, 2020).

We highly recommend this book to businesses and entrepreneurs. The articles it features will provide a novel approach to their organizations and a chance to experience innovative ways of developing them. They fit well with business and managerial needs in a rapidly changing business environment. Readers will learn up-to-date relevant strategies and step-by-step approaches to improve performance and achieve sustainability.

References

Battilana, J., Pache, A., Sengul, M., & Kimsey, M. (2020). The dual-purpose playbook. In *HBR's 10 Must Reads 2020: The Definitive Management Ideas of the Year* (pp. 121-136). Boston, MA: Harvard Business Review Press.

Brandenburger, A. (2020). Strategy needs creativity. In *HBR's 10 Must Reads 2020: The Definitive Management Ideas of the Year* (pp. 15-26). Boston, MA: Harvard Business Review Press.

Brooks, A. W., & John, L. K. (2020). The surprising power of questions. In *HBR's 10 Must Reads 2020: The Definitive Management Ideas of the Year* (pp. 1-13). Boston, MA: Harvard Business Review Press.

Buell, R. W. (2020). Operational transparency. In *HBR's 10 Must Reads 2020: The Definitive Management Ideas of the Year* (pp. 103-120). Boston, MA: Harvard Business Review Press.

Gans, J., Scott, E. L., & Stern, S. (2020). Strategy for start-ups. In *HBR's 10 Must Reads 2020: The Definitive Management Ideas of the Year* (pp. 71-85). Boston, MA: Harvard Business Review Press.

Irving, P. (2020). When no one retires. In *HBR's 10 Must Reads 2020: The Definitive Management Ideas of the Year* (pp. 163-177). Boston, MA: Harvard Business Review Press.

Lake, K. (2020). Stitch fix's CEO on selling personal style to the mass market. In *HBR's 10 Must Reads 2020: The Definitive Management Ideas of the Year* (pp. 61-70). Boston, MA: Harvard Business Review Press.

Porter, M. E., & Nohria, N. (2020). How CEOS manage time. In *HBR's 10 Must Reads 2020: The Definitive Management Ideas of the Year* (pp. 137-162). Boston, MA: Harvard Business Review Press.

Rigby, D. H., Sutherland, J., & Noble, A. (2020). Agile at scale. In *HBR's 10 Must Reads 2020: The Definitive Management Ideas of the Year* (pp. 87-102). Boston, MA: Harvard Business Review Press.

Tinsley, C. H., & Ely, R. J. (2020). What most people get wrong about men and women. In *HBR's 10 Must Reads 2020: The Definitive Management Ideas of the Year* (pp. 27-42). Boston, MA: Harvard Business Review Press.

Wilson, H. J., & Daugherty, P. R. (2020). Collaborative intelligence: humans and AI are joining forces. In *HBR's 10 Must Reads 2020: The Definitive Management Ideas of the Year* (pp. 43-59). Boston, MA: Harvard Business Review Press.

Guideline for Authors

ASEAN Journal of Management & Innovation (AJMI) is an online journal listed in Thailand Citation Index (TCI) and ASEAN Citation Index (ACI).

ISSN 2351-0307

Volume 7 Number 1
January – June 2020

Stamford International University
Research and Development Center
16 Motorway Road, Prawet, Bangkok 10250, Thailand
Telephone +66 02 769 4000
Website: ajmi.stamford.edu

- **MISSION STATEMENT**

The goal of AJMI is to publish insightful, original and timely research that describes or potentially impacts management and/or innovation within the ASEAN context. AJMI is multidisciplinary in scope and encourages interdisciplinary research. The journal welcomes submissions in all topics related to management, as well as topics related to innovation; regardless of discipline or subject area.

Topics that are either distinctly ASEAN-related or regional or international in scope, but of relevance to ASEAN readers are encouraged. In addition to empirical research, AJMI accepts conceptual papers as well as papers that provide new insights into previous work and/or conventional wisdom. Also accepted are structured/systematic literature reviews that follow a specific methodology.

Manuscripts that are simply literature reviews are generally discouraged.

Relevant topics include, but are not limited to:

- Management & Marketing
- Finance, Banking & Accounting
- Human Resource Management
- International Business Management
- Innovation & Entrepreneurship Development
- Hospitality Management
- Project Management
- Operations & Supply Chain Management
- Business Ethics
- Educational Leadership & Management

- **PERIODICITY**

Twice a year publication:

- First Issue: January – June (submission deadline, February 15).
- Second Issue: July – December (submission deadline, August 15).

- **ARTICLE SUBMISSION**

All submissions and correspondence should be sent to ajmi@stamford.edu

A **strong standard of English** is expected, which means that authors who are non-native speakers may need to have their articles proofread by a qualified person prior to submitting them to AJMI.

Articles must be submitted electronically in Word format. To submit a paper, go to the Journal Management System at ajmi.stamford.edu and register as an author(s), and upload the file containing the paper.

Articles will be accepted to a maximum of 5,000 words (not including references).

Submission of an article to AJMI implies a commitment by the author(s) to publish in the journal.

In submitting an article to AJMI, the author(s) vouches that the article has neither been published, nor accepted for publication, nor is currently under review at any other location, including as a conference paper. If the article is under review elsewhere, it will be withdrawn from the submission list.

In addition, the author(s) also agree that the article shall not be placed under review elsewhere while the review process at AJMI is ongoing.

If the article is accepted for publication, the author's further guarantees not to withdraw it for submission to publish elsewhere.

AJMI does not collect any processing or publication fees.

- **REVIEW PROCESS**

AJMI uses a "double-blind peer review system" meaning that the authors do not know who the reviewers are, and the reviewers do not know who the authors are. All submitted manuscripts are to be reviewed by at least two expert reviewers per paper.

Each article is judged based solely on its contribution, merits, and alignment with the journal's Mission.

Reviewers are chosen on the basis of their expertise in the topic area and/or methodology used in the paper. Should any revision be required, our instructions to authors are designed to move authors towards a successfully published article.

- **RESEARCH COMPONENTS**

The article should include the following components:

- An introduction
- A review of the relevant literature
- An outline of the research methodology/ research design
- Research findings
- A discussion of the results
- A conclusion and policy recommendations/ recommendations to managers

An emphasis should be placed on the discussion of the findings, the conclusion and policy recommendations/ recommendations to managers.

- **AJMI STYLE GUIDE**

All of the following requirements need to be met before an article can be sent to reviewers. If the formatting of a submitted paper does not match these requirements, **the paper will be returned without review for correction and re-submission.**

1. Format

- Must be a Word-compatible document (not a .pdf) and use the American Psychological Association (APA) Referencing Style as shown below (see sub-sections 6 and 7).

2. Title Page

- Uploaded separately from the abstract and body.
- Manuscript title (not in all capital letters).
- Title, name, affiliation and email address of all authors.
- Indicate clearly who is the corresponding author for journal communication.

3. Abstract

- Not more than 250 words.
- Should not include any information that would identify the author(s).
- Bold, Times New Roman, 12 point, no indentation.

4. Keywords

- Three to six keywords are required at the time of submission.

5. Body of the Paper

- A4 page size.
- Margin of 1" (2.5cm) on all four sides.
- Title of Article: Times New Roman font, 20 point.
- Section Heading: First letter of each word in capitals, bold 12 point font.
- Body Text: Times New Roman font, 12 point, single space between sentences.

6. *In-Text Citations*

- All in-text citations included throughout the article must have a corresponding full reference at the end of the manuscript body.
- Only direct quotes need a page number (not paraphrases).

- Direct Quotes
  - *One Author*

Author's Last name (Year) stated that "direct quote" (page number).
Isenberg (2007) stated that "international dispersion is on the rise" (p. 56). **Or**
"Direct quote" (Last name, Year, page number)
"International dispersion is on the rise" (Isenberg, 2007, p. 56).

- *Two Authors*

First author's Last name and second author's Last name (Year, page number) mentioned that "direct quote" (page number).
Isenberg and Kerr (2007) mentioned that "international dispersion is on the rise" (p. 56). **Or**
'Direct quote" (first author's Last name & second author's Last name, Year, page number).
"International dispersion is on the rise" (Isenberg & Kerr, 2007, p. 56).

- Block Quotes

If a quote runs on for more than 40 words:
- Start the direct quotation on a new line
- Indent the text roughly half an inch from the left margin
- Remove any quotation marks

Example:
As Krugman (2019) stated:

> Maybe the larger point here is that there tends to be a certain amount of mysticism about trade policy, because the fact that it's global and touches on one of the most famous insights in economics, the theory of comparative advantage, gives it an amount of mind space somewhat disproportionate to its actual economic importance. (p. 3).

- Parenthetical Citing
  - *One Author*

Author's Last name (Year) in-test parenthetical citation (paraphrase).
Isenberg (2007) argues that cross-border migration is increasing. **Or**
Paraphrase (Last name, Year)
Cross-border migration is increasing (Isenberg, 2007).

- *Two Authors*

First author's Last name and second author's Last name (Year) paraphrase.
Kerr and Isenberg (2007) argued that cross-border migration is increasing.
Or
Paraphrase (first author's Last name & second author's Last name, Year).
Cross-border migration is on the rise (Isenberg & Kerr, 2007).

- *Three to Five Authors*

All authors' Last names (Year) paraphrase.
Kerr, Issenberg, and Steward (2007) argued that cross-border migration is increasing.

Or
Paraphrase (all authors' Last names, Year).
Cross-border migration is increasing (Isenberg, Kerr, & Steward, 2007).

For all subsequent in-text paraphrases, first author's Last name followed by "et al." and the publication year.
Isenberg et al. (2007) found that the event resulted in thousands of people flocking to the border.

Or
The event resulted in thousands of people flocking to the border (Isenberg et al., 2007).

7. *Full References*

The following formatting rules apply:

- References appear at the end of the manuscript body in alphabetical order by the first word in the reference (usually the author's last name, sometimes the title).
- All references must have a corresponding in-text citation in the manuscript.
- If more than one work by an author is cited, list them by earliest publication date first.
- If the list contains more than one item published by the same author(s) in the same year, add lower case letters immediately after the year to distinguish them (e.g. 1983a).
- If there is no author, the title moves to the author position (filed under the first significant word of the title).
- Reference list entries should be indented half an inch or 12 mm (five to seven spaces) on the second and subsequent lines of the reference list for every entry - a hanging indent is the preferred style (i.e. entries should begin flush left, and the second and subsequent lines should be indented).
- Single-space all reference entries.

Follow APA Referencing Style format for each source type listed as shown below. For any source type not shown below, go to the APA website for references.

- Book
  - *One Author*

  Author, F. M. / Organization. (Year). *Topic Title*. City: Publisher.
  Nagel, P. C. (1992). *The Lees of Virginia: Seven generations of an American family.* New York: Oxford University Press.

  - *Two Authors*

  Author, F. M., & Author, F. M. (Year). *Topic Title*. City: Publisher.
  Nagel, P. C., & Sampson, T. (1995). *Seven generations of an American family.* New York: Oxford University Press**.**

  - *Three Authors*

  Author, F. M., Author, F. M., & Author, F. M. (Year). *Topic Title*. City: Publisher.
  Nagel, P. C., Sampson, T., & Hubbard, A. J. (1992). *The Lees of Virginia: Seven generations of an American family.* New York: Oxford University Press.

- Journal

  Author, F. M. (Year). Title of article. *Title of Journal*, vol. (issue), pp xxx-xxx.
  Turner, R. A. (2007). Coaching and consulting in multicultural contexts. *Consulting Psychology Journal: Practice and Research*, *59*(4), 241-243.

- Website
  Author, F. M./ Organization. (Year of Publication). Web page title. Retrieved (Date) from URL Address.
  Bogati, S. (2013, October 14). Hospitality Industry in Nepal. Retrieved November 3, 2018, from http://hospitalityindustryinnepal.blogspot.com/

- Newspaper
  Author, F. M. / Organization (Year, month, day published). Title of article. *Title of newspaper*, page.
  Parker, T. D. (2009, August 3). Getting rid of side stitches. *The Washington Post*, p. E1, E4.

8. Formatting Figures and Table

There are two different styles for graphics in APA format: **Figures** (charts, images, pictures) and **Tables.**

- Figures
  - The first graphic (chart, drawing, or image) will be labeled as Figure 1 and be the first one mentioned in the article.
  - Subsequent ones will follow in the appropriate numeral order in which they appear in the article.
  - Follow APA Referencing Style format for each source type listed as shown below. This means that both the Title and the Source are written below the Figure.

Figure 1: Name of Picture

Source: Author's Last name OR Organization's name (Year, Page number OR Online)
Khoman (2017, p. 137)

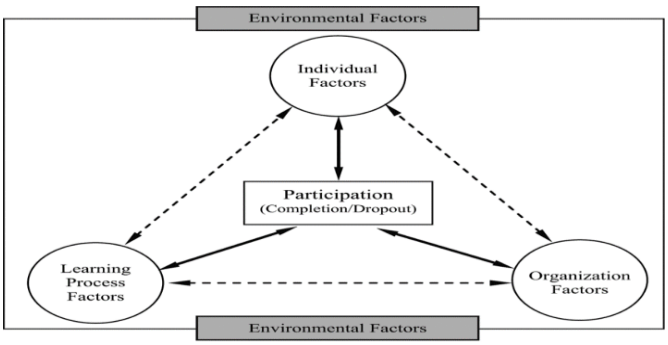

Figure 1: Conceptual framework
Source: Author's Last name OR Organization's name (Year: Page number OR Online)
Wang (2019: p. 45)

- Tables
  Tables are labelled separately to Figures and should follow the instructions below.
  - The first Table will be labeled as Table 1 and be the first Table mentioned in the article.
  - Subsequent ones will follow in the appropriate numeral order in which they appear in the article. This means that Tables are labelled separately to Figures.
  - The APA Referencing Style format for a Table differs to that of a Figure. A Table has the Title above the Table, and the Source will be listed below.

Table 2: Domestic Tourism in Ayutthaya and Sukhothai in 2004

Type of Data (2004)	**Ayutthaya**	**Sukhothai**
Visitor	3,023,933	1,915,975
Thai		1,107,958
Foreigners		

Source: Author's Last name OR Organization's name (Year: Page number OR Online)
Tourism Authority of Thailand (2005: Online)

For any source type not shown above, go to the APA website for references.

References

APA (2010). Publication Manual of the American Psychological Association Washington, D.C.: American Psychological Association (6th ed). Retrieved April 5, 2019, from: https://opentextbc.ca/researchmethods/chapter/american-psychological-association-apa-style/

Bogati, S. (2013, October 14). *Hospitality Industry in Nepal*. Retrieved November 3, 2018, from http://hospitalityindustryinnepal.blogspot.com/

Kerr, W. R., & Isenberg, D. J. (2007) "Take Advantage of Your Diaspora Network." *Harvard Business School* Background Note 808-029, August. (Revised July 2008.) (Featured in a 2008 *Harvard Business Review* write-up.)

Krugman, P. (2019, May 13) Trump's trade war is killing the 'Pax Americana'. *The Bangkok Post*, p. 9.

Nagel, P. C. (1992). *The Lees of Virginia: Seven generations of an American family*. New York: Oxford University Press.

Nagel, P. C., & Sampson, T. (1995). *Seven generations of an American family.* New York: Oxford University Press**.**

Nagel, P. C., Sampson, T., & Hubbard, A. J. (1992). *The Lees of Virginia: Seven generations of an American family*. New York: Oxford University Press.

Parker, T. D. (2009, August 3). Getting rid of side stitches. *The Washington Post*, p. E1, E4.

Turner, R. A. (2007). Coaching and consulting in multicultural contexts. *Consulting Psychology Journal: Practice and Research*, *59*(4), 241-243.