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THE IMPACT OF CHANGE IN LABOR FORCE STRUCTURE ON ECONOMIC GROWTH ---- IN CASE OF THAILAND

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Article info

Article history:

Received
9 July 2019

Revised
18 May 2020

Accepted
9 July 2020

Keywords:

Inverse elasticity of
substitution rate, labor
force change,
Economic growth

Abstract

The study tries to explore the economic impact of the changing labor force structure in Thailand from several dimensions.

As labor force structure can be broken down into several categories, for example, age, agender, workforce available, education levels, so, this paper will dig into the depth about the economic impact from the perspectives on labor force, based on some main categories in Thailand so as to find the suitable policies what would be recommended to Thai Government.

The current research found that given the technology levels, Thailand has been changing from labor intensive industries to capital intensive industries, as the result, the educational level of total labor force positively affect the economic growth in Thailand, and the inverse elasticity of substitution rate between the change rate of total labor force and those labor force available but not looking for jobs can either positively or negatively affect the economic growth in Thailand significantly, also, the combination of coefficients of capital and labor implies that there is an increasing economic return to scale in Thailand, therefore, the Thai government does not only attract more foreign direct investment, but also need to transform the labor available but not looking jobs to be in labor force, extend the working life span for suitable older persons and increase the educational levels simultaneously.

Introduction

Like many countries in the world, Thailand has been falling into the aging society since 2002, and it will be an aged society around 2024, as same as that of Singapore, Thailand has taken only 22 years transiting from aging society to be aged society, which is the second fastest country slid into aged society in the world (United Nations ESCAP, Population Data Sheet, 2016).

According to the economic statistical report from Asian Development Bank, the economic growth rate of Thailand was the second lowest among ASEAN 10 countries for year 2013, 2014, and the third lowest for year 2015 to 2017, while Singapore recorded the third lowest growth rate in year 2013, 2014 and the second lowest growth rate from year 2015 to 2017.

Contrast to other developed countries, for instance, France, Sweden, it took these two countries 115 years (from 1865 to 1980) and 85 years (from 1890 to 1975) respectively transformed from aging to aged society while their per capita were already 12,672.00 USD and 9,974.00 USD separately.

In ASEAN 10 cities, Singapore has same speed (in 22 years) as that of Thailand to reach the aged society in 2000, but, its per capita was 23,792.00 USD at that time. However, when Thailand will be aged society in 2024, its estimated per capita will be only 8,907.35 USD in year 2022 and could be reached 9,634.20 in 2024 if the growth rate is at 4% annually. given the low per capita of Thailand in

current, it is import to research on “become richer before become older” which is not only meaningful to Thailand, but also useful for other developing countries (Bloom et. al., 2010). Phijaisanit E. (2016) used two “demo” incentives to argue that if Thai government can promote elderly employment with either more flexible employment structure or tax incentives, then, the per capita even can increase, but, there is no empirical test so far.

Based on Cobb-Douglas production function, the labor force is one important factor included into the function, so, the change of labor force affects the output on several aspects. Such conclusion can be reaffirmed on the total populations change rate, for example, the total populations change rate (increase) of Thailand has been the lowest since year 2005 and fertility rate of Thailand has been the second lowest since year 2000 too, further, the such phenomenon could be approved as well in year 2018 and 2019 (forecasted).

Therefore, in the current study, how Thailand can improve its per capita before year 2024 will be discussed in quantitative way by using the inverse elasticity of substitution rate between the change rate of available labor force (but not looking for jobs) and the change rate of total labor force, and the relative knowledgeable level of labor force as independent variables.

Literature review

According to report of United Nations Economics and Social Council 2017, the

Asia and the Pacific area has been encountered rapid aging pace for whole populations, for example, Japan has more than 30% of population aged over than 60 years in 2015, and Hong Kong, Republic of Korea, Singapore, Taiwan will join this group in 2030.

For Thailand, it has been in the group of 10% to 15% of populations aged 60 years old and over in 2010, but will enter into 25% to 30% group in 2030.

The most obvious phenomenon of this unprecedented aging society in Asia and the Pacific countries is that many countries will be aged society before the per capita reach the levels as same as that of developed countries. This is a very important issue challenged for every government of developing countries. Because the supporting rate to old age or retired person will drop about 80% from 8.4 working age people to 3.4 working age people in 2050, and every 1% increase in aged population will cause 0.5 to 0.75 percentage reduction in economic growth, these problems will be left for governments with limited choices: by increasing productivities or burden heavy fiscal and social responsibilities (Phijaisanit E. (2016)

Many research papers focus on why and how aged society affect economic growth rate. For instance, Bloom D. and Williamson G. J (1998) found that the aged population transition affected economic growth in a long-time span, at most, it may take as many as 50 years, the authors contributed such results to older people saving more during their working life stage, also, they discovered that East

Asia's economic miracle could be explained by 50% through the population transition or dynamics. Started with Cobb Douglas production function, Akintunde et al. (2013) revealed that the lower fertility rate has a negative impact on economic growth rate, but, the life expectancy at birth has a positive relationship with economic growth rate in Sub-Saharan Africa, they concluded that a sustainable economic growth must be underpinned by high population growth. This conclusion was echoed by Maestas et al. (2016) and Nagarajan et al. (2016).

Maestas et al. (2016) stated that when aged population increased by 10%, the per capita will decrease by 5.5%. This problem could be explained by decrements on labor force supplement and productivities growth when people in work force were aging. The authors also argued that such negative relationship between incremental aged population and per capita could be found in every industry if the earnings were used as proxy for changes of skill factor that have effect on the labor productivity, even if there were some offsets between the aged skilled workers and younger educated workers.

Nagarajan et al. (2016) explained the ways how aged population affected the economy. They argued that the aged population may affected economic growth by consumption, saving patterns, public expenditure and return on human capital in negative ways.

Conversely, Elgin C. and Tumen S. (2012) stated that when economic growth

for a country shifted from labor intensive technology to human capital-intensive technology, then, the decreasing population or decreasing labor force can coexist with sustained economic growth.

Erdem E. and Tugcu C.T (2011) studied the relationship between higher education and economic growth base on data from Turkish. Their findings showed that the relationship between higher education and economic growth is cointegrated and causally, in other words, higher education can enhance the economic growth while higher real GDP may strengthen the more higher education system further.

Sukpaiboonwat S. et al. (2014) summarized the mechanisms how the aged population affected economic growth by either diminishing or enhancing the growth rate. They explained that on one hand when people become aged, they may change their attitude on marriage or other aspects as well as change in living standard, as results, these changes will cause low birth rate, high health expenses and lower consumption and saving, then, these ageing population will cause lower economic growth. Meanwhile, if these ageing population has more accumulated human capital so as to increase efficiency of work and increasing life satisfaction, then, these changes could increase economic growth on the other hand.

In Thailand, there are few researches on the relationship between aged labor force and economic growth rate by using time series panel data, most of studies focus on government policies towards aged

populations, for example, Kongtong Y and Romprasert S. (2015) studied the government policy used to support the Thailand ageing population sustainably. They raised the problem that the ageing population could be the most important and urgent factor in labor force instead of gender as before. Haque et al. (2016) also pointed out that in Thailand the active ageing level of older population is improved but is not so high, so, this gives rooms for Thai government to promote “active levels” (working activities involvement of older persons). But, the government should focus on elders’ health needs and extend more longer work lives and arranging lifelong learning program for older persons too.

Research methodology

Similar to previous studies, the current research starts with Cobb and Douglas production function, and use two factors: educational level of labor force and the substitution rate between the change of total labor force and those labor force available but not looking for jobs to analysis the economic growth rate for Thailand.

Data

All quarterly data from year 2009 to 2018 are collected from National Statistical Office or NSO database.

Theoretical model

Cobb Douglas production function:

$Y_t = A_t * K_t^\alpha * L_t^\beta$ (1) Where $\alpha + \beta = 1$, or $\beta = 1 - \alpha$, and $0 < \alpha < 1$, $0 < \beta < 1$;

A stands for the level of technology which will be proxied by the number of patents granted of Thailand. K represents stock or physical capital and L denotes as the labor force, Y is the total national output (Romer. M. P, 1994). Subscript t means all these data are time series panel data.

Similar to the methodology used by Elgin and Tumen (2012), when considering the inverse elasticity of substitution rate between the change rate of total labor force and those labor force available but not looking for jobs, λ is introduced into the function and assumed has exponential relationship with labor, so, it represents an inverse elasticity of substitution of labor force. The equation (1) is changed to be:

$$Y_t = A_t * K_t^\alpha * L_t^\beta = Y_t = A_t * K_t^\alpha * L_t^{1 - \alpha - \lambda} \quad (2)$$

As the inverse elasticity of substitution rate is measured by the change rate between numbers labor force available but not looking for jobs at time t and time t-1 divided by the change rate between total numbers of labor force at time t and time t-1, so, if λ is positive then the effect will not be good for total output, for example, if total labor force increase while the numbers labor force available but not looking for jobs also increase, or total labor force decrease and the numbers labor force available but not looking for jobs decrease too, then, the, λ , the inverse elasticity of substitution rate is positive. The current study summarizes four patterns in which the inverse elasticity of substitution rate may affect GDP in either positive or negative ways:

Total Labor Force	Not Looking for Job/Available	Effects on GDP
a. Increase	Increase	Negative (λ is positive)
b. Increase	Decrease	Positive (λ is negative)
c. Decrease	Increase	Negative (λ is positive)
d. Decrease	Decrease	Negative (λ is positive)

According to Maestas et al. (2016), If the high education can be used to offset the decrement on national output caused by increasing aged population, and enhance the GDP growth (Erdem and Tugcu, 2010), the proportional labor force with high education should be significantly affect the total output, so, parameter ϕ

will be additive to the labor assumed by exponential relationship too, then the equation will be:

$$Y_t = A_t * K_t^\alpha * L_t^{1 - \alpha - \lambda + \phi} \quad (3)$$

ϕ is measured by the number of high educational labor force (whose educational level is above the general

Vocational graduated) divided by the number of total labor force.

The current study tries to research on effects from the change of labor force' structure on national output only, based on equation (3), if the national output reaches its local highest or lowest points, the condition for such local highest and lowest points of national output must be:

$dY/dL = (1 - \alpha - \lambda + \varphi) A_t K_t^\alpha L^{-\alpha - \lambda + \varphi} = 0$ (4), and the properties of concavity or convexity of the equation (3) requires that $1 - \alpha - \lambda + \varphi > 0, 0, \text{ or } < 0$ (5) together with that

$d^2Y/dL^2 = (1 - \alpha - \lambda + \varphi) (-\alpha - \lambda + \varphi) A_t K_t^\alpha L^{-\alpha - \lambda + \varphi - 1} < 0, 0, \text{ or } > 0$, so, the equation (3) is either concave or convex will be subject to:

$(1 - \alpha - \lambda + \varphi) (-\alpha - \lambda + \varphi) < 0, 0, \text{ or } > 0$ (6)

For testing the time series panel data and simulating the national output under different value of α , the equation (3) can be transformed as:

$\ln(Y_t) = \ln(A_{t-3}) + \alpha \ln(K_t) + (1 - \alpha - \lambda + \varphi) \ln(L_t) + \varepsilon_t$ (7)

As A stands for the level of technology which will be proxied by the number of

patents granted of Thailand, it is reasonable to assume that these patents granted has lagged effects on the GDP, and it will not be changed more during that year, so, lagged three value (A_{t-3}) is used as one independent variable.

Discussion

Figure 1 shows the trend of growth on GDP (in natural logarithm value) of Thailand from 2009 to 2017, and Figure 2 shows the natural logarithm value for GDP, Physical Capital and Total Labor Force of Thailand from 2009 to 2017. From these two figures, especially in the fourth quarter of year 2016 to the fourth quarter of the 2017, the GDP of Thailand moves in a same direction with that of physical capital, while, the total labor force had been reducing during the same period.

As the current study focus on two important factors which may affect the GDP of Thailand, one is the inverse elasticity of substitution of labor force and another is the relative educational level of the total labor force, so, the Figure 4 and 5 present the descriptive change of these two factors during 2009 to 2017 period.

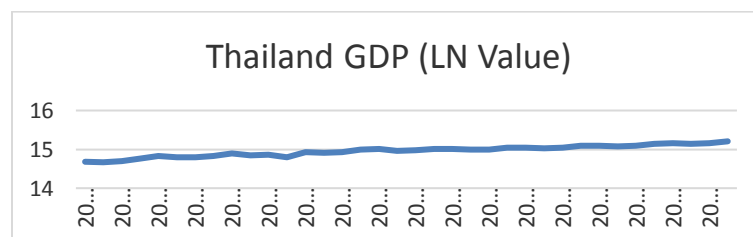


Figure 1 The trend of growth of GDP of Thailand (LN Value) from 2009 to 2017

Figure 3 discovers the change of the Total labor force of Thailand during year 2009 to 2017, the total labor force was

fluctuated and shown reducing trend from year 2016 to 2017.

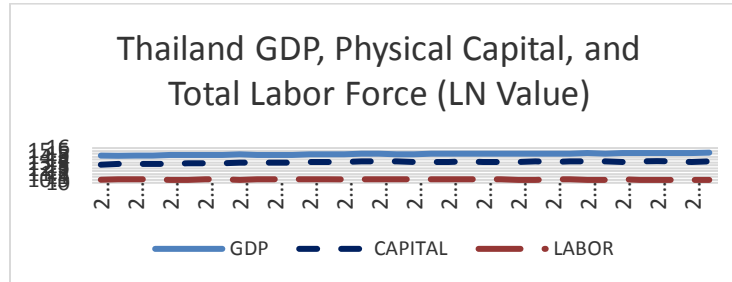


Figure 2 Thailand GDP, Physical capital and total labor force (LN Value)

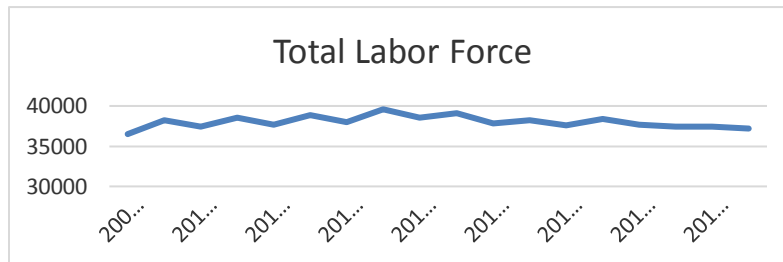


Figure 3 The total labor force of Thailand (2009-2017)

From Figure 4, the λ , the reverse elasticity of substitution of labor force fluctuated mostly above the zero, in other words, these values are more in positive than that in negative, such positive values imply that available but not looking jobs moves in same direction with total labor force, which affect the GDP of Thailand in a negative way. However, when compare the trend of λ with the trend of GDP, the current study found that such negative effects seem to have in advance influences on GDP, for example, when the reaches its local highest point between the forth quarter of year 2009

and the first quarter of year 2010, the quarterly GDP of Thailand slided to its local lowest point around the third quarter of 2010, such phenomenon can also be found between the second quarter in 2013 and the fourth quarter in 2013 and so on.

When compare Figure 5 with Figure 1 and Figure 3, the percentage of high educational level of labor force, ϕ , had been increasing during the studying period no matter the fluctuations of both GDP of Thailand and total labor force available.

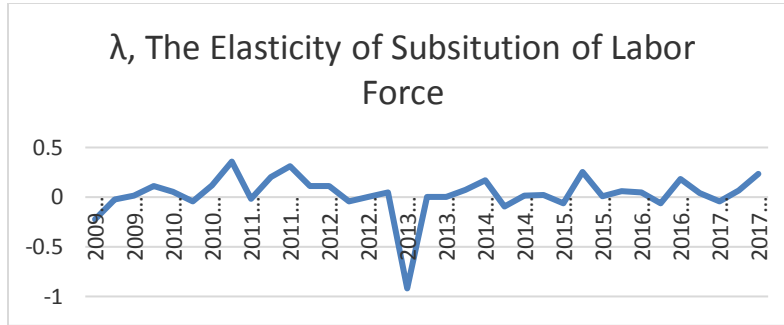


Figure 4 λ , The inverse elasticity of substitution of labor force

Most important point is that even total labor force was reduced in the year 2017, the percentage of high educational level of labor moves in a same way of the GDP

of Thailand, so, it seems to have a positive correlation ship with the growth of GDP beside the effect of physical capital.

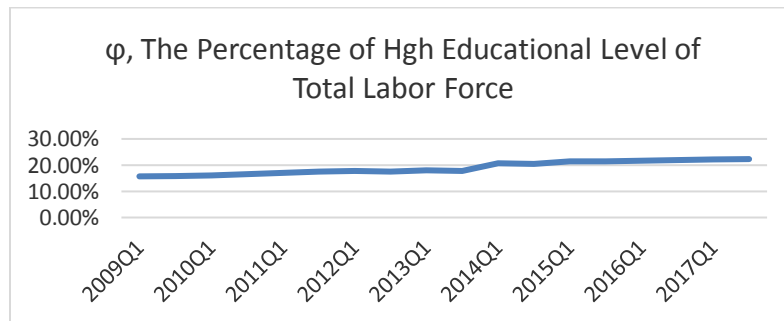


Figure 5 ϕ , The percentage of high educational level of total labor force

Table 1 and Table 2 confirmed assumptions of negative effect of λ and positive effect of ϕ on GDP of Thailand.

Table 1 The correlation ship between quarterly GDP and λ

Items	λ Value	GDP
λ Value	1	
GDP	-0.3506	1

From Table 1, the value of λ has negative correlation ship with lagged two quarterly GDP, the value is -0.3506, while from Table 2, the value of ϕ has a positive effect on concurrent quarterly GDP, its correlation ship value is 0.9116.

Generally, above findings reaffirmed the assumptions, which represented in equation (7), that the reverse elasticity of substitution of labor force has a negative effect on GDP while the high educational level of labor force has a positive effect on GDP.

Table 2 The correlation ship between quarterly GDP and ϕ

Items	GDP	ϕ Value
GDP	1	
ϕ Value	0.9116	1

The multiple regression results from equation (7) were presented in Table 3.

Table 3 Results of regression on GDP (Quarterly, in LN value)

Dependent Variable: GDP					
Method: Least Squares					
Sample (adjusted): 4 33					
Included observations: 30 after adjustments					
Models	Total Labor Force	Employed Labor Only	Employed Labor Minus Labor not at Work	Labor Educational Level under Vocational	Labor Educational Level Above Vocational
Variables	Coefficient	Coefficient	Coefficient	Coefficient	Coefficient
A_{t-3}	0.1797 (8.29)***	0.1768 (7.98)***	0.1698 (7.57)***	0.2023 (7.27)***	-0.0299 (-1.01)
Capital	0.4122 (5.54)***	0.4308 (5.72)***	0.4561 (6.03)***	0.5105 (6.56)***	0.5532 (5.01) ***
Labor	0.7657 (8.97)***	0.7446 (8.62)***	0.7177 (8.25)***	0.6403 (7.32)***	0.8473 (4.75) ***
R-Squared	0.9242	0.9197	0.9145	0.8991	0.8362
Adjusted R2	0.9186	0.9138	0.9082	0.8917	0.8241
D-W Stat	1.8825	1.8476	1.7694	1.6821	1.2121

Remark: T-Statistics in Parentheses. ***: Statistically significant on 99% Confident Level.

Table 3 shows that under the different levels of technology, the physical capital amount and different proportion of labor

forces both have significant effect on quarterly GDP of Thailand at 99% confident level.

When total labor force included, the coefficients for Technology proxy A, capital and labor are 0.179, 0.412, and 0.765 respectively, these results imply that during the research period 2009 to 2017, the GDP of Thailand mainly relied on more labor than that on capital.

However, when the labor employed only, the coefficients of labor decreases and coefficients of capital increases, comparing with that when total labor force involved. Meanwhile, the coefficient of Technology proxy A reduces as well. Such results on coefficients of each independent variable reveal that when the model included less labor, the coefficient for technology proxy decreased, coefficient of capital increased and coefficient of labor decreased, in other words, when there is less labor available in production, the gross output of Thailand mainly relied on physical capital, other than Technology.

But, when the total labor force is divided into other two different group: the group of labor's educational level under general vocational level and the group of labor's educational level above the vocational level, the empirical results discover that when the number of labor force available is less, the coefficient of labor became more, but the coefficient of capital increase too no matter the number of labor available changes, also, the coefficient of technology proxy increase significantly when compared with the first three results of regressions. But, when there are only labors with higher educational level, the coefficient of labor increase to be 0.8473, but the coefficient of technology proxy because insignificant. These may suggest that the

higher educational labors play a more important role on GDP of Thailand beside that of Technology.

As the highest coefficients of physical capital, α , is significant at 0.5532, and the lowest coefficient of labor is 0.6403 during years 2009 to 2017, this suggest that Thailand economy has been in the transition process from labor intensive to capital intensive during that period, also, the combinations of coefficients of physical capital and labors are all more than 1 under each scenario, therefore, Thailand economy has been increasing returns to scale, so, every unit of capital or labor input will increase high marginal total output of Thailand, consequently, the incorporative effects of the inverse elasticity of substitution of labor force and the educational level of these labors on GDP of Thailand are needed to be explored more further.

According to the equations (4), if $(1 - \alpha - \lambda + \varphi)$ equals to 0, then, $1 - \alpha$ must equals to $\lambda - \varphi$, as the coefficient of physical capital, α , will be assumed to increase in the future, so, $1 - \alpha$ will be lower than current level, however, when the total labor force will shrink, which means that Thailand will fall into an aged society, the industries need more high educational labor force to utilize the capital and apparatus, but the relative educational level will be increased when older persons involved, as the result, the minus consequences between the inverse elasticity of substitution of labor force and the percentage of educational level of labor force can be positive, zero or negative, such changes will enable equation (3) to be concave at some points

then, reach its highest points or lowest points and convex. While, the equation (6) can be negative or positive, for instance, when α is more than 0.65, while, the ϕ equals to 0.20, the production function shape will be a strict concave if and only if λ is more than -0.45 but less than 0.55, or the production function shape will be a strict convex if and only if λ is less than -0.45, such concavity and convexity of production function can be observed from the Figure 1.

Summarily, based on equations (4), (5) and (6), if there are more physical capital used in production and high educational labor force percentage available, the production function will become more convex, which will be beneficial to gross output of Thailand even though the total labor force will be reduced, or in other words, Thailand fall into an aged society.

To reinforce this summary, another scenario can be used to describe the such property of production function: when α is 0.75 and, then, the ϕ is at 0.60, then, the concavity or convexity will be depended on the results of $-0.15-\lambda$, the production function with high probability to be in property of a strict convex than a strict concave.

Conclusion

As the process of ageing population has been accelerating so fast unprecedentedly in Asia and Pacific region, therefore, how to solve problems under this ageing population is not only economic issue but also political issue for every government.

So, there is a need to research on this topic from different perspectives.

In the current study, two important factors are analyzed. These two factors are the educational level of labor force (ϕ) and the inverse elasticity of substitution of labor force between the change rate of total labor force and those labor force available but not looking for jobs (λ).

When Thailand has been transiting from labor intensive to capital intensive, and there is a trend of declination of total labor force, meanwhile, the relative change of number of labors available but not looking jobs has either positive or negative effect on the gross output of Thailand (GDP), then, the educational levels of labor force play more and more important role on the GDP of Thailand, especially, The findings from this study suggest that a high overall educational level of labor force can be used to offset the high aging labor force changes, for example, in the current study, the labor whose ages over 60 years was not deducted from total labor force, conversely, these aged labor force increase overall educational level to some extent. As the result, the decreasing population or decreasing labor force can coexist with sustained economic growth. These conclusions echo some previous researches (Erdem E. and Tugcu C.T, 2011; Elgin C. and Tumen S., 2012; Sukpaiboonwat S. et al., 2014; Kongtong Y and Romprasert S., 2015; Haque et al., 2016).

Therefore, the findings from the current study have both theoretical and practical implications

Theoretical implications

As the aging factor become more important than gender as the key ingredient in analyzing working or labor force, so, how to set a theoretical framework to study the effects of this phenomenon on national economic growth rate is quite meaningful. Distinguished from previous studies, the current research uses both the educational level of total labor force and the inverse elasticity of substitution rate between the change rate of total labor force and the change rate of labor available but not looking for jobs to explore more deeply on the labors' effects of economic growth of Thailand. These two factors can well explain the pattern of the national economic growth in the current study.

Practical implications

Given relative higher percentage of labor force available but not looking for jobs in Thailand for each period, for example, some new graduates, the increasing aged persons, which is common phenomenon during the economic transition from labor intensive to capital intensive and under lower fertility rate, the Thai government may either encouraging

these labor force available but not looking for jobs to be employed in industries via more incentive initiatives, for example, incentives for entrepreneurship on emerging industries, train these labors according to future needs in different industries, or extend longer working time span for the older persons, offer them with flexible and suitable jobs so as to including these older persons in the labor force to reduce the inverse elasticity of substitution rate of labor force and enhance the overall educational level simultaneously. These methods can really improve the economic growth rate for Thailand, so as to increase per capita as fast as possible before Thailand fully fall into aged society around 2024.

The limitation of the current study is that the current study just analyzed on the effect of labor force structure, let the capital changes as the exogenous factor, for example, foreign direct investment, so, the results of this research may not fully reflect the effects from interactions between the labor force and capital factor which is endogenous. Also, the number of patents granted is used as the technology proxy in this study should be explored more in details as not all patents can be transferred into new technologies.

Future study may be concentrated on these comprehensive or combined effects between the three factors: technologies, capital and labors.

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PERCEPTION AND INFLUENCED FACTORS TOWARDS STEM CELL TECHNOLOGY IN THAILAND

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Article info

Article history:

Received
6 November 2018
Revised
28 January 2019
Accepted
9 July 2020

Keywords:

stem cells, stem cell
technology, public
perception

Abstract

The stem cell technology is one of emerging medical technology that has gained attention from public especially patients seeking for advanced treatment. There are many concerns about stem cells in different aspects. Until now, there are limited studies on how people perceive and accept stem cell technology especially in Thailand market. This study aims to identify any factors that influence the perception of public toward stem cell technology in Thailand. Quantitative method was conducted through survey online questionnaire among Thai population. 113 questionnaires were analyzed with descriptive and inferential statistics techniques. Results reveal that many factors influenced the stem cell technology perception but not religious belief as previously reported in other countries. Thai society relies on knowledge than familiarity to set a perception which is in contrast to other societies. The public perception on stem cell technology requires media attention level of public and reliability of media sources and the trustworthy key persons such as scientists (support by university not private) and medical doctors as the key persons to communicate the technical information. With right information and communication, the public will perceive benefits of this technology and use it to build the right perception on stem cell technology. These factors can be adapted by government and private sectors for preparation of public and building the right perception toward stem cell technology.

Introduction

Stem cells are undifferentiated cells commonly found in multicellular organisms; they have the ability to renew themselves through cell division and can be differentiated into a wide range of specialized cell types. When scientists first successfully extracted stem cells from human embryos in 1968, there is a hope that these malleable cells can ultimately be “programmed” to replace damaged bodily tissues. This breakthrough consequently created a widespread expectation that through the use of these embryonic cells, we could effectively tackle such life-threatening diseases as Alzheimer’s or diabetes, as well as make possible recovery from unrecovered injuries such as spinal cord injuries. During this past few years, this breakthrough of stem cell research has reached the exciting stage of offering the prospect of restoring normal function to a much wider variety of tissues damaged by serious disease or injury than could have been contemplated just a few years ago. The presses published articles related stem cell therapies in early phase as future of medicine, and there is widespread of biotechnology startups, joint ventures, and pharmaceutical companies around the world targeting on developing new therapies based on stem cells.

Problem statement

There are a much unknown need to be addressed before this promising new medical area will applicable. There are many concerns about stem cells in

different aspects, while scientific community is on the quest to decode the unknown related to stem cells such as the most suitable source of stem cells, how to obtain pure populations of the desired types of differentiated cells, and the knowledge needed to organize and retain stem cells in required stage in order to yield the right cell types for effective therapy. The society has additional concerns that cannot be ignored include the ethical issue and public perception toward stem cell technology. Whether a fair description or not, this idea would seem to be particularly relevant for issues involving complex and unfamiliar science and emerging technology. Developments in such new scientific areas as nanotechnology, genetically modified (GM) foods, or stem cell research involve novel knowledge claims, ideas which many people may not have confronted previously. Although, many observers have assumed that in case of science-related controversies, enhancing public scientific understanding and knowledge will bring public opinion on these topics closer to the same level of the scientific community, the real scenario is much more complex because these debates involve values and expectations, not purely scientific facts (Nisbet, 2005). Especially, stem cell research is emerging science and there was few of science- and technology-related issues have sparked as much public attention as cell research and therapeutic cell therapy due to its direct benefit change the future of healthcare.

Moreover, another aspect that plays an important role in the perception of public on this sensitive issue is some Christian conservatives idea which holds the “embryos are human beings created in God’s image and worthy of full moral protection from the moment of conception” believe (Nisbet & Goidel, 2007). The stem cell controversy is widely seen as a battle between religious and scientific values. Interested groups, advocates, and policymakers on both side of the debate have taken advantage of the new finding and news to against each other. Furthermore, the effectiveness of stem cell therapy in patients is another diversity viewpoint that still unclear for public understanding.

This complex environment involved with various factors results in a different level of perception of public toward stem cell research and therapeutic cell therapy; it plays an important role in country-specific policy on stem cell usage and readiness of market on therapeutic cell therapy. Most of the related researches on the perception of the community toward stem cells technology were a study in western and developed countries with higher level of scientific knowledge among the population, and also with different religious beliefs and cultures. This research question of this study is

What are the factors influence the perception toward stem cells technology in Thailand?

The aim of this paper is to understand public perception of Thais toward the stem cell technology, the factors such as

familiarity, religion, media influence, trust, and interpersonal communication.

Literature review

Definition of stem cells & stem cell technology

Stem cells are basic cells of all multicellular organisms having the potency to differentiate into a wide range of adult cells. Stem cells, whether they occur in the body or in the lab, must contain two characteristics; self-renew (generate perfect copies of themselves upon division) and differentiate (produce specialized cell types that perform specific functions in the body). The promise of stem cells as new tools for benefiting human health resides in these two properties that allow production of unlimited quantities of required cell types for use in therapeutic purposes or transplantation (EuroStemcell, 2013).

Beyond this definition, any cells possess two characteristics are considered as stem cells classified into two types, based on the range of specialized cells they can generate. Tissue or adult stem cells are found throughout the body, they function to maintain the organ or tissue in which they reside, throughout the lifespan. Most rapidly renewing tissues are maintained by stem cells, with the notable exception of the liver, which is maintained by specialized liver cells called hepatocytes. Under normal physiological conditions, each type of tissue stem cell only generates cells of the organ or tissue system to which it

belongs: the blood (hematopoietic) stem cell generates blood; the skin stem cell generates skin, and so on. An exception is the mesenchymal stem cells, which can generate bone, cartilage, and muscle (Bianco et al., 2013). However, while the mesenchymal stem cells have generated much valuable research field, it has also attracted controversy. Pluripotent stem cells, in contrast, have the potential to generate any type of cells found in the body. Pluripotent stem cells are generated in the laboratory by capturing or recreating cell types that exist only transiently during embryonic development and have not been identified in the adult body. There are currently three types of pluripotent stem cell, each generated by a different route: *Embryonic stem (ES) cells* are derived from early- stage, pre- implantation embryos, and were the first type of pluripotent stem cells to be discovered. *Epiblast stem cells* are a type of pluripotent mouse stem cells derived from a slightly later stage of embryonic development than mouse ES cells. *Induced pluripotent stem (iPS) cells* were discovered in 2006 using mouse cells, just a year later, this finding was replicated in human cells. The iPS cells are generated from specialized cells by using a technique called “reprogramming”. This groundbreaking work was awarded the Nobel Prize in Physiology or Medicine in 2012. Researchers have rapidly adopted iPS cells for study and application.

With unique characteristics of stem cells on regenerative abilities, there are many potential usages of stem cells in research

and clinic. In term of research, studies of human embryonic stem cells will provide useful information regarding complex events during the human development process. This is related to turning genes on and off to trigger undifferentiated stem cells to become the differentiated cells with a specific form of tissues and organs. A more understanding of the genetic and molecular controls of these process may yield information about how serious medical conditions, such as cancer and birth defects, arise and potential to offer new strategies for cure. (National Institutes of Health).

However, the most important potential application of human stem cells is the generation of cells and tissues that could be used for the treatment of diseases. Today, donated organs and tissues are often used to replace ailing or destroyed tissue, but the need for transplantable tissues and organs far outweighs the available supply. The ability to direct differentiate into specific cell types of stem cells offers the possibility of a source of replacement cells and tissues to treat diseases including macular degeneration, spinal cord injury, stroke, burns, heart disease, diabetes, osteoarthritis, and rheumatoid arthritis. With this knowledge, scientists, medical practitioners, and societies are speculating about the possibility of advance in the treatment of injuries and life-threatening diseases and generates new therapy field which is referred as cell-based therapy, regenerative or reparative medicine (National Institutes of Health, 2015b).

Public perception towards stem cell technology

Considering stem cell technology as emerging technology, which is technology that radical new, fast growth, and perceived on its capability of changing the status quo. It could be understandable that assessment of public attitudes toward it may not be possible at this point of emerging, because of low levels of awareness and knowledge of general public toward new technology. However, narrow focusing on scientific knowledge of public when examining attitude toward emerging technologies will measure only one aspect of how people develop opinions and attitude toward new technologies. Most of emerging technologies which general public have little or no direct experience, the attitudes and perceptions toward new technologies are made on little information as they think is necessary to make a decision on that issue, or based on cognitive and heuristic decision making (Scheufele & Lewenstein, 2005).

If we consider adoption of any innovative technology, the process occurs as a continuous and slow as sequential step starts from initial knowledge of an innovative technology, to form an attitude toward it, to reaching an adoption decision. This can be considered as diffusion process which influence by innovation itself, communication channels, time, and social system (Rogers, 1983). This technology diffusion process can be seen as the cumulative or aggregate result of series of individual calculation that weight the incremental benefits of

adoption of technology against the cost of change, or risk. The early phase of adoption of any technology which involves the initial knowledge on technology and beginning to form an attitude toward it is the critical phase and influence by other factors as well.

Focusing specifically in term of emerging technologies, there are many studies aim to find the factors that affected public perception on emerging technology similar to stem cell technology as described here.

Knowledge and familiarity

People are afraid of the “unknown”. Higher levels of knowledge of science are often assumed to enhance people’s understanding of associated risk and benefit and result in more optimistic attitudes, in contrast, skepticism about emerging technology is often believed to come from lack of knowledge and familiarity. There is a study shown that level of scientific knowledge is associated with positive attitudes toward science (Sturgis & Allum, 2004). (Cobb & Macoubrie, 2004) found that greater familiarity with nanotechnology is associated with more positive perceptions of benefits versus risks. However, there are a number of studies find that knowledge contributes little to people’s positive perceptions of science (Nisbet & Goidel, 2007). Some findings even suggest that higher levels of science literacy negatively contribute to public perceptions of new technology, for example, (Cobb & Macoubrie, 2004) test knowledge of nanotechnology and find that a large percentage of surveyed

respondents could not even answer one true or false question correctly.

However, a lack of factual information does not mean an individual cannot form an opinion on a science-related controversy. Sometimes familiarity is a more important factor influence on public attitudes and perception toward emerging technology than specific knowledge of scientific facts.

Religion influence

Although, the stem cell therapy is considered to be the miracle cure for life-threatening diseases such as Alzheimer's, diabetes or other serious injuries. However, the source of stem cells generates the concern to society as it may involve with the definition of other human being's life. The definition of life in religious concept can play an important role to society acceptance on this new technology. For example, the Christian conservatives believe on "embryos are human beings created in God's image and worthy of full moral protection from the moment of conception". This belief interferes the progress of stem cell technology in countries with a strong belief in Christianity and results the other sources of stem cells are being investigated that do not require the destruction of human embryos. Despite interfering on country's policy level toward stem cell technology, religion also plays an important role in public perception on stem cell therapy as well (Liu & Priest, 2009). There was previous report that intensity of religious worship is negatively associated with the public

benefit perceptions of stem cell research and remains the most important factor in fostering public reservations about emerging technologies (Liu & Priest, 2009). While another in-depth study among Protestants and Catholics subjects by (Nisbet, 2005) reported the strength of religious belief ties to institutions and frequency of church visit have negative effect toward support of research.

Media influence

Media influence in public opinion has been a debate for decades. Media can perform a strong role in shaping public perceptions on highly technical or scientific issues. Especially, in a society that most members of the public will not have much experiential knowledge to draw from about these subjects, creating increased dependency on information from the media (Ball-Rokeach & DeFleur, 1976). Numerous studies have demonstrated that media serve as a key factor for the public to understand biotechnology and other scientific-related issues (Nisbet, 2005); (Nisbet & Goidel, 2007); (Scheufele & Lewenstein); (Eyck, 2005).

Trust in key persons

There is a theory that the trust could be a strong factor in shaping public attitudes toward the emerging technologies. (Lee, Scheufele, & Lewenstein, 2005) found that previous research has focused on a variety of trust variables, including trust in business executives or government, trust in information sources, trust in laws and regulations, trust in scientists, and trust in citizen groups.

Trust can be predictive of the general public's attitudes toward science controversies. To a great degree, the level of public risk and benefit perceptions associated with these emerging technologies reflects a number of trust people place in important social factors.

The example of the influence of trust on public perception toward emerging technologies is American society, Americans has traditionally placed a high value on science and technology. The American public trust in science can be reflected in the fact that science tends to be idealized "as an ultimate authority". Although scientific fraud and misconduct are frequently exposed in media, it does not seem to hurt science's reputation as a "pure and dispassionate profession". There was reported that trust is an important factor in shaping people's opinion about nanotechnology, with people tending not to believe that big businesses can protect them from risks (Cobb & Macoubrie, 2004). There is a finding report that scientists are often regarded as more persuasive information sources (Eyck, 2005). (Lee et al., 2005) observe from their study that public trust in scientists better predicts general support for nanotechnology than trust in science.

Another study in Australia examined the public opinion on stem cell research found that people participated in the research less likely to approve on stem cell researches, if the research was conducted by the scientists received funding from private sectors. The respondents were more accepting of publicly funded stem cell research

because university scientists are trusted more, and that this trust is partly dependent upon a perception that they are more concerned with the public good than private scientists are (Critchley, 2008).

The different types of trust might produce differential effects on public perceptions of novel technology. Trust should be further differentiated since each area of science and technology might trigger completely different concerns. For example, GM foods might raise public health concerns, nanotechnology might make people worry about privacy, and stem cell research involves specific health and moral concerns (Nisbet, 2005).

Interpersonal communication

Another factor that might affect the perception of stem cell technology is interpersonal communication. Despite the fact that mass media are widely recognized as extremely important information providers and play an important role in shaping our attitudes toward many social issues, especially in the case of issues related to science where other sources of information may be in limited supply, interpersonal communication is also important and has often been argued to be even more important (Liu & Priest, 2009).

Interpersonal communication may reinforce by media. Based on the reinforcing model which that the media provide the public with discussion content and stimulate interpersonal communication (Ball-Rokeach & DeFleur, 1976). Specific to the stem cell

technology, the reinforcing model may help to explain the interaction between media and interpersonal communication in forming public opinion. Prior to exposure to media coverage of stem cell controversies, the issue would be unlikely to spontaneously arise and few relevant interpersonal discussions are expected to take place. As past findings show that media generally highlight more benefits than risks associated with stem cell research, we expect that interpersonal discussions tend to revolve around the same theme and would tend to reinforce positive media effects on attitudes in most cases.

Perceived risks and benefits

Risk and benefits of risky activities are positively correlated in the real world, people in pursuit of various benefits face some degree of risk. Because of this reason, the risk and benefit play an important role in perception toward the acceptance of any innovation or emerging technology. There is an assumption that citizens have various levels of understanding of emerging technology related to scientific concepts provides an important tool which citizens can make sense about risks and benefits

connected to emerging technology (Lee et al., 2005). People tend to perceive risk and benefit of risky activities as negative correlated or inverse relation, especially, in the area which its hazards and benefits still unclear. People tends to use the affect heuristics to guides their perception of benefits and risks, except the level of knowledge and expertise are developed (Sokolowska & Sleboda, 2015).

Conceptual framework

Knowledge from literature review related to the perception of public toward emerging technologies and stem cells was shown that there are many factors influence public perception. We identified six factors which have strong effect on public perception toward stem cell technology as; knowledge and Familiarity, religion influence, media influence, trust in key persons, interpersonal communication and perceived risk & Benefits. These factors and demographics are targeted on this study and be summarized as a conceptual framework in Figure 1.

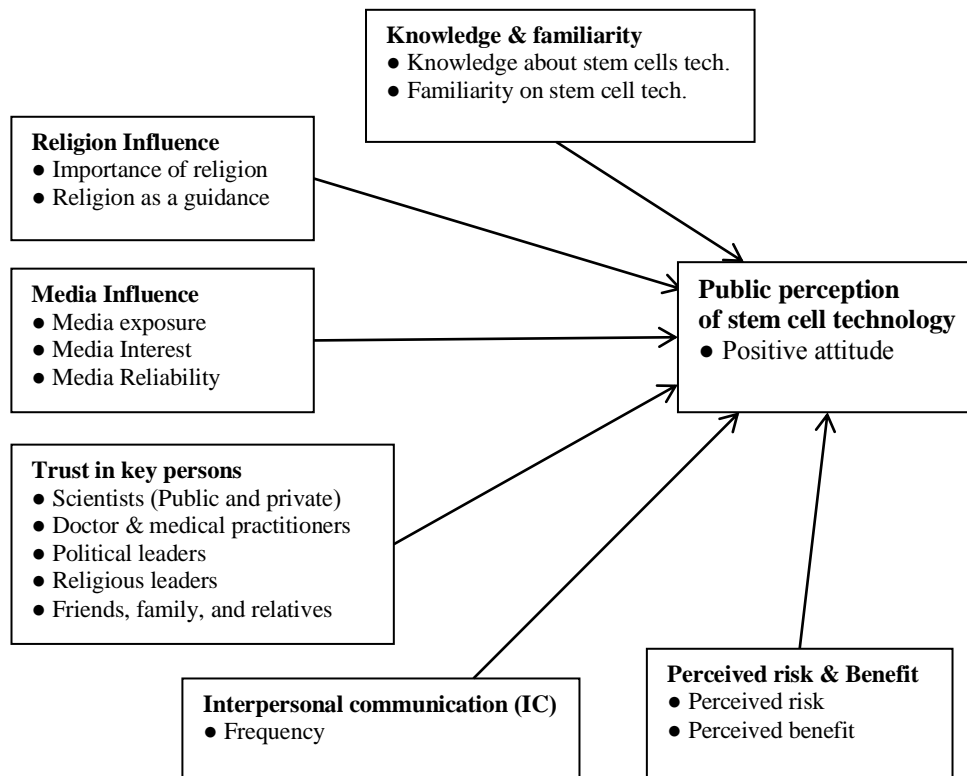


Figure 1 Conceptual framework of factors influencing perception on stem cell technology

Research methodology

This research will use quantitative method to explore the factors affect the perception of Thai community toward stem cell technology which provide the understanding of public perception on emerging technology such as stem cell technology.

The questionnaire was developed based on a concept from literature. To collect data in different aspects from participants, Likert-type questions were used to evaluate the opinion of

respondents toward stem cell technology, with score ranges from 1 (minimum) to 5 (maximum). The additional questionnaire type such as conditional questions and multiple choice questions have been used as well in this study to gathering the clear opinion and in-depth details related to specific factors. The perception toward stem cell technology which measuring in term of attitude are collected in this questionnaire as dependent variable, due to the fact that this dependent variable was collected using Likert-type scale, the variable is fall into ordinal type.

The online questionnaire was distributed through different online channels such as social media networks, and email. Data was analyzed by SPSS® software. For ordinal type of data from dependent variable, parametric statistical analysis likes ANOVA, and linear regression could not be applied to this data set. It will be more appropriate to analyze this data with non-parametric analysis such as Kruskal-Wallis test for analysis of variance instead.

Research findings

Descriptive analysis

The survey reports the demographic profile of the respondents in this survey. Total sample size was $n=113$. From the total 113 respondents can be identified as 67 males (59. 3%) and 46 females (40.7%), with age ranges in between 20 – 29 (35.4%), 30 – 39 (31.9%), 40 – 49 (10.6%), 50 – 59 (8.8%) and more than 60 years old (13.3%), respectively.

The highest education level of respondents is Bachelor degree ($N=50$, 44.2%), Master degree ($N=55$, 48.7%), and Doctor of Philosophy ($N=8$, 7.1%)

with different education backgrounds. Almost half of respondents has education background in science and technology field ($N=55$, 48.7%). The rest are in business and finance ($N=37$, 32.7%), medical Science ($N=8$, 7.1%), language and art ($N=7$, 6.2%), and social science ($N=6$, 5.3%).

Perception toward stem cell technology

In this study, we measure the perception toward stem cell technology by measure the positive attitude of respondents toward benefit stem cell technology. The attitude was measured by evaluating the level of agreement that stem cell technology has more benefit. Overall the respondents agreed that stem cell technology has more benefit, with the different level of agreement. Half of respondents ($N=56$, 49.6%) highly agreed that stem cell technology has more benefit than risk. While 6.2% ($N=7$) of respondents still did not completely agree on this statement, the 31% ($N=35$), and 13.3% ($N=15$) of overall show the moderate and extreme level of agreement shown in Figure 2.

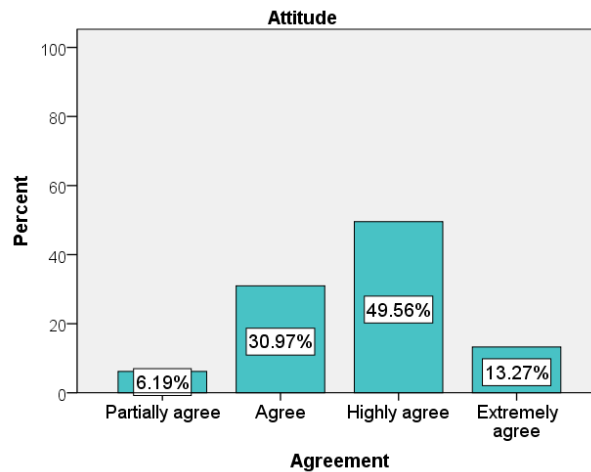


Figure 2 Perception toward stem cell technology based on attitude

Effect of factors related on perception toward stem cell technology

Effect of knowledge and familiarity

The knowledge and familiarity toward stem cell technology were evaluated using self-reported questions about their knowledge and familiarity on the stem cell technology. The responses from self-reported questions regarding stem cell knowledge explained that overall around 81 respondents (71.7%) claimed that they have knowledge about stem cells and 73 respondents (64. 4%) for stem cell technology.

An additional technical question set was set up as a following section in questionnaire to assess actual knowledge regarding stem cell and stem cell technology based on conditional questionnaire style, number of correct were collect and evaluated as actual knowledge on stem cell technology of respondents. The respondents actually have better knowledge on stem cells and stem cell technology than they claimed, considering the number of correct answers on question set. Around 8.9% of respondents (N=10) did not have or have few knowledges about stem cells and stem cell technology, while 33. 6% (N= 38) are in moderate level of knowledge and 57. 5% (N= 65) of respondents are considered as high to very high level as shown in Figure 3.

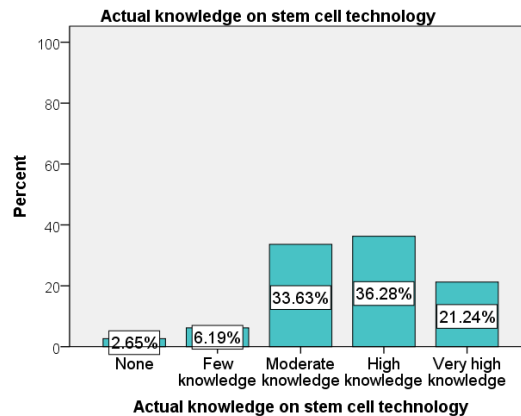


Figure 3 Actual knowledge on stem cell and stem cell technology

The familiarity was measured with a self-reported question. The analyzed result shown that 16.8% of respondents (N=19) considered themselves not familiar with concept of stem cell technology. Almost half of respondents (N=51, 45.1%) which is the majority group responded that they are somewhat familiar with this concept, and the rest 16.8% and 5.3% of total respondents are shown their familiarity level at moderate and high. However, none of respondent claimed that he/she has very high level of familiarity with this concept.

Knowledge and familiarity factors were test for their influence on perception on stem cell technology with Kruskal-Wallis H test. The result showed that there was a statistically significant difference in perception toward stem cell technology between group of respondents who had different level of knowledge on stem cell ($\chi^2(2) = 9.569$, $p = 0.002$) and stem cell technology ($\chi^2(2) = 4.445$, $p = 0.035$). Either the knowledge is about stem cells or stem cell technology, the group that responded in questionnaire that they possessed

knowledge on both specific areas had more positive perception on stem cell technology than the group that not. But this was not related to the actual knowledge on stem cell and stem cell technology of respondents as there is no statistically significant difference between respondent groups with different actual knowledge level. Interestingly, the previous study on perception toward nanotechnology provided the similar result the what really affected the perception is how respondents say they know than what they really know or their actual knowledge about the technology (Cobb & Macoubrie, 2004).

Influence of religion

Previous studies reported that the public perception of stem cells are closely connected with religious belief and values, especially, how individual's institutional ties to religion. However, measuring of religious belief and personal belief ties to religion is sensitive for some respondents. Moreover, the demographic information such as

religious belief itself does not provide any level measure of the strength of individual's tie to the institution such as religion (Nisbet, 2005). The previous study suggested to measuring the religious belief effect in term of indirect questions such as how often of respondents attend the service or performing worship per week and how the respondents rely on religion as a guidance in life (Liu & Priest, 2009; Nisbet, 2005). In our case, we decided to measure this factor accordingly and

frame it as the importance of religion and religion as guidance in life.

The result was shown in Figure 4, the respondents evaluated the religion as an important factor in their life in different level; there are 11.5% of respondents (N=13) who did not consider religion as important, while 18.6% (N=21), 33.6% (N=38), 27.4% (N=31), and 8.8% (N=10) considered religion as somewhat important, important, very important, and extremely important, respectively.

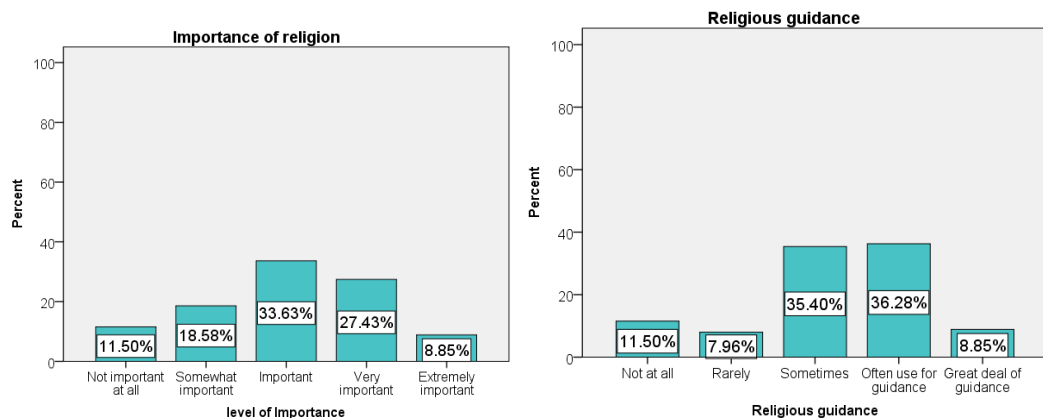


Figure 4 Importance of religion and religion as a guidance in day-to-day living

According to question evaluated the religion as a guidance in day-to-day living many respondents reported often usage of religion as a guidance (N=41, 36.3%), but a roughly equal number (N=40, 43%) also indicated that they sometimes used religion as a guidance. So we can conclude that there are the same number of people who see this in opposite. The rest are 9 respondents (8%) that rarely use religion as a guidance in their living and 10 respondents (8.8%) that considered religion as a great deal of guidance. Interestingly, the same number

of respondents (N=13, 11.5%) did not considered religion is important, are the same number of respondents who did not use religion as a guidance as well. However, we did not test that both groups composed of the same respondents or not.

The influence of religion on perception on stem cell technology was measured by evaluation the importance of religion and level of usage of religion as a guidance on day-to-day living. Result showed that both factors, importance of religion and

usage as a guidance, did not have any influence on perception on stem cell technology in our studied group ($p = 0.702$ and 0.459). Contrary to previous studies by Liu and Priest (2009) that the religious worship is negatively associated with the public benefit perception of stem cell research. We suspected that the inconsistency of our result with previous studies may cause by the difference in religious belief and values based on Buddhism religious belief, as previous report in demographics analysis section that more than 90% of our respondents has Buddhist religious belief.

Media influence

Media is another potential factor influencing attitude and perception of public on stem cell technology. We measured different aspects of media in this study as media exposure in term of frequency of news exposure, respondents' attention level on specific contents of media, and media reliability as three potential independent factors influence perception on stem cell technology.

Firstly, the exposure level of respondent to media was measured in term of frequency of news exposure per week. Overall 91% of the respondents ($N=103$) exposed to the media in different level. The 27.4% of respondents reported everyday exposure to the news on media, while the 3.5%, 6.2%, 5.3%, 17.7%, 14.2%, and 16.8% of respondents reported their exposure as 6, 5, 4, 3, 2, and only one day per week, respectively. Interestingly, there are 10 respondents which considered as 8.8% that reported themselves no exposure to any news on media.

Focusing on stem cell technology exposure to the respondents group, another question was examined their exposure to stem cell technology through media. The result was separated into two groups, there were 66.4% ($N=75$) of respondent reported themselves previously being exposed to news and information about stem cell technology. In opposite, 33.6% of respondents ($N=38$) claimed never previously exposed to the stem cell technology news and information.

The media exposure in this study was evaluated by two variables, the frequency of media exposure, calculated from number of the day per week that the respondents were exposed to media, and the exposure on stem cell technology through media. Both variables were analyzed with Kruskal-Wallis H test for their effect on perception on stem cell technology represented by attitude. The result showed that there was no statistically significant difference between groups with different exposure to media ($p = 0.078$), this mean that the frequency of exposure to media did not influence the perception, same as the exposure to stem cell technology through media also did not have any effect ($p = 0.545$). We can conclude that frequency of media exposure and exposure on stem cell technology on media did not have any effect on attitude toward stem cell technology perception. This finding was in opposite with a previous study done by Liu and Priest (2009) that the exposure to national TV news showed a weak positive influence on benefit perceptions on stem cell research which researcher claimed that it was in contrast with some studies (result not shown in literature). However, the researcher explained that this effect was influence by media

attention of the respondents but did not have any additional data support. We decided to involve in both effects by further conducting the additional set of questions regarding media attention in the next section.

Figure 5 explained the variation of attention level of respondents according

to the topics. In term of general topics related to science and technology, medical technology and breakthrough, and policy related to new scientific development; Most of respondents showed the moderate attention level over these topics. However, the respondents had less attention in specific topic related to stem cell technology.

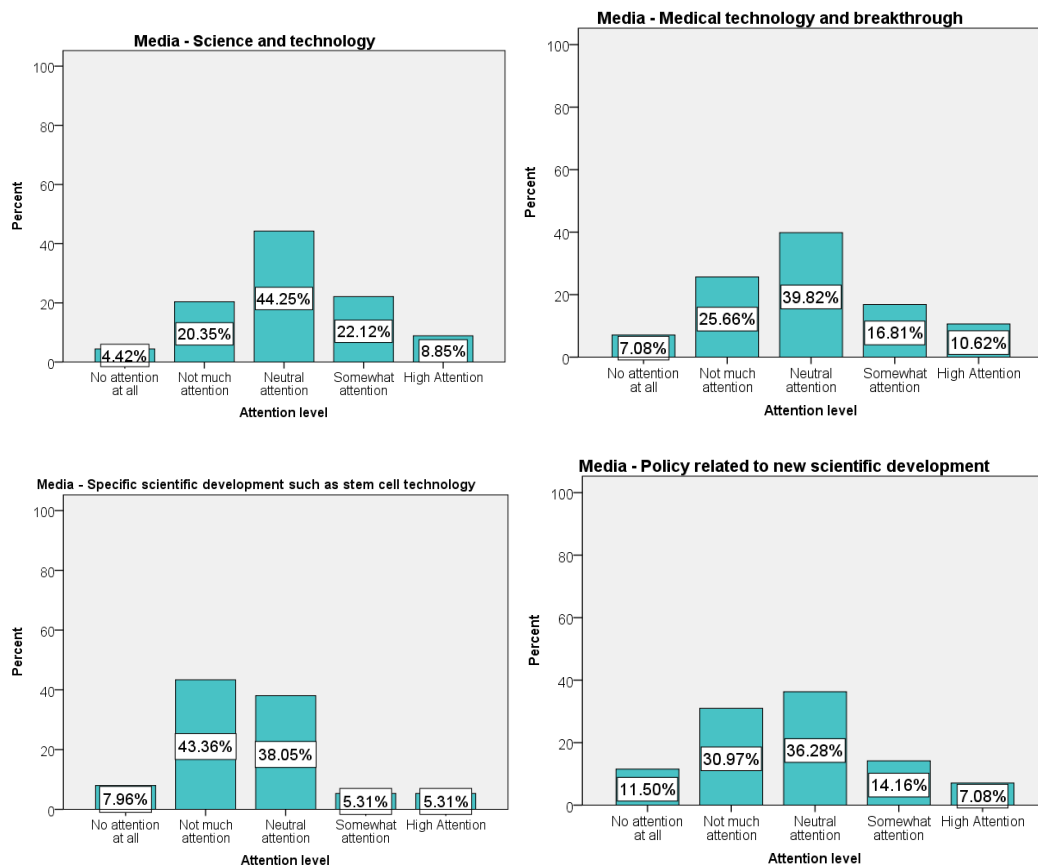


Figure 5 Attention level of respondents on specific topic related to stem cell technology

Lastly, we would like to examine that the reliability of the media sources and its influence. The reliability of media sources was tested for its influence on

people's perception toward stem cell technology. The reliability level of seven media sources consisting of TV news, documentary, radio news, internet and

social media, article in newspaper, articles in magazine, and article in scientific journals were collected and evaluated. Only two media sources, documentary and article in scientific journals, showed the influence of its reliability on perception of stem cell technology at $\chi^2(2) = 15.639, p = 0.004$ and $\chi^2(2) = 15.569, p = 0.004$, with a mean rank according to data reported. This mean that the level of reliability of stem cell technology information on documentary and article in scientific journals is affected the perception on stem cell technology.

Effect of trust in key persons

Even though, trust is understudied variable in the area of public understanding. There was previous study trust on few key actors such as scientists, political leaders, and religious leaders as variable affected the public understanding of stem cell controversy (Liu & Priest, 2009). In comparison with previous study, we examined trust in similar key persons or key opinion leaders in stem cell technology field such as scientists, political leaders, and religious leaders. In addition, we separated the scientists into two groups according to their funding sources (government and private sector funding source) as the source funding may affect the trustworthy of scientists (Critchley, 2008). Moreover, we suspected that the

potential influencers such as the doctors and medical practitioners or family, friends, and relatives may influence the opinion through interpersonal communication were added into this study.

The trust in each key person was measured as opinion on creditability in term of stem cell technology information source. The summary was shown in

Table 1. The scientists funding by government, scientist funding by private sectors, and doctors and medical practitioners were rated as credible key persons in term of stem cell technology information, with 41.6% (N=47), 37.2% (N=42), and 36.3% (N=41), respectively. The trust level in another potential key person such as friend, family, and relatives, was somewhat credible (N=55, 48.7%) but less than the first group. However, the key persons who considered as influencers for policy area such as political and religious leaders were considered least in term of creditability, 47.8% (N=54) and 48.7% (N=55).

Table 1 Summary of trust in key persons in term of stem cell technology information

Key persons	Creditability				
	Not credible at all	Somewhat credible	Credible	Very credible	Extremely credible
Scientists	2.7%	21.2%	41.6%	22.1%	12.4%
(Government)	(N=3)	(N=24)	(N=47)	(N=25)	(N=14)
Scientists	5.3%	30.1%	37.2%	22.1%	5.3% (N=6)
(Private sector)	(N=6)	(N=34)	(N=42)	(N=25)	
Doctors or medical practitioners	3.5%	19.5%	36.3%	30.1%	10.6%
	(N=4)	(N=22)	(N=41)	(N=34)	(N=12)
Political leaders	47.8%	36.3%	14.2%	1.8% (N=2)	0%
	(N=54)	(N=41)	(N=16)		(N=0)
Religious leaders	48.7%	39.8%	9.7%	1.8% (N=2)	0%
	(N=55)	(N=45)	(N=11)		(N=0)
Friends, family, and relatives	24.8%	48.7%	22.1%	3.5% (N=4)	0.9% (N=1)
	(N=28)	(N=55)	(N=25)		

The effect of trust of different key persons on perception on stem cell technology was analyzed. The result from Kruskal- Wallis H test elucidated there was a statistically significant difference in perception on stem cell technology between different level of trust in scientists (funding by government) and trust in doctors and medical practitioners at $\chi^2(2) = 13.486$, $p = 0.009$) and $\chi^2(2) = 18.031$, $p = 0.001$. However, the trust in other key persons such as scientist funding by private sectors, political leaders, religious leader, and friends, family and relatives did not have influence on perception on stem cell technology. The influence of trust on scientist funding by government was

previously reported having influence on perception on stem cell technology (Critchley, 2008; Liu & Priest, 2009).

Critchley (2008) did the comparison on effect of trust on scientists received funding support from government and private sector source and found the similar result that the trust on public scientists are higher than private scientists. Because of perceiving of public scientists were more likely to produce benefits accessible to the public, in contrast that the private scientists were more self-interest. However, the religious leaders which previously reported making significant contribution to people's attitudes related to stem cell research (Liu & Priest, 2009), did not

have any influence on public opinion on stem cell technology in our study. The political leaders who supposed to involve with stem cell technology in term of policy. But the trust in political leaders did not show any influence on stem cell technology.

As we introduced some new key persons to this study, the trust in doctors and medical practitioners are factor that we were interested to study. Due to the fact that, the stem cell technology involved with the disease treatment and medical practices, the result showed that the trust in this new key person had influence on perception on stem cell technology as well. Although, there was no other study that examine the trust in this group that we can used for comparison. But we believe this will be the effect of level of involvement of this new key person group in term of knowledge on medical usage of stem cells and related healthcare policy.

Friends, family and relatives were grouped as another key person group that supposed to influence the perception by interpersonal communication. The trust in these key person should influence the perception on stem cell technology. However, the result was shown there was no statistically significantly different in stem cell technology perception among different level of trust in this group. This mean the trust in this close peers did not have any effect on perception.

Effect of interpersonal communication

Interpersonal communication has been rarely introduced into research on public opinion, although, it was reported as an important factor shaping public opinion on stem cell controversy (Liu & Priest,

2009). We examined the interpersonal communication regarding stem cell technology of respondents through the questionnaire. The result showed that within 6 months, most of respondents (N=61, 59.2%) never had a previous discussion regarding stem cell technology with anyone, while some of them (N=33, 32%) had at least 1-2 times discussion about stem cell technology. Few of respondents (N=6, 5.8%) had discussion about stem cell technology around 3-5 times.

Although our respondents have different levels of interpersonal communication regarding stem cell technology with their close peers, but these different levels did not influence their perception on stem cell technology. From statistical analysis result, there was no statistically significantly difference between group of respondents that had different number of communication about stem cell technology. This result is similar to result from similar study done in USA and Canada (Liu & Priest, 2009), the researcher cannot identify the effect of interpersonal communication on stem cell technology perception. Despite of the fact that, the interpersonal communication normally has influence in people's opinions and perceptions (Mazur & Hall, 1990). We decided to evaluate the same factor with previous study, in case the different culture context on a society toward collectivism as Thailand (Hongladarom, 1999) may give the different insight. However, the result was similar to previous study.

Perceived risks & benefits

There was previous study (Liu & Priest, 2009) examined the public perception of benefits associated with stem cell research. However, there was no

assessment of perceived of associated risk examined in the same study. According to another study (Slovic, Finucane, Peters, & MacGregor, 2004), risk and benefit are associated and should be studied in term of their effects on attitude and perception. With this suggestion, we decided to examine both perceived benefits and risks in this study. From total 113 respondents, there were 2 respondents (1.8%) did not perceived stem cell technology as benefit. Most of them perceived benefit of stem cell technology, but the benefit level they perceived was different. Half of respondents (N=56, 49.6%) indicated that stem cell technology is high benefit, 28 respondents (24.8%) and 26 respondents (23%) indicated the benefit at moderate and extreme level, respectively. In term of perceived risk, only 4 respondents (3.5%) consider stem cell technology as no risk at all. The rest of response indicated level of perceived risk as somewhat (N=32, 28.3%), risk (N=58, 51.3%), high risk (N=16, 14.2%), and extreme risk (N=3, 2.7%).

We studied benefits and risks related to stem cell technology in more specific area. The opinion of respondents that the stem cell technology gives the benefit to specific area such as researches, drug discovery and development, medical treatment of uncured diseases, and organ replacement was evaluated. In the same time, the different area with potential risk caused by stem cell technology such as unethical source of stem cells, medical malpractices, medical frauds and scams, health-related or life-threatening issues, conflicts with religious belief, and increasing of medical treatment cost were evaluated.

In term of benefits, the level of respondents who believed that stem cell technology will cause benefit were 74.3% (N=83) for research, 75.2% (N=85) for drug discovery and development, 83.2% (N=94) for medical treatment of uncured diseases, and 61.1% (N=69) for organ replacement.

In term of risks, the respondents concerned on specific area which may have risk associated with stem cell technology. According to this result, there were 71.7% (N=81) of respondent concerned on unethical source of stem cells, 57.5% (N=65) on medical malpractices, 77.9% (N=88) medical frauds and scams, 39.8% (N=45) on health-related or life-threatening issues, 20.4% (N=23) on conflicts with religious belief, and 34.5% (N=39) on increasing of medical treatment cost.

The effect of perceived risks and benefits on perception on stem cell technology was analyzed. The result from Kruskal-Wallis H test revealed that perceived benefit had statistically significant difference in perception on stem cell technology at $\chi^2(2) = 33.863$, $p = 0.000$. While perceived risk did not have statistically significant different in perception on stem cell technology ($p = 0.193$) We can summarize that the perceived benefits had influence on perception toward stem cell technology while the perceived risks did not have any effect. We cannot compare this effect with other study about stem cell perception as no one did any research in term of perceived risk and benefits.

Conclusions

Considering stem cell technology as an emerging technology with many

unknown, people cannot totally base on their knowledge to justify the acceptance and perception toward it. Previous studies in literature review demonstrated about some factors that evaluated by researchers from different countries have shown the influence on public perception on stem cell technology. This study emphasized the similar factors and measured on different environment and cultural context in emerging developing country like Thailand with interesting findings in term of similarity and opposite with previous reported. In conclusion, we finalized our finding to the new framework as shown in 6. The

influence of knowledge and familiarity in our study is contrasted with result from other studies, as public is relied on knowledge than familiarity to set a perception toward the stem cell technology. Media influence still plays an important role in stem cell technology perception in term of media attention and reliability of media. In term of trust on key persons, Thai public perception relies on trust toward some key persons such as scientists (university) or medical doctors than others. The last factor, perceived benefits, is only factor in term of risk and benefit that influence on perception toward stem cell technology.

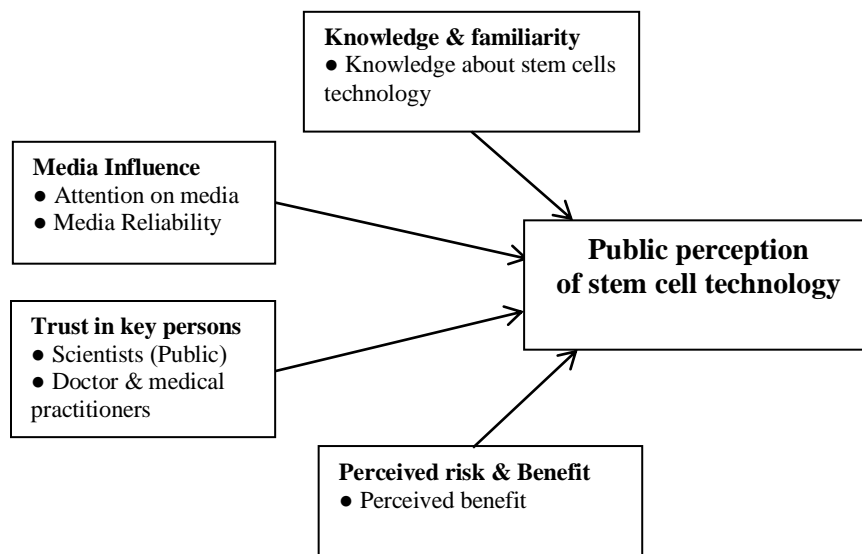


Figure 6 Model of factors influencing public perception towards stem cell technology in Thailand

Managerial implication

Considering that stem cell technology is a new technological concept for Thailand, policy and regulation are still in unclear direction. Our finding can be benefit two target groups; first group is the government segment working on policy and regulation related to stem cell technology as a consideration and preparation of public perception, and second group is private sector that commercializes stem cell related products which can use our finding to shape the right strategy for market preparation and introduction of their products to the market. Our recommendations are:

Firstly, **education** the public and market to have the right knowledge about stem cell technology before introduction of the new policy, regulations, or related product. This will help to prepare the public and market to perceive the benefit and risk of this technology at appropriate level, leads to correct perception and acceptance of stem cell technology.

Secondly, the information related to stem cell technology must be communicated through **trustworthy media channels** to

build up the positive perception toward stem cell technology. Due to the fact that the public must pay attention on this information in the level that create effective communication for building the right perception, the communication through media channel must be in the level that bring the attention of society toward this technology.

Thirdly, as the trust in key persons who communicate the knowledge and understanding of the stem cell technology is one of the important factor. **Engagement with the right Key Opinion Leaders (KOLs)** such as experienced and knowledgeable scientists and medical doctors as the key persons who provide the technical knowledge about stem cell technology must be key factors that help build up the correct knowledge in society and leads to right perception on stem cell technology.

Lastly, to make sure that public perceived correct benefits about stem cell technology and lead to positive perception. Communication and information must project the actual benefits of stem cell technology to **create the right level of perceived benefits** on stem cell technology.

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SOCIAL MEDIA MARKETING AFFECTING BRAND AWARENESS AND PURCHASE INTENTION OF THAI ONLINE CUSTOMERS

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Article info

Article history:

Received
3 July 2020
Revised
7 August 2020
Accepted
11 August 2020

Keywords:

Social media
marketing, Brand
awareness, Purchase
intention

Abstract

Purpose - The purpose of this research study is to examine social media marketing which affects brand awareness and purchase intention, and to examine brand awareness which affects the purchase intention of Thai online customers.

Methodology - It is a quantitative research. Four hundred questionnaires were distributed to Thai customers who purchased the products via online channels. The data was statistically analyzed at a significance level of 0.05.

Findings - The results suggest that: (1) social media marketing for dimensions of interaction and electronic word-of-mouth affect the brand awareness of Thai online customers; (2) social media marketing affects the purchase intention of Thai online customers; and (3) brand awareness, brand recall, top-of-mind brand, dominant brand, and word-of-mouth affect the purchase intention of Thai online customers at a significance level of 0.05.

Practical implications – Businesses and marketers must value the word-of-mouth via social media by communicating the information of a brand with unique characteristics, and by creating various marketing activities focusing on entertainment and allowing the customers' interactions in order that they have the brand awareness, and stay in the level of word-of-mouth, and they will have the purchase intention for such product eventually.

Introduction

Social media is a new communication form, which is diverse and favored across the world. In 2018, there were 51 million social media users in Thailand or an increase of 5 million users, representing 11 percent from the previous year (Hootsuite, 2018). As a result, social media becomes a significant marketing source (Balakrishnan, Dahnil, and Wong, 2014), and it directly intermediates businesses and targeted customers. Conversely, the consumers utilize social media to seek for any information about a particular brand or product for their decision-making to buy it, to refer such product information to other persons, or review it for the business (Charuwan and Kositanondha, 2014).

By reasons above, social media is so important. Every business must carry out the social media marketing by creating various social media marketing activities (Kaur, 2016) where the content, sound, pictures or video relating to a brand or product are created to communicate certain information to the consumers (Kaplan and Haenlein, 2010; Dahnil et al., 2014) while the consumers are stimulated to present their opinions, to chat, or to refer such information (Balakrishnan, Dahnil, and Wong, 2014). It is suggested from several studies that the marketers should value social media marketing in 5 dimensions: entertainment, interaction, trendiness, customization, and word-of-mouth, which partially help the consumers add their personal experience and brand awareness (He, 2016). The consumers' brand awareness causes the competitive advantages and achievements of businesses (Dahlin, 2008) because the

consumers tend to choose their familiar brands. When the consumers have the purchase intention for any brand first; this implies their brand awareness (Malik et al., 2013).

Though the businesses have carried out more social media marketing activities (Kim and Ko, 2012), there are no studies on the impact between the social media marketing in general and brand awareness and purchase intention of Thai online customers. There is neither any information indicating which dimensions of social media marketing should be mainly focused by the marketers from those 5 dimensions so that the marketing activities could be improved to attract the customers' demand more relevantly (Bilgin, 2018). Of these, the researcher is interested in studying and understanding the social media marketing affecting the brand awareness and purchase intention of Thai online customers who purchase the products via online channels. The findings would be further the marketing information for the social media marketing most relevant to Thai customers' demand.

Literature review

Social media marketing

Social media marketing is a form of marketing tools, which creates a variety of marketing activities through online channels (Kaur, 2016) with purposes of boosting the marketing value, and of communicating the information about a brand or a product via social media to the consumers (Dahnil et al., 2014) by the distribution of content, sound, pictures, or video (Kaplan and Haenlein, 2010). Social media marketing is a favorite

model as it enables businesses to develop a plenty of communication channels in line with the consumers' demands, reach a large base of consumers easily, understand the consumer behaviors rapidly for further business opportunities, and retain the good relationship with the consumers (Kietzmann et al., 2011; Godey et al., 2016). Social media consists of 5 primary dimensions: (1) entertainment - it is pleasure or joy arising out from the consumption of brand or product contents together with an involvement or participation in marketing activities leading to the shared experience (Agichtein, 2008; Shao, 2009) whereas entertainment arouses the consumers to participate in social media due to joy and relaxation in using those media; (2) interaction – businesses create the content on social media to build the relationship with customers or to make them understand the brand or product, the businesses, therefore, design certain contents tailored to be most appropriate for the consumers or create contents by mainly considering a particular brand or product (Zhu and Chen, 2015) with an aim at arousing the consumers to respond, share opinions, or discuss about such brand or product on social media (Daugherty, Eastin, and Bright, 2008; Muntinga, Moorman, and Smit, 2011); (3) trendiness – interesting and updated news or information are presented quickly via social media (Becker, Naaman, and Gravano, 2011), which helps establish the popularity in the product or brand image among consumers or give information about the brand or product, arouse the consumers to buy the product, and make them endeavor to find out more information before deciding to buy the trendy product

in the social media (Muntinga, et al., 2011); (4) customization – this is to quickly seek a product required by customers or a specific product via social media while the businesses may create the customization for consumers via social media in 2 ways, that is, sending messages to a small group of consumers as determined, e.g. messages sent via Facebook to consumers, etc., and disseminating the information to consumers who are interested in, e.g. tweeting in Twitter (Zhu and Chen, 2015); and (5) electronic Word of Mouth (eWOM) – this is to refer a brand or a product by consumers to others via social media. The eWOM marketing model may be divided into 3 parts: opinion seeking, opinion sharing, and opinion reading (Chu and Kim, 2011). The consumers' word of mouth via social media is more powerful in generating creditability than the content created by the marketers on business websites (Muntinga et al., 2011). A study by So et al. (2017) suggested that many businesses have greatly focused on social media as they consider that it is one of efficient communication methods, and take the positive effect to the communications between a brand and consumers. Social media provides the businesses with an opportunity to discuss with the consumers. It also makes the brand be recognized publicly (Sharma and Verma, 2018). Fanion (2011) indicated that social media marketing is a crucial tool in creating and arousing the brand awareness. It also provokes the interaction between consumers who discuss, share stories, or create the content relating to the business, product or brand. This interaction will make the consumers feel confident, and influences their purchasing decision (Hajli, 2014).

Tatar and Erdogmus (2016) indicated that social media marketing is an activity affecting the brand awareness, and stirring the consumers' purchase intention in such brand; therefore, social media should be utilized to enhance the utmost benefits.

Brand awareness

Brand awareness is an ability of consumers in identifying the differences between brands based on brand characteristics (Spacey, 2017), which is derived from the brand recognition or brand recall (Aaker, 1991, Keller, 2013). Brand awareness not only measures the consumers' memory in a particular brand, but it is also important for it in certain aspects, e.g. trust, reliability, quality, accessibility, etc. (Kapferer, 2012). For brand awareness in social media, Weber (2009) suggested that the marketers have to deliver some new communication methods to enhance the brand awareness, that is, the customers' involvement in the social media network accessible by all should be encouraged and supported. In addition, the marketers have to specify the group of customers in a large online market, and encourage them to perceive the information about the brand. Brand awareness in social media may be classified into 5 following steps (Aaker, 1991; Weber, 2009; Johansson, 2010). (1) Brand recognition – this is the brand awareness at a low level where the customers are unable to recognize the brand they have previously heard or seen by themselves, but they have to be guided or reminded by something (Keller, 2013). (2) Brand Recall – this is the brand awareness at a moderate level where the customers are able to recall and draw their memory of

such brand by themselves if they think of any type of goods or they are in a situation (Keller, 2013). However, brand recall is extremely important for online goods that usually have nothing to guide or induce the customers' memory while they tend to remember some physical characteristics of goods only, e.g. color, shape, etc. rather than the brand (Antila, 2016). (3) Top-of-mind – this is the brand awareness at a high level where the customers think of any type of goods and they will recall the top-of-mind brand for each type of goods (Spacey, 2017). They need not to be guided or referred by others. Then, if the customers want to buy the product, they usually decide to buy this brand (Antila, 2016). (4) Dominant Brand – this is the brand awareness at a very high level where the customers will recall the outstanding brand in their memory (Spacey, 2017), and they are able to remember it precisely with no recognition of any other goods (Weber, 2009). (5) Word-of-mouth – It is the top level of brand awareness where the customers have familiarity, and have received so much information that they refer or recommend other persons to know such brand (Weber, 2009). In addition, Rizwan and Xian (2008) indicated that brand awareness is important as it keeps the consumers recall the product of a brand based on each product category, and it is a primary factor for the consumers' decision on buying any product. The consumers usually purchase the product of the brand they feel familiar with, and it is well recognized. This implies that any value deriving from awareness will influence the purchase intention of consumers (Wood and Scheer, 1996). It may be said that an adequate extent of brand awareness will lead to the consumers'

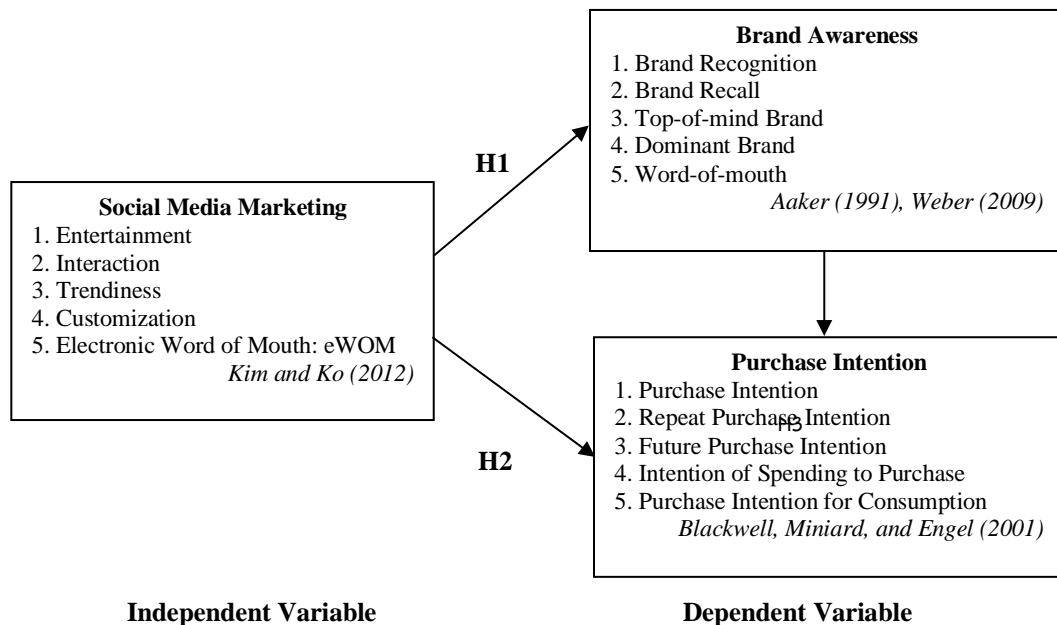
product purchase (Kotler and Keller, 2016).

Purchase intention

Purchase intention is defined as a mental process of consumers indicating their purchase plan at a particular time (Howard, 1994), which implies their brand loyalty (Zeithaml, Berry, and Parasuraman, 1990). The customers tend to purchase a brand or a product (Belch and Belch, 2015) relevant to their need first, either need in the product or in benefits deriving from it (Zeithaml, Berry, and Parasuraman, 1990; Kim and Pysarchik, 2000). Blackwell, Miniard, and Engel (2001) stated that purchase intention may be measured. The purchase intention measurement scale has been developed where the consumers'

purchase intention is divided into 5 levels: (1) purchase intention, which means that the consumer decides to buy a product, but the purchase process may or may not occur; (2) repeat purchase intention, which means that the consumer will repurchase the same kind of product from the old brand; (3) future purchase intention, which means that the consumer plans to purchase any types of product from such brand in the future; (4) intention of spending to purchase, which means that the consumer agrees to make a payment to buy that product whereas intention at this stage causes the purchase process from the consumer; and (5) purchase intention for consumption, which means that the consumer has intention to accept and involve in buying such product in order to use the product of such brand.

Conceptual framework



Research hypotheses

H1: Social media marketing affects the brand awareness of Thai online customers.

H2: Social media marketing affects the purchase intention of Thai online customers.

H3: Brand awareness affects the purchase intention of Thai online customers.

Methodology

Research design

This study is the quantitative research based on the research survey technique. The author did not intend to focus on any platforms, but examined the social media in general.

The questionnaire was designed to examine social media marketing such as entertainment, interaction, trendiness, customization and eWOM which are independent variables. Brand awareness includes brand recognition, brand recall, top-of-mind brand, dominant brand and word-of-mouth. Purchase intention of Thai online customers was the dependent variable.

This study will be used to identify and clarify the independent variables that affect the dependent variable in explainable and quantitative method.

Research tools

The survey research was used in this study. Probability sampling was used to select the sample in order to study social media marketing components, comprising entertainment, interaction,

trendiness, customization and eWOM, which affect the brand awareness and purchase intention of Thai online customers. The set of questionnaires were distributed to collect the responses from a group of Thai people who have made online purchases within 6 months.

Sample size

The sample of this study involved Thai people who have made online purchase within 6 months. However, due to a large scale of population and no exact number of populations, the sample size was calculated by Cochran's formula with 95% confidence interval and 5% error (Theerawut Agakul, 2000). The calculation formula is as follows:

Whereas the sample was selected by non-probability sampling and convenience sampling to complete 400 sets of questionnaire.

$$n = \frac{P(1-P)Z^2}{e^2}$$

whereas

n = Sample size

P = Proportion of population to be selected by random, which is equivalent to .50

Z = Standard value gained from the normal frequency distribution table at a significance level of 0.05, which is equal to 1.96

e = Maximum acceptable error by setting the level of confidence at 95% so the error will be equivalent to 0.05

The calculation of the sample size would be as follows:

$$n = \frac{(0.5)(1 - 0.5)(1.96^2)}{(0.05)^2}$$
$$n = 384.16$$

From calculating the sample size by Cochran's formula, the sample size is 384.16 or equivalent to 385 sets. As a result, this study needs the completed questionnaire for not less than 385 sets. Finally, the researcher collected 400 sets of questionnaire via online channel.

Sampling

The non-probability sampling was used in this study and the subjects were selected by the purposive sampling. The data was collected from Thai people who have made the online purchase, and had the relevant qualifications according to the screening questions, that is, they have made the online purchase within the past 6 months. The data was collected from the sets of questionnaire distributed to the respondents from 15-30 June, 2020.

Data collection

The researcher used the survey methodology to collect the primary data by distributing 400 sets of questionnaires to respondents via online channel. The data collected was then analyzed by descriptive statistics, e.g. frequency, percentage, mean, standard deviation, t-test, F-test, LSD (Least Significant Difference), and Multiple Regression Analysis with the reliability of 0.95.

Data measurement and analysis

The questionnaire of this research study consists of 4 sections as described below.

Section 1: General information about questionnaire respondents, e.g. gender, age, status, education level, occupation, monthly average income, types of social media used, frequency of using social media per day, types of goods purchased via online channels, and average price of goods purchased via online channels.

Section 2: Social media marketing. This section contained the close-ended questions regarding entertainment, interaction, trendiness, customization, and electronic word-of-mouth (Kim and Ko, 2012). It is the 5-point response scale used to measure the level of agreement.

Section 3: Brand awareness. This section contained the close-ended questions regarding brand recognition, brand recall, top-of-mind brand, dominant brand, and word-of-mouth (Aaker, 1991; Weber, 2009). It is the 5-point response scale used to measure the level of awareness.

Section 4: Purchase intention. This section contained the close-ended questions regarding purchase intention, repeat purchase intention, future purchase intention, intention of spending to purchase, and purchase intention for consumption (Blackwell, Miniard, and Engel, 2001). It is the 5-point response scale used to measure the level of agreement.

Results

The personal data was analyzed by using descriptive statistics (frequency and percentage).

Table 1 Gender of respondents

Gender of respondents		
Gender	Frequency	Percentage
Male	99	24.80
Female	301	75.20
Total	400	100.00

Table 1 shows that the sample involved 99 male respondents, representing 24.80%, and 301 female respondents, representing 75.20%.

Table 2 Age of Respondents

Age of respondents		
Age	Frequency	Percentage
Below 20 years	32	8.00
20 – 25 years	132	33.00
26 – 30 years	129	32.20
31 – 35 years	60	15.00
36 – 40 years	21	6.00
41 – 45 years	16	4.00
46 – 50 years	4	1.00
51 years and above	3	0.80
Total	400	100.00

Table 2 shows that there were 32 respondents aged below 20 years old, representing 8%; 132 respondents aged between 20 – 25 years old, representing 33%; 129 respondents aged between 26 – 30 years old, representing 32.20%; 60 respondents aged between 31 – 35 years old, representing 15%; 21 respondents

aged between 36 – 40 years old, representing 6%; 16 respondents aged between 41 – 45 years old, representing 4%; 4 respondents aged between 46 – 50 years old, representing 1%; and 3 respondents at age of 51 years and above, representing 0.80%.

Table 3 Education of respondents

Education of respondents		
Education level	Frequency	Percentage
Below bachelor's degree	130	32.50
Bachelor's degree	204	51.00
Master degree	58	14.50
Above master degree	8	2.00
Total	400	100.00

Table 3 shows that the education level of the sample can be categorized as follows: below bachelor's degree, bachelor's degree, master degree, and above master

degree. The number of respondents at each level of education is 130 or 32.50%; 204 or 51%; 58 or 14.50%; and 8 or 2% respectively.

Table 4 Types of social media

Types of social media		
Type of social media	Frequency	Percentage
Facebook	226	56.50
Twitter	34	8.50
YouTube	54	13.50
Blogs	10	2.50
Instagram	23	5.80
Line	53	13.20
Total	400	100.00

Table 4 shows that the types of social media can be categorized as Facebook, Twitter, YouTube, Blogs, Instagram, and line. The number of respondents using

each type of social media is 226 or 56.50%; 34 or 8.50%; 54 or 13.50%; 10 or 2.50%; 23 or 5.80%; and 53 or 13.20% respectively.

Table 5 Average price of online shopping

Average price of online shopping		
Average price	Frequency	Percentage
Less than 1,000 Baht	184	46.00
1,000 – 2,000 Baht	112	28.00
2,001 – 3,000 Baht	53	13.20
3,001 – 4,000 Baht	29	7.30
4,001 – 5,000 Baht	6	1.50
Higher than 5,000 Baht	16	4.00
Total	400	100.00

Table 5 shows that the average price of online shopping of the sample can be categorized into: Less than 1,000 Baht; 1,000 – 2,000 Baht; 2,001 – 3,000 Baht; 3,001 – 4,000 Baht; 4,001 – 5,000 Baht; and Higher than 5,000 Baht. The figures of each category are 184 or 46%, 112 or

28%, 53 or 13.20%, 29 or 7.30%, 6 or 1.50%, and 16 or 4% respectively.

An analysis on the level of agreement of the sample that had online shopping by social media marketing and brand awareness components

Table 6 Mean, Standard deviation, and level of agreement on social media marketing

Social Media Marketing	Mean	S.D.	Level of Agreement
Entertainment: E			
1. The use of social media is joyful.	4.11	.765	Strongly agree
2. Social media has some interesting contents.	4.00	.749	Strongly agree
3. Joy in looking contents in social media.	4.06	.752	Strongly agree
4. Participating with activities on social media.	3.84	.885	Strongly agree
Total of Entertainment	4.00	.597	Strongly agree
Interaction: I			
1. Social media helps share the information with others.	4.03	.811	Strongly agree
2. Use of social media in chatting or sharing opinions with others.	4.02	.832	Strongly agree
3. The use of social media can change the viewpoints.	3.96	.844	Strongly agree
4. It is easy to express emotions via social media.	4.03	.816	Strongly agree
Total of Interaction	4.01	.645	Strongly agree
Trendiness: T			
1. The use of social media is now fashionable.	4.19	.746	Strongly agree
2. The content on social media is the most updated.	4.16	.741	Strongly agree
3. Social media can build the popularity.	4.16	.776	Strongly agree
4. Seeking for favorite products on social media.	4.12	.806	Strongly agree
Total of Trendiness	4.16	.604	Strongly agree
Customization: C			
1. The use of social media to seek for any information required.	4.13	.825	Strongly agree
2. The use of social media to seek for any interesting issues.	4.02	.780	Strongly agree
3. Social media helps seek for the products relevant to the requirement.	4.07	.802	Strongly agree
4. Social media helps seek for the special products suitable for oneself.	4.00	.816	Strongly agree
Total of Customization	4.05	.637	Strongly agree

Electronic Word of Mouth: eWOM			
1. Word-of-mouth of products via social media to friends.	3.98	.824	Strongly agree
2. Posting the product details on social media.	3.85	.921	Strongly agree
3. Knowing the information about the product from social media.	4.01	.759	Strongly agree
4. Believing the information about the product on social media.	3.89	.796	Strongly agree
Total of Word of Mouth	3.93	.660	Strongly agree
Total of Social Media Marketing	4.03	.516	Strongly agree

Table 6 shows that the sample strongly agreed with the social media marketing with the mean value of 4.03. The sample agreed with trendiness at the highest level with the mean value of 4.16, followed by customization with the mean value of 4.05, electronic word-of-mouth

with the mean value of 4.03, interaction with the mean value of 4.01, and entertainment with the mean value of 4.00 respectively. For all 5 dimensions of social media marketing, the respondents' level of agreement was at the very strong level.

Table 7 Mean, Standard Deviation, and brand awareness via online channel

Brand Awareness	Mean	S.D.	Level of Awareness
1. Brand Recognition	3.85	.812	Highly aware
2. Brand Recall	3.86	.797	Highly aware
3. Top-of-mind	3.88	.815	Highly aware
4. Dominant Brand	3.87	.850	Highly aware
5. Word-of-mouth	3.86	.877	Highly aware
Total	3.87	.668	Highly aware

Table 7 shows that the sample's brand awareness via online channel was at the high level with the mean value of 3.87. The respondents' highest brand awareness fell into top-of-mind with the mean value of 3.88, followed by dominant brand with the mean value of

3.87, brand recall and word-of-mouth with mean value of 3.86, and brand recognition with the mean value of 3.85 respectively. For all 5 levels of brand awareness via online channel, the respondents' level of brand awareness was at the high level.

Table 8 Mean, Standard Deviation, and level of agreement on purchase intention via online channel

Purchase Intention	Mean	S.D.	Level of Agreement
1. Purchase intention	3.88	.892	Strongly agree
2. Repeat purchase intention	3.90	.855	Strongly agree
3. Future purchase intention	3.91	.881	Strongly agree
4. Intention of spending to purchase	3.94	.891	Strongly agree
5. Purchase intention for consumption	3.87	.907	Strongly agree
Total	3.90	.715	Strongly agree

Table 8 shows that the respondents' level of agreement on purchase intention via online channel was at the very strong level with the mean value of 3.90. The sample's highest level of agreement on intention of spending to purchase with the mean value of 3.94, followed by future purchase intention with the mean

value of 3.91, repeat purchase intention with the mean value of 3.90, purchase intention with the mean value of 3.88, and purchase intention for consumption with the mean value of 3.87 respectively. For all 5 levels of purchase intention via online channel, the sample's level of agreement was at the very strong level.

Hypothesis testing

H1: Social media marketing affects the brand awareness of Thai online customers.

Table 9 Model summary analysis

Model Summary			
R	R square	Adjusted R square	Std. Error of the estimate
.641 ^a	.411	.404	.51559

Table 10 ANOVA analysis

ANOVA					
Model	Sum of squares	df	Mean squares	F	Sig.
Regression	73.187	5	14.637	55.064	.000 ^b
Residual	104.736	394	.266		
Total	177.924	399			

Table 11 Coefficients analysis

Model	Coefficients ^a			t	Sig.
	Unstandardized Coefficients		Standardized Coefficients		
	B	Std. Error	Beta		
(Constant)	.976	.206		4.738	.000
Entertainment	.055	.062	.050	.892	.373
Interaction	.006	.058	.005	.095	.924
Trendiness	.045	.061	.040	.735	.463
Customization	.107	.064	.102	1.690	.092
Electronic Word of Mouth	.515	.055	.509	9.285	.000

Table 9 Model summary table shows R square at 41.1%, which means brand awareness of Thai online customers can be explained by social media marketing in dimensions of entertainment, interaction, trendiness, customization, and electronic word of mouth. However, adjusted R square is 52.1%, which means that the values of R square and adjusted R square are much closer due to the number of respondents observed and it is very large if compared to the number of predictors.

Table 10 ANOVA table shows that p-value is less than 0.05. All predictors which are entertainment, interaction, trendiness, customization, and electronic word of mouth can be accepted. Thus, it affects entertainment, interaction, trendiness, customization, and electronic word of mouth and the brand awareness of Thai online customers.

Table 11 shows coefficient of social media marketing in the dimension of

electronic word of mouth that affects the brand awareness of Thai online customers because p-value is less than 0.05.

From the coefficient table, in the standardized coefficients column, all related factors are compared. The level of electronic word of mouth is at the highest, which indicates that electronic word of mouth is the most important factor affecting the brand awareness of Thai online customers.

Brand awareness = 0.976 + 0.515 × Electronic word of mouth

The estimation tells us the increasing brand awareness of Thai online customers that would be predicted by 1-unit increase in electronic word of mouth.

H2: Social media marketing affects the purchase intention of Thai online customers.

Table 12 Model summary analysis

Model Summary			
R	R square	Adjusted R square	Std. Error of the estimate
.578 ^a	.334	.326	.58728

Table 13 ANOVA analysis

ANOVA					
Model	Sum of squares	df	Mean squares	F	Sig.
Regression	68.191	5	13.638	39.543	.000 ^b
Residual	135.889	394	.345		
Total	204.080	399			

Table 14 Coefficients analysis

Coefficients ^a					
Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	.934	.235		3.980	.000
Entertainment	.172	.071	.144	2.432	.015
Interaction	-.056	.066	-.050	-.843	.400
Trendiness	.100	.069	.085	1.452	.147
Customization	.108	.072	.097	1.499	.135
Electronic Word of Mouth	.418	.063	.386	6.618	.000

Table 12 Model summary table shows R square at 57.8% which means that the purchase intention of Thai online customers can be explained by social media marketing in dimensions of entertainment, interaction, trendiness, customization, and electronic word of mouth. However, adjusted R square is 33.4%, which means that the values of R square and adjusted R square are much closer due to the number of respondents observed and it is very large if compared to the number of predictors.

Table 13 ANOVA table shows that p-value is less than 0.05. All predictors

which are entertainment, interaction, trendiness, customization, and electronic word of mouth can be accepted. Thus, it affects entertainment, interaction, trendiness, customization, and electronic word of mouth and the purchase intention of Thai online customers.

Table 14 shows coefficient of social media marketing in the dimensions of entertainment and electronic word of mouth that affect the purchase intention of Thai online customers because p-value is less than 0.05.

From the coefficient table, in the standardized coefficients column, all related factors are compared. The level of electronic word of mouth is at the highest, which indicates that electronic word of mouth is the most important factor that affects the purchase intention of Thai online customers.

$$\text{Purchase intention} = 0.934 + 0.172 \times \text{Entertainment} + 0.515 \times \text{Electronic word of mouth}$$

The estimation tells us that the increasing purchase intention of Thai online customers would be predicted by 1-unit increase in entertainment and electronic word of mouth.

H3: Brand awareness affects the purchase intention of Thai online customers.

Table 15 Model summary analysis

Model Summary			
R	R square	Adjusted R square	Std. Error of the estimate
.726 ^a	.527	.521	.49494

Table 16 ANOVA analysis

ANOVA					
Model	Sum of squares	df	Mean squares	F	Sig.
Regression	107.564	5	21.513	87.820	.000 ^b
Residual	96.516	394	.245		
Total	204.080	399			

Table 17 Coefficients analysis

Coefficients ^a					
Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	.969	.147		6.613	.000
Brand recognition	.035	.041	.039	.847	.397
Brand recall	.198	.045	.221	4.412	.000
Top-of-mind	.166	.046	.190	3.594	.000
Dominant brand	.140	.043	.167	3.249	.001
Word-of-mouth	.218	.038	.268	5.812	.000

Table 15 Model summary table shows R square at 72.6%, which means that the purchase intention of Thai online customers can be explained by brand awareness at brand recognition level, brand recall level, top-of-mind level, dominant brand level and word-of-mouth level. However adjusted R square is 52.7%, which means that the values of R square and adjusted R square are much closer due to the number of respondents observed and it is very large compared to the number of predictors.

Table 16 ANOVA table shows that p-value is less than 0.05. All predictors which are brand recognition, brand recall, top-of-mind, dominant brand and word-of-mouth can be accepted. Thus, it affects brand recognition, brand recall, top-of-mind, dominant brand and word-of-mouth and the purchase intention of Thai online customers.

Table 17 shows coefficient of brand awareness at the brand recall level, top-

of-mind level, dominant brand level and word-of-mouth level affect the purchase intention of Thai online customers because the p-value is less than 0.05.

From the coefficient table, in the standardized coefficients column, all related factors are compared. The level of word-of-mouth is at the highest, which indicates that word-of-mouth is the most important factor that affects the purchase intention of Thai online customers.

$$\text{Purchase intention} = 0.969 + 0.198 \times \text{Brand recall} + 0.166 \times \text{Top-of-mind} + 0.140 \times \text{Dominant brand} + 0.218 \times \text{Word-of-mouth}$$

The estimation tells us the amount of increase in the purchase intention of Thai online customers that would be predicted by 1-unit increase in brand recall, top-of-mind, dominant brand and word-of-mouth.

Summary of hypothesis testing results

Table 18 Summary of hypothesis testing results

Hypothesis	Description	Sig (2tailed)	Result
1a	SMM: Entertainment affects the brand awareness of Thai online customers.	.373	Reject H1a
1b	SMM: Interaction affects the brand awareness of Thai online customers.	.924	Reject H1b
1c	SMM: Trendiness affects the brand awareness of Thai online customers.	.463	Reject H1c
1d	SMM: Customization affects the brand awareness of Thai online customers.	.092	Reject H1d
1e	SMM: Electronic Word of Mouth affects the brand awareness of Thai online customers.	.000	Accept H1e
2a	SMM: Entertainment affects the purchase intention of Thai online customers.	.015	Accept H2a
2b	SMM: Interaction affects the purchase intention of Thai online customers.	.400	Reject H2b
2c	SMM: Trendiness affects the purchase intention of Thai online customers.	.147	Reject H2c
2d	SMM: Customization affects the purchase intention of Thai online customers.	.135	Reject H2d
2e	SMM: Electronic word of mouth affects the purchase intention of Thai online customers.	.000	Accept H2e
3a	Brand awareness: Brand recognition affects the purchase intention of Thai online customers.	.000	Accept H3a
3b	Brand awareness: Brand recall affects the purchase intention of Thai online customers.	.397	Reject H3b
3c	Brand awareness: Top-of-mind affects the purchase intention of Thai online customers.	.000	Accept H3c
3d	Brand awareness: Dominant brand affects the purchase intention of Thai online customers.	.000	Accept H3d
3e	Brand awareness: Word-of-mouth affects the purchase intention of Thai online customers.	.001	Accept H3e

According to Table 18, it shows that Hypothesis H1e, H2a, H2e, H3a, H3c, H3d and H3e can be accepted because p-value is less than 0.05. It means that social media marketing in the dimension of electronic word of mouth affects the brand awareness of Thai online customers; social media marketing in the

dimensions of entertainment and electronic word of mouth affect the purchase intention of Thai online customers; and brand awareness at the brand recall level, top-of-mind level, dominant brand level, and word-of-mouth level affect the purchase intention of Thai online customers.

Conclusion

The result of testing Hypothesis 1 - *Social media marketing affects the brand awareness of Thai online customers* - suggests that social media marketing in the dimension of electronic word of mouth affects the purchase intention of Thai online customers.

The result of testing Hypothesis 2 - *Social media marketing affects the purchase intention of Thai online customers* - suggests that social media marketing in dimensions of entertainment and electronic word of mouth affect the purchase intention of Thai online customers

The result of testing Hypothesis 3 - *Brand awareness affects the purchase intention of Thai online customers* - suggests that brand awareness in dimensions of brand recall, top-of-mind, dominant brand and word-of-mouth affect the purchase intention of Thai online customers.

Discussion

1. For social media marketing affecting the brand awareness of Thai online customers, the result shows that social media marketing in the dimension of electronic word-of-mouth affects the brand awareness of Thai online customers at a significance level of 0.05, which is consistent with Tritama and Tarigan (2016), Bilgin (2018) and ElAydi (2018) that social media marketing affects the brand awareness. Tritama and Tarigan (2016) added that companies should carry out the marketing activities via social media in order to raise the brand awareness or to launch a new product.

2. For social media marketing affecting the purchase intention of Thai online

customers, the result shows that social media marketing in dimensions of entertainment and electronic word-of-mouth affect the purchase intention of Thai online customers at a significance level of 0.05, which is consistent with Oppatum (2014), Sithanon (2015), Balakrishnan, and Laksamana (2018) that social media marketing affects the purchase intention via social media. Dahnil, and Yi (2014) added the social media marketing in dimensions of electronic word-of-mouth, online communities and online advertising are important to the purchase intention via social media.

3. For brand awareness affecting the purchase intention of Thai online customers, the result shows that the brand awareness at the brand recall level, top-of-mind level, dominant brand level, and word-of-mouth level affect the purchase intention of Thai online customers at a significance level of 0.05, which is consistent with Chi, Yeh, and Yang (2009), Malik et al. (2013), and Shahid, Hussain, and AZafar (2017) that brand awareness takes the positive effect to the purchase intention. Shahid, Hussain, and AZafar (2017) added that consumers have intention to purchase any brands they have been familiar with. The companies, therefore, should try to encourage the brand awareness by forming the good brand image so that the consumers' awareness of business brand will be broader and increasing, which consequently drives their purchase intention higher.

Implications for business

1. To build a brand at this era, the businesses have to give a main

importance to the word-of-mouth via online social media. The results of this research study explicitly indicate that social media marketing affects both brand awareness and purchase intention of Thai online customers, which result to the awareness of the organizations' brands at different levels, including brand recognition level, brand recall level, top-of-mind level, dominant brand level, and word-of-mouth level. Social media marketing also encourages the customers' purchase intention at each level, which includes the purchase intention level, repeat purchase intention level, future purchase intention level, intention of spending to purchase level, and purchase intention for consumption level.

2. The marketers should initiate certain marketing activities mainly focusing on entertainment and interaction between customers so that they will be able to enjoy and share the information with each other while their purchase intention is simultaneously stimulated.

3. The marketers should communicate about the product with unique brand identities to attract the customers' purchase intention in the near future.

4. The businesses should create their brands to look remarkable and unique in a good image so that the customers have the familiarity and awareness of brands at different levels, starting from the brand recall level, top-of-mind level, dominant brand level, up to word-of-mouth level, which will draw the customers' intention to purchase the products.

Limitations and further research

Limitations

This research only aims to study the social media marketing in general; it does not emphasize on any particular platform.

It is impossible to specify an exact number of Thai customers who have purchased any goods or services via online channel, and this study involved Thai online customers within the past 6 months. Therefore, the data was collected via online questionnaire only.

Further research

Social media marketing affecting brand awareness and purchase intention of particular groups of customers should be further studied, e.g. those purchasing fashion products and clothes, health and beauty, computer and smart phone, etc. because these customer groups tend to purchase these products via online channel.

Social media marketing should be more studied so that the customers will have more brand awareness and purchase intention. The qualitative study should be conducted in order to obtain the in-depth information.

Further study on the word-of-mouth patterns via social media should be conducted in order to find out which word-of-mouth patterns will be able to boost the customers' brand awareness and purchase intention by using the mixed methodology.

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WINE CONSUMPTION HABITS AND MOTIVATIONS IN THAILAND: A STUDY OF FOUR GENERATIONS OF WINE CONSUMERS

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Article info

Article history:

Received
9 July 2019
Revised
6 May 2020
Accepted
16 July 2020

Keywords:

Baby Boomers;
Generation X;
Generation Y;
Generation C; habits
and motivations; wine
consumption

Abstract

This study investigated the wine consumption habits and motivations of Baby Boomers, Generation X, Generation Y and Generation C individuals in Thailand. To the best of the author's knowledge, although wine drinking is popular in Thailand, no study has been conducted to analyse and compare the habits and motivations of drinkers. The present study used quantitative and qualitative research methodologies in data collection. The findings showed that Baby Boomers were different from the three other generations in terms of preferences for wine styles, wine-producing countries and price ranges. Furthermore, the four generations showed similarities in their motivations towards wine consumption. They considered wine drinking as a means to relax and enhance friendships. However, the Baby Boomers were more meticulous in describing the characteristics and tastes of wine, and they tended to spend time with friends who enjoy drinking wine. Furthermore, the findings demonstrated differences in the wine consumption habits and motivations amongst the four generations compared with their counterparts in Western countries.

Introduction

Wine is important to the economy of Thailand. The Cost, Insurance and Freight (CIF) value of wine imports was approximately THM1770 million (USD49 million) in 2016 (Thai Customs, 2017), whereas the sales of wine are predicted to reach USD6500 million in 2017 (Posen, 2014). Evidently, 10% of Thais are wine drinkers (Sirikeratikul, 2009). Although wine consumption is popular among Thais, no studies have been conducted to understand their wine consumption habits and motivations. The weather in Thailand is classified as hot and humid. However, red wines comprise 70% of wines sold, the most popular of which are Cabernet Sauvignon, Shiraz, Merlot, and Pinot Noir (Sirikeratikul, 2009). Although the selling price of New World wine is approximately 20%–30% lower than Old World wine, French and Italian wines, together with Australian and Chilean wines, occupy the premium shelves in supermarkets (Sirikeratikul, 2009). For years, the import value of French wine was higher than those of other countries. In 2016, the import value of French wine was approximately THB701 million (USD19million), which was equivalent to over 39% of the total value of imported wine (Thai Customs, 2017).

Age is a common demographic variable that marketers consider in segmenting markets because the needs of consumers vary with age. Schiffman and Kanuk (2000) asserted that people aged 18–34 years who join health clubs aim to make themselves look good and those aged 35–54 years intend to deal with stress. Swarbrooke and Horner (2007) claimed that young tourists want to party, relax and make friends, whereas the elderly

gravitate towards sedate activities such as bowling and playing Bingo.

This study analyses wine consumption habits and motivations of Thai Baby Boomers, Generation X, Generation Y (also known as Millennials), and Generation C for drinking wine. Baby Boomers are those born between 1945 and 1964 (Procter, 2004); Generation X, between 1965 and 1977 (Poindexter and Lasorsa, 1999); Generation Y, between 1978 and 1989 (Cochran, 2007); and Generation C, after 1990 (Friedrich, Peterson, Koster, and Blum, 2010).

The aforementioned generation groups were born in particular eras marked by significant events. Fishman (in Procter, 2004) verified that the Vietnam War shapes the Baby Boomers, that AIDS shapes Generation X, and that technology makes Generation Y. Friedrich et al. (2010) described Generation C as the “digital natives” of “iEverything” (i.e., young users of iPods, iTunes, and iPhone, among others).

The four generations also possess specific characteristics. Williams and Page (2011) affirmed that Baby Boomers value individualism, self-expression, as well as health and wellness. In addition, they are considerably self-centred and suspicious of authority. Generation X members are independent and materialistic (Poindexter and Lasorsa 1999) but are concerned with family–life–work balance (Williams and Page, 2011). Those from Generation Y see beyond cultural boundaries (Procter, 2004), but they are also those who need peer acceptance and connection, which urge them to engage in social networking and to fit in. Williams and Page (2001) as well as Barton, Koslow, and Beauchamp (2014) further asserted that individuals

from Generation C are concerned with status, luxury, adventure, and excitement. Generation C refers to those who “always click” (Friedrich et al., 2010). Therefore, these individuals spend most of their time online, comfortably participating in social networks as well as generating and consuming a vast amount of information. However, Generation C members are realists, materialists, and culturally liberal (Friedrich et al., 2010).

Fountain and Lamb (2011) corroborated that the tastes and values of people change based on different life cycles, experiences and exposure to products and situations. However, adding to the complexity of change is the fact that people’s habits and motivations are influenced by their cultural context. This cultural difference, particularly between Westerners and Asians, is prominent in the two highest levels of Maslow’s hierarchy of needs. The two highest needs of Westerners are esteem and self-actualisation, whereas Asians are considerably inclined towards admiration and status (Roll, 2006). These findings are used as bases to argue that wine consumption habits and motivations exhibit generational and cultural features.

The objectives of this study are (1) to know the generational similarities and differences amongst the four generations of Thai people and (2) to identify the similarities and differences between the four Thai generations and their counterparts in other countries. Using this information on habits and motivations, wine marketers can design marketing strategies to promote the highest rate of wine consumption for each age group of Thais.

Literature review

Wine consumption habits

Wine style

Wine styles are marked by their distinctive taste, flavour and varietal characteristics (Kolpan, Smith and Weiss, 2010). Several studies illustrate some similarities and differences in the choice of wine styles between males and females and among different age groups. Bruwer, Saliba and Miller (2011) claimed that females prefer white wines and wines that are fruity and oaked with a light to medium body, whereas males prefer aged wines. Hanni and Utermohlen (2010) determined that “sweet” consumers are well represented by females aged between 21 and 40 years and that a significant percentage of males has less affinity for dry and less fruity wines. They also stated that compared with the “sweet” consumers, the “tolerant” consumers are more likely to be male, are mostly aged between 41 and 60 years and tend to drink dry, complex and full-bodied wines. However, Olsen, Thach and Nowak (2007) validated that Millennials in the USA tend to start off with dry red and white wines and then change their preferences to sweet white wines.

Frequency of wine consumption

Similar to the similarities and differences of different age groups in their preferences of wine styles, frequency of wine consumption varies according to ages and countries. Fountain and Lamb (2011) claimed that Generation Y in Christchurch, New Zealand, drinks more wine than Generation X. Jones (2007) validated that Millennials in the USA drink wine more frequently than

Generation X. Contrary to the findings of these scholars, Teagle, Mueller, and Lockshin (2010) stated that, although Millennials in Australia consume wine more often in social on-premise settings, they drink wine less frequently than other generations in general.

In Portugal, of the three age groups of 15–24, 25–34 and 35 and above, Madeira, Duarte and Barreira (2009) determined that 39.1% of the 35 and above age group and that 6.7% and 13% of the 15–24 and 25–34 age groups drink wine every day or almost every day, respectively. Hanni and Utermohlen (2010) claimed that 35% of the “tolerant” consumers and 15% of the “sweet” consumers drink wine almost every day. They further illustrated that the majority of the “sweet” consumers tend to drink wine once every week instead.

Country and region of origin

The wine world is divided into Old and New Worlds. Their differences are marked significantly by the Old World's emphasis on the concept of *terroir* and the wine appellation systems. A research conducted in the USA, China, Portugal and Australia illustrated that consumers respond differently to the influence of wine regions on their choice of wine. Atkin and Johnson (2010) determined that place-of-origin information, such as region, country and state, are essential attributes to Americans in their choice of wine. With regard to Chinese wine consumers, controversies exist in their emphasis on the essentialness of region of origin information. Balestrini and Gamble (2006) stated that region of origin information is a significantly more important cue than price for Chinese consumers in Shanghai. However, Hu, Li, Xie and Zhou (2008) indicated that

Chinese consumers do not show any significant differences between the importance of country of origin and price. Chateau Lafite Rothschild launched a 10-year vineyard project, which will release its first Chinese fine wine in 2018 (Anson, 2017).

In Portugal, although all three age groups of 15–24, 25–34 and 35 and above consider the essentialness of the region of origin of the wine, the 35 and above group tends to be most concerned with the origin (Madeira et al., 2009). Mccutcheon, Bruwer and Li (2009) reported that, for Australians, the region of origin of the wine is the least important choice driver after quality, price and wine style. Notably, the Wine Development Board (WDB) (2007, in Geraghty and Torres, 2009) validated that Irish wine drinkers tend to shift from drinking Old World wine to New World wine. In Ireland, the market share of New World wine increased from 6% in 1990 to 71% in 2007.

Online wine purchasing

Although online wine purchasing is a new phenomenon and trust and increased risk are still higher for online wine purchasers than for brick-and-mortar wine purchasers (Quinton and Harridge-March, 2008), Bruwer and Wood (2005) validated that 35- to 44-year-old Australians who are well educated and have a high income tend to buy wine online. 49% of Generation Y in Tuscany tends to buy wine from traditional food shops (Marinelli, Fabbriizzi, Sottini, Sacchelli, Bernetti and Menghini, 2014).

Wine consumption motivations

Wine and food pairing

Wine and food, particularly the appeals of unique, regional gastronomy, are inseparable (Getz, 2000). The pairing provides a sensory experience. Food and wine pairing is a component of the Western dining culture. Many pairing principles were introduced to enhance and maximise the sensory experience of consumers. However, many studies have confirmed that current wine drinkers vary in their conception of the significance of sensory experience.

Hall, Binney, and O'Mahony (2004) divided Australians into three age groups (18–25, 26–34, as well as 35 and older) and proved that the first and last groups are the least and most concerned, respectively, with sensory experience. Madeira et al. (2009) validated that the 25–34 as well as the 35-and-above age groups in Portugal are more interested in sensory experience compared with the 15–25 age group. Ritchie (2011, in Lockshin and Corsi, 2012) asserted that the members of Generation Y (18–30 years old) in the UK do not consider wine as a cultural beverage and drink such beverage heavily (Ritchie 2011, in Lockshin and Corsi, 2012).

Health

The health benefits of wine have long been an area of study in the medical field. Medical journals, such as the *Journal of the American Medical Association* (1999, in Getz, 2000), verified that drinking one to two glasses of wine a day can facilitate the reduction of the risk of ischemic stroke by over 50%. *Deutsche Weinakademie* (1997, in Getz, 2000) also proved that red wine contains phenols that reduce bad cholesterol.

However, not all drinkers are concerned with the health benefits of wine. Qenani-Petrela, Wolf, and Zuckerman (2007, in Lockshin and Corsi, 2012) as well as Wolf, Carpenter, and Qenani-Petrela (2005, in Lockshin and Corsi, 2012) affirmed that Generation Y in California considerably focuses on the social outcome of wine consumption. By contrast, Capitello, Agnoli, and Begalli, (2014) determined that Generation Y members in Italy are interested in the health benefits of wine. Madeira et al. (2009) asserted that Portuguese who are 35 years and above are more concerned with the health benefits of drinking wine compared with those 15–24 and 25–34 years of age.

Status and power

Previously, wine in Europe was considered a beverage for the elite because vineyards were owned by kings and lords (Bardet, 2013). In the late 1600s, visits to vineyards were a part of the European “Grand Tour” undertaken by British elites to search of art, culture and the roots of Western civilisations (Gmelch, Gmelch and Gmelch, 2011). Although currently, wine is a common beverage enjoyed by the public, it can still stratify societies in a few countries. In Poland, wine is regarded as a drink for the rich and the middle class, whereas native beers and vodkas are meant for the working class (Rationis, in Van Der Loos 2015). Nicholson (1990, in Barber, Almanza, and Donovan, 2006) asserted that knowledge of wines is associated with status and power.

Many studies suggest that, in the minds of a few wine drinkers, wine carries implications of power and status. Mueller, Remaud, and Chabin (2011) confirmed that Generation Y members in

Germany, the UK, France, the US, and Canada are more oriented towards hedonic success and status recognition than towards the social value of wine. Among the three age groups in Portugal, Madeira et al. (2009) determined that the 25–34 age group members are more likely to associate wine drinking with social status compared with those from the 15–24 as well as the 35-and-above age groups.

Lifestyle

Schoell and Guiltinan (1992, in Thach and Olsen, 2004) defined lifestyle as “the consistent patterns that people follow in their lives, including how they spend their time and money, and are identified through people’s activities, interests, and opinions of themselves and the world around them (p.45).” Wine and lifestyle are closely related. Bruwer, Saliba, and Miller (2011) asserted that wine is a lifestyle beverage. However, wine drinkers tend to associate wine with lifestyle differently.

Madeira et al. (2009) elucidated that Portuguese from the 35-and-above consider age group wine crucial to their lifestyle. Nowak et al. (2007, in Teagle et al., 2010) affirmed that Millennials perceive wine as something sophisticated. Hall et al. (2004) determined that, among the three age groups in Australia, those 26–34 years of age closely associate wine consumption with relaxation and that those from the 35-and-above age group are least concerned with mood enhancement and excitement. Overall, Hall et al. (2004) concluded that all three age groups consider wine consumption a fun and enjoyable experience.

Social leveller

Wine carries strong social connotations (Barber and Taylor, 2009). Several people tend to gather at wine drinking places to communicate and interact with one another. Agnoli, Begalli, and Capitello (2011) determined that wine is the most preferred drink in social gatherings. Pettigrew (2003, in Teagle et al., 2010) corroborated that Millennials consume wine for social reasons; they believe that wine consumption can facilitate the enhancement of their image. Ritchie (2011, in Lockshin and Corsi, 2012) asserted that Generation Y members in the UK drink wine in groups because a bottle of wine is considerably heavy to consume alone. However, Qenani-Petrela et al. (2007, in Lockshin and Corsi, 2012) and Wolf et al. (2005, in Lockshin and Corsi, 2012) proved that Baby Boomers and Generation X members in California focus more on the health benefits of wine than on its social connotations.

Data collection

Primary and secondary data were collected for this study. The author used combined qualitative–quantitative exploratory research methodologies to collect primary data. Data on relative occurrence and frequency within a sampled population were collected through quantitative research. The methodology could help test the accuracy and detect the importance of the findings. However, given that the findings cannot show rationales, the qualitative research methodology, which focused on collecting data that could provide non-quantifiable insights into behaviour, motivations and attitudes (Creswell and Plano, 2011), was used simultaneously. This methodology emphasised practice

instead of philosophy and was therefore considered pragmatic.

The use of combined methodologies enabled the cross-validation of the collected data to generate outcomes with enhanced validity and reliability (Decrop, 1999). Meanwhile, secondary data on the motivation for wine consumption were collected from books, literature, papers, journals, newspapers, proceedings, and websites.

The author used the quota sampling technique to select individuals who visited wine retail shops in Bangkok on March 28 and 30, 2017 as well as April 20, 2017. The author divided the sample population into four age groups: Baby Boomers (born between 1945 and 1964); Generation X (born between 1965 and 1977); Generation Y (born between 1978 and 1989); and Generation C (born after 1990). The author excluded respondents who were 20 years old and below due to the legal drinking age in Thailand.

In 2015, the total population of Thailand was approximately 67 million (Country Meters, 2016). The author conducted a survey involving 100 respondents for each of the four generation groups on the basis of Posen's report (2014) that wine drinkers comprise 10% of the total Thai population, as well as Yamane's formula (1967) with a precision level of $\pm 5\%$ and a confidence level of 95%. The author aimed to collect the following information from the respondents:

Demographic data;

- a. Habits of wine consumption; and
- b. Extents of agreement with motivational factors that influenced their wine consumption. Their responses were based on a 5-point

Likert scale from 5 "totally agree" to 1 "totally disagree."

For the qualitative portion of the study, Walker (1985) considered the data of 40 interviewees to be valid. The author used a semi-structured questionnaire to interview 20 Thais from each generation group. The questionnaire was divided into the following sections:

- a. Demographic data;
- b. Habits of wine consumption; and
- c. Elaboration of motivational factors that interviewees considered influential to their wine consumption.

The motivational factors were based on the literature review of Lockshin and Corsi (2012); Marinelli et al. (2014); Capitello et al. (2014); as well as Madeira et al. (2009).

In this study, chi-square test (significance level of 0.05), ANOVA and multivariate test were used to analyse the quantitative data and synthesise the descriptive statistics with qualitative research data.

Findings

Overall, the author collected 400 valid quantitative questionnaires with 100 respondents in each generation group and interviewed 80 interviewees with 20 respondents in each generation group.

Demographic data

Table 1 lists the demographic data of gender, education level, and occupation of the 400 respondents.

Table 1 Demographic data of the 400 respondents.

General background	Frequency	Percentage
Gender		
Female	243	60.8
Male	157	39.2
Total	400	100
Highest education level attained		
Bachelor's degree	282	70.5
Postgraduate degree	90	22.5
High school	17	4.3
Vocational/technical college	9	2.3
Below high school	2	0.5
Total	400	100
Occupation		
Employee	208	52.0
Civil servant	92	23.0
Self-employed	47	11.8
Business owner	31	7.8
Student	14	3.5
Retired/Pensioner	8	2.0
Others (Please specify.)	0	0
Total	400	100

Of the respondents, 60.8% were female, and 39.2% were male; 70.5% had a bachelor's degree, 22.5% had a postgraduate degree, 4.3 % had a high school degree, and 2.3% had a vocational or technical degree. With regard to their occupation, 52% were employees, 23% were civil servants, 11.8% were self-employed, 7.8% were business owners, 3.5% were students, and 2% were retirees.

Table 2 presents the demographic data of the 100 respondents of each group according to gender, education level, and occupation.

Table 2 Demographic data of the respondents from four generations.

	Range of years of birth			
	Baby Boomers Frequency (%)	Generation X Frequency (%)	Generation Y Frequency (%)	Generation C Frequency (%)
Gender				
Female	35 (35.0)	41 (41.0)	44 (44.0)	63 (63.0)
Male	65 (65.0)	59 (59.0)	56 (56.0)	37 (37.0)
Total	100 (100.0)	100 (100.0)	100 (100.0)	100 (100.0)
Highest education level attained				
Bachelor's degree	71 (71.0)	72 (72.0)	68 (68.0)	71 (71.0)
Postgraduate degree	21 (21.0)	23 (23.0)	29 (29.0)	17 (17.0)
High school	3 (3.0)	2 (2.0)	0	12 (12.0)
Vocational/technical college	3 (3.0)	3 (3.0)	3 (3.0)	0
Below high school	2 (2.0)	0	0	0
Others	0	0	0	0
Total	100 (100.0)	100 (100.0)	100 (100.0)	100 (100.0)
Occupation				
Employee of private sectors	25 (25.0)	63 (63.0)	63 (63.0)	57 (57.0)
Civil servant	39 (39.0)	21 (21.0)	11 (11.0)	21 (21.0)
Self-employed	18 (18.0)	3 (3.0)	15 (15.0)	11 (11.0)
Business owner	11 (11.0)	12 (12.0)	8 (8.0)	0
Student	0	0	3 (3.0)	11 (11.0)
Retired/pensioner	7 (7.0)	1 (1.0)	0	0
Others	0	0	0	0
Total	100 (100.0)	100 (100.0)	100 (100.0)	100 (100.0)

The findings confirmed that the younger the generation, the higher the number of female wine consumers. The percentage of female respondents were 35% for the Baby Boomers; however, the percentage gradually increased to 63% for Generation C. The tables also illustrated that the education level of wine-consuming generations was high. The percentage of those who had a Bachelor's degree was nearly 70% for Generation Y and over 70% for the other three generations. The percentage of those who had a postgraduate degree was 17% for Generation C, over 20% for Baby Boomers as well as Generation X, and nearly 30% for Generation Y.

The majority of Baby Boomers (39%) were civil servants. The majority of Generations X, Y, and C were employees of private sectors at 63%, 63%, and 57%, respectively.

The findings from the qualitative method were similar to the findings from the quantitative method. In terms of gender, 87% of the Baby Boomers were male, and 17% were female. However, the number of female respondents was high in younger generations: Generation X,

40%; Generation Y, 47%; and Generation C, 50%.

In terms of educational background, all the interviewees held either a Bachelor's or postgraduate degree: Baby Boomers, 60% and 40%; Generation Y, 40% and 53%; Generation X, 35% and 65%; as well as Generation C, 90% and 10%, respectively. Among those from Generation C who have attained a bachelor's degree, 94% were completing their postgraduate degrees.

Most Baby Boomers and Generation X groups were civil servants; they shared approximately 35% of the sample population for each of the two generations. A total of 70% of Generation Y respondents were employees of private sectors, whereas 70% of Generation C respondents were students.

Habits of wine consumption

Tables 3 and 4 exhibit the general frequency of wine drinking of the 400 respondents and the frequency of wine drinking of each generation, respectively.

Table 3 Frequency of wine drinking of respondents in general.

How often do you drink wine?		
	Frequency	Percentage
Once or twice a month	133	33.3
Once or twice a week	102	25.5
Rarely or occasionally	88	22.0
Almost every day	77	19.3
Total	400	100

Table 4 Frequency of wine drinking of each generation

How often do you drink wine?	Range of years of birth				Value	Sig.
	Baby Boomers Frequency (Percentage)	Generation X Frequency (Percentage)	Generation Y Frequency (Percentage)	Generation C Frequency (Percentage)		
Almost every day	12 (12.0)	14 (14.0)	22 (22.0)	29 (29.0)	54.988	0.000
Once or twice a week	20 (20.0)	25 (25.0)	28 (28.0)	29 (29.0)	2.117	0.000
Once or twice a month	40 (40.0)	39 (39.0)	29 (29.0)	25 (25.0)	1.412	0.000
Rarely or occasionally	28 (28.0)	22 (22.0)	21 (21.0)	17 (17.0)	1.082	0.000
Total	100 (100.0)	100 (100.0)	100 (100.0)	100 (100.0)	-	-
Mean (\bar{X})	2.16	2.31	2.51	2.70	-	-
Standard Deviation (S.D.)	0.972	0.971	1.059	1.068	-	-

Table 3 illustrates that 33.3% of the respondents had a habit of drinking wine once or twice a month, 22% occasionally or rarely drank wine, and that 19.3% drank wine almost every day.

Table 4 illustrates the correlations between age and frequency of wine drinking. The two younger classifications, Generations Y and C, tended to consume wine more frequently than the two older generations on a daily and weekly basis.

The qualitative data confirmed that, on average, 54% of Baby Boomers drank

wine once or twice a month. By contrast, 43% of those from Generation Y, and 60% of those from Generation C drank wine once or twice a week.

Table 5 presents places from where the 400 respondents bought wines. Restaurants and wine specialty shops were popular places to purchase wine. Although 17.5% and 16.5% bought wines from supermarkets and hypermarkets, 17% purchased wine through the Internet.

Table 5 Places where respondents bought wines.

From which of the following outlets do you buy wine? Please choose one.		
	Percentage	Frequency
Restaurant (In Thailand, some restaurants have wine retail corners that sell wines.)	100	25.0
Wine specialty shop	79	19.8
Supermarket	70	17.5
Internet	68	17.0
Hyper market	66	16.5
Wine wholesaler	17	4.3
Others	0	0
Total	400	100

Table 6 shows places where the respondents of each generation tended to buy wines. The findings supported the correlation between age and wine buying from restaurants and Internet-based

shops. Baby Boomers and Generation C tended preferred wines from restaurants, whereas Generations X and Y tended to buy wines through the Internet.

Table 6 Places where respondents of each generation tended to buy wine.

From which of the following outlets do you buy wine? Please choose one.	Range of years of birth				Value	Sig.
	Baby Boomers Frequency (Percentage)	Generation X Frequency (Percentage)	Generation Y Frequency (Percentage)	Generation C Frequency (Percentage)		
Restaurant	30 (30.0)	17 (17.0)	21 (21.0)	32 (32.0)	21.227	0.000
Wine specialty shop	27 (27.0)	9 (9.0)	15 (15.0)	28 (28.0)	7.114	0.068
Supermarket	15 (15.0)	22 (22.0)	17 (17.0)	16 (16.0)	10.043	0.018
Internet	12 (12.0)	27 (27.0)	20 (20.0)	9 (9.0)	15.025	0.002
Hyper market	12 (12.0)	20 (20.0)	20 (20.0)	14 (14.0)	6.460	0.091
Wine wholesaler	4 (4.0)	5 (5.0)	7 (7.0)	1 (1.0)	0.676	0.870
Others	0	0	0	0	-	-
Total	100 (100.0)	100 (100.0)	100 (100.0)	100 (100.0)	-	-
Mean (\bar{X})	3.24	3.22	3.28	3.07	-	-
Standard Deviation (S.D.)	1.349	1.661	1.570	1.249	-	-

The qualitative data corroborated that restaurants were the most popular place for Baby Boomers and Generation C to buy wines. More than 25% of the respondents from these two generations bought wine from restaurants, whereas only approximately 10% of Generation X respondents did the same. Instead, Generations X and Y tended to buy wine online. Approximately 33% of the former and 30% of the latter bought wine through the Internet. “I like buying wines from restaurants. Some of the staff have good knowledge. We can share information and experiences about wines,” said interviewee 4 (Baby Boomer). “It is difficult for me to decide which wine to buy. Staff of restaurants can recommend good and inexpensive wine,” said interviewee 19 (Generation C). “Buying wines from the Internet is

convenient and time saving. People buy things online today. They (wine dealers online) should have a good security system to protect the data of customers,” said interviewee 8 (Generation X).

Table 7 exhibits the budget for wine purchases of respondents. The Australian Trade and Investment Commission (2017) categorised wines that were sold in Thailand between A\$30 and A\$50 (approximately between THB780 and THB1300) were of medium price, and those above A\$50 (approximately THB1300) were high/premium and super premium. The findings confirmed that the most popular price range of the 400 respondents was price range one, which was a low price range. Less than 1% of the respondents were prepared to buy wines that were over THB1300.

Table 7 Budget of the respondents for purchasing wine.

What is the regular price range of wine that you have bought? Please choose one.		
	Percentage	Frequency
Price range 1		
Below THB400	85	21.3
THB401 and THB600	128	32.0
Between THB601 and THB779	55	13.7
Subtotal	268	67
Price range 2		
Between THB780 and THB1000	61	15.3
Between THB1001 and THB1300	42	10.5
Subtotal	103	25.8
Price range 3		
Between THB1301 and THB1500	7	1.8
Between THB1501 and THB2000	8	2.0
Between THB2001 and THB2500	11	2.8
Above THB2501	3	0.6
Subtotal	29	7.2
Total	400	100

Table 8 gives us a good idea of the price range of wine each generation was willing to pay. Correlations were observed between age group and low price range of wines. The findings showed that younger generations tended

to buy wines that cost below THB600 and Baby Boomers had the highest tendency to buy wines of medium and high/premium price range. Specifically, 11% of Baby Boomers were ready to buy wines in the high/premium price range.

Table 8 Price range of wine each generation was willing to pay.

What is the regular price range of wines that you bought. Please choose one.	Range of years of birth				Value	Sig.
	Baby Boomers Frequency (Percentage)	Generation X Frequency (Percentage)	Generation Y Frequency (Percentage)	Generation C Frequency (Percentage)		
Low price range						
Below THB400	15 (15.0)	21 (21.0)	24 (24.0)	25 (25.0)	13.550	0.004
Between THB401 and THB600	24 (24.0)	33 (33.0)	33 (33.0)	38 (38.0)	9.467	0.024
Between THB601 and THB779	17 (17.0)	12 (12.0)	11 (11.0)	15 (15.0)	11.025	0.012
Sub-total	56 (56%)	66 (66%)	68 (68%)	78 (78%)	-	-
Medium price range						
Between THB780 and THB1000	22 (2.0)	16 (16.0)	13 (13.0)	10 (10.0)	5.010	0.171
Between THB1001 and THB1300	11 (11.0)	10 (10.0)	12 (12.0)	9 (9.0)	4.000	0.677
Sub-total	33 (33%)	26 (26%)	25 (25%)	19 (19%)	-	-
High/premium price range						
Between THB1301 and THB1500	3 (3.0)	2 (2.0)	2 (2.0)	0	0.436	0.933
Between THB1501 and THB2000	4 (4.0)	2 (2.0)	2 (2.0)	0	3.061	0.382
Between THB2001 and THB2500	2 (2.0)	4 (4.0)	3 (3.0)	2 (2.0)	2.524	0.471
Above THB2501	2 (2.0)	0	0	1 (1.0)	3.694	0.296
Sub-total	11 (11%)	8 (8%)	7 (7%)	3 (3%)	-	-
Total	100 (100.0)	100 (100.0)	100 (100.0)	100 (100.0)	-	-
Mean (\bar{X})	3.37	2.95	2.85	2.56	-	-
Standard Deviation (S.D.)	1.878	1.806	1.777	1.591	-	-

The qualitative data corroborated that the wine budget of Baby Boomers was the highest among the four generations. On average, this age group spent approximately THB1500 for wine. By contrast, Generation X, Y, and C reported that their wine budgets were THB860, THB1000, and THB890, respectively.

Table 9 presents the ranking of wine-producing regions according to the 400

respondents. The findings asserted that the respondents favoured Old World Wine-producing countries, among which France was most popular. Those who favoured Old World Wine comprised 55.65%, and, specifically, 21.2% favoured wine from France. Australia was the most popular New World country producing wine, and 16.4% of the respondents favoured Australian wine.

Table 9 Ranking of the most popular wine-producing countries according to the 400 respondents.

Which wine from the following wine-producing countries do you prefer most? You can choose more than one country.		
	Percentage	Frequency
Old world wine-producing countries		
France	146	21.2
Germany	97	14.1
Italy	86	12.5
Spain	47	6.8
Portugal	8	1.2
Subtotal	384	55.65
New world wine-producing countries		
Australia	113	16.4
New Zealand	85	12.3
Chile	66	9.6
South Africa	20	2.9
Argentina	16	2.3
Subtotal	300	43.47
Others	6	0.88
Total	690	100

Table 10 gives us a clear picture of the preferred wine-producing countries of each generation. The findings illustrated the correlations between consumers' age

and wine-producing regions. The older generations preferred wine from France, Germany, Italy and Australia.

Table 10 Most popular wine-producing countries for each generation.

	Range of years of birth				Value	Sig.
Which wine from the following wine producing regions do you prefer most? You can choose more than one region.	Baby Boomers	Generation X	Generation Y	Generation C		
	Frequency	Frequency	Frequency	Frequency		
	(Percentage)	(Percentage)	(Percentage)	(Percentage)		
Old World Wine Producing Regions						
France	66 (27.2)	41 (19.0)	23 (18.3)	16 (15.2)	64.416	0.000
Germany	43 (17.7)	31 (14.4)	16 (12.7)	7 (6.7)	41.523	0.000
Italy	21 (8.6)	33 (15.3)	20 (15.9)	12 (11.4)	13.331	0.004
Spain	19 (7.8)	11 (5.1)	8 (6.3)	9 (8.6)	7.209	0.066
Portugal	2 (0.8)	3 (1.4)	2 (1.6)	1 (1.0)	1.020	0.796
Sub-total	151 (62.2)	119 (55)	69 (54.8)	45 (42.8)	-	-
New World Wine Producing Regions						
Australia	43 (17.7)	42 (19.4)	9 (7.1)	19 (18.1)	42.564	0.000
New Zealand	15 (6.2)	18 (8.3)	28 (22.2)	24 (22.9)	6.140	0.105
Chile	19 (7.8)	24 (11.1)	12 (9.5)	11 (10.5)	8.202	0.042
South Africa	6 (2.5)	8 (3.7)	3 (2.4)	3 (2.9)	3.789	0.285
Argentina	8 (3.3)	4 (1.9)	2 (1.6)	2 (1.9)	6.250	0.100
Sub-total	91 (37.4)	96 (44.5)	54 (42.8)	59 (56.2)	-	-
Others	1 (0.4)	1 (0.5)	3 (2.4)	1 (1.0)	2.030	0.566
Total	243 (100.0)	216 (100.0)	126 (100.0)	105 (100.0)	-	-
Mean (\overline{X})	0.221	0.196	0.115	0.095	-	-
Standard Deviation (S.D.)	0.343	0.345	0.287	0.263	-	-

The qualitative data confirmed similar results: the younger the generation, the less they preferred wine from the old world wine-producing countries. Between the wine of the Old World and New World countries, 75% of the respondents from Baby Boomers, 63% of those from Generation X, 57% of those from Generation Y, and 50% of those from Generation C preferred the former.

Table 11 exhibits the preferred style of wine of the 400 respondents. Red wine was the most popular wine style, followed by white wine and sparkling wine. Although rose wine was least popular, the percentage of consumers was 12.4.

Table 11 Preferred style of wine of the 400 respondents.

Which of the following wine styles do you prefer most? You can choose more than one wine style. If you choose more than one, please rank them.		
	Percentage	Frequency
Red wine	200	44.9
White wine	107	24.0
Sparkling wine	83	18.7
Rose wine	55	12.4
Total	445	100

Table 12 illustrates the most preferred wine style of each generation, which shows that red wine was popular among Baby Boomers. Sparkling wine was popular the young generation. These findings validated the correlation between wine style and age group. The

older the consumers were, the more they favoured red wines. Amongst the four age groups, the Baby Boomers preferred red wine the most. However, Generations X opted for white wine and rosé. The younger the consumers were, the more they favoured sparkling wine.

Table 12 Popular wine styles of each generation.

What of the following wine styles do you prefer most? You can choose more than one.	Range of years of birth				Value	Sig.
	Baby Boomers Frequency (Percentage)	Generation X Frequency (Percentage)	Generation Y Frequency (Percentage)	Generation C Frequency (Percentage)		
Red wine	83 (64.8)	60 (42.3)	37 (38.9)	20 (25.0)	90.320	0.000
White wine	19 (14.8)	47 (33.1)	29 (30.5)	12 (15.0)	35.355	0.000
Rose wine	18 (14.1)	25 (17.6)	7 (7.4)	5 (6.25)	22.493	0.000
Sparkling wine	8 (6.3)	10 (7.0)	22 (23.2)	43 (53.75)	47.113	0.000
Total	128 (100.0)	142 (100.0)	95 (100.0)	80 (100.0)	-	-
Mean (\bar{X})	0.32	0.36	0.24	0.20	-	-
Standard Deviation (S.D.)	0.358	0.433	0.403	0.362	-	-

The qualitative data validated that 75% of Baby Boomers preferred red wine, as did 61% of the respondents from Generation X, 58% of those from Generation Y, and 47% of those from Generation C. Compared with that of Baby Boomers, the wine style preferred by the other generations tended to be more diversified. Particularly, 8.6% of the respondents from Generation X, 11% of those from Generation Y, and 12% of those from Generation C preferred rose wine. In addition, 13% of the respondents from Generation X, 21% of those from Generation Y, and 18% of those from Generation C preferred sparkling wine.

Motivations for drinking wine

Table 13 exhibits the motivations for drinking wine of the 400 respondents. The respondents perceived wine drinking to be good for relaxation and friendship enhancement, followed by the preference for the taste and character of wines, and the pairing of wines with food. The respondents perceived wine as “good for (my) health” and wine as an “expression of social status,” as the least important reason for drinking wine.

Table 13 Motivations of the respondents for drinking wine.

To what extent do you agree with the following statement? Please choose one.	Frequency (%)					\bar{X}	S.D.
	(5)	(4)	(3)	(2)	(1)		
Drinking wine helps me relax.	159 (39.8)	185 (46.2)	56 (14.0)	-	-	4.26	0.687
Wine consumption enhances friendship.	163 (40.7)	177 (44.2)	55 (13.8)	4 (1.0)	1 (0.3)	4.24	0.742
I like the taste and character of wines.	145 (36.2)	174 (43.5)	78 (19.5)	2 (0.5)	1 (0.3)	4.15	0.761
Wine goes well with meals.	114 (28.5)	194 (48.5)	78 (19.5)	14 (3.5)	-	4.02	0.788
Drinking wine is good for my health.	74 (18.4)	199 (49.8)	115 (28.8)	12 (3.0)	-	3.84	0.753
Wine consumption is an expression of social status.	17 (4.3)	119 (29.8)	185 (46.3)	74 (18.5)	5 (1.1)	3.17	0.821
Total average						3.94	0.758

Table 14 and 15 presents the ANOVA tests of the motivational factors for the generations. Table 16 shows the Least Significant Difference (LSD) of the

motivations for wine drinking of the four generations. Table 17 illustrates the Multivariate Tests of the motivations.

Table 14 Descriptive of ANOVA

		95% Confidence Interval for Mean							
		N	Mean	Std. Deviation	Std. Error	Lower Bound	Upper Bound	Minimum	Maximum
I like the taste and characters of wines.	baby boom	100	4.02	.752	.075	3.87	4.17	2	5
	x	100	4.06	.802	.080	3.90	4.22	1	5
	y	100	4.21	.756	.076	4.06	4.36	3	5
	z	100	4.31	.706	.071	4.17	4.45	2	5
	Total	400	4.15	.761	.038	4.08	4.22	1	5
Wines go well with meals.	baby boom	100	4.02	.778	.078	3.87	4.17	2	5
	x	100	3.98	.778	.078	3.83	4.13	2	5
	y	100	3.97	.846	.085	3.80	4.14	2	5
	z	100	4.11	.751	.075	3.96	4.26	2	5
	Total	400	4.02	.788	.039	3.94	4.10	2	5
Wine consumption enhances friendship.	baby boom	100	4.28	.712	.071	4.14	4.42	3	5
	x	100	4.22	.786	.079	4.06	4.38	1	5
	y	100	4.11	.803	.080	3.95	4.27	2	5
	z	100	4.36	.644	.064	4.23	4.49	2	5
	Total	400	4.24	.742	.037	4.17	4.32	1	5
Wine consumption is good for my health.	baby boom	100	3.92	.734	.073	3.77	4.07	2	5
	x	100	3.82	.770	.077	3.67	3.97	2	5
	y	100	3.74	.812	.081	3.58	3.90	2	5
	z	100	3.87	.691	.069	3.73	4.01	2	5
	Total	400	3.84	.753	.038	3.76	3.91	2	5
Wine consumption helps me relaxed.	baby boom	100	4.12	.671	.067	3.99	4.25	3	5
	x	100	4.35	.687	.069	4.21	4.49	3	5
	y	100	4.23	.737	.074	4.08	4.38	3	5
	z	100	4.33	.637	.064	4.20	4.46	3	5
	Total	400	4.26	.687	.034	4.19	4.33	3	5
Wine consumption is an expression of social status.	baby boom	100	3.38	.850	.085	3.21	3.55	1	5
	x	100	3.11	.863	.086	2.94	3.28	1	5
	y	100	3.10	.745	.075	2.95	3.25	1	5
	z	100	3.10	.798	.080	2.94	3.26	1	5
	Total	400	3.17	.821	.041	3.09	3.25	1	5

Table 15 ANOVA of the motivational factors of the generations

		Sum of Squares	df	Mean Square	F	Sig.
I like the taste and characters of wines	Between Groups	5.420	3	1.807	3.172	.024
	Within Groups	225.580	396	.570		
	Total	231.000	399			
Wine go well with meals	Between Groups	1.220	3	.407	.653	.581
	Within Groups	246.620	396	.623		
	Total	247.840	399			
Wine consumption enhances friendship	Between Groups	3.328	3	1.109	2.032	.109
	Within Groups	216.150	396	.546		
	Total	219.478	399			
Wine is good for my health	Between Groups	1.767	3	.589	1.038	.375
	Within Groups	224.670	396	.567		
	Total	226.438	399			
Wine consumption helps me relaxed	Between Groups	3.347	3	1.116	2.387	.069
	Within Groups	185.130	396	.468		
	Total	188.478	399			
Wine consumption is an expression of social status	Between Groups	5.747	3	1.916	2.881	.036
	Within Groups	263.350	396	.665		
	Total	269.098	399			

Table 16 Least Significant Difference (LSD)

To what extent do you agree with the following statement? Please choose one	\bar{X}	Baby Boomers	Generation X	Generation Y	Generation C
I like the taste and characters of wines					
Baby Boomers	4.02	-	-.040	-.190	-.290 (*)
Generation X	4.06	-	-	-.150	-.250 (*)
Generation Y	4.21	-	-	-	-.100
Generation C	4.31	-	-	-	-
Wine consumption is an expression of social status					
Baby Boomers	3.38	-	.270 (*)	.280 (*)	.280 (*)
Generation X	3.11	-	-	.010	.010
Generation Y	3.10	-	-	-	.000
Generation C	3.10	-	-	-	-

Table 17 Multivariate Tests^a

	Effect	Value	F	Hypothesis df	Error df	Sig.	Partial Eta Squared	Noncent. Parameter	Observed Power ^d
Intercept	Pillai's Trace	.986	4657.963 ^b	6.000	391.000	.000	.986	27947.777	1.000
	Wilks' Lambda	.014	4657.963 ^b	6.000	391.000	.000	.986	27947.777	1.000
	Hotelling's Trace	71.478	4657.963 ^b	6.000	391.000	.000	.986	27947.777	1.000
	Roy's Largest Root	71.478	4657.963 ^b	6.000	391.000	.000	.986	27947.777	1.000
Age	Pillai's Trace	.109	2.469	18.000	1179.000	.001	.036	44.445	.996
	Wilks' Lambda	.894	2.490	18.000	1106.400	.001	.037	42.205	.994
	Hotelling's Trace	.116	2.507	18.000	1169.000	.000	.037	45.126	.997
	Roy's Largest Root	.082	5.391 ^c	6.000	393.000	.000	.076	32.344	.996

a. Design: Intercept + age

b. Exact statistic

c. The statistic is an upper bound on F that yields a lower bound on the significance level.

d. Computed using alpha =

The multivariate tests illustrated a statistically significant difference between age groups and feelings about wine, $F(18, 1106.400) = 2.490$, $p < 0.005$, Wilks' lambda = 0.894, and partial Eta squared 0.037. The ANOVA analysis showed the differences between groups through statements of "I like the taste and characteristics of wines" and "Wine consumption is an expression of social status".

The qualitative findings illustrated that Baby Boomers were considerably proficient and meticulous in describing the tastes and characteristics of wine. "I like white wine; in particular, Chablis. I like off-dry white wine with green and citrus fruit flavour and moderate acidity level," said interviewee 28 (Baby Boomer). Most of the other generations experienced difficulty in describing the taste or characteristics of wines. Interviewee 6 (Generation X) said, "I like wines that are smooth and with character." "I like the colour and smell of Barolo," said interviewee 4 (Generation Y). Interviewee 50 (Generation C) said

that "[Cabernet Sauvignon] is smooth and it smells good."

On the association of wine consumption with social status, the qualitative data showed that Baby Boomers tended to associate with those who enjoy drinking wine. Interviewee 41 (Baby Boomer) said that "Some people prefer soda drinks, some prefer beer and some prefer wine. It is a matter of preference." However, the same interviewee remarked that "I like hanging out with friends who [enjoy] drinking wine. We can talk about the characteristics of wine." One interviewee from the Baby Boomer generation said, "I like talking to my (wine-drinking) friends about vineyard visits. We visit vineyards in France every year." However, interviewee 7 (Generation X) said, "I do not see how wine is related to the social status of people. Although I like drinking wine, I drink beer with my beer-drinking friends and whisky soda with my whisky-drinking friend." According to interviewee 42 (Generation Y), "I like going to places to chill out and drink wine with my friends who drink beer."

About other motivations, the qualitative data helped elaborate the respondents' thinking. Interviewee 38 (Baby Boomer) said that "After a full day at work, I like drinking a glass of wine to relax. Sometimes, I drink a glass of wine before I go to bed." According to interviewee 12 (Generation X), "I normally drink wine after work and on weekends. It is good to drink some wine to [help] me relax." "I like drinking wine after work; in particular, after meetings. After drinking wine, I feel good and relaxed," said interviewee 18 (Generation Y). "I drink wine after work to reduce stress," said interviewee 24 (Generation C).

With regard to the effect of friendship enhancement of wine, interviewee number 16 (Baby Boomer) said that "I drink wine with friends. After drinking a few glasses of wine, we'll become more open." Interviewee number 37 (Generation X) said that "My friends and I will become very talkative after a few drinks. Wine drinking is good for building a good relationship with friends." Interviewee number 48 (Generation Y) said that "Wine drinking can make new friends." Interviewee number 26 (Generation C) said that "My friends and I talk about anything while we drink wine. Drinking wine with friends can draw us closer to each other."

For food and wine pairing, the three younger generations were more adventurous compared with Baby Boomers in pairing wine with food. Interviewee number 39 (Generation X) said that Shiraz was paired best with seafood and grilled food. Interviewee number 23 (Generation Y) said that white wine went well with steak and fish. Interviewee number 14 (Generation C) liked to pair sparkling wine with all types

of food. However, the answers of most Baby Boomers proved that they paired food with wine on the basis of the matching principle. "Food with acidity should pair with wine with a higher level of acidity," said interviewee number 38 (Baby Boomer).

All the interviewees replied that they were aware of the health benefits of wine. "Moderate wine drinking can reduce the risk of getting Parkinson's disease and Alzheimer's disease," said interviewee number 10 (Baby Boomer). "Wine drinking helps reduce strokes," said interviewee number 33 (Generation X). "Red wine has more health benefits than white wine," said interviewee number 48 (Generation Y). "I read from the Internet that wine has lot of vitamins," said interviewee number 29 (Generation C).

Discussion

Madeira et al. (2009) concluded that age is a differentiating factor of wine consumption behavior in Portugal. Lockshin and Corsi (2012), after summarising previous literature on motivations for wine drinking, asserted that motivations varied according to age groups.

However, the findings of the present study validated that older generations; in particular, Baby Boomers differ from the other three generations in a few aspects of wine consumption. Baby Boomers favour red wine and wine mostly from Old World wine-producing countries. The other generations are substantially accepting different wine styles and wines from the new world countries. A notable difference lies on the budget allocated for buying wine. The budget allocated by Baby Boomers for wine is nearly 60%

more than the average budget of the other three generations. The findings of the present study proved that Baby Boomers are more concerned and knowledgeable with wine taste and character compared with the other three generations. Baby Boomers described wine by its tannins, acidity, sweetness, and flavour. By contrast, the other generations have difficulty in properly describing the characters of wine.

Wine is a sensory product. Therefore, the taste of wine is considered the most important factor in influencing the consumptive interest of drinkers (Keown and Casey, 1995 in Bruwer et al., 2011; Thompson and Vourvachis, 1995, in Bruwer et al., 2011). Charters and Pettigrew (2007, in Bruwer et al., 2011) corroborated that the choice of Millennials whether to drink wine depends on its taste. Evidently, consumers will first have to buy wine and take risk on the perceived flavour because they cannot assess the taste simply by referring to the wine bottle, packaging, or label. To minimise the risk, consumers tend to rely on different sources of information, including the significant consideration of the price, which commonly influences the judgment of wine quality. The study of Stanford GSB and the California Institute of Technology (in Trei, 2008) asserted that the price of wine interferes with its perceived and real quality. Given that Baby Boomers are considerably concerned with the taste and characters of wine, they are interested in talking to restaurant staff whom they consider are knowledgeable in wines, and willing to pay more than the other generation groups, if only to minimise risks in purchasing wine.

The findings of the present study reveal the common characteristics of Thai wine drinkers regardless of age group.

Many of the respondents and interviewees equate wine consumption with building and enhancing friendships. Friendship and gregariousness are essential to Thais. A cross-cultural dimension survey indicated that Thailand is a highly collectivist country and that Thais value loyalty and relationship building (Hofstede, n.d.). Knutson (n.d.) also verified that Thais emphasise the use of the pronoun “we” instead of “I” in all aspects of communication. Having open communication and fun facilitate the building and enhancement of friendships (Williams, 2008). Many interviewees said that they feel open and talkative after drinking wine. In addition, several interviewees shared that they have numerous fun moments with friends while drinking wine.

Also, respondents and interviewees are stressful. Thais, as claimed by Intarakamhang (2009), as a result of overwhelming materialism, weakening family ties, and lacking of attachment, face various stresses. These stresses, if remain unresolved, can cause them harm (Intarakamhang, 2009.) Relaxation provides people peace of mind (Department of Mental Health, 1999, in Intarakamhang, 2009). Science has proven that wine drinking assists in relaxation. *Deutsche Weinakademie* (1997, in Getz, 2000) reported that wine increases the serotonin levels, which heighten one’s sense of well-being, as well as induces sleep.

Previous research elucidated that the health benefits of wine come from the presence of malic and tartaric acids, ethanol, the low pH value, and

polyphenols. A *60 Minutes* programme in 1991, “The French Paradox,” profoundly raised consciousness about the health benefits of wine. The programme stated that red wine consists of chemicals that can help reduce heart diseases and might extend the life of a person. After the programme was broadcasted, the consumption of red wine increased tremendously. In the USA, red wine sales rose by 44% within six months (Brostrom and Brostrom, 2009).

However, in this present study, on the one hand, many respondents consider wine an important means to help them relax for their well-being and, on the other hand, they are less concerned with its health benefits, which is the second least important motivational factor though the qualitative interviews show that interviewees are aware of health benefits of wine. The reason for this scenario remains unknown.

Although the respondents show least concern for the association of wine with social status, the educational background of the majority of the respondents and interviewees indicate that wine is a drink for those with substantially high educational background. Wine is also an expensive drink in Thailand. The import tax on wine in Thailand is approximately 400%. An imported wine originally sold at USD100 will eventually be sold for USD490.46 (Infosearch and Kunasiritat, 2005). The high tax suggests that wine drinking is for people with comparatively high salaries in Thailand.

Although the study does not illustrate major generational differences in motivations for wine drinking, it demonstrates cultural differences. Madeira et al. (2009) affirmed that, in

Portugal, wine drinking frequency is directly and indirectly associated with age and with being female, respectively. In this present study, findings confirm that, in Thailand, the number of female wine consumers increase the younger the generation is, and likewise, the younger the generation, the more frequent they drink. Contrary to the findings of Madeira et al. (2009) that older generations tend to drink wine more frequently, the results of the present study prove that the younger the generation is, the more frequently its members drink wine.

Capitello et al. (2014) and Qenani-Petrela et al. (2007, in Lockshin and Corsi, 2012) verified that the health benefit of wine drinking is an important factor in determining the attitudes of Generation Y in Italy (and of Baby Boomers as well as Generation X in central California) the findings of this study confirm that among the four age groups, Generation Y is least concern with the health benefits.

Pettigrew and Charters (2010) also corroborated that alcohol consumption in Hong Kong might help convey desired images to specific and generalised others. By contrast, the findings of this present study validate that the four generations do not concern with the association of wine and social status.

Hall et al. (2004) proved that, of the three age groups in Australia, mood enhancement that comprises the variables of relaxation, excitement, stress relief, and fun and enjoyment was less essential to those from the 35-and-above age group. By contrast, the findings of this present study affirm that the four generations consider the relaxation an important motivation for drinking wine.

WDB (2007, in Geraghty and Torres, 2009) affirmed that Irish wine drinkers tend to shift from drinking Old World wine to New World wine. However, the findings of the present study validated that respondents and interviewees favour Old World wine.

Bruwer and Wood (2005) showed that 35–44-year-old Australians tend to buy wine online. However, the findings of the present study illustrate that Generation X (people aged 41–53) buy wines mainly through the Internet and Generation C, the youngest age group, has the lowest percentage of online wine buying.

Limitation and conclusion

The study has two main limitations. Initially, the questionnaires were translated from English into Thai, and the qualitative responses were translated from Thai to English. Some data and responses may have been translated inaccurately. Moreover, wine selling in Thailand faces competition from other alcoholic beverages, such as beer, whisky, and cognac. The following questions should be answered: How do the attributes of wine compare with the attributes of these drinks? Are there differences in the motivations of Thais

for consuming other alcoholic beverages compared with those for consuming wine? These areas provide a good avenue for future research.

This study can still provide appropriate guidelines to wine marketers in planning their marketing endeavours. Marketers may consider two marketing strategies: one for the Baby Boomers and the other for the other three generations.

For Baby Boomers, marketers can considerably focus on red wines from old world wine-producing regions. Baby Boomers are prepared to buy expensive wine; hence, marketers may introduce moderately expensive to expensive wines to this generation group. Moreover, marketers can consider restaurants a good retail outlet for selling their wines.

For marketing endeavours with the three other generations, marketers may consider selling wine of different styles at moderate or low-price levels. Marketers can also distribute their wines to internets and restaurants from where Generation X and Y, and Generation C reportedly buy their wine frequently.

For the promotion mix, marketers should emphasise the relaxing effects and social benefits of wine consumption. Marketers may focus on associating wines with a specific lifestyle or image that is related to the aforementioned attributes.

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CASH CONVERSION CYCLE AND PROFITABILITY OF FIRMS LISTED IN SET HIGH DIVIDEND 30 INDEX (SETHD)

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Article info

Article history:

Received
xx August 20xx
Revised
x November 20xx
Accepted
x March 20xx

Keywords:

cash conversion cycle,
profitability, SETHD

Abstract

This study examined the effect of cash conversion cycle on the profitability of firms listed in SET high dividend 30 index (SETHD). Multiple regressions with fixed-effects were employed to test 460 sample data gathered from quarterly financial statements of 23 firms during 2013-2017. The findings were consistent with the existing literature. Payables deferral period positively and significantly affected net profit margin. Additionally, current liabilities to total assets ratio negatively and significantly affected net profit margin. Thus, managing working capital more efficiently by negotiating with suppliers for a longer period of trade credit as well as reducing the proportion of short-term loans with interest-bearing in firms' current liabilities can help enhance firms' profitability.

Introduction

Working capital management is very important for firms; especially, during the economic downturn. To survive, firms must have enough capital for daily operations. One of the key checkpoints for firms' liquidity is cash conversion cycle (CCC) because it shows how many days firms will run out of cash. CCC is the summation of inventory conversion period and receivables conversion period subtracted by payables deferral period. Hence, a long period of CCC indicates weak working capital management. To manage CCC efficiently, firms have to tradeoff between liquidity and operating performance. For example, decreasing inventory conversion period too much, firms may lose sales because firms do not have enough goods to sell to customers. In addition, reducing receivables conversion period too much, firms may lose business to competitors who provide longer trade credit to customers. Moreover, increasing payables deferral period too much, firms may lose opportunity to get discounts for early payments in the future. In general, there is an inverse relationship between CCC and firm performance as suggested in the literature review section of this study.

The SET high dividend 30 index (SETHD) was launched by the Stock Exchange of Thailand on July 4, 2011 in order for investors to use as an investment reference. SETHD displays price movements of stocks that have large market capitalization, high market liquidity and high dividend yields. There is a periodic review of constituent firms in SETHD every six months in June and December. To be sustainable in business, not only small enterprises are in concern

with working capital management, but also the large firms with solid fundamentals. Therefore, this study focuses on whether cash conversion cycle and its components have any effect on the profitability of firms listed in SETHD, which are large firms with high and consistent dividend payments. The results of this study are expected to benefit investors to trade the suitable stocks and firms to apply the appropriate working capital management policies.

Literature review

The research on the relationship between working capital management and corporate profitability has been an interesting topic for decades among various countries around the world. For example, in U.S.A., Jose et al (1996) examined 2,718 listed firms during the period from 1974 to 1993. By using correlation and multiple regression techniques to analyze the data, the result of a negative relationship between cash conversion cycle and profitability was found. Moreover, Ebben and Johnson (2011) investigated a sample of 879 small U.S. manufacturing firms and 833 small U.S. retail firms during 2002-2004. They found that firms with lower cash conversion cycles generated greater profits. Mun and Jang (2015) also studied the financial data of 298 restaurant companies in U.S.A. from 1963 to 2012. A strong U-shape relationship between working capital and profitability as well as the interactive effects among working capital, cash levels and profitability were found. Thus, they suggested that a cash level is a substantial element for firms to achieve efficient working capital management.

Furthermore, in Europe, Deloof (2003) analyzed a sample of 1,009 listed firms in Belgium and found a significant inverse relationship between gross operating income and accounts receivable, inventories and accounts payable. By minimizing the number of days' accounts receivable and inventories to an optimum level, firms can enhance value for their shareholders. However, the negative relationship between gross operating income and accounts payable can be implied that firms with less profits need longer time to pay their operating debts. Additionally, in Greece, Lazaridis and Tryfonidis (2006), employed a sample of 131 firms listed in the Athens Stock Exchange (ASE) during 2001-2004. They found a negative significance between profitability and cash conversion cycle. Garcia-Teruel and Martinez-Solano (2007) studied 8,872 Spanish small to medium-sized enterprises (SMEs) for the years 1996-2002. They utilized the panel data methodology together with the robust test for endogeneity problems and found that reducing the cash conversion cycle increased firms' profitability. Recently, Lyngstadaas and Berg (2016) examined 21,075 small- and medium-sized enterprises in Norway from 2010 to 2013. They employed panel data regressions with fixed effects and a two-stage least squares analysis and found a significant relationship between cash conversion cycle and firm's profitability in the opposite direction.

Next, in Africa, Uwuigbe et al (2012) tested a sample of 15 listed manufacturing firms in Nigeria during 2005-2009 for the relationship between cash management and profitability. The results showed that increasing in the cash conversion cycle led to decreasing in the

firms' profitability. In addition, Oseifuah and Gyekye (2016) examined the effect of working capital management efficiency on the profitability of 75 non-financial firms listed on the Johannesburg Stock Exchange (JSE) over the 10-year period from 2003 to 2012 by employing panel data regression methodology. A negative relationship between working capital management and profitability, a negative relationship between inventory conversion period and profitability, a negative relationship between accounts receivables conversion period and profitability, and a positive relationship between accounts payable deferral period and profitability were main findings of this study.

Lastly, in Asia, Wang (2002) investigated the relationship between liquidity management and operating performance as well as the relationship between liquidity management and corporate value of companies in Japan and Taiwan during 1985-1996. The results exhibited the negative relationship between cash conversion cycle and firms' profitability for both Japanese and Taiwanese firms despite the differences in structural characteristics and financial system. Moreover, Nobanee et al (2011) studied the relationship between cash conversion cycle and firm's performance of Japanese firms from 1990 to 2004. They found a significant inverse relationship between the cash conversion cycle duration and firm's profitability. In addition, Wasiuzzaman (2015) analyzed the relationship between working capital efficiency and firm value of 192 Malaysian firms over the years from 1999-2008. The findings from the ordinary least squared regression indicated that an increase in firm value

came from a decrease in working capital investment. Recently, Banchuenvijit (2017) assessed how working capital management affected the profitability of 15 listed firms on Market for Alternative Investment (mai) in Thailand. The multiple regression with ordinary least squared was employed on the quarterly financial data during 2011-2015. The results showed that payables deferral period and sales growth were positively related to firms' profitability. Nevertheless, current assets to total assets ratio and current liabilities to total assets ratio were negatively related to firms' profitability.

In addition to the above literature review, Singh et al (2017) studied a sample of 46 research articles on the issue of working capital management and firm profitability by applying the meta-analysis technique. Cash conversion cycle and firm profitability were found to be negatively related, suggesting the use of an aggressive working capital management policy in order for firms to make higher profits. However, most of working capital management literature focused on the developed countries such as U.S.A., European countries and Japan. The results of the study of cash conversion cycle and profitability of firms listed in SET high dividend 30 index (SETHD); therefore, will be very attractive because Thai firms' structural characteristics differ from those in developed countries. Moreover, this study will accomplish the working capital management literature, mainly, in the emerging markets.

Methodology

Data

The study of cash conversion cycle and profitability of firms listed in SETHD collected the quarterly relevant data from financial statements during the period from 2013 to 2017. According to SETHD constituent firms in 2018, six firms (Bangkok Bank, Kiatnakin Bank, Krung Thai Bank, The Siam Commercial Bank, Thanachart Capital and Tisco Financial Group) in banking industry and one firm (Star Petroleum Refining) with incomplete data were excluded from the sample. Thus, the final sample comprised of 23 firms (Advanced Info Service, AP (Thailand), Bangchak Corporation, Bangkok Land, Charoen Pokphand Foods, Electricity Generating, Glow Energy, Hana Microelectronics, Land and Houses, L.P.N. Development, Major Cineplex Group, PTT, PTT Global Chemical, Quality Houses, Ratchaburi Electricity Generating Holding, The Siam Cement, Siamgas and Petrochemicals, Sansiri, Tipco Asphalt, Thai Oil, TTW, Thai Union Group and Thai Vegetable Oil) with the total data set of 460. The dependent variable was net profit margin (NPM). The independent variables were cash conversion cycle (CCC), inventory conversion period (ICP), receivables conversion period (RCP), payables deferral period (PDP), natural logarithm of total assets (SIZE), current assets to total assets ratio (CATA) and current liabilities to total assets ratio (CLTA).

Models

This study investigated the impact of working capital management, which was proxied by cash conversion cycle and its components, on the profitability, which

was proxied by net profit margin, of listed firms in SETHD by utilizing multiple regressions with the tests for fixed effects. There were 4 models employed as shown below.

Model 1:

$$NPM_{it} = C + CCC_{it} + SIZE_{it} + CATA_{it} + CLTA_{it} + e_{it}$$

Model 2:

$$NPM_{it} = C + ICP_{it} + SIZE_{it} + CATA_{it} + CLTA_{it} + e_{it}$$

Model 3:

$$NPM_{it} = C + RCP_{it} + SIZE_{it} + CATA_{it} + CLTA_{it} + e_{it}$$

Model 4:

$$NPM_{it} = C + PDP_{it} + SIZE_{it} + CATA_{it} + CLTA_{it} + e_{it}$$

Hypotheses

The followings were hypotheses examined in this study.

Model 1:

H₀: None of the independent variables, consisting of CCC, SIZE, CATA and CLTA, affects NPM.

H₁: At least one of independent variables, consisting of CCC, SIZE, CATA and CLTA, affects NPM.

Model 2:

H₀: None of the independent variables, consisting of ICP, SIZE, CATA and CLTA, affects NPM.

H₁: At least one of independent variables, consisting of ICP, SIZE, CATA and CLTA, affects NPM.

Model 3:

H₀: None of the independent variables, consisting of RCP, SIZE, CATA and CLTA, affects NPM.

H₁: At least one of independent variables, consisting of RCP, SIZE, CATA and CLTA, affects NPM.

Model 4:

H₀: None of the independent variables, consisting of PDP, SIZE, CATA and CLTA, affects NPM.

H₁: At least one of independent variables, consisting of PDP, SIZE, CATA and CLTA, affects NPM.

In order to get the data overview, this study firstly used descriptive statistics, including mean, median, maximum, minimum and standard deviation. Next, the correlation matrix was implemented to test for multicollinearity problem. Later, hausman test for cross-section random effects was executed to test if multiple regressions with either random effects or fixed effects were appropriate to generate the results.

Results

Table 1 Descriptive statistics

	NPM (%)	CCC (Days)	ICP (Days)	RCP (Days)	PDP (Days)	SIZE (Baht)	CATA (%)	CLTA (%)
Mean	16.2047	83.9979	89.2963	23.5800	31.5122	25.1052	45.6937	23.3543
Median	11.3500	44.1400	48.2200	20.7350	28.3450	25.1050	38.0700	22.8900
Maximum	335.7200	234.0400	240.0000	82.7800	99.8100	28.4400	97.8200	62.3900
Minimum	-71.3300	-36.1500	0.9400	0.0000	0.7100	22.9700	8.9600	0.8200
Std. Dev.	22.0606	85.9680	87.0795	19.4428	19.5624	1.2946	23.6951	11.2823
Observations	460	460	460	460	460	460	460	460

Table 1 shows the descriptive statistics of 23 sample firms listed on SETHD during the period from quarter 1 of 2013 to quarter 4 of 2017. For the dependent variable, net profit margin (NPM) has a mean of 16.20% with the maximum of 335.72% and the minimum of -71.33%. For the independent variables, cash conversion cycle (CCC) has a mean of 84 days with the maximum of 234 days and the minimum of -36 days. Inventory conversion period (ICP) has a mean of 89 days with the maximum of 240 days and the minimum of 1 days. Receivables conversion period (RCP) has a mean of

24 days with the maximum of 83 days and the minimum of 0 days. Payables deferral period (PDP) has a mean of 32 days with the maximum of 100 days and the minimum of 1 days. Natural logarithm of total assets (SIZE) has a mean of 25.11 Baht with the maximum of 28.44 Baht and the minimum of 22.97 Baht. Current assets to total assets ratio (CATA) has a mean of 45.69% with the maximum of 97.82% and the minimum of 8.96%. Current liabilities to total assets ratio (CLTA) has a mean of 23.35% with the maximum of 62.39% and the minimum of 0.82%.

Table 2 Correlation matrix

	CCC	ICP	RCP	PDP	SIZE	CATA	CLTA
CCC	1.0000						
ICP	0.9787	1.0000					
RCP	-0.3345	-0.3538	1.0000				
PDP	0.0634	0.1131	0.4869	1.0000			
SIZE	-0.2643	-0.2727	0.0590	-0.0252	1.0000		
CATA	0.6240	0.6201	-0.4940	-0.1024	-0.4145	1.0000	
CLTA	0.1067	0.1567	-0.2530	-0.0567	-0.2596	0.3756	1.0000

Table 2 exhibits correlation matrix among independent variables. The correlation between any pair of independent variables is within the range of -0.80 and 0.80 (indicating no

multicollinearity problem), besides a pair of CCC and ICP. However, this study examined four separate models for each of CCC, ICP, RCP and PDP.

Table 3 Hausman test for cross-section random effects

Model	Chi-Sq. Statistic	Prob.	Appropriate method
(1) CCC	19.9924	0.0005	Fixed-effect
(2) ICP	22.5119	0.0002	Fixed-effect
(3) RCP	11.4648	0.0218	Fixed-effect
(4) PDP	10.8752	0.0391	Fixed-effect

Since this research uses panel data, Hausman's test is employed to determine whether fixed-effect or random-effect multiple regression model is suitable. Table 3 shows the results of Hausman's test. For each model, there is a statistically significant p-value (Prob. <

0.05) so that there is the rejection of the null hypothesis that random effects model is appropriate and the acceptance of the alternative hypothesis that fixed effects model is appropriate. Therefore, the fixed-effect multiple regression model is used in this research.

Table 4 Multiple regressions with fixed-effects

Variable	(1) Coefficient (t-Statistic)	(2) Coefficient (t-Statistic)	(3) Coefficient (t-Statistic)	(4) Coefficient (t-Statistic)
Constant	-49.6355 (-0.3213)	-27.1754 (-0.1764)	-41.4058 (-0.2678)	-51.8602 (-0.3422)
CCC	0.0384 (1.1329)	-	-	-
ICP	-	0.0456 (1.4090)	-	-
RCP	-	-	0.0247 (0.4079)	-
PDP	-	-	-	0.1812 (4.0014)***
SIZE	2.2820 (0.3788)	1.3718 (0.2281)	1.9868 (0.3295)	2.3723 (0.4012)
CATA	0.2778 (1.4350)	0.2625 (1.3515)	0.3138 (1.6385)	0.1932 (1.0151)
CLTA	-0.3153 (-1.9925)**	-0.3051 (-1.9857)**	-0.3077 (-1.9732)**	-0.2582 (-1.6546)*
R-Squared	0.4998	0.5006	0.4985	0.5162
F-Statistic	16.6396	16.6934	16.5540	17.7687
Prob(F-Statistic)	0.0000	0.0000	0.0000	0.0000

*** = statistical significance at 0.01 level

** = statistical significance at 0.05 level

* = statistical significance at 0.10 level

Table 4 displays the results of multiple regressions with fixed-effects. From model 1, F-Statistic is 16.6396 and Prob(F-Statistic) is 0.0000, meaning that at least one independent variable significantly affects net profit margin. Moreover, R-Squared indicates that all the independent variables in the model can explain the dependent variable 49.98%, the rest 50.02% can be explained by other factors. According to t-Statistics as shown in parentheses, only CLTA negatively affects NPM at 95 percent confidence level. The coefficient of CLTA is -0.3153, meaning that, when other variables are constant, one percentage change in current assets to total assets leads to 0.3153 percentage change in net profit margin in the opposite direction.

From model 2, F-Statistic is 16.6934 and Prob(F-Statistic) is 0.0000, meaning that at least one independent variable significantly affects net profit margin. Moreover, R-Squared indicates that all the independent variables in the model can explain the dependent variable 50.06%, the rest 49.94% can be explained by other factors. According to t-Statistics as shown in parentheses, only CLTA negatively affects NPM at 95 percent confidence level. The coefficient of CLTA is -0.3051, meaning that, when other variables are constant, one percentage change in current assets to total assets leads to 0.3051 percentage change in net profit margin in the opposite direction.

From model 3, F-Statistic is 16.5540 and Prob(F-Statistic) is 0.0000, meaning that at least one independent variable significantly affects net profit margin. Moreover, R-Squared indicates that all the independent variables in the model

can explain the dependent variable 49.85%, the rest 50.15% can be explained by other factors. According to t-Statistics as shown in parentheses, only CLTA negatively affects NPM at 95 percent confidence level. The coefficient of CLTA is -0.3077, meaning that, when other variables are constant, one percentage change in current assets to total assets leads to 0.3077 percentage change in net profit margin in the opposite direction.

From model 4, F-Statistic is 17.7687 and Prob(F-Statistic) is 0.0000, meaning that at least one independent variable significantly affects net profit margin. Moreover, R-Squared indicates that all the independent variables in the model can explain the dependent variable 51.62%, the rest 48.38% can be explained by other factors. According to t-Statistics as shown in parentheses, PDP positively affects NPM at 99 percent confidence level, and CLTA negatively affects NPM at 95 percent confidence level. Additionally, the coefficient of CLTA is -0.2582, meaning that, when other variables are constant, one percentage change in current assets to total assets leads to 0.2582 percentage change in net profit margin in the opposite direction. The coefficient of PDP is 0.1812, meaning that, when other variables are constant, one-day change in payables deferral period makes net profit margin changes 0.1812% in the same direction.

Conclusions and discussions

To conclude, the study of cash conversion cycle and profitability of

firms listed in SET high dividend 30 index (SETHD) used quarterly data of financial statements during 2013-2017. The findings from multiple regressions with fixed effects indicated that current liabilities to total assets ratio (CLTA) was the only independent variable in every model that inversely and statistically impacted net profit margin (NPM), at least, at 0.05 significance level. One of the reasons was that the large proportion of the sample firms' current liabilities was short-term debt with the obligation of interest payment, resulting in less profits. This negative relationship found was also consistent with Banchuenvijit (2017).

In addition, payables deferral period (PDP) positively affected NPM in model 4 at 0.01 statistical significance level, meaning that the longer the period firms took to pay their accounts payables, the higher was the firms' profits. Since the sample firms were listed in SETHD, they continuously distributed dividends to shareholders. Thus, suppliers perceived that these firms were financially trustworthy, and provided them a longer period of trade credit than usual. Otherwise, the sample firms could negotiate for a longer period of trade credit from suppliers because of their solid financial reliability. This finding aligned with Oseifuah & Gyekye (2016) and Banchuenvijit (2017).

Overall, this study indicated that firms with lower cash conversion cycle as the results of less short-term loans as well as longer period of trade credit, have higher profitability. For business implication, firms should shorten their cash conversion cycles by increasing payables deferral period to the optimal level. Firms should also be aware that deferring

the period of payment too much may result in losing opportunities to receive early payment discounts for future purchases. To manage working capital more efficiently, firms should reduce the proportion of short-term loans in their current liabilities; instead, they should replace it with non-interest bearing current liabilities from operations.

Furthermore, for academic point of view, these findings not only went along with Jose et.al. (1996), Wang (2002), Deloof (2003), Lazaridis & Tryfonidis (2006), Garcia-Teruel & Martinez-Solano (2007), Ebben & Johnson (2011), Nobanee et.al. (2011), Uwuigbe et.al. (2012), Mun & Jang (2015), Wasiuzzaman (2015), Lyngstadaas & Berg (2016), Oseifuah & Gyekye (2016), Banchuenvijit (2017), and Singh et.al. (2017) but also fulfilled the literature of working capital management and firm profitability; especially, in the case of emerging markets.

However, future studies may employ the new measurement, namely working capital efficiency multiplier (WCEM) which exhibits firm's investment cost in net working capital, as suggested by Prasad et.al. (2019) to examine the relationship between working capital efficiency and firm's financial performance. Lower WCEM leads to higher working capital efficiency. Therefore, the result of an inverse relationship between WCEM and firm profitability will support the existing literature in this area. Additionally, future research can use mixed approaches of both quantitative and qualitative methods, including regressions, questionnaires, surveys and interviews to test the impact of working capital management on firm profitability.

Furthermore, future research should put the squared term of cash conversion cycle (CCC), inventory conversion period (ICP), receivables conversion period (RCP), and payables deferral period (PDP) in the model in order to test if there is a tradeoff between liquidity and operating performance in working capital management. Last but not least, to

investigate the effect of all three components of CCC (i.e. ICP, RCP, and PDP) at the same time in a single model, future studies may use structural equation modeling (SEM) via treating working capital management as a latent variable which is measured by all those three components of CCC.

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FACTORS AFFECTING BRAND LOYALTY OF FOREIGN SKIN CARE PRODUCTS IN BEIJING, CHINA

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Article info

Article history:

Received
25 July 2020

Revised
27 August 2020

Accepted
27 August 2020

Keywords:

Brand experience,
Brand satisfaction,
Brand trust, Brand
personality, chain
mediation, Brand
loyalty.

Abstract

Although the scholars have studied about the value of brand loyalty and it is believed that there is relationship existing in brand trust, brand experience, brand satisfaction. However, real endogenous mechanism and external influence of brand loyalty is not fully clarified and verified. Thus, quantitative analysis will be processed to verify factors affect foreign skin care brand loyalty among Chinese consumer and explore how it functions.

Through software of SPSS and Excel, 371 pieces of data collected by snowballing-sampling method by questionnaire-based survey are analyzed with correlation and regression analysis etc. Finally, there are conclusions would be drawn that Brand experience has a significantly positive effect on brand satisfaction, brand trust. brand personality., Brand trust and Brand personality has a significantly positive effect on brand loyalty. Brand experience through chain mediation of brand satisfaction, brand trust and brand personality own significant positive effect on brand loyalty.

These results show that by applying the Brand loyalty conceptual model in China skin care market, it gives insight to cosmetic market players about mechanism of factors interacting with brand loyalty and instruct companies to identify, leverage factor to strengthen competitive advantage.

Introduction

In cosmetic industry of China, Chinese domestic enterprises are facing a dramatically intensive competitive market as powerful foreign companies are coveting this potential market. In recent years, entrepreneurs and academics showed a increasing interest to factors affecting brand loyalty and it motivate them to investigated and research the factors. The brand loyalty is essential to the sustainable development of the companies. To construct the band, enterprises must highly value the construction of brand loyalty. Brand loyalty is a kind of reflection of brand value, possible influence on consumers. Besides, Brand loyalty is a vital contributor to the construction of enterprise's competitive advantage and the establishment and consolidation of enterprise's market position.

One of indicators to measure successfulness of business is whether it can attract customers continually or not. By establishing the company's brand, it will certainly attract more attention from consumers no matter in e-commerce or substantial shopping. Aaker (1991) states that brand loyalty is a yardstick to measure the length of contact between brand and consumer relationships; The level of brand loyalty is also used as a measure of the success on an enterprise's marketing strategy. It is also mentioned that consumers' brand loyalty can bring plenty various benefits to the company, such as repeating purchases and reputation (Brown, 1952). Many scholars like Levy (1978) shows that a substantial portion of a company's sales normally sources from the small percentage of overall consumers or so called the group

of loyal consumers. In sum, by producing product which is valuable to consumers by enterprises, it will cultivate customer loyalty slowly.

The cosmetics market is mainly composed by hair care, perfume, make-up, and skin care. In the 1990s and early 20th, with the rapid economy development after Economic Reform and Open-up Policy in 1978 and the market impact brought by the accession to the WTO, foreign brands into the domestic market, and foreign brands' knowledge were also introduced into China. China's brand awareness is gradually enhanced. In "Chinese Consumer Report 2010" published by *Roland Berger* Strategy Consultants provides enterprises with an in-depth understanding of how to get Chinese consumers today. The report show that brand awareness is the most vital factor influencing Chinese people's decision making in shopping. In an environment where the national economy continues to undergo major changes, marketers need to consider more multiple when developing loyalty programs. Chinese consumers have increased their loyalty in most industries. Comparing with domestic brands, it is obviously that foreign brands in cosmetic industry is prefer and own higher trust.

Applying quantitative methods, Palto (2003) researched the factors influencing brand loyalty, but the applicability of research result from Palto (2003) on the Chinese market is unexamined and indefinite. On the other sides, the domestic cosmetic companies are aware of the importance of brand and of establishment of the brand. Brand is the intangible assets of enterprises and enterprises should focus more on brand equity and strive to maintain its value.

Building up consumers' loyalty on brands not only directly affect the profitability of enterprises, but also is the key to achieve sustainable development. Therefore, the research on brand loyalty is not only theoretical significance, but also own an essential application value as local brand and gain ore customers' loyalty by learning the mechanism of loyalty.

Nowadays, cosmetics become a kind of consumables as people are often changing skin care products when there are numerous alternatives of cosmetics are available in bustle and hustle city. Therefore, the firms should react in time to cultivate and retain customers with high loyalty, identify and understand low loyalty customers early to transform them to loyal customer. The reason why research on the brand loyalty of cosmetic companies is significant is that the extent of brand loyalty is a reflection of customers' loyalty toward cosmetic.

The increasingly fierce competition of cosmetics industry is believed to last a long-term in the future. Learning about customer loyalty is significant for cosmetics companies, especially for Chinese local brands and companies. Having a customer group with high loyalty will become an effective and powerful weapon for enterprise to sustain within the competition. Hence Loyalty Management must imbed into marketing strategy and be well organized, implemented.

Although the value of brand loyalty as well as the relationship among brand trust, brand experience, and satisfaction have been studied by researchers, but paid less attention to the real endogenous mechanism and external influence of brand loyalty. Therefore, based on the

theory of customer loyalty management and the empirical analysis of the characteristics of Beijing cosmetics industry, this paper studies the factors influencing the brand loyalty of foreign skin care products in the domestic market, and the relationship between these factors and customer loyalty. The objective of this paper is to reveal the influencing factors of foreign brand's customer loyalty, their role in brand loyalty and proposes ways for cosmetics companies to increase customer loyalty to achieve the success of corporate customer loyalty management.

Literature review

Brand experiences

Toffler (1970) firstly proposed that experience can be regarded as an economic commodity, arguing that experience is the product with psychological or perceptual value. Rose et al., (2012) argued that brand experience is the face-to-face communication between the customer and the brand. its purpose is to attract and retain customers from physical and emotional way. The brand experience mainly expresses through the brand environment, sensory stimulation, brand communicators and interactions. Consumer brand experience is related with the obtained information and familiarity of a brand or brand type. Compared product features and benefits, brand experience is regraded be to more influential. It is believed to own ability to generate a deeper meaning and more impression, which can generate brand trust. Brakus et al (2009) defines brand experiences as "reactions of consumers' internal behaviors caused by brand name,

identification, packaging, communication, and other related incentive. "It is difference from product experience, service experience, and consumer experience. It focuses on interpreting the object of experience rather than the product and service. Different companies have different strengths in brand experience, and even some brands experience is slightly negative because of short duration and the effect on consumers.

Brand trust

It is proposed by Dick & Basu (1994) that brand trust is perceived by buyers through risk and forecasting to determine the degree of trust in a brand, more emphasis on the perceived results of a consumer brand. Aaker (1996) suggested that brand trust is not simply refer to or equal to consumer satisfaction to functional performance and attributes of products, but it goes far beyond in some cases.

Lau & Lee (1999) defines brand trust as "when facing uncertain risks, consumers rely on positive expectations of the brand and generate goodwill for the brand". Therefore, brand trust is a cognitive development process that based on consumer under the premise of certain risks, from the perceived risks to the identification risks, to predicting risks. Delgado-Ballester & Munuera-Aleman (2001) proposed that "brand trust begins with consumers having positive confidence expectations about the reliability and behavioral intention of the brand in the face of uncertain risks". Therefore, brand trust is not only generated from the recognition and forecasting of uncertain risks, but also the positive judgment willingness of

consumers for their brand performance and behavior.

Scholars said that trust is based on perceived risk, one is willing to rely on the other side's wishes, and this willingness was established on the basis of the previous understanding of each other, and it was thought that choosing the other side can avoid risks and expect positive results.

Brand personality

Brand personality is connecting brand to some kind of personal characteristics and further abstract the brand image. Personality came from psychology. Scholars in the field of brand introduced the concept of brand personality into brand science and gradually formed systematic theory. Thus, it has some commonalities with the personality of people in psychology (Epstein, 1977). However, they have great differences in the process of their formation. For the individual's personality, it is formed in life based on attitudes, behaviors, and psychological aspects (Park, 1986), and the brand personality is designed through the enterprise and the consumer. In the process of interaction, consumers are eager to display their own personality by purchased and used items from brand with yearning brand personality (Plummer, 1984). Aaker (1997) defines brand personality as "a series of human personality traits related to brands" and the difference is that it gives consumers more emotional needs and enables consumers to use branded products. You can express yourself in the process. The personality of a brand can be shaped like a person's personality, but it is not intrinsic, formed in the interaction

between the consumer and the company, but also reflects the true thoughts and feelings of the consumer (Keller, 1993). Edgbaston proposed that brand personality is the perceptual image of a product in the eyes of consumers, and it is an individualized brand image based on brand positioning.

Since the concept of brand personality is introduced, there is a certain number of scholars show interest and carried out a great deal of in-depth research about it. As brand personality is an analogy to the personality of human being, a psychological term which base the study of brand personality. The brand personality sources from human characteristics that perceived by the consumers. Therefore, in existing studies on measuring brand personality, words that describe human personality characteristics are essential references. After the concept of brand personality is firstly introduced, an effective and reliable brand personality scale based from on human characteristic is developed. There are 5 dimensions of brand personality, including sincerity, excitement, competence, ruggedness, and sophistication (Aaker, 1997).

Brand satisfaction

Cardozo (1965) firstly proposed the concept of customer satisfaction into the marketing field. It has been a controversial concept among scholars since its introduction. Concept of customer satisfaction introduced by Kotler & Keller (2016) is emphasis on the personal perception, the degree of pleasure or disappointment along with purchase experience. It is normally affected by comparison between the

perceivable experience and anticipation of purchase of individual. If the perceived value of service is lower than or not match with expectation, then it is highly possible to result in high customer unsatisfaction. In most cases, customer will be satisfied by serving them value-match product. In the case of the provided products exceed the consumer expectation constantly then customers can be highly satisfied generally.

McKinsey (1993) proposes that in the study of the relationship between the level of satisfaction and the degree of loyalty. The level of satisfaction is classified into three level, dissatisfaction; satisfaction; high satisfaction, to correspond extent of satisfaction. However, in the satisfaction area, customer loyalty remains unchanged. An empirical study by Thomas & Sasser (1995) also suggested that it is nonlinear relationship existing between customer satisfaction and customer loyalty and varies greatly across various industries. Within the background of fiercely competitive industry that means there are various alternatives available for consumers, customers show robustly high loyalty in high-satisfaction level vice versa there is few changes happened on loyalty of satisfaction in low-satisfaction areas.

Brand loyalty

As the modern market environment and the characteristics of enterprise products are constantly changing, cultivating loyal customers is an effective way to enhance brand strength. Therefore, the research on brand loyalty is increasingly becoming the hot spot of many scholars' research. Olive (1999) also tends to view

brand loyalty as a strong psychological commitment based on customers' preference for products or services, mainly in the long-term frequent purchase of products of the same brand or brand series, Olive point out customer's attitudes towards a brand's established attitudes while exhibiting the appropriate behavior will result in customer loyalty. Customer loyalty of a brand is based on trust and love of the brand, where brand trust and brand loyalty are the sum of customer perceived value. Research shows that customers are equally positively correlated with brand positive and brand loyalty, and that the correlation between them is strong. In addition, this positive emotional response can reduce the price sensitivity of customers.

Brand loyalty should include both behavioral loyalty and attitude loyalty. Behavioral loyalty normally refers to customers is willing to make purchase of a certain products of brand consistently. Repurchasing behaviors may originate from intrinsic feelings of the brand, or may come from that consumer inertia, purchase impulses, conversion cost, promotion activities or market coverage is higher than competition brands and other emotionally independent factors. Attitude loyalty refers to the match between a brand personality and customer lifestyles. The customer generates feelings for the brand, or even proud, and the second as their own friends and the spirit of the sustenance, and then showed continued purchase of desire and behavior.

China's scholar Lu et al(2010) take liquid dairy consumers as the object of study, from the consumer and corporate marketing two levels of brand loyalty

factors were studied, but also from the consumer demographic characteristics, brand awareness, packaging, price, advertising And the convenience of purchase and other aspects of the brand loyalty to verify the impact of factors.

Relationship between variables

The relationship between brand satisfaction, brand trust, brand personality and brand experience

Brand experience is the subjective experience that consumers receive after receiving various brand-related stimuli in interaction with the brand. It includes the consumer's choice of brand, and even the process of product use, and brand satisfaction is the main observe the difference between expected and actual gains. There is a close relationship between the two, and the sensory experience in the brand experience is the stimulation of consumer senses can increase consumer's purchase desires and the value of add-on products, through the brand new experience increases satisfaction. For different industries and different participants, scholars conducted a study around brand experience and brand satisfaction. Westbrook & Oliver (1991) confirmed that the emotional experience dimension of brand experience has a positive predictive effect on brand satisfaction by investigating new car buyers. Next, he believes that the prefix variable for brand trust is total brand satisfaction.

H1: Brand experience has a positive effect on brand satisfaction

Brand experience and brand trust both plays a decisive role in consumer

purchase, experience brings good inner experiences, and trust reduces consumers' risk. Companies seek various ways to establish trust relationships with consumers, and the premise for building trust is to create a good brand experience for consumers. The two have a close relationship, the higher the level of consumer interaction with the brand, and when buyer understands the brand's good intentions, trust will appear (Doney & Cannon, 1997). It is found that the brand experience plays an important role in the process of generating trust to the brand. In purchasing process of consumer's, the risk of the current transaction will be reduced based on the experience of previous consumption, especially when faced with similar situations. Shankar et al (2003) and Kania (2001) found that different forms, such as virtual online communities and games, is able to attract consumers to take part in meaningful and diversified brand experiences, thereby contributing to the formation process of brand trust.

H2: Brand experience has a positive impact on brand trust

Brand personality is defined as the personality characteristics is perceived by the consumer from brand. It is believed by Keller (1993) that the brand personality reflects the perception of consumers toward a brand and it actually owns a self-expressive and symbolic function for consumers. Pitta & Katsanis (1995) proposes that brand personality perceived by consumer is highly possible generated from advertisement, slogans publicized by companies and it is trend to be a inference by consumer toward production and producer. Hayes (2000) also considers brand personality is important as a brand image. The brand

personality that constitutes a brand image associated with human characteristics.

H3: Brand experience has a positive impact on brand personality

The relationship between brand satisfaction, brand trust, brand personality and brand loyalty

Bitner (1990) stated that customer satisfaction directly affects their brand loyalty while the degree and quality of customer satisfaction could determine brand loyalty. Ostrom and Iacobucci (1995) believe that customer satisfaction is a relative concept. It is a kind of consumer emotion after the customer measure the gains and losses, and this emotion largely determines whether the customer continues to purchase. In order to improve the quality of service along with the product and enhance the perception of consumer in consumption, the marketing Personnel fully aware of the important point of service value training behavior is an urgent task.

H4: Brand satisfaction has a significantly positive effect on brand loyalty

Trust is the lubricant to smooth the relationship between brand and consumers. Brand trust is essential in the process that consumers form loyalty to a brand. It plays an essential role in the establishment of brand loyalty of consumers. Brand trust is a essential precondition in the process of leading to loyalty behavior through. Chaudhuri and Holbrook (2001) propose brand trust based on this. The assumptions that affect brand loyalty are validated in empirical studies and they believe that the emotional determinants of brand loyalty need to be considered separately

in terms of maintaining brand relationships. At first, researchers thought that satisfaction would directly lead to loyalty behavior. When scholars empirically analyzed monopolistic industries, consumers found that although consumers showed high loyalty to such industry brands, their satisfaction was generally not high.

H5: Brand trust has a significant positive effect on brand loyalty

It is believed that brand personality is able effect brand loyalty directly. If brand personality built up by company can gain the agreement from target consumer or keep consistence with personality of target consumer, the target consumers is highly possible to be attracted retained the brand. The personality is linked to the meaning of what you want to express. Biel (1992) found through research found that brand personality has a vital role in promoting consumer loyalty. There is a tend that the homogenization of product is becoming more and more serious. Only improving brand personality can take consumers' limited minds and gain consumers' loyalty. When the brand's personality can be well perceived by consumers, they will be loyal to the brand. Kim et al (2001) proposed that the unique of brand personality is directly proportional to its attractiveness to consumers. At the same time, the attractiveness of brand personality directly affects positive word-of-mouth communication and indirectly affects brand loyalty.

H6: Brand personality has a significant positive effect on brand loyalty.

It is worth noting that in the research framework of this study, the brand

experience developed into subsequent mediating variables of brand satisfaction, brand trust and brand personality that would have consequential impact on the brand loyalty. Such mediating relationship can be obtained in the findings revealed by Ha and Perks (2005), for instance, it is revealed that brand experience would have positive influence on the customer satisfaction of Korea online e-commerce platform. Moreover, Ha and Perks (2005) added that online consumers would emphasize more on brand experience instead of the price itself, which deduced that low pricing strategy have less influential impact on the customers satisfactory level. Further, Keller (1993) added that elaborative inference making and information processing could be the essence of resulting brand-associated affiliations.

Similarly, in the study of Brakus et al., (2009), further evidences were uncovered indicating the relationship between brand experience and brand loyalty. As a whole, historical judgement of satisfactory brand experience via positive brand satisfaction, sustainable brand trust and appealing brand personality could influence on the level of perceived brand loyalty in the future, which can be measured in the form of recurrent purchases or voluntarily provision of positive word or mouth (Mittal and Kamakura, 2001). Thereby, it is hypothesized that brand experience via the mediation of pleasurable brand satisfaction, brand trust and brand personality would have significant positive on brand loyalty.

H7: Brand experience through chain mediation of brand satisfaction, brand

trust and brand personality have a significant positive on brand loyalty

Conceptual framework

Through combing the previous literature, this paper builds a model for external cosmetic brands, therefore, the theoretical model of this study is shown in the figure :

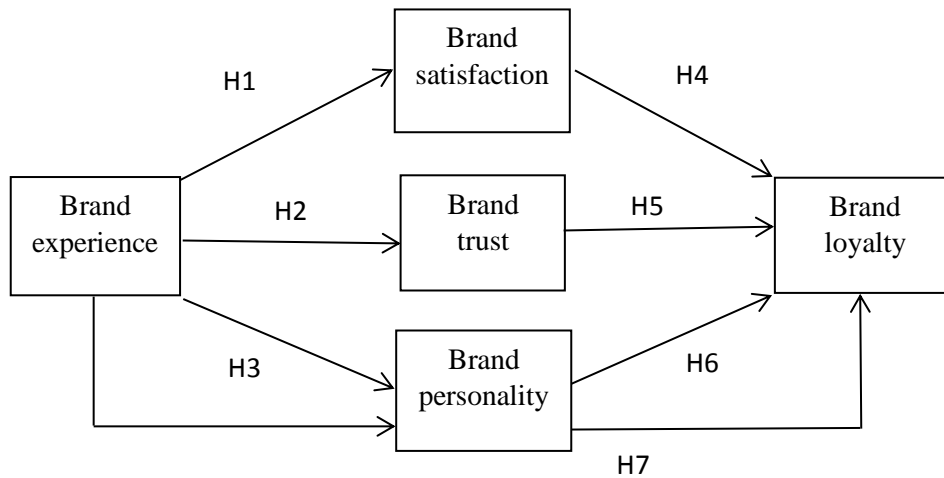


Figure 1 This model (Research Conceptual Framework) adapted from Brakus et al (2009)

Methodology

The design of the paper is consisted of four parts. Firstly, it is literature review in accordance with the theory of existence to explore the factors of foreign skin care's brand loyalty. Secondly, it is questionnaire design which the questionnaire adopts the design methods of blank filling and multiple choices. In this case, the respondents can choose one or more answers according to the requirements of the problem guidance or the restriction. Thirdly, it is analysis process of data collected by questionnaire survey in detail. The data

analysis is aimed at extracting useful information then provided empirical support to conclusion. Finally, in terms of the systematic analysis of the various factors, derived factors in the brand loyalty of consumers on foreign skin care brands.

Beijing has a relatively high economic level and strong female spending power. Beijing is the location where this study was conducted while target respondent is over the age of 20. Therefore, what this article needs to study is the direction and degree on brand loyalty's influencing factors. It also discusses the purchase intentions of different ages, income

levels, education levels, and occupations under these influence factors.

This article collects the questionnaire use online questionnaire. The total 400 questionnaires will be distributed during a-month period, from December 1st, 2018 to 2nd January ,2019, to analyze the data. The questionnaire was divided into four parts: (1) customer behavior (2) the factors affecting the customer loyalty of foreign skin care brands (3) and the loyalty of the customers (4) the personal information of the respondents.

Research instrument

Reliability mainly represent the degree of consistency, robustness and immutability on reflection from test results to the test subject characteristics. In general, the higher consistent of the results in two or two tests is more is then and less error

and more reliable the result will be. In this thesis, the Cronbach reliability coefficient will evaluate the degree of reliability of the questionnaire as indicator.

For the evaluation scale of Cronbach's Alpha coefficient is with the range of 0.60 ~ 0.65 means unacceptable reliability and preferably not to use the result; 0.65 ~ 0.70 is the acceptable coefficient range; 0.70 ~ 0.80 is good; 0.80 ~ 0.90 is very ideal coefficient range). Taking a standard body as a standard, then conducting research, and performing reliability test by understanding this topic, this is a test of the reliability of the whole questionnaire, and the structural validity is somewhat different, so we use SPSS for analysis. Divided into brand loyalty, brand experience, brand trust, brand satisfaction, brand personality.

Table 1 The result of reliability test

Variables	Cronbach' Alpha	N of Items
Brand experience	0.946	10
Brand satisfaction	0.901	6
Brand trust	0.882	6
Brand personality	0.885	5
Brand loyalty	0.869	5

In Table 1, it shows the questionnaire is with a certain reliability as the 5 Cronbach' Alpha values are greater than 0.8 respectively in which represent the well pass of the reliab4.3Validity Analysis

Validity points to the degree of effectiveness to which the designed questionnaire measures the variables.

There are a few dimensions, included content validity; surface validity; construct validity etc.,. Content validity refers to comprehensiveness or effectiveness of test content in the questionnaire. Surface validity refers to whether the target variables be imbedded and appropriated measured within the questionnaire. One of the construct

validities is convergence validity, referred to the degree of correlation between the extracted common factor and the measurement item of a variable. The other one is difference validity which used to test the specificity of the item for variable measurement. Through factor analysis, both differential validity and aggregate validity can be roughly tested.

There are a few prerequisites are necessary to be satisfied before applying factor analysis to test validity in which is that a significant correlation in the items, which is suggested by two test indicators, value of Bartlett spherical test and KMO value. Next, the brand experience, mediation variables, and brand loyalty metrics are tested for validity. For further analysis result is indicated in Table 2.

Table 2 The result of KMO and Bartlett's test of sphericity

Dimension	KMO	KMO and Bartlett's test		
		Bartlett's test of sphericity		
		Approximate chi-square	df	Sig.
Brand experience	0.964	2820.558	45	0.000
Intervening	0.895	3285.305	136	0.000
Brand loyalty	0.872	822.243	10	0.000

According to Table 2, it suggests the KMO test values of 371 pieces of data are 0.964, 0.895, and 0.872, in which indicate that data collected by questionnaire is satisfied the preconditions for factor analysis. The Bartlett's test of sphericity test results show that the approximate chi-square values are 28250.58, 3285.305, and 822.243, respectively. The numerical values are relevantly large, and the significant probabilities are all 0.000 ($P < 0.05$). Thus, the null hypothesis of Bartlett test of sphericity test is rejected. The brand experience, mediation variables, and brand loyalty metrics is tested out that with high validity and are acceptable to process factor analysis.

Data analysis

As to data analysis, SPSS and Excel were selected as the main analytical tool and carry out the following analysis process, includes reliability analysis of the scale, validity analysis, and regression analysis between variables.

Result

Collected data from a total of 371 questionnaires was process in SPSS software. 400 questionnaires were distributed. After identifying and abandoning invalid questionnaires, there is 371 valid questionnaires remaining, which the rate of valid questionnaires can account for 92.75%. Methods including frequency analysis, reliability and validity analysis, correlation analysis, and regression analysis are applied in our

model to prove the relationship among investigated factors.

Data collected on respondents' purchase behavior showed that the most frequent products purchased by most respondents were facial cleanser (96.5%) toner (86.52%), body milk (93.53%), and sunscreen (77.63%). Most of the respondents are buying once a month and once every three months. The reason for choosing foreign skin care products is that they believe that foreign skin care products are more effective for healthy

skin and dealing with skin problems, among them LANCOM, ESTEE LAUTER and others. The brand is loved by respondents.

Demographics refer to classifiable characteristics of a given population. Demographic characteristics are consisted of Gender, Age, Race, Geographic, Ethnicity, Area, Income level, Educational attainment. The demographic characteristics of the questionnaires collected in this paper are as Table 3:

Table 3 Demographic characteristics

age	Under 20 years	22	5.93
	21-30 years	162	43.67
	31-40 years	121	32.61
	41-50 years	45	12.13
	Over 50 years	21	5.66
	Total	371	100
gender	Man	107	71.16
	Female	264	28.84
	Total	371	100
Marital status	Single	227	61.19
	Married	144	38.81
	Total	371	100
Highest level of education	Secondary	26	7.01
	Diploma	38	10.24
	Undergraduate Degree	156	42.05
	Post graduate degree	96	25.88
	Others (specify)	55	14.82
	Total	371	100
Monthly income	Below 3000 CNY	22	5.93
	Between 3000 CNY-6000 CNY	37	9.97
	Between 6000 CNY-9000 CNY	125	33.69
	Above 9000 CNY	187	50.4
	Total	371	100

The results showed that the majority of respondents were 71.16% of women, and most of them were single, accounting for 61.19%. Ages range from 21-30 years old (43.67%) and 30-40 years old (32.61%). Respondents received at least a college degree with a bachelor's degree (42.05%) and a master's degree (25.88%). Most of the respondents' wages are above 6000CNY, which indicates that their income is at a medium high level.

Exploratory factor analysis is an analysis method of information concentration. The aim to apply factor analysis is mainly to find out the relationship with aggregated indicators (factors) instead of plenty indicator. Exploring analysis items (quantitative data) should be divided into several Factor (variable). From the of KMO and Bartlett results table (Table2), the brand experience is suitable for factor analysis.

Table 4 Exploratory factor analysis

	Cumulative	Eigenvalue (gravel diagram)
Brand experience	67.601%	>1
Intervening variable	66.211%	>1
Brand loyalty	65.701%	>1

Explanation Table of the total variance above (Table 3) shows the variances and sum of cumulative interpreted under each common factor. In Table 3, one common factor is extracted as eigenvalue is > 1 and the cumulative factor of the one common factor contributed up to 67.601%,66.211%,65.701%. Normally,

if cumulative contribution rate is up to 80% and common factor is taking into account, it enables to give a good explanation of the original problem. In the case that the cumulative contribution rate is within the ranges of 60% to 80% while the public factor is it is considered, the problem can be basically explained.

Table 5 Component matrix for brand experience

Component Matrix ^a	
	component 1
BE1	.867
BE2	.741
BE3	.794
BE4	.860
BE5	.742
BE6	.759
BE7	.857
BE8	.870
BE9	.866
BE10	.850

Extraction Method: Principal Component Analysis
a.extracted a component

Table 6 Component matrix for intervening variable

Rotating component matrix ^a			
	component		
	1	2	3
BS1	.787	-.013	.069
BS2	.807	.091	.028
BS3	.819	.104	.059
BS4	.781	.104	.077
BS5	.824	.081	.035
BS6	.860	.067	.009
BT1	.088	.822	.066
BT2	.062	.842	.131
BT3	.047	.788	.125
BT4	.052	.762	.083
BT5	.058	.766	.009
BT6	.111	.732	.049
BP1	.102	.061	.815
BP2	.017	.067	.855
BP3	.092	.082	.790
BP4	.055	.136	.844
BP5	-.014	.071	.806

Extraction method:principal component
Rotation method:normalized varimax

a. Rotation has converged after four iterations

Table 7 Component matrix for brand loyalty

Component Matrix ^a	
	Component 1
BL1	.815
BL2	.789
BL3	.817
BL4	.786
BL5	.844

Extraction Method: Principal Component Analysis

a. extracted a component

The factor 1 is in the 10 variables showed in Table 13, the component matrix. There is a large load on “BE9” and “BE10”, which named “Brand Experience”.According to the 0.5 principle, factor 1 from the Table 15 has a large load on the variables "BS1" to "BS6", and is named For "Brand Satisfaction"; factor 2 has a large load on the variables "BT1" to "BT6", and named it "Brand trust"; factor 3 has a large load on the variables "BP1" to "BP5" and is named "Brand Personality".In terms of

the 0.5 principle, Table 17 above suggested that factor 1 has a large load on the variables “BL1”, “BL2”, “BL3”, “BL4”, “BL5”, and it is named “brand loyalty”.Eventually, based on of KMO and Bartlett's test and exploratory factor analysis results, it is believed that the scale of questionnaire own a better structural effect and passes the validity test.The interrelationship among all 5 variables: Brand Experience, Brand Satisfaction, Brand Trust, Brand Personality, Brand Loyalty.

Table 8 Bivariate correlation result table

		significance				
		Brand experience	Brand satisfaction	Brand trust	Brand personality	Brand loyalty
Brand experience	Pearson correlation coefficient	1	.400**	.397*	.443**	.371**
	Significance(two-tailed)		.000	.000	.000	.000
	Number of cases	371	371	371	371	371
Brand satisfaction	Pearson correlation coefficient	.400**	1	.180**	.126*	.412**
	Significance(two-tailed)	.000		.000	.015	.000
	Number of cases	371	371	371	371	371
Brand trust	Pearson correlation coefficient	.397**	.180**	1	.202**	.370**
	Significance(two-tailed)	.000	.000		.000	.000
	Number of cases	371	371	371	371	371
Brand personality	Pearson correlation coefficient	.443**	.126*	.202*	1	.384**
	Significance(two-tailed)	.000	.015	.000		.000
	Number of cases	371	371	371	371	371
Brand loyalty	Pearson correlation coefficient	.371**	.412**	.370*	.384**	1
	Significance(two-tailed)	.000	.000	.000	.000	
	Number of cases	371	371	371	371	371

** . At the 0.01 level (two-tailed), the correlation is significant

*. At the 0.05 level (two-tailed), the correlation is significant

From Table 18, there is positive and strong correlation existing between 2 variables: brand experience and brand satisfaction, $n=371$, $P=0.000 < \alpha$, at the $\alpha = 0.01$ significant level. In other words, with a higher level of brand experience, it is believed that the level of brand satisfaction will improve corresponding ($r=0.400$).

Based on the analysis result on 371 sample data (Table 18) and the analysis criterion mentioned above , it suggests that the analysis result of various pair of variables, including Brand Experience - Brand Trust ($r=0.397$, $P =0.000$); Brand Experience - Brand Personality ($r=0.443$, $P =0.000$); Brand Experience - Brand

Loyalty ($r=0.371$, $P =0.000$); Brand Satisfaction - Brand Loyalty ($r=0.412$, $P =0.000$); Brand Trust - Brand Loyalty ($r=0.390$, $P =0.000$); Brand Personality - Brand Loyalty($r=0.384$, $P =0.000$), are strong and positive correlated at the $\alpha=0.01$ significant level.

The regression analysis is applied on mediator variables analysis in this paper. In Baron and Kenny (1986), there are a total 3 assumptions needed to satisfy in order to evaluate mediator variables as follows;

(1) The independent variable is necessary to relate with the both the mediator variable and dependent variable;

(2) The mediator variable is necessary to related with the dependent variable;

(3) When the mediator variable is controlled as a constant, the independent variable needs to be independent with dependent variable (in this case, it is a full intermediary), or has only a certain influence (in this case, partial mediation).

In the following, there are analysis on testing whether data satisfy assumptions mentioned above. Besides, the verification and inference process in following three part: Brand satisfaction, Brand Trust and Brand personality, will follow the same sentence as they are applying the same analysis method.

Table 9 Regression analysis of brand experience to brand loyalty (First Step)

	Regression Equation				Model Summary		
	B	t	Sig.	R	R-Square	Adjusted R-Square	standard error of estimate
Brand experience on brand satisfaction	0.428	7.664	0	0.371	0.137	0.135	1.067
Brand experience on brand trust	0.384	7.655	0	0.371	0.137	0.135	1.068
Brand experience on brand personality	0.428	7.664	0	0.371	0.137	0.135	1.067

Dependent variables: brand loyalty

Table 10 Regression analysis of brand experience to brand satisfaction (Second step)

	Regression Equation				Model Summary		
	B	t	Sig.	R	R-Square	Adjusted R-Square	standard error of estimate
Brand experience	0.462	8.38	0	0.4	0.16	0.158	1.054
Brand trust	0.441	8.297	0	0.397	0.157	0.155	1.017
Brand personality	0.521	9.502	0	0.443	0.197	0.194	1.048

Dependent variables: brand loyalty

The first step and the second step analysis (Table 19 & Table 20) are to verify that the assumption1, which is: The independent variable is necessary to relate with the both the mediator variable and dependent variable.

In Table 19 "intermediary regression analysis - the first step", the regression model shows that the brand experience (independent variable) is related to and brand loyalty (dependent variable) at the $\alpha=0.05$ significant level of ($P=0.000$).

Followed by the second step (Table 20, "intermediary regression analysis - the second step"). It can be known: the brand experience (independent variable) is

related to and brand satisfaction (dependent variable as well as the mediation variable) at the $\alpha=0.05$ significant level of ($P=0.000$).

Table 11 Intermediary regression analysis – the third step

	Regression Equation			R	Model Summary		
	B	t	Sig.		R-Square	Adjusted R-Square	standard error of estimate
Brand satisfaction	0.412	8.698	0	0.412	0.17	0.168	1.047
Brand trust	0.384	7.655	0	0.37	0.137	0.135	1.068
Brand personality	0.377	7.978	0	0.384	0.147	0.145	1.061

Dependent variables: brand loyalty

Then turn to the third step, where aim to test whether the assumption 2 is met or not. In Table 29, it is suggesting the brand personality which is the independent variable as well as the

mediator variable relates to the brand loyalty which is dependent variable in less than the $\alpha=0.05$ significance level (P value = 0.000).

Table 12 Regression analysis of brand experience and brand satisfaction to brand loyalty (Fourth step)

	Regression Equation			R	Model Summary		
	B	t	Sig.		R-Square	Adjusted R-Square	standard error of estimate
Brand experience	0.306	5.217	0.000	0.306	0.443	0.196	0.192
Brand trust	0.275	5.204	0.000	0.275			
Brand experience	0.288	4.789	0.000	0.288	0.444	0.197	0.193
Brand personality	0.268	5.237	0.000	0.268			
Brand experience	0.283	4.875	0.000	0.283	0.47	0.22	0.216
Brand personality	0.268	5.237	0.000	0.268			

Dependent variables :brand loyalty

Eventually, it is the assumption 3 to be tested in the fourth step is to analyze. In Table 30 ("intermediary regression

analysis - the fourth step"), it is known the assumption 3 is met as the independent variables, including brand

experience, brand personality, are both proved to play roles in mediating in brand loyalty (dependent variable), as the P values of both brand experience and brand satisfaction are 0.000, which are less than the significance level $\alpha=0.05$ in the regression model. On a general note, the Beta value obtained from the intermediary regression analysis not only reveal the strength and intensity of the independent variable on the dependent variable of this study, but also reveal the association or closeness between brand experience, brand personality, and brand loyalty. In short, the increase in value of brand experience in one unit would increase the brand personality by 0.288,

whereas, the increase in value of brand satisfaction in one unit would increase the brand loyalty by 0.268.

Discussions

This empirical analysis suggests that customer experience, brand satisfaction, brand personality, and brand trust own an important influence on brand customer loyalty. In order to maximize the retention of customer resources and then maximize profits from loyal customer, a few valuable conclusions that drawn from the analysis findings above will show as follows:

Table 13

Hypotheses	Correlation coefficient(r)	Results
H1: Brand experience has a significantly positive effect on brand satisfaction	0.400	$R>0$, H1 is supported
H2: Brand experience has a significantly positive effect on brand trust.	0.397	$R>0$, H2 is supported
Hypothesis3(H3): Brand experience has a significantly positive effect on brand personality	0.443	$R>0$, H2 is supported
H4: Brand satisfaction has a significantly positive effect on brand loyalty.	0.371	$R>0$, H4 is supported
H5: Brand trust has a significantly positive effect on brand loyalty.	0.412	$R>0$, H5 is supported
H6: Brand personality has a significant positive effect on brand loyalty	0.370	$R>0$, H6 is supported

Based on literature research and field interviews, this chapter uses questionnaire data to empirically analyze the factors affecting the loyalty of imported cosmetics brands and tests the research hypotheses proposed in Chapter 4. In the first hypothesis, the conclusion

that the brand experience owns a positive impact on brand loyalty which is consistent with the conclusions of Brakus et al (2009). A brand is able to generate a brand experience through perception, emotional, behavioral, and thinking aspects, which in turn affects brand

loyalty. This can be supported by the empirical evidence obtained in Chapter 4, which obtained a correlation coefficient of 0.4.

In the second hypothesis, it is hypothesized that brand experience has a significantly positive effect on brand trust. Specifically, this study obtained a correlation coefficient of 0.397, which supported the second hypothesis itself. The reaffirmation of the second hypothesis can be associated with the past similar findings obtained in Chen et al., (2009), Chaudhuri and Holbrook (2001), Shanker et al., (2003) and Kania (2001).

In the third hypothesis, it is hypothesized that brand experience has a significantly positive effect on brand personality. Specifically, this study obtained a correlation coefficient of 0.443, which supported the formation of the third hypothesis. The reaffirmation of the third hypothesis can be associated with past similar findings found in Batra et al., (1993), Hayes (2000), Pitta and Katsanis (1995) and Keller (1993). For instance, it is advocate that brand personality can be generally obtained from the frequent exposure to slogans and advertisement, which eventually develop a favourable sentiment or human characteristics of the brand itself. Similarly, the respondents of this study perceive favourable brand personality based on the measurement of high degree of ruggedness, sophistication, competence, excitement, and sincerity.

In the fourth hypothesis, Madeleine & Michael (2004) and Ha & Park (2005) research on the entertainment industry also shows that the relationship between brand experience and brand loyalty not only has a direct impact, but also the

existence of some intermediate variables has an indirect effect. They believe that less experience factors are directly related to brand loyalty. This can be supported by the empirical evidence obtained in Chapter 4, which obtained a correlation coefficient of 0.397.

In the fifth hypothesis, it is assumed that brand trust has a significantly positive effect on brand loyalty. Particularly, this study obtained a tabulated correlation coefficient of 0.412, which supported the formation of the fifth hypothesis. On top of that, the validity of the third hypothesis can be reaffirmed by the findings of Lau and Lee (1999), Chaudhuri and Holbrook (2001), and Delgado et al., (2001), which revealed that the credibility of the brand projects would influence on the loyalty behavior of the consumers, and ultimately the recurrent purchase behavior of the customers. Similarly, the respondents in this study also agreed that brand trust is established based on consistent delivery of quality products or services, ability to maintain their credibility and business integrity, and ability to meet the respondents' expectations.

In the sixth hypothesis, it is assumed that brand personality has a significant positive effect on brand loyalty. This hypothesis were supported due to the acceptable correlation coefficient result of 0.3700. On top of that, the results of this study can be reaffirmed by the past findings revealed by Plummer (2000), Biel (1992), Kim et al., (2001) and Graeff (1996). The researchers generally maintained that if the brand personality exude an appealing and attractive character to the consumers, the resultant impact on the brand loyalty would greatly increase as well.

There following two findings concluded in the model.

1. As to the 4 factors that affecting customer loyalty, brand experience, brand satisfaction, brand trust, brand personality and brand loyalty are positively correlated. 2.Brand experience through chain mediation of brand satisfaction, brand trust and brand personality have a significant positive effect on brand loyalty.

In short, the research questions of this study including “What are the factors affecting brand loyalty of Chinese consumers toward foreign skin care product.” and “How brand loyalty affects Chinese consumer in purchasing foreign skin care products” were successfully fulfilled, this is mainly because all of the seven hypotheses in this study were fully supported by empirical evidences and reaffirmed by past literature findings.

Implication of the study

First of all, analyzing the characteristics of customers' purchase is able to give further understanding of customers and help companies to identify what is the main body of customer loyalty. Then, it can help enterprises to learn more knowledge about customers who they provided the services for and demand and the robustness, strengths of demands from target consumer groups.

Secondly, it is believed that analyzing and researching on mechanism of customer loyalty is going to give companies in-depth understand about the customer's consumption patterns and decision-making process on purchase. In

addition, a comprehensive understanding of behavior formation process of customer loyalty is an essential knowledge foundation of customer loyalty management system.

Thirdly, based on the investigation of the brand loyalty of cosmetics, it redefined and extend the connotation of customer loyalty for cosmetics and finally enriched the theory of customer loyalty.

Eventually, research on factors that are influential to cosmetic brand loyalty and the establishment of a conceptual model together reveal the vital factors affecting brand loyalty, and the influence of these factors. Since company have an in-depth understanding of those mechanism, companies are able to examine itself whether these factors are lacking or insufficient in the company, to identify strengths and weaknesses according to factors, to learn how to leverage factor to strengthen competitive advantage, and to make up for deficiencies and finally catching up with the main player in cosmetic Market. Loyalty management is a powerful tool for enterprises in cultivating and retaining loyalty of customers.

In summary, Taking the theory of customer loyalty management as knowledge foundation, the this thesis research on factors that influence the brand loyalty of foreign skin care products in domestic market and the relationship on these factors and customer loyalty.

The more practical implication of this paper is expected to be provide and deliver beneficial information, findings, and details for the managerial executives and marketing executives of the foreign skin care companies. This is mainly due

to the fact that the China skin care market share is relatively large and competitive, which means that it would be critical for the marketers or managers to gain further insights regarding their valued customers in China. As a result, the marketers or managers could divert the most number of resources to the independent variable that could generate the highest amount of brand experience and the eventual brand loyalty. There by, the foreign skin care companies could leverage on such information provided by the consumers to gain additional market share in China. Particularly, it is worth noted that the marketers should focus more on establishing a clear distinctive brand characteristics to build a formidable brand personality, as brand personality obtained the highest correlation coefficient among the three mediating variables, whereas brand trust should be maintained in the long run, as brand trust obtained the highest correlation coefficient among the three variables, which is crucial to the development of brand loyalty of the customers.

Limitation

Due to the limited research time, cost and human resource, sample data collected in this research and the analysis result in this research might not able to represent the preference of overall consumer in China. Secondly, the concept of brand loyalty could be divided into attitude loyalty and behaviour loyalty. However, due to the time limitation, there is no further reflection in the questionnaire. Thirdly, as the Foreign brand in care product of cosmetic industry is our research industry, there are extremely high product heterogeneity and

corresponding lots of segments in this industry. Different consumer within different market segment trend to own totally different demand and purchasing ability. It is not recommended to make inference the research result to overall consumer for the high variety in the Chinese skin care market. Eventually, it is also an implication that future researcher could explore different situation that how factor effect brand loyalty in various segment. It is worth noting that the questionnaire were constructed under the influence of Likert five point scale. From this point of view, it is implied that this research could have potentially integrated Likert seven-point scale into the construction of questionnaire in Chapter 3. Fifthly, a sample size of 400 in this study could potentially limited the research outcome due to the slightly higher margin of error.

Recommendation for the future research

Due to the limited research time, cost and human resource, sample data collected in this research and the analysis result in this research might not able to represent the preference of overall consumer in China. It is worth mentioning that the sample size of this study were only limited to a number of 400, although it may seems suffice enough to justify the low margin of error, but it is possible that the sample size of this study to drop further to the percentage of 3.5, 2.5 or even 1.0. For the recommendation to further research in this field, it is advisable to choose a more representative sample that able to reflect the overall Chinese consumer in order to

obtain result with higher reliability or universality.

Secondly, the concept of brand loyalty could be divided into attitude loyalty and behaviour loyalty as discussed in 2.1.5. However, due to the time limitation, there is no further reflection in the questionnaire. Although the factors with impact on Brand loyalty was researched in this thesis, the mechanism of how various factors effects on attitude loyalty and behaviour loyalty is not fully clarified. Thus, it is also advisable for further researcher to explore this filed.

Thirdly, as the Foreign brand in care product of cosmetic industry is our

research industry, there are extremely high product heterogeneity and corresponding lots of segments in this industry. Future researcher could explore different situation that how factor effect brand loyalty in various segment.

Fourthly, Future researcher could be Likert seven-point scale. Likert five point-scale might not be as accurate as Likert seven-point scale, which is mainly due to the fact that Likert seven point-scale could obtained a more accurate response from the respondents under seven specific scale of measurement.

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THE MODEL OF LEADERSHIP STYLES, IT CAPABILITIES AND THEIR INDIRECT LINK TO PERFORMANCE IN DIGITAL ERA: PRIVATE HOSPITALS AND CLINICS, BANGKOK, THAILAND

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Article info

Article history:

Received
25 August 2020
Revised
26 August 2020
Accepted
27 August 2020

Keywords:

Leadership styles, IT capabilities, Performance, Resource based view, Structural equation modelling

Abstract

The objective of this paper was to develop and test the conceptual model of the indirect effect of leadership styles (transformational leadership and transactional leadership) and IT capabilities on performance in digital era, considering the mediating role of dynamic capabilities, organizational learning capabilities, and knowledge management capabilities which in turn affect organizational innovation capabilities. The theoretical framework in this research was developed from the resource based view theory of the firm (RBV). This study tested the research model by using structural equation modelling (SEM). A structured 40 items questionnaire exploring the relationship between the variables was developed. Total of 400 valid questionnaires were collected from the management of private hospitals and clinics in Thailand. The results showed that there are indirect effects of transformational leadership and IT capabilities on performance mediated by dynamic capabilities, organizational learning capabilities, and knowledge management capabilities which in turn affect organizational innovation capabilities. This study contributes to theoretical and practical usage of the resource-based view in the domain of private healthcare service provider organizations in digital era by discovering the common mechanism or chains of variables that link leadership styles and IT capabilities to performance.

Introduction

Improving performance is considered as one of the most important objectives for the organizations (Nwankpa, 2016). In strategic management, resource based view (RBV) theory of the firm has been accepted as one of the most dominant theoretical perspectives (Newbert, 2007). Resource based view theory of the firm (RBV) has been used to explain sources of better performance (Adnan, 2018; Flynn et al, 2017). Resource based view (RBV) theory of the firm regards the firm as a bundle of resources and suggests that their attributes significantly affect the firm's competitive advantage and, by implication, its performance (Barney, 1986, 1991; Penrose, 1959; Peteraf, 1993; Wernerfelt, 1984). Resource based view theory of the firm (RBV) seems to be diffused into healthcare organization as a promising theory for healthcare management (Ferlie, 2014). Resource based view theory of the firm (RBV)'s use in healthcare management that are empirically tested is limited.

In digital era, digital technologies have influenced how business operate. Greater numbers of companies are trying to leverage digital technologies to compete and perform by adapting, transforming, and creating new organizational capabilities. Limited research has studied and empirically tested the model of resource based view theory of the firm (RBV) in the context of digital era. Resource based view theory of the firm (RBV)'s use in digital era for healthcare sector is even more scarce in the literature. This first gap in the literature has generated new call for research. Applying resource based view theory of the firm (RBV) and exploring the

mechanism or model of how resource based view theory of the firm (RBV) can explain the sources of firm performance in digital era for private healthcare sector is an area of interest not only to academics but practitioners.

Hospital business in Thailand has been considered the prominent and competitive sector. In Thailand, healthcare sector accounted for 3.56%, 3.8%, and 4% of national GDP in 1994, 2012, and 2017 respectively (Tangcharoensathien, 2000; Krungsri research, 2019). To seize the opportunities and adapt to digital era, healthcare sector has to manage, integrate, and renew their resources and capabilities. Alike other industries, this sector struggle to adapt and survive in digital era

Regarding the link between leadership styles-performance and IT capabilities-performance according to resource based view theory of the firm (RBV), they are studied separately. The relationship between IT capabilities and performance are mediated by organizational learning, dynamic capabilities, and knowledge management capabilities (Pavlou and El Sawy, 2005; Tippins and Sohi, 2003; Tanriverdi, 2005). Leadership styles especially transformational leadership is indirectly related to performance via organizational learning and knowledge management which in turn affect organizational innovation and performance respectively (Aragon-Correa, J. A., 2005; Garcia-Morales, 2007; Noruzy, 2013; Akay, 2018). The argument is that IT capabilities and leadership styles could be integrated and studied together under the same mechanism or chains of variables how they indirectly affect performance in

digital era. From the gaps in the literature mentioned above, the research questions are addressed accordingly.

1. What is the model of antecedents of performance according to resource based view (RBV) theory of the firm in digital era for private healthcare sector?
2. How do leadership styles (transformational leadership and transactional leadership) and IT capabilities indirectly enhance performance via the mediating effects of dynamic capabilities, organizational learning capabilities, knowledge management capabilities, organizational innovation capabilities for private hospital business in digital era?
3. Which leadership style (transformational leadership or transactional leadership) is relevant in the model of antecedents of performance according to RBV in digital era for private healthcare sector?

Objectives of the study

1. To develop the conceptual framework of the relationship between leadership styles, IT capabilities, dynamic capabilities, organizational learning capabilities, knowledge management capabilities, organizational innovation capabilities, and performance in digital era for private hospitals and clinics in Thailand.
2. To investigate the indirect effects of IT capabilities and leadership styles on performance and the direct effects of IT capabilities and leadership styles on organizational learning capabilities,

knowledge management capabilities which in turn affect organizational innovation capabilities.

3. To examine both overall model fit according to research framework and the relationships among leadership styles (transformational leadership and transactional leadership), IT capabilities, organizational learning capabilities, knowledge management capabilities, organizational innovation capabilities and performance by using the structural equation modelling (SEM).

Literature review and hypotheses

Resource based view theory of the firm (RBV)

Resource based view theory of the firm (RBV) assumes that the firm can create long term sustainable competitive advantage by leveraging their internal resources which are heterogeneous, rare, non-substitutable, and inimitable to implement value-creating strategy that cannot be easily duplicated by competing firms (Barney, 1991). Firm resources comprise of all assets, capabilities, firm attribute, organizational processes, knowledge, information, etc.

IT capabilities

IT capabilities or IT competency is defined as how the firm use technologies to manage its information effectively. While IT is the generic terms used to refer to computer, telecommunications,

programs, etc (Tippins and Sohi, 2003). There has been a mind-set shift from IT process view to IT capability view in literatures. IT capability or IS capability approach has become more common than traditional strategic information system approach (Carcary, 2016). Based on resource based view theory of the firm, most researchers classified IT capabilities or IT competency into three dimensions : IT knowledge, IT operation, and IT infrastructure.

Transformational leadership

Transformational leadership is defined as a leadership approach that causes change in individuals and social systems. In its ideal form, it creates valuable and positive change in the followers with the end goal of developing followers into leaders. The foundation of transformational leadership rests on what Bass and Avolio (1994) refer to as the four I's of transformational leadership, which comprise three factors (Avolio and Yammarino, 2002; Avolio et al., 1999; Bass, 1988; Bycio et al., 1995): idealized influence/inspirational motivation, intellectual stimulation and individualized consideration.

Transactional leadership

Transactional Leadership, also known as managerial leadership, focuses on the role of supervision, organization, and group performance; transactional leadership is a style of leadership in which the leader promotes compliance of his followers through both rewards and

punishments. Unlike Transformational leadership, leaders using the transactional approach are not looking to change the future, they are looking to merely keep things the same. These leaders pay attention to followers' work in order to find faults and deviations. This type of leadership is effective in crisis and emergency situations, as well as when projects need to be carried out in a specific fashion. Bass (1990) has denoted that transactional leadership can be characterized by 2 elements: contingent rewards and management by exception.

Dynamic capabilities

Dynamic capabilities are defined as the firm's ability to integrate, build, and reconfigure external and internal competences to cope with dynamic market or rapidly changing environment (Teece et al., 1997). Dynamic capabilities are a group of identifiable and specific processes, paths, and positions. These include integration/coordination, structural assets, reconfiguration and transformation, path deficiency, product development, strategic decision making, alliancing, knowledge creation, etc. (Eisenhardt & Martin, 2000).

Organizational learning

Organizational learning refers to the capacity or processes within a firm enabling the acquisition of, access to and revision of organizational memory, thereby providing directions for organizational action (Robey et al., 2002). Huber (1991) elaborated each of

the components of organizational learning as follows. Knowledge acquisition is the development or creation of skills, insights, and relationships. Knowledge sharing is the dissemination of knowledge to others. Knowledge utilization is the integration of the learning so that it is assimilated, broadly available, and can also be generalized to new situations.

Knowledge management

Knowledge management is defined as a discipline with the objectives of promoting knowledge growth, knowledge communication, and knowledge preservation within an organization (Steels, 1993). Gold, Malhotra, and Segars (2001) pointed out that KMC consists of knowledge infrastructures and knowledge management (KM) processes. Knowledge infrastructure includes technology, structure, and culture; while KM processes include the organizational capabilities of knowledge acquisition, conversion, application, and protection.

Innovation capabilities

Innovation capabilities is defined as “the potential to generate new ideas, identify new market opportunities and implement marketable innovations by leveraging on existing resources and capabilities” (Hii and Neely, 2000, p. 5). Regarding the components of innovation capabilities, Adler and Shenbar (1990) stated that innovative capability is defined as: (1) the capacity of developing new products

satisfying market needs; (2) the capacity of applying appropriate process technologies to produce these new products; (3) the capacity of developing and adopting new product and processing technologies to satisfy the future needs; and (4) the capacity of responding to accidental technology activities and unexpected opportunities created by the competitors.

Performance

Firm performance is a measure of how well a firm is able to meet its goals and objectives compared with its primary competitors (Cao & Zhang 2011). Cho & Pucik (2005) stated that superior firm performance is typically characterized with profitability, growth and market value. Firm Performance is a complex and multi-dimensional construct (Kaplan and Norton, 1996).

The link between IT capabilities and performance

Bharadwaj (2000) employ the resource-based view to develop the theoretical links and empirically examine the association between IT capability and business performance and suggest that additional research is needed to identify the full chain of variables connecting IT capability to firm performance. Later, more researchers have studied the link between IT capabilities and performance. The relationship between IT capabilities and performance are mediated by organizational learning, dynamic capabilities, and knowledge management capabilities (Pavlou and El Sawy, 2005;

Tippins and Sohi, 2003; Tanriverdi, 2005).

The link between leadership styles and performance

Another important antecedent of performance in digital era is leadership style. Digital business transformation is about leadership (Bowersox, 2005).

Regarding the link between leadership style and performance, transformational leadership has a significant influence on organizational learning and knowledge management which in turn affect organizational innovation and performance respectively (Aragon-Correa, J. A., 2005; Garcia-Morales, 2007; Noruzy, 201; Akay, 2018).

Conceptual framework and hypotheses

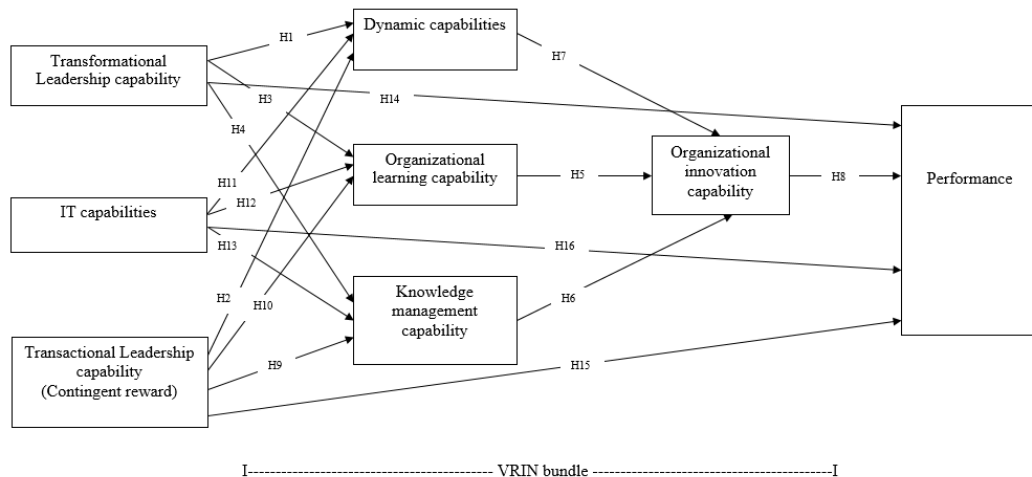


Figure 1 Conceptual framework and hypotheses

Population and sample

The target population in this research is personnel responsible for managing Thai private hospitals and clinics in Bangkok, Thailand. The respondents' position in the organizations should be managers or management level who are able to answer questions regarding the strategy,

leadership, and management decisions. These include managers, medical director, chief executive officer (CEO), and owner/shareholder who is involved in management decisions. The target population is attained by the private hospital association of Thailand and the association of private clinics.

For structural equation modelling (SEM), there is no consensus in the literature regarding what would be the appropriate sample size for SEM (Baron and Kenny 1999, Fritz and MacKinnon, 2007). Kline (2011) guided that an adequate sample size should be 10 times of the amount of parameters in path analysis. There are 40 items in this research. Hence, at least 400 valid responses should be acquired. Therefore, the sample size for this study is 400.

Data collection process

The information was collected through self-administered structured questionnaires distributed personally by the researcher to ensure a high response rate. The majority (95%) of the data are gathered from online based questionnaires while the rest are from paper based questionnaire. The questionnaires are in English and are translated into Thai to enable the participants to understand information clearly. The researcher identified potential respondent by phone calls or social network application. After the confirmation by phone or social network application, structured questionnaires are uploaded online for the respondent to answer. The period of data collection was from September 2019 to December 2019. The questionnaires were distributed to private hospitals and clinics in Bangkok by randomized sampling method.

Questionnaire design

Questionnaires are divided into 2 parts. Part1: Sample characteristics are

classified as respondent profile and company profile as follows: Respondent profile include gender, age (years), education, job title. Company profile include number of employees and age of the organization (years). Part2: Eight variables assembling the conceptual framework of this research include transformational leadership, transactional leadership, IT capabilities, dynamic capabilities, organizational learning capabilities, knowledge management capabilities, organizational innovation capabilities, and performance. To identify the target population, the screening question is placed at the beginning of the questionnaire before sample demographics to check whether the respondent is involved in the management decisions or not.

Data analysis

Demographics data were analyzed by frequency and percentage. Descriptive statistics of the constructs were measured by utilizing five-point likert scales to assess mean scores and standard deviation. Structural equation model (SEM) was used to test the relationship between the constructs. Measurement model and structural model fitness are tested by the goodness of fit indices such as Chi-square, factor loading, RMSEA, SRMR, GFI, TLI, CFI, and CMIN/DF. Model modification was done until acceptable model fit was achieved. Level of acceptance of fit indices are demonstrated in table 1.

Table 1 Fit indices and level of acceptance

Name of category	Name of index	Level of acceptance
1. Absolute fit	Chi-Square	P-value > 0.05. (Hair et al., 2006)
	RMSEA	RMSEA < 0.08 (Hair et al., 2006)
	RMR	RMR < 0.08 (Hair et al., 2006)
	GFI	GFI > 0.80 (Baumgartner and Homburg, 1995)
2. Incremental fit	CFI	CFI > 0.90 (Marsh, Hau, & Wen, 2004)
	TLI	NFI > 0.90 (Bentler and Bonnet, 1980)
3. Parsimonious fit	Chisq/df	Chi-Square/ df < 3.0 (Kline, 1998)

Results

Descriptive analysis

Regarding personal data, the statistics show that the majority of respondents are female (N=245 or 61.3%) as shown in Table 2. The age of respondents varied widely. The highest percentage is age group is 35-49 (N=223 or 55.8%) followed by age group 25-34 (N=118 or 29.5%). Most of respondents (%) have the education level of bachelor degree (N=148 or 37%). In terms of job title of the respondents, all of them are at management level consisting of managers, medical director, CEO,

owner/shareholder who is involved in management decisions, and others. Others were found to be consisted of medical doctor who is involved in management decisions, marketing director, department director, senior head of department, head of laboratory, executive director, purchasing manager, and deputy director. Regarding company characteristics, the result show that the number of employees are mostly 10-49 (N=108 or 27%) followed by 1-9 (N=86 or 21.5%). Age of organization varied widely. The highest percentage is 30 years or more (N=112 or 28%) followed by age group 11-20 years (N=85 or 21.25%) as shown in Table 2.

Table 2 Respondent and company profile

Demographic Features	Frequency	Percent
Gender		
Male	155	38.8
Female	245	61.3
Your age		
under 25	0	0
25-34	118	29.5
35-49	223	55.8
50-64	51	12.8
65 or above	8	2
Your education		
Below Bachelor degree	5	1.3
Bachelor degree	148	37
Master degree	104	26
Doctoral degree	22	5.5
Medical doctor	121	30.3
Other	0	0
Your job title		
Manager	103	25.75
Medical director	26	6.5
Chief Executive Officer	12	3
Owner/shareholder	141	35.25
Other	118	29.5
Number of employees working in your organization		
1-9	86	21.5
10-49	108	27
50-199	67	16.75
200-499	55	13.75
500-999	34	8.5
1000-4999	45	11.25
above 5000	5	1.25
Age of your organization		
1-5	68	17
6-10 years	72	18
11-20 years	85	21.25
21-30 years	63	15.75
30 years or more	112	28

As demonstrated in table 3, means, standard deviations, and level of agreement are presented in order to describe company's characteristics in terms of their transformational leadership, transactional leadership, IT

capabilities, dynamic capabilities, organizational learning capabilities, knowledge management capabilities, organizational innovation capabilities, and performance.

Table 3 Mean and standard deviation of variables (N=400)

Variable	Mean	Standard Deviation	Level of Agreement
Transformational leadership	3.61	0.864	Agree
Transactional leadership	3.89	0.871	Agree
IT capabilities	3.95	0.879	Agree
Dynamic capabilities	3.87	0.832	Agree
Organizational learning capabilities	3.90	0.823	Agree
Knowledge management capabilities	3.73	0.852	Agree
Organizational innovation capabilities	3.86	0.886	Agree
Variable	Mean	Standard Deviation	Level of Perceived performance
Performance	2.91	0.815	Average

Validity and reliability testing

Various tests were conducted to examine the validity and reliability of the measurement model. Confirmatory factor analysis (CFA) was used to test the validity of latent variables in the research model. Stevens (1992) recommends that factor loading is accepted at the value greater than 0.40. Hair et al. (2006, p128) mention that sample size of 350 should have sufficient factor loading of 0.3. Average variance extracted (AVE) was

tested to indicate convergent validity of the constructs. A score of 0.50 or above is desirable. Cronbach's alpha and composite reliability are examined for reliability. Both measurements are aimed at 0.70 or higher. The summary of values of factor loading, Cronbach's alpha, composite reliability, and Average variance extracted (AVE) are demonstrated in Table 4. All values indicated that all constructs met the tests for validity and reliability.

Table 4 Reliability and validity of the constructs (N=400)

Variables	Indicators	Loading/ Weights	Cronbach's Alpha	Composite Reliability	AVE
TFL (Transformational leadership)	TFL1	0.74	0.90	0.90	0.63
	TFL2	0.8			
	TFL3	0.87			
	TFL4	0.75			
	TFL5	0.81			
TSL (Transactional leadership : contingent reward)	TSL1	0.79	0.87	0.87	0.58
	TSL2	0.73			
	TSL3	0.8			
	TSL4	0.73			
	TSL5	0.74			
ITC (IT capabilities)	ITC1	0.75	0.89	0.89	0.63
	ITC2	0.84			
	ITC3	0.85			
	ITC4	0.71			
	ITC5	0.81			
DC (Dynamic capabilities)	DC1	0.77	0.92	0.92	0.69
	DC2	0.86			
	DC3	0.9			
	DC4	0.79			
	DC5	0.84			
OLC (Organizational learning capabilities)	OLC1	0.84	0.89	0.89	0.62
	OLC2	0.91			
	OLC3	0.81			
	OLC4	0.77			
	OLC5	0.55			
KMC (Knowledge management capabilities)	KMC1	0.68	0.91	0.91	0.66
	KMC2	0.75			
	KMC3	0.94			
	KMC4	0.9			
	KMC5	0.76			
OIC (Organizational innovation capabilities)	OIC1	0.78	0.90	0.90	0.64
	OIC2	0.85			
	OIC3	0.84			
	OIC4	0.83			
	OIC5	0.7			
P (Performance)	P1	0.74	0.85	0.85	0.54
	P2	0.61			
	P3	0.69			
	P4	0.82			
	P5	0.79			

The goodness of fit test

Table 5 showed the goodness of fit of the model. Chi-square was accepted as it met the criteria of P-value > 0.05 (Hair et al., 2006). CMIN/DF met the criteria at the minimum threshold of Chi-Square/df < 3.0 (Kline, 1998). In case of RMR and GFI, and AGFI. The rule of thumb for acceptance for these tests was: RMR < 0.06 (Hair et al., 2006) and GFI > 0.80 (Baumgartner and Homburg, 1995). In the research model, RMR and GFI met

the criteria. Thus, for this set of criteria, the default model was acceptable. For IFI/TLI and CFI, the acceptance threshold was set at ≥ 0.90 based on standard levels from Marsh, Hau, & Wen (2004) and Bentler and Bonnet (1980). RMSEA was accepted for goodness of fit. The threshold for this factor was RMSEA < 0.08 (Hair et al., 2006). Based on this analysis, the researcher determined that the model had adequate goodness of fit for the research.

Table 5 Goodness of fit of the model

Chi-square	CMIN/DF	GFI	TLI/NFI	CFI	RMR	RMSEA
P=0.27	1.034	0.875	0.996	0.997	0.032	0.013

SEM outcomes

The fit indices were tested and the proposed model had an adequate fit to the data. The final analysis is the path analysis which test and quantify the relationship between each variable in the research by analyzing the regression

weights and standardized regression weights. The significant and non-significant paths are shown in straight and broken lines respectively in Figure 2. Statistical coefficients range from 0.16 (dynamic capabilities to organizational innovation capabilities) to 0.93 (IT capabilities to dynamic capabilities).

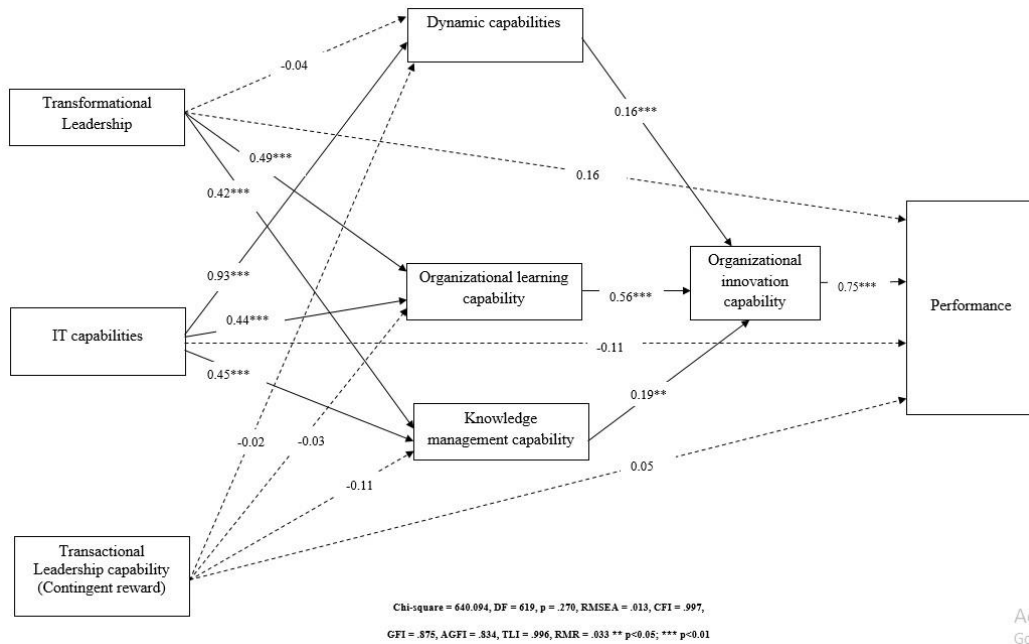


Figure 2 Path model with standardized coefficients.

Hypothesis testing

There are 16 hypotheses in this research of which the results are summarized in table 6.

Table 6 Hypothesis testing

Hypothesis	statement	outcome
H1	Transformational leadership have significant direct effect on dynamic capabilities	Not-accepted
H2	Transactional leadership have significant direct effect on dynamic capabilities	Not-accepted
H3	Transformational leadership have significant direct effect on organizational learning capabilities	Accepted
H4	Transformational leadership have significant direct effect on knowledge management capabilities	Accepted
H5	Organizational learning capabilities have significant direct effect on Organizational innovation capabilities	Accepted
H6	Knowledge management capabilities have significant direct effect on Organizational innovation capabilities	Accepted
H7	Dynamic capabilities have significant direct effect on Organizational innovation capabilities	Accepted
H8	Organizational innovation capabilities have significant direct effect on Performance	Accepted
H9	Transactional leadership have significant direct effect on knowledge management capabilities	Not-accepted
H10	Transactional leadership have significant direct effect on organizational learning capabilities	Not-accepted
H11	IT capabilities have significant direct effect on dynamic capabilities	Accepted
H12	IT capabilities have significant direct effect on organizational learning capabilities	Accepted
H13	IT capabilities have significant direct effect on knowledge management capabilities	Accepted
H14	Transformational leadership have significant direct effect on performance	Not-accepted
H15	Transactional leadership have significant direct effect on performance	Not-accepted
H16	IT capabilities have significant direct effect on performance	Not-accepted

Regarding the testing of indirect effect of transformational leadership, transactional leadership, and IT capabilities on performance, the results of direct effects, indirect effect, and total effect of transformational leadership, transactional leadership, and IT capabilities on performance are shown in table 7.

1. Transformational leadership has significant indirect effect on performance through the mediating effect of dynamic capabilities, organizational learning capabilities, and knowledge management capabilities which in turn affect organizational innovation capabilities.

2. Transactional leadership has no significant indirect effect on performance through other variables.

3.IT capabilities has significant indirect effect on performance through the mediating effect of dynamic capabilities, organizational learning capabilities, and

knowledge management capabilities which in turn affect organizational innovation capabilities.

Table 7 Direct effect, indirect effect, and total effect

Variable	Direct effect on performance	Indirect effect on performance	Total effect on performance
Transformational leadership	0.16	0.23*	0.39*
IT capabilities	-0.11	0.33*	0.22*
Transactional leadership (contingent reward)	0.05	-0.03	0.02

* $P < .05$

Conclusion

In conclusion, the results showed that transformational leadership and IT capabilities indirectly enhance performance via the mediating effects of dynamic capabilities, organizational learning capabilities, knowledge management capabilities which in turn have positive effect on organizational innovation capabilities. Regarding leadership styles, it can be inferred that transformational leadership is more relevant in the context of digital era than transactional leadership. Therefore, we conclude that if Thai hospitals and clinics intend to achieve better performance on digital era, they should consider building these capabilities including these transformational leadership, IT capabilities, dynamic capabilities, organizational learning capabilities, knowledge management capabilities and organizational innovation capabilities. They also need to understand the mechanism or the interactions between each capability.

Discussion

Our findings showed that transformational leadership have indirect effects on performance via the mediating effects of dynamic capabilities, organizational learning capabilities, knowledge management capabilities which in turn effect organizational innovation capabilities. These findings are consistent with previous studies, particularly those developed by Aragon-Correa (2005), J. A., Garcia-Morales (2007), Noruzy (2012), and Akay (2018). Transformational leadership did not have significant direct effect on dynamic capabilities. Most previous studies did not test the relationship between transformational leadership and dynamic capabilities. Lopez-Cabrales (2015) argue that transformational leadership was found to be positively associated with sensing and seizing proxy of dynamic capabilities. Transactional leadership (contingent rewards) did not have significant effects on other variables in this study. Transactional leadership has not been applied or studied much at the strategic level.

Previous literatures suggest that transformational leadership has better performance outcomes than transactional leadership (Epitropaki and Martin, 2005; Lopez-Cabrales, 2015). IT capabilities also have indirect effect on performance via the mediating effects of dynamic capabilities, organizational learning capabilities, knowledge management capabilities which in turn effect organizational innovation capabilities. These findings are in line with Tippins and Sohi (2003), Pavlou and El Sawy (2005) and Tanriverdi (2005).

All above discussions suggest that IT capabilities and transformational leadership themselves may not be enough to enhance performance in digital era. They have to work through the buildings of dynamic capabilities, organizational learning capabilities, and knowledge management capabilities which in turn affect organizational innovation capabilities and eventually lead to performance.

Implications

This paper bridges a gap in the literature concerning the indirect link between leadership styles, IT capabilities, and performance. The research demonstrated the importance of integrating IT capabilities and transformational leadership along with other relevant organizational capabilities such as dynamic capabilities, organizational learning capabilities, knowledge management capabilities, and organizational innovation capabilities to enhance performance in digital era. This research also showed that IT capabilities and leadership styles could be integrated and studied together under the same

mechanism how they indirectly enhance performance in digital era for private healthcare sector.

Regarding managerial implications, the findings are also relevant for practice. Due to the difference in organization size, complexity, and flexibility of management between private hospitals and clinics, specific implications may be needed for each group. Private clinics are relatively smaller in organization size with less complexity and more flexibility in management when compared to private hospital. However, there are six common resources and capabilities that both private clinics and hospitals should have to enhance performance in digital era as follows.

First, private hospitals and clinics should start from recruiting or creating managers or executives who are transformational leaders. This kind of leader always lookout for new opportunities such as new medical treatments, new health trends, emerging customer segment, etc. The manager also need to transmit the organization's mission, vision, and purpose to all of the employees and encourage them to rethink about old problems in new ways. For example, the pain clinic has the mission to cure the pain of the patients by alleviating and treating every possible related disease. The employees of the pain clinic are then trained to prepare the clinic's environment, instruments, and medical treatments to comfort the patient and lessen their pain both physically and emotionally. The old problem clinics have smaller facility compared to hospitals could be solved by the relevant point of care. The manager or executive should also be able to increase the level of enthusiasm of the employees, motivate

and guide the employees on their job. For private hospitals, there is a challenge in creating the effectiveness of the role of transformation leaders due to less flexibility in management when compared to private clinics. Nevertheless, if executives of private hospitals could inspire and motivate the employees to break out of the routine, this will be a good start for them to transform in digital era. Transactional leadership may not be useful in this context since it only deal with short term and does not stimulate change to cope with fast changing environment.

Second, private hospitals and clinics should invest in IT capabilities. For private hospitals, there should be a proper IT department with IT manager or director who will direct and manage the use of IT for the organizations. Private clinics have smaller databases in which they could use IT outsourcing company to manage the clinic's IT system, platform, and database. IT or digital technologies such as internet and social media could be used to collect and analyze market information. There should be a vision regarding how IT or digital technologies contributes to business value. For example, hospital information system is exploited as the core program that hospital personnel use to generate a fast and smooth process of patient care and patient experience. Private hospitals and clinics should also have the knowledge to utilize and maintain digital based communication links with both the employees and the customers.

Third, both private hospitals and clinics should have dynamic capabilities to cope with changing market environments. They should frequently scan the

environment for new business opportunities and make use of IT or digital technologies to implement new business process, create new customer relationship or even change way of doing business. For example, telehealth has been utilized by private hospitals and clinics to increase compliance and convenience for the patients. Private check-up clinics could use one-stop service mobile application for clients to book and pay for home service health check-up without having to visit the clinic.

Fourth, organizational learning capabilities should be cultivated. Once fostered, they are called learning organizations where employee learning is perceived as an investment, not an expense. New knowledge that enter the organization will create critical capabilities and skills for the employees. For private clinics, doctors who have the best technical knowledge in the business must be able to share and convey relevant knowledge to the manager and rest of the employees in the clinic.

Fifth, private hospitals and clinics should develop knowledge management capabilities. In order to do so, they must have processes for acquiring, integrating, and exchanging different sources and types of knowledge within and outside the organization. For example, they could frequently host a training or seminars with employees, customer, and business partners. These capabilities are very crucial for private hospitals where there are multiple departments and professions with complex structure.

Last, organizational innovation capabilities should be fostered. This could start from the management's comprehension that support and

encourage innovation. New ideas from customers, suppliers, and stakeholders are evaluated and included in product or service development activities which the employees are stimulated to participate. In this case, private clinics that are less complex but more flexible in management can have better opportunities in developing these capabilities. For example, they can implement newly approved innovative medical treatments such as new vaccines and stem cells in short time. Private hospitals will have to undergo many steps in the trials of new innovative projects before being successfully implemented due strict regulations. By this way, private hospitals and clinics are able to develop and produce new products or services continually. However, efforts to increase the quality of existing products or services should not be neglected.

Limitations and recommendation for future research

There are several limitations of this study that should be considered when interpreting its findings. First, this research only focuses on the constructs identified from theory and the nature of their relationships. Other constructs may

exist, for example: organization structure, marketing capabilities, organizational culture, environmental dynamism, etc. Regarding leadership style, this study investigated only transformational leadership and transactional leadership. Future study could consider including these and other leadership styles like digital leadership, participative leadership, functional results oriented healthcare leadership, etc.

Second, this paper solely concentrated on private hospitals and clinics. Other groups of private healthcare providers such as spa, dental clinic, and wellness center may be included. Public hospital and clinics could provide different or wider evidence. Furthermore, this research did not reflect conditions of other healthcare business provider outside Bangkok and Thailand. It would be interesting to explore in other provinces of Thailand or outside Thailand.

Third, the subjective scale of perceived performance that the company perform within 3 years may not validate the result of the study. Future study could use both objective and subjective measurement of performance.

The final limitation is the study design. This research is cross-sectional which only reflect the time of data collection.

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UNDERSTANDING THE CONSUMER MOTIVATION OF ORGANIC FOOD: THE CASE OF THAILAND

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Article info

Article history:

Received
1 February 2020
Revised
22 July 2020
Revised 2
6 August 2020
Accepted
18 August 2020

Keywords:

organic food,
motivation,
demographic factors,
consumer behavior

Abstract

This research aimed to study the motivation of consumers in an organic food context in Bangkok, Thailand. The study employed quantitative research methodology by using survey questionnaires and 425 were completed by organic food consumers in Bangkok, Thailand.

The majority of the respondents was female with the age of 20 – 29 years old, graduate with Bachelor's degree, working in private company and earns monthly income between 10,000 – 30,000 THB. Vegetables were an organic product that has the highest consumption rate. Line application was found out to be the most popular communication medium use by the respondents. The results also showed that there are differences among demographic groups of the consumers in the areas of motivation and social media perception. Discussions and managerial implications are also provided.

Introduction

Background

In the world that full of pollution, chemical contamination and stress, people are now concern more on their health and being more careful on what to consume. That's why organic food is one of their choices. The demand for organic food has tremendously increased throughout the world recently, as well as in Thailand, which derived from many motives. Thus, an in-depth study of organic food consumer behavior is needed.

A study of Jones, Hill, & Hiller (2001) defined organic food as food that raised, grown, and/or processed without the use of any chemical substances such as fertilizers, pesticide, herbicide and growth hormones. Many of previous research have found that health and food safety are the significant reasons of why people choose to consume organic food instead of conventional food. It contributes to the expansion of organic demand, and brings many consumers searching for food that are healthy and safety (Ueasangkomsate & Santiteerakul, 2016). However, there are few papers focused on the characteristics of motivation of organic food consumption among various demographic groups of consumers in Thailand. So, it is interested to explore more on this topic.

Statement of the problem

From the previous studies about organic food consumption, the demand is increased tremendously all around the world, as well as in Thailand. The main motive is concerning in health

(Makatouni, 2002). Meanwhile, the emergence of social media allows people to be able to communicate with others much easier and faster than before (Chan-Olmsted, Cho, & Lee, 2013). Consumers tend to apply to social media to share their experiences about the products or services they used (Yoon, 2012). So, it is interest to explore more about the relationship between motivation factors and social media in the context of organic food.

Research objective

1. To investigate the characteristics of motivation of organic food consumption
2. To investigate the differences among various demographic groups of consumers in the use of social media
3. To investigate the relationship between demographic factors and social media and motivation factors of in the context of organic food consumption

Literature review

Motivation

Motivation is another key factor of consumer behavior. A research of Uysal & Hagan, (1993) defined motivation as psychological needs and wants of a person's behavior. There are many motives that indicates consumers' decision making in purchasing organic food. Health issue is often rated as the most important factor motivating consumers to buy organic food (Magnusson, Arvola, Hursti, Aberg, & Sjoden, 2003; Cerjak, Mesić, Kopic, Kovačić, & Markovina, 2010), because

of the serious illness that consumers faced and the outbreak of many food related diseases which make consumers having more concerns about what to intake (Hughner, McDonagh, Prothero, Shultz II, & Stanton, 2007). Nevertheless, food safety has also become a significant motive, which help expanded the organic food markets, too (Storstad & Bjørkhaug, 2003).

Thailand's organic market has expanded dramatically in the past decades, and is now climbing up to the upper rank of Asia organic market (UNCTAD, 2004; Willer & Yussefi, 2006). Roitner-Schobesberger, Darnhofer, Somsook, & Vogl (2008) has found out that the major motives for consumers in purchasing organic products are the expected health benefits, the attraction of new and fashionable products and the search for tastier products. The authors also found similarities between Thailand organic consumers and western organic consumers in the sense that they tend to be older, hold an academic degree and have a higher income than those who do not consuming organic food.

Social media

Social media is very popular and is highly spread out among all groups of people recently. The use of these online platforms is increasing day by day (Bansal & Bansal, 2018). Social media is the virtual communication tool where

people use to create, share or exchange information via internet network anywhere and anytime. These online platforms are for interacting, collaborating and sharing of various types of digital contents for example photos, videos, texts, news and opinions with family, friends or other users in online world (Chan-Olmsted, Cho, & Lee, 2013). Social media is the instrument that helps people to interact with others faster, more frequent, and a lot cheaper than in the past. It is also the convenience tool that helps people to keep in touch with each other easier than before as well.

Social media has a major impact toward consumer behavior recently. Rather than sharing experience, opinions and recommendation, people also search for information of a product or service through social media. As mention in Bansal & Bansal, (2018), if people want any information, they can always start to search online to find the relevant information. For this research, social media is one of the most important tools for the information regarding organic food.

Conceptual model

This study is focused on the relationship between demographic factors and social media and motivation factors of consumers in purchasing organic food in Thailand.

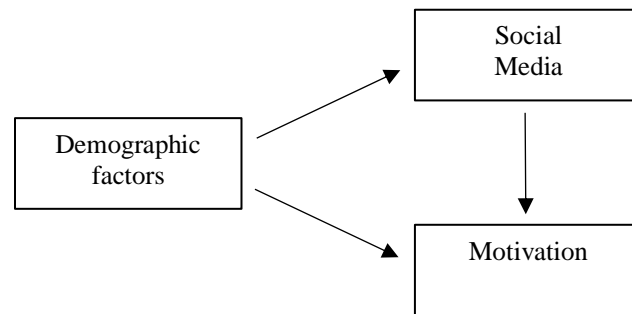


Figure 1 Conceptual model

Research methodology

Research design

The target population of this research is Thai people in Bangkok with the ages above 20 years old, who eat or have tried organic food. The number of Thai people who eat or have tried organic food is unknown, therefore, the sample size is determined by using Yamane (1967) formula. According to this formula, if the population is larger than 100,000, the sample size was 400. Therefore, the sample size of this research is 400 sample.

In this study, the venues of this research are organic food markets around Bangkok. The respondents are drawn

from Thai people with the ages above 20, with experiences in purchasing and consuming the organic food to ensure that they were qualified to answer the questionnaires.

Data collection

From sample size calculation, 400 target respondents were needed. But the case of withdrawal from the study might occur at any time without prior notice or the questionnaire was incomplete filled out, therefore additional 50 copies of questionnaire were required. So, 450 copies of questionnaire were distributed. As a result, 425 copies of questionnaire were used to analyze data in this study.

Data results

Table 1 Demographic characteristics of organic food consumers by gender (n = 425)

Gender	Frequency	Percentage
Male	146	34.35
Female	279	65.65
Total	425	100

Table 1 showed the results of respondents' gender. The findings indicate that the respondents were

composed of more female 65.65% (279) than male 34.35% (146).

Table 2 Demographic characteristics of organic food consumers by age (n = 425)

Age	Frequency	Percentage
20 – 29 years old	142	33.41
30 – 39 years old	128	30.12
40 – 49 years old	74	17.41
50 years old or above	81	19.06
Total	425	100

In terms of age showed in Table 2, the highest population was aged between 20 – 29 years old which contains 33.41% (142), followed by aged between 30 – 39

years old contains 30.12% (128), aged 50 years old or above contains 19.06% (81), and the smallest group was aged between 40 – 49 years old contains 17.41% (74).

Table 3 Demographic characteristics of organic food consumers by educational level (n = 425)

Educational level	Frequency	Percentage
Lower than Bachelor's degree	58	13.65
Bachelor's degree	262	61.65
Higher than Bachelor's degree	105	24.70
Total	425	100

Table 3 showed the results of respondents' education. The percentage of respondents graduated Bachelor's degree is the largest with 61.65% (262),

followed by higher than Bachelor's degree with 24.70% (105), and lower than Bachelor's degree with 13.65% (58).

Table 4 Demographic characteristics of organic food consumers by monthly income (n = 425)

Monthly income	Frequency	Percentage
Under 10,000 THB	51	12.00
10,000 – 30,000 THB	180	42.35
30,001 – 50,000 THB	113	26.59
More than 50,000 THB	81	19.06
Total	425	100

Table 4 showed the results of respondents' monthly income. The majority earned an income between 10,000 – 30,000 THB for 42.35% (180),

followed by 30,001 – 50,000 THB at 26.59% (113), more than 50,000 THB at 19.06% (81), and under 10,000 THB at 12.00% (51).

Table 5 Organic products consumed by the respondents (n = 425)

Organic products consumed	Frequency	Percentage
Vegetable	358	84.2
Fruit	292	68.7
Meat	148	34.8
Egg	153	36.0
Milk	122	28.7
Coffee/Tea	91	21.4
Other	5	1.2

Remark: This question the respondent able to check ☒ more than one choice

For organic products consumed by the respondents showed in Table 5, vegetable has the highest consumption percentage with 84.2% (358). Followed

by fruit 68.7% (292), egg 36.0% (153), meat 34.8% (148), milk 28.7% (122), and coffee/tea 21.4% (91). The least percentage is other with 1.2% (5).

The performance of motivation factors of organic food consumers and social media perception

Table 6 The performance of motivation factors of organic food consumers (n = 425)

Items	Mean	S.D.	Level of agreement
I eat organic food because it is good for health	4.26	0.67	Strongly agree
I eat organic food because it is tasty	3.44	0.87	Agree
I eat organic food because it has good quality	4.21	0.69	Strongly agree
I eat organic food because it looks good	3.26	0.92	Neutral
I eat organic food because there are variety of products to choose	3.30	0.99	Neutral
I eat organic food because my family eat	3.24	1.13	Neutral
I eat organic food because my friends eat	3.10	1.13	Neutral
I eat organic food because I see celebrities eat	2.73	1.17	Neutral
Overall performance of motivation factor	3.46	0.64	Agree

Table 6 showed the level of agreement toward the motivation of organic food consumers. The mean score of the overall performance of motivation factor is 3.46, which indicated that the respondents agreed that they eat organic food because it is good for health, tasty, have good quality, look good, have variety of

products to choose, as well as they see their family, friends, and celebrities eat. The most agreed of motivation factor is “I eat organic food because it is good for health” (mean = 4.26). The least agreed is “I eat organic food because I see celebrities eat” (mean = 2.73).

Table 7 Social media applications use by the respondents (n = 425)

Social media applications use	Frequency	Percentage
Facebook	354	83.29
Twitter	146	34.35
Instagram	225	52.94
Line	371	87.29
Youtube	219	51.53
Pantip	74	17.41
Wongnai	33	7.76
Other	6	1.41

Remark: This question the respondent able to check ☒ more than one choice

Table 7 showed the results of Social media applications use by the respondents. The most used social media application of the respondents is Line at 87.29% (371), followed by Facebook at

83.29% (354), Instagram at 52.94% (225), Youtube at 51.53% (219), Twitter at 34.35% (146), Pantip at 17.41% (74), Wongnai at 7.76% (33), and other applications at 1.41% (6).

Table 8 Respondents' social media usage per day (n = 425)

Social media usage per day	Frequency	Percentage
Less than 2 hours / day	44	10.35
2 – 4 hours / day	148	34.82
4 – 6 hours / day	151	35.53
6 – 8 hours / day	55	12.94
8 – 10 hours / day	18	4.24
More than 10 hours / day	9	2.12
Total	425	100

Table 8 showed the results of respondents' social media usage per day. The majority of the respondents spend 4 – 6 hours per day using social media at 35.53% (151), followed by 2 – 4 hours

per day at 34.82% (148), 6 – 8 hours per day at 12.94% (55), less than 2 hours per day at 10.35% (44), 8 – 10 hours per day at 4.24% (18), and more than 10 hours per day at 2.12% (9).

Table 9 The performance of social media factor of organic food consumers (n = 425)

Items	Mean	S.D.	Level of agreement
Social media provides me information about organic food	3.88	0.61	Agree
Information shares through social media is present information	3.67	0.65	Agree
Information shares through social media is creditable	3.41	0.68	Agree
Information shares through social media is information from real organic food consumers	3.45	0.69	Agree
Information shares through social media create positive attitude about organic food	3.91	0.70	Agree
Information shares through social media motivate me to try organic food	3.38	0.74	Neutral
Overall performance of social media factor	3.71	0.49	Agree

Table 9 shows the level of agreement toward the perception of social media of organic food consumers. The mean score of the overall performance of social media factor is 3.71, which indicated that the respondents agreed that social media provides them information about organic food and information share through social media are present, creditable, from real organic food consumers, create

positive attitude about organic food and motivate them to try organic food. The most agreed of social media factor is “Information shares through social media create positive attitude about organic food” (mean = 3.91). The least agreed is “Information shares through social media motivate me to try organic food” (mean = 3.38).

The differences between demographic characteristics, motivational factors and perception of social media

Table 10 The differences between gender, motivational factors and perception of social media (n = 425)

Items	Sex	Mean	S.D.	t	Sig. (2-tailed)
I eat organic food because it is good for health	Male	4.16	0.70	-2.228	0.026
	Female	4.32	0.64		
I eat organic food because it is tasty	Male	3.30	0.85	-2.302	0.022
	Female	3.51	0.88		
I eat organic food because it has good quality	Male	4.08	0.74	-2.941	0.003
	Female	4.29	0.65		
I usually share my opinion about organic food through social media	Male	3.18	1.03	-3.053	0.003
	Female	3.49	0.88		

*: Significant at $p < 0.05$

Table 10 showed the results of the differences between genders toward motivation on eating organic food and perception of social media. It indicates that there are statistically significant differences that female are more concern about health (mean = 4.32), taste (mean = 3.51) quality (mean = 4.29) and usually share their opinion through social media (mean = 3.49) than male did.

Table 11 The differences among age group, motivational factors and perception of social media (n = 425)

Factors	Age (I)	Age (J)	Mean difference (I-J)	Std. error	Sig.
I eat organic food because it is good for health	50 years or above	20-29 years old	.397*	.091	.000
		30-39 years old	.281*	.093	.016
		40-49 years old	.288*	.105	.039
I eat organic food because it is tasty	50 years or above	20-29 years old	.485*	.120	.000
		30-39 years old	.331*	.122	.041
		40-49 years old	.404*	.094	.000
I eat organic food because it has good quality	50 years or above	20-29 years old	.359*	.095	.001
		30-39 years old	.409	.108	.001
		40-49 years old	.674*	.133	.000
I eat organic food because there are variety of products to choose	50 years or above	20-29 years old	.601	.136	.000
		30-39 years old	.804*	.152	.000
		40-49 years old	.634*	.155	.000
I eat organic food because my family eat	50 years or above	20-29 years old	.520*	.176	.020
		30-39 years old	.252*	.083	.016
		40-49 years old	.332*	.096	.004

*: Significant at $p < 0.05$

Table 11 showed the results of the differences between age group. In terms of motivation on eat organic food because it is good for health different from all groups; on eat organic food because it is tasty, the age group of 50 years old or above is different from the group of 20 – 29 years old and the group of 30 – 39 years old; on eat organic food because it has good quality, the age group of 50 years old or above is different from all groups; on eat organic food because there are variety of products to choose, the age group of 50 years old or above is different from the group of 20 – 29 years

old and the group of 30 – 39 years old; on eat organic food because of family, the age group of 50 years old or above is different from all groups; and on social media provides information about organic food, the age group of 50 years old or above is different from the group of 20 – 29 years old and the group of 40 – 49 years old. It can be concluded that the age group of 50 years old or above are more concern about taste, quality, variety of products, their families motivate them to eat and believe that social media provides information about organic food than other age groups.

Table 12 The differences among educational levels, motivational factors and perception of social media (n = 425)

Factors	Education (I)	Education (J)	Mean difference (I-J)	Std. error	Sig.
I eat organic food because it is tasty	Bachelor's degree	Lower than Bachelor's degree	.372*	.126	.010
I eat organic food because there are variety of products to choose	Bachelor's degree	Lower than Bachelor's degree	.487*	.142	.002
I eat organic food because my family eat	Bachelor's degree	Lower than Bachelor's degree	.468*	.162	.012
I eat organic food because my friends eat	Bachelor's degree	Higher than Bachelor's degree	.437*	.128	.002
Information shares through social media motivate me to try organic food	Bachelor's degree	Higher than Bachelor's degree	.215*	.081	.024

*: Significant at $p < 0.05$

Tables 12 showed the results of the differences between educational levels. In terms of motivation on eat organic food because it is tasty, the Bachelor's degree is different from the lower than Bachelor's degree group; on eat organic

food because there are variety of products to choose, the Bachelor's degree is different from the lower than Bachelor's degree group; on eat organic food because of family, the Bachelor's degree is different from the lower than

Bachelor's degree group; on eat organic food because of friends, the Bachelor's degree is different from the higher than Bachelor's degree group; and on information shares through social media motivate to try organic food, the Bachelor's degree is different from the

higher than Bachelor's degree group.. It can be said that the Bachelor's degree group is more concern on taste, variety of products, their family, friends and information shares through social media motivate them to eat than other educational level groups.

Table 13 The difference among monthly income groups and motivation factors (n = 425)

Factors	Monthly income (I)	Monthly income (J)	Mean difference (I-J)	Std. error	Sig.
I eat organic food because it is good for health	More than 50,000 THB	10,000 – 30,000 THB	.234*	.088	.049
I eat organic food because it is tasty	More than 50,000 THB	Under 10,000 THB	.748*	.151	.000
		10,000 – 30,000 THB	.395*	.113	.003
I eat organic food because it has good quality	More than 50,000 THB	Under 10,000 THB	.333*	.121	.038
I eat organic food because there are variety of products to choose	More than 50,000 THB	Under 10,000 THB	.848*	.171	.000
		10,000 – 30,000 THB	.502*	.128	.001
I eat organic food because my family eat	More than 50,000 THB	Under 10,000 THB	.850*	.195	.000
		10,000 – 30,000 THB	.610*	.146	.000

*: Significant at $p < 0.05$

Tables 13 showed the results of the differences between monthly income groups. In term of motivation on eat organic food because it is good for health, the more than 50,000 THB group is different from the 10,000 – 30,000 THB group; on eat organic food because it is tasty, the more than 50,000 THB group is different from the under 10,000 THB group and the 10,000 – 30,000 THB group; on eat organic food because it has good quality, the more than 50,000 THB group is different from the under 10,000 THB group; on eat organic food because

there are variety of products to choose, the more than 50,000 THB group is different from the under 10,000 THB group and the 10,000 – 30,000 THB group; and eat organic food because of family, the more than 50,000 THB group is different from the under 10,000 THB group and the 10,000 – 30,000 THB group. It clearly sees that people with monthly income more than 50,000 THB are more concern on health, taste, quality, variety of products and their family motivate them to eat than other monthly income groups.

Table 14 Regression analysis between motivational factors and perception of social media (n = 425)

Dependent variable	Motivation			
Independent variable	Social media			
R	.458			
R Square	.210			
Adjusted R Square	.208			
Standard error	.567			
F	112.351			
Independent variables	Unstandardized Coefficients <i>b</i>	Standardized Coefficients Beta	<i>t</i>	Sig.
(Constant)	1.238		5.863	.000
Social media	.598	.458	10.600	.000

*: Significant at $p < 0.05$

Table 14 showed the results of regression analysis between motivational factors and perception of social media. It indicates that this model is good enough to explain the relationship between the independent and the dependent variable. Based on R value (.458), R Square value (.210) and the standardized coefficient (beta) value (.458), social media had a significant impact and influenced on motivation of organic food consumers.

Discussion

According to the results of questionnaire survey, the majority of the respondents was female with 65.65%, which is approximately two third of all the respondents in this research. For age group, the group of age 20 – 29 years old was the largest group of respondents (33.41%). In term of education level, the largest group was the group of respondents with a Bachelor's degree at 61.65%. For occupation, the group of

working for private company was the largest group of the respondents (40.00%). In term of monthly income, the largest group was the group of respondents that had income between 10,000 – 30,000 THB (42.35%). For the organic products consumed by the respondents, vegetable had the highest percentage among all organic products consumption with 84.2%.

In terms of motivation factor, the finding also showed that health plays an important role toward organic food consumption. As mentioned in the questionnaire survey, most of the respondents said “I eat organic food because it is good for health” is their first motive of eating organic food. This result got confirmed by the study of Magnusson et al. (2003) that health is the most important factor motivating consumers to buy organic food.

For social media usage, the majority of the respondents spent 4 – 6 hours a day on accessing to social media. Line had

found out to be the most popular social media application use by consumers. As mentioned in the study of Somtip & Kitikannakorn (2018) that Line application was the social media application that had the highest active monthly users in Thailand. Forwarding information via Line application is fast, easy and information can be sent to a large number of people at the same time by only clicking on the share button which makes it well-liked by consumers. According to the results, it indicates that there were differences between gender, motivational factors and perception of social media. Health is the motive that has the highest concerning rate among female consumers.

On the differences between age group, this current study found the differences in both motivation factors and social media. The study of Hansen (2019) supported the finding of this research that the population of elderly is growing rapidly and the main influence is increased in awareness of being healthy older adults.

On the differences between educational levels, the current research identified the differences in the motivational factors and also in social media usage. This information got confirmed by the study of Cerjak et al., (2010) that respondents with higher education level in Croatia purchase organic food more often than other education level group. Also, respondents with higher education level in Slovenia consider taste is the main motive in consuming organic food.

Our current study identified that the differences in the perception regarding

motivation and social media application and this result also mentioned by Roitner-Schobesberger et al. (2008) that organic food consumers in Bangkok tend to have a higher income with the motive of concerning in health and taste of the products.

A regression analysis was conducted to find the relationship between social media and motivation factors of consumers in purchasing organic food. The result shows that social media had a significant impact toward motivation factors. Similarly with the research of Timothy (2017) that social media triggers the motivation of consumers.

Conclusion and recommendation

Conclusion

The results of this study showed that the majority of respondents were female. Most of them were aged between 20 – 29 years old. Moreover, the respondents with a Bachelor's degree were the largest group of all the respondents. Furthermore, the main occupation group of the respondents was working for private company. Also, most of them earned a monthly income between 10,000 – 30,000 THB. Vegetable is the organic product mostly consumed by the respondents. And Line application was found out to be the most popular social media application use by the respondents.

According to the first objective of this study, the aim was to investigate the

characteristics of motivation of organic food consumption in Bangkok, Thailand. The results of this study showed that health is the most important factor that motivates consumers in purchasing organic food.

The second objective of this study, the aim was to investigate the differences among various demographic groups of consumers. It shows that there are differences among genders, age groups, educational level groups and monthly income groups.

The third objective of this study, the aim was to investigate the relationship between social media and motivation factors of consumers in purchasing organic food. The result shows that social media had a significant impact toward motivation factors.

Management implications

The implications of this study are to assist the practitioners, owners and marketers of organic food businesses as well as other food-related businesses in creating consumers' motivation through social media. So, creating perceived value as good for health and maintaining food quality is important in order to motivate consumers to eat organic food. In addition, the organic food businesses should understand the differences in motivation factors of the demographic factors of the customers, especially gender, income, age and education. Moreover, by sharing information through the right social media applications – Line, Facebook and Instagram, which are the applications

that mostly used by consumers – will get more attention from consumers and will be able to motivate them to eat organic food, too.

Limitations

The limitations of this study were first, this study only use quantitative method by using survey questionnaires. Therefore, the results might not be able to explain the in-depth reasons of the relationship. Secondly, the study is cross-sectional and therefore the results may not yield the long-term implications of the findings. Last, this study only examined the motivational factors and social media perception in organic food context and the results might be different from other non- food businesses.

Recommendations for future research

As this study got all information from the survey data only, therefore, future research should employ additional research methods for example in-depth interviews in order to gain a better understanding of organic food consumer behavior and the relationship between social media and motivation factors.

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RELATIONSHIP BETWEEN PSYCHOLOGICAL FACTORS, INNOVATIVE PERFORMANCE, MARKETING CAPABILITY, AND ENTREPRENEURIAL SUCCESS AMONG THAI FRUIT AND VEGETABLE PROCESSING AND PRESERVATION SMEs IN THAILAND

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Article info

Article history:

Received
21 June 2019
Revised
13 August 2020
Revised 2
25 August 2020
Accepted
31 August 2020

Keywords:

psychological factors,
innovative
performance,
marketing capability,
entrepreneurial
success, Thai fruit and
vegetable processing
and preservation,
SMEs in Thailand

Abstract

An entrepreneur starts and runs a business through the pursuit of opportunities with the determination to use his/her knowledge, abilities, and experiences to effectively run his/her organization and with the resources at hand. He/she is a creative person who finds new approaches to market existing merchandise or better ways to improve and develop existing production processes to maximize the organization's benefits. He/she is willing to undertake a business venture in exchange for profits and satisfaction. These are the characteristics of a potentially successful entrepreneur. Entrepreneurial success is the primary goal of every entrepreneur, in the pursuit of which he/she must endure different kinds of problems to achieve this goal, and there are many ways to measure business success.

The aim of this study is to analyze the relationships between the psychological factors, innovative performance, marketing capability, and entrepreneurial success among Thai Fruits and Vegetables Processing and Preservation SMEs in Thailand. This is one of the first empirical studies to adopt the Giessen-Amsterdam Model of Entrepreneurial Success as the main research model with some added variables that may affect entrepreneurial

success identified from a literature review. Another research interest is the impact of the rising number of Thai Fruit and Vegetable Processing and Preservation SMEs entrepreneurs on global businesses due to increased quantities of imitation goods and services. The results of the study show that innovative performance, and marketing capability are highly related to entrepreneurial success. The developed strategies using innovative performance, and marketing capability drivers could help Thailand's SMEs entrepreneurs to be successful in a variety of industries.

Introduction

The fast-paced development of technology, combined with increased global competition and rapidly changing customer demands, implies that a business's competitive advantage is only temporary. Consumers expect continual improvements in the products/services offered, and so it is not surprising that innovation management has received a lot of research interest, particularly studies exploring the key managerial factors that lead to success or failure.

Innovation is a specific tool for entrepreneurs to create an advantage in terms of competitive business opportunities, and the success of a business depends on how the proponents of the execute any related changes to create opportunities and make a difference to the business. In general, entrepreneurship and innovation are reciprocal and entrepreneurs need to know how to apply the principles of successful innovation. (Drucker, 1985; Kanungo, 1999; Zhao, 2001).

Today, innovation and entrepreneurship have changed, and there are different ways of propagating, executing, and practicing these concepts around the

world. Drucker (1985) believes that the practical reality is that entrepreneurship and innovation are not manifested in the same way locally as in the international marketplace, and in fact, they are not all systematic. For example, the US and China have incubators to breed innovation and entrepreneurship, but neither are practiced in the same fashion.

Large organizations have enormous innovation potential at their disposal. However, the innovation actually realized in successful products and services is usually only a small fraction of that potential. The amount and type of innovation a company achieves are directly related to the way it approaches, fosters, selects, and funds innovation efforts. To maximize innovation and avoid the dilemmas that mature companies face, entrepreneurs should complement the time-proven model of top-down innovation with its own brand of entrepreneurial innovation (Savoia & Copeland, 2011).

Recently, Thailand has entered the Association of Southeast Asian Nations (ASEAN) Economic Community (AEC), which is likely to open up business in the ASEAN countries and to make it easier to enter the international market. On the

other hand, the existing business risks stemming from competition as a result of the AEC has increased. Thus, Thailand needs to prepare and adapt to this by introducing policies and tools that encourage and stimulate economic growth simultaneously. In fact, encouraging new businesses and promoting entrepreneurship are parts of the mechanism that many other countries have adopted to create economic growth. (Kangwansupphaphan, 2014)

Thailand consistently exhibits one of the highest entrepreneurship activity rates in the world, and its established business ownership rate is the second highest globally. In 2013, 46.3% of the adult population in Thailand were involved in entrepreneurial activities, 18.3% started or were running new businesses and 28% were established business owners. In addition, one third of the adult population in Thailand is thinking about starting a new business within the next three years (Global Entrepreneurship Monitor Thailand Report, 2013).

Transcending the middle-income trap to become a high-income country is a great challenge for Thailand, which has maintained its status as a middle-income country for more than 37 years and could maintain this position as long as the following major problems are resolved: 1) low investment, 2) low wages in real terms, 3) no enhancement of the value to its very existence, 4) no creation of new cities and industrial clusters, 5) insufficient production workers with the skills and knowledge to meet the needs of the market, and 6) inefficient energy infrastructure (Thailand Future Foundation, 2013).

Food productions businesses involve fruit and vegetable sorting, canning, and

juicing (Department of Business Development, 2018).

In 2017, there were on average 12 new fruit and vegetable businesses established each month, while there were 28 -in January 2018 (an increase of 133.3% or 2.3 times), most of which were wholesale (23; 82.2%), followed by juicing (3; 10.7%) and sorting (2; 7.1%). The yearly trend of increasing numbers of new fruit and vegetable businesses established in 2018 is to support the increasing demand for healthy food among the elderly due to the structure of the Thai population becoming older (an aging society) as well as teenagers and workers who are paying more attention to health.

The total registered capital is 22.84 billion baht, divided into limited companies (20.421 billion baht; 89.4%), limited liability/ordinary partnerships (354 million baht; 1.6%), and public limited companies (2.065 billion baht; 9.0%). There are 1,625 companies with registered capital of not over 5 million baht (87.5%), 168 with more than 5 million baht but not over 100 million baht (10.0%), and 46 with more than 100 million baht (2.5%); 38 (82.6%) of the latter businesses mainly carry out fruit and vegetable canning and juicing or 82.6% using technology and machinery as an important role in the production process, which requires a larger investment than wholesale fruit and vegetable businesses. The sorting of fruit and vegetable is mostly carried out by small to medium enterprises (SMEs).

The increasing demand for tropical fruit in the global marketplace has attracted foreign investment, especially from China which is the large importer of fruit from Thailand. However, foreign

investment in agricultural-related businesses should be supervised by the Thai authorities to prevent China from influencing and determining the prices of Thai fruit and vegetable. In addition, the economic situation in Thailand and the World is improving. Moreover, the Thai government is supporting Thailand to become the number one fruit exporter in the world, which should result in fruit-related businesses having the opportunity to expand their markets, and has contributed toward the increasing trend of new fruit and vegetable SMEs being established since 2017.

SMEs entrepreneurs should consider the main factors affecting entrepreneurial success: 1) human capital, 2) entrepreneurial orientation, 3) marketing capability, and 4) innovative performance (Byers, Dorf and Nelson, 2011). However, only a few of these factors have been empirically studied and the effects of innovative performance still remain unsolved. Therefore, the study of the relationships between psychological factors, innovative performance, marketing capability, and entrepreneurial success among Thai Fruit and Vegetable Processing and Preservation SMEs in Thailand was conducted.

Objectives of the study

Primarily, the purpose of this study is to test a more comprehensive model consisting of Human Capital, Entrepreneurial Orientation, Marketing Capability, Innovative Performance, and Entrepreneurial Success in the context of Thai Fruit and Vegetable Processing and Preservation SMEs.

Operational definitions

In this study, the psychological factors include human capital and entrepreneurial orientation.

Literature review

Entrepreneurial success

Definition/description of entrepreneurial success

A General Model of Entrepreneurial Success Fig.1 presents the general model that we have worked from (the Giessen-Amsterdam model of entrepreneurial achievement). It is an interdisciplinary model, as it contemplates most territories that have been examined in business inquire about.

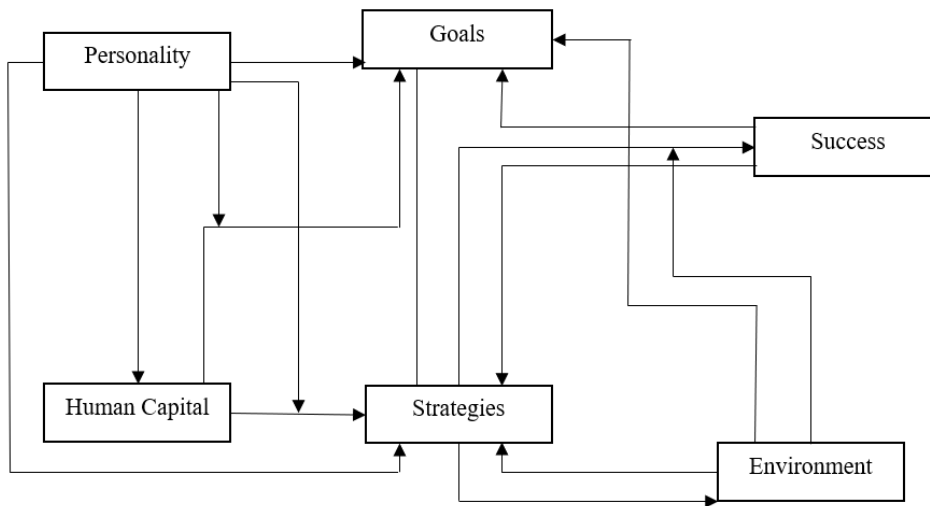


Figure1 Giessen-Amsterdam Model of Entrepreneurial Success

In the business sense of the word "success" is to reach the goal, which means the need to target in order to find success.

In psychology, Dr. Michael Frese (Frese, 2000, p.115), the definition of entrepreneurial success means being able to achieve its business objectives or results relied satisfied.

In addition, Drucker (2002, p.18-21) has also proposed "Indicators" of success in business strategic goals by identifying the "Key Variables" or "Major Result Areas" are the following.

1. Market Position is measured by targets and achieving the position of marketing "Market Standing" market share "Market Share", the current market and new markets as well as new products and services aimed at the building customer loyalty.

2. Quality is maintaining and improving the quality of products and / or services.

3. Innovation has effectiveness in achieving the level of development of new products and services, including new processes, which means skills and activities that would be necessary to increase the performance of the company in a competitive and sustainable in the long term.

4. Socially responsible behavior, including the cherished love for ethics and social responsibility in areas such as participation in preserving the environment and overall quality of life and so on.

5. Human resources are recruitment, development, and maintenance of human resources at all levels to provide high-quality, knowledge, abilities, skills, and attitudes, as well as employee relations and relations with labor unions (if any).

6. Financial resources are the recruitment, retention, and management of financial resources appropriately.

7. Physical resources are to supply, build, and maintenance of physical resources such as buildings, plant, machinery, equipment, and technology needed to run the business and used appropriately.

8. Cost-efficiency, the using resources are used as efficiently as all kinds of companies to produce goods and / or services with low cost.

9. Profitability profit levels must be reasonable and not exorbitant and other index indicator that represents a good financial position.

The "Major Result Areas" in the ninth as the above may be divided into three groups together.

1. Strengthen the capacity of the market is composed of four variables, market position, develop and maintain quality, innovation, and social responsibility.

2. Group Management consists of three variables: human resources, financial resources, and physical resources.

3. The economy group is comprised of two variable cost efficiencies and profitability.

It can be seen that the criteria for determining the success of the diverse approaches which need to be taken into account for the decision to adopt by Michael Frese, who studied with the operator panel which offers a way to measure entrepreneurial success by using four criteria to consider together.

1. Entrepreneurs assess their success will be seen in the financial business and customer satisfaction is reflected by the earnings from the business.

2. Measured by economic considerations, business information, including an increase or decrease in the number of

customers, profitability and sales in the last one or two years.

3. A questionnaire with images of Beuedert, Presisdoefer & Ziegler to measure the overall business outlook, which will allow operators to evaluate the success of the business over the past year that have characterized the changes in the overall picture, however.

4. Interviewers will evaluate the overall success rate of households into five levels, namely the one that refers to a successful second level refers to the relatively unsuccessful third level refers to succeed fourth means quite successful and level five being successful interviewers to assess success by combining observations from the interviewer.

From the information above, it was the definition of success is that success means being able to conduct business with the goal or result is satisfactory, as measured by trends of earnings, the trend in the number of customers, prospects, sales, trends. overall, the satisfaction of the views of others, the satisfaction of accomplishment when compared to its competitors, customer satisfaction as a business owner, satisfaction, revenue, number of employees at present, data for machinery and equipment if it is sold and evaluated by the interviewees. In this study assesses the success of the deal, according to the concept of Michael Frese (2000) as a basis for research.

Factors that affect entrepreneur's growth and success

The important factors that have the impacts on an entrepreneur's growth and success are as follows (Eggers, 1999, pp. 76-81):

1. Ability to create competitive advantage and market size. Creating competitive advantage is one of the factors of an organization's success. This depends on following factors: appropriate market size, time limitation of the competitive advantage, and shelf life.

2. Psychological characteristics. An entrepreneur's ability to adapt himself to any situations depends on five essential psychological characteristics: desire to be independent; tolerance to risk; passion to be successful; desire to have social influences or social motivation; and desire to be a moral authority.

3. Management skills. The important management skills are: the ability to create and manage the changes; the ability to create an efficient organization; and the ability to be supportive.

4. Organizational culture that encourages growth. Essential organizational culture consists of: paying

attention to the subordinates and rewarding them for their distinct works; being attentive to the customers' needs; and having a determination to maintain the existing organizational culture.

Evaluating entrepreneurial success

Kaplan and Norton (Kaplan & Norton, 1992, pp. 71-79) state that the traditional way to measure business success primarily focused on money.

Frese (Frese, 2000) indicates that the use of the overall evaluation to assess the entrepreneurial success is very useful since the results do not solely rely on the entrepreneur's opinion.

Gunday et al. (2011) defined the definition and measured entrepreneurial success by considering the following indicators: 1) Financial Performance, 2) Production Performance, and 3) Market Performance from 1 = Unsuccessful to 7 = Extremely successful to make it easier to understand (Figure 2).

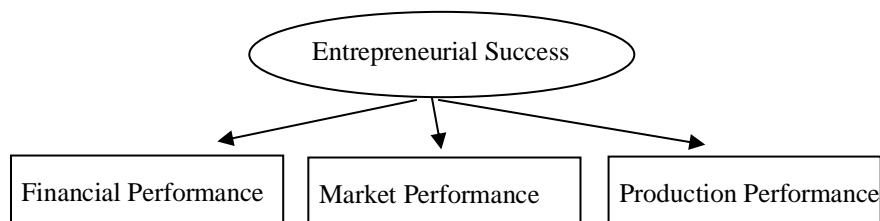


Figure 2 The measurement of entrepreneurial success

Source: Gunday et al., 2011.

Human capital

Concept of human capital

In 1985, Bates found that the effect of the survival of minority businesses, there are

limits to the practical management of complex credit and capital. It has been in education and training the study of social attitudes about the role of minorities and directing what entrepreneurial

minorities. The study on the characteristics of entrepreneurs seeking higher profits compared with minorities including the business practices of the minority group's Northern League's business and personal services, with influence from traditional business activities of enterprises minorities.

General human capital independent variables

To evaluate general human capital, three things were utilized to decide the experience and training of the innovation business people. Expansiveness of experience was measured utilizing a thing that scrutinized the quantity of businesses the business visionary had worked for. To quantify the profundity of experience, the quantity of years of expert work experience was asked. The instruction thing utilized an ordinal scale and asked for the respondents' largest amount of training. The scale included secondary school, relate degree, four-year college education, graduate degree, and PhD.

Construction of the specific human capital independent variables

There were at first five things for each earlier information sort particular to the time the open door was initially perceived. Taking after everything, two Likert-type response scales were incorporated, one that tended to the measure of earlier information and a moment that asked about its significance

to seeing the open door. The sum reaction scale utilized a 5-point Likert-type scale and the significance reaction scale utilized a 3-point Likert-type scale. Opportunity acknowledgment was thought to be a component of both a man's supply of information (Ronstadt, 1988; Shane, 2000) and a man's readiness (Kirzner, 1973) to that learning. The scale included (1) approaches to serve markets, (2) client issues, (3) markets, and (4) innovation.

Human capital and entrepreneurial success

Jens M. Unger et al., 2009, they examined meta-scientifically coordinates comes about because of three many years of human capital research in business. In light of 70 free examples (N=24,733), they found a critical yet little relationship between human capital and achievement ($rc=.098$).

When studying the definition and measurement of human capital, we need to take the definition and measurement of human capital into consideration. The human capital of an entrepreneur can be related to the following indicators: 1) start-up/ owner experience, 2) industry-specific experience, 3) management experience, 4) business education, 5) a parent who is an entrepreneur, 6) work experience, and 7) education level (Unger, Rauch, Frese and Rosenbusch, 2011). These relationships are presented in Figure 3.

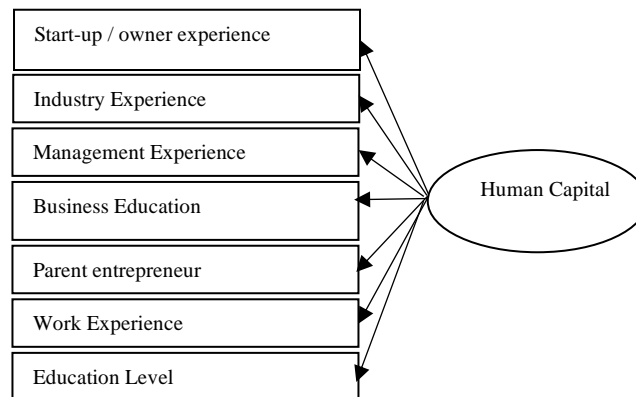


Figure 3 The measurement of human capital

Entrepreneurial orientation

The conceptual of the entrepreneurial orientation (EO)

McClelland (1987: p.254-255) the concept of Entrepreneurial Orientation (EO) showed that the successful entrepreneurs who are keen on the look of success. Entrepreneurs who are keen to contribute to the success of high interesting and ability to do business better.

The conceptual of Lumpkin and Dess (1996, p.138-153) explained that the strategic of management with the performance of the entrepreneurs involved in the management process, decisions and actions at levels consistent static. The Entrepreneurial Orientation is a key ingredient for a successful organization. The EO is a deviation of the characteristics from the norm. But also, the behavior of the values that were ingrained habit before an entrepreneur.

The Entrepreneurial Orientation, the innovative concept of support Miller

(1983, p.771) which explains the creation of an innovation-oriented activities in marketing innovative products. The results of operations of the strategic analysis and interpretation study of Miller (1987, p.17) explained that the company will determine the cost of research and development as a percentage of sales made.

Michael Frese (2000, p.18-19) has presented the Giessen-Amsterdam Model of Entrepreneurial Success, Figure 1

This figure shows the relationship of the personality of the entrepreneur, human capital, goals, environment, and strategies that deliver success in the business.

After 2000, the concept is consistent with the entrepreneurial orientation takes risks of Sharma (2003. p.60-61). He has proposed that the entrepreneurs are expected to have certain attitudes and values that show entrepreneurial behavior. Behavioral trends related to values and characteristics of

entrepreneurs. And Neal (2000, p.223) argued that the personality of the entrepreneur is more likely the business is quite good entrepreneur should have a consistent look to the personality of the entrepreneur's character including autonomy and achievement.

In this study, the five factors of the entrepreneurial orientation are taken from Frese (2000), as discussed earlier: 1) Risk-taking, 2) Innovativeness, 3) Proactiveness, 4) Competitive Aggressiveness, and 5) Autonomy. Evaluation is on a Likert scale as presented in Figure 4.

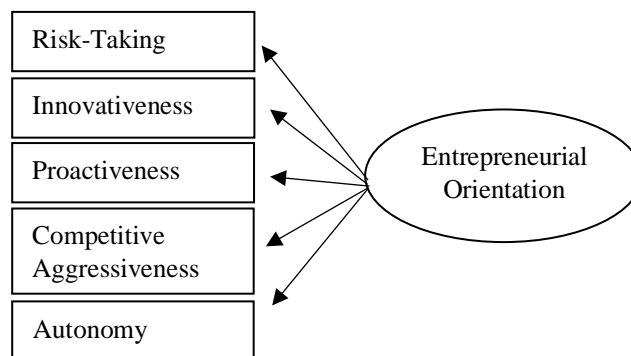


Figure 4 The measurement of entrepreneurial orientation

Linking entrepreneurial orientation and marketing capabilities

In concern with the resource-based line of reasoning, entrepreneurial orientation as an asset has potential worth. The ownership of entrepreneurial orientation is an essential yet inadequate condition for esteem conveyance (Barney, 1991). A firm needs to undertake key activities to profit from innovation (Lisboa et al., 2011). The capacity by which the firms' assets are set clarifies a resource-based view of the firm as opposed to the straightforward heterogeneity of the firms' assets (Eisenhardt & Martin 2000; Morgan et al., 2009).

Martin and Javalgi (2016) researched the moderating role of competitive intensity

on entrepreneurial orientation, marketing capabilities, and business performance among Latin American-based new international ventures. Their findings highlight the moderating role of competitive intensity between entrepreneurial orientation and marketing capabilities for better new international venture performance. These have important implications for the decisions of international entrepreneurship scholars and practitioners about entrepreneurial orientation allocation to enhance the required marketing capabilities for new international ventures' increased performance. Therefore, entrepreneurial orientation is positively related to marketing capability, as presented in Figure 5.

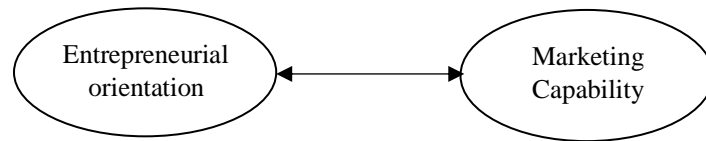


Figure 5 The relationship between entrepreneurial orientation and marketing capability

Marketing capability

Vorhies and Neil (2005) suggested that market-based organizational learning is recognized as an essential source of sustainable competitive advantage. One specific learning system, benchmarking, is a generally utilized management tool that has been perceived as fit for distinguishing and improving important promoting capacities. In spite of across the board reprimanding of administrators, the benchmarking of showcasing capacity as a course toward feasible focused advantage has received meager experimental consideration.

Linking marketing capabilities and business performance

Each Marketing Capability is emphatically and straight forwardly identified with firm execution, indicating that these marketing capabilities are sources of competitive advantage and are therefore appropriate targets for benchmarking. The information additionally bolster the second-arrange figure speaking to relationship among the eight showcasing capacities, and we find that this showcasing ability interdependency element is firmly and decidedly connected with firm execution. Besides, the circuitous ways connecting every marketing ability with firm

execution by method for advertising capacity reliance are more grounded than the immediate ways from every promoting ability to firm execution. These shows in outlining benchmarking forms for the organizations in our example, these promoting abilities ought to be benchmarked as a set.

1) Marketing strategy

Kyriakopoulos and Moorman (2004) studied tradeoffs in marketing exploitation and exploration strategies: They argue that marketing strategy can improve a firm's present aptitude (marketing exploitation strategy) and additionally requires the development of new information and abilities (marketing exploration strategy). Research in strategy and organizational learning proposes that using the two methodologies can affect firm adequacy in individual territories and decrease the firm's budgetary execution.

2) Marketing communication

Pfeffermann (2011) described marketing communication as the cross-functional dynamic capability of: strategies for organizations and networks. He found that "diffusion research seeks to understand the spread of innovations by modeling their entire life cycle from the perspective of communications and

consumer interactions.” (Peres et al., 2010, p. 91).

3) Marketing management

Day (1994) studied the capabilities of market-driven organizations and argues that significant advancement has been made in recognizing market-driven organizations, understanding what they do, and estimating their primary concerns of their direction of their business sector. Developing abilities is a way to deal with key administration when combined with

all out-quality administration that offers a rich showcase of approaches to configuration change programs that will upgrade a market direction. The most particular highlights of market-driven associations are their authority in market detecting and client connecting abilities.

Each entrepreneur may have principles and methods about the characteristics of different entrepreneurs. The evaluation was carried out using a Likert scale in Figure 6.

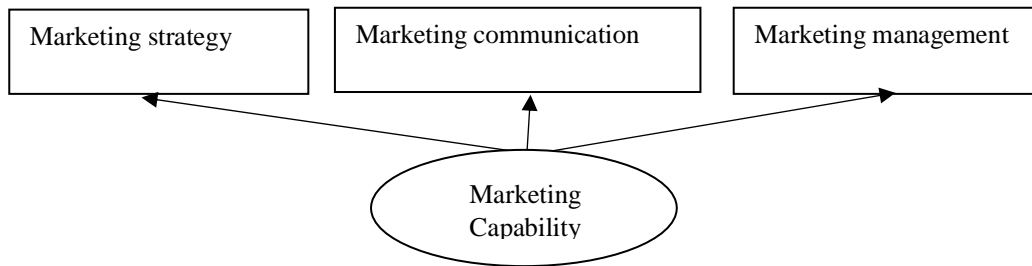


Figure 6 The Measurement of Marketing Capabilities

Linking marketing capabilities and innovative performance

Rajkovič and Prašnikar (2009) studied technological, marketing, and complementary competencies driving innovative performance of Slovenian manufacturing firms. They found that the innovative performance of the firms relied on underlying capabilities, in particular mechanical, marketing, and

integral. Abilities are regarded as systems of various capabilities and other firm resources and can be utilized for cross-industry comparisons.

From these studies, it is evident that the marketing capability of an entrepreneur influences the effectiveness of innovative performance on the success of his/her business, as presented in Figure 7.

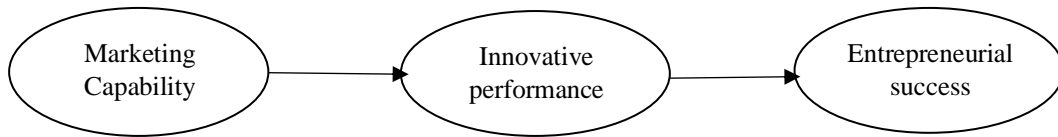


Figure 7 The relationship between marketing capability, innovative performance, and entrepreneurial success

Innovative performance

Gurhan (GUNDAY et al., 2011) found that the innovative performance is the measurement of the level of achievement of innovative performance items in the business or organization in the last three years compared to the previous years. They have 7 items for measured; ability to introduce new products and services to the market before competitors, percentage of new products in the existing product portfolio, number of new product and service projects, innovations introduced for work

processes and methods, quality of new products and services introduced, number of innovations under intellectual property protection, and renewing the administrative system and the mind set in line with firm's environment.

Innovative performance in this research is considered using the following indicators: 1) Quantitative Innovation, 2) Innovation Communication, and 3). Process Innovation. The principles and methods about the characteristics of each entrepreneur were evaluated using a Likert scale as presented in Figure 8.

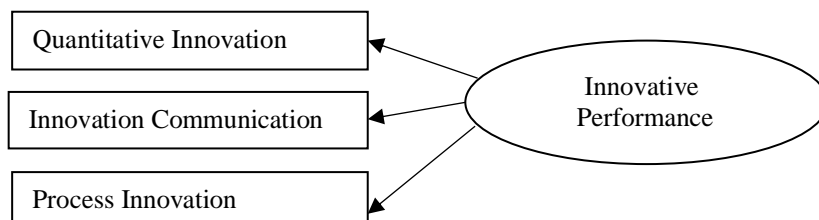


Figure 8 The measurement of Innovative Performance

Conceptual framework

This is based on the relationships between Psychological Factors, Innovative Performance, Marketing

Capability and Entrepreneurial Success among Thai Fruit and Vegetable Processing and Preservation SMEs in Thailand (Figure 9).

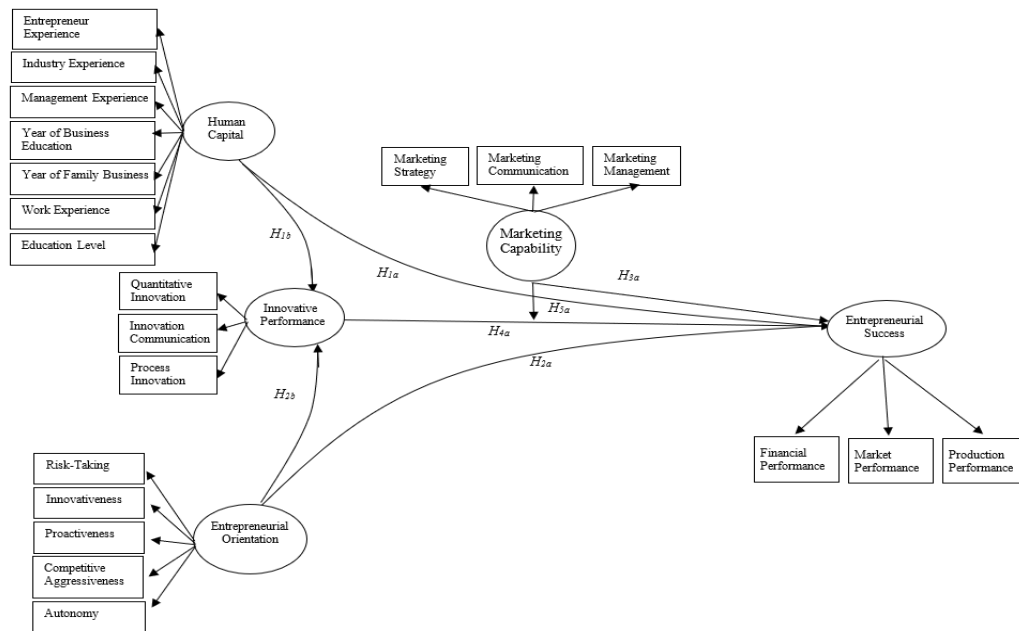


Figure 9 Conceptual framework: “Relationships between psychological factors, innovative performance, marketing capability, and entrepreneurial success among Thai fruit and vegetable processing and preservation SMEs in Thailand”

Research design

Quantitative research methods by collecting survey data and using self-response questionnaires as a tool for data collection were used in this research. Details of the questionnaire can be found in Appendix B. A qualitative method was used to verify the definition and scope of each construct in the research model.

Quantitative methodology was applied in this study and used to statistically test and confirm the relationships between the constructs. It was also used to verify the research model with statistical support for the results from the preliminary study and the concepts from the literature review. The research steps concluded from the literature review are depicted in Figure10.

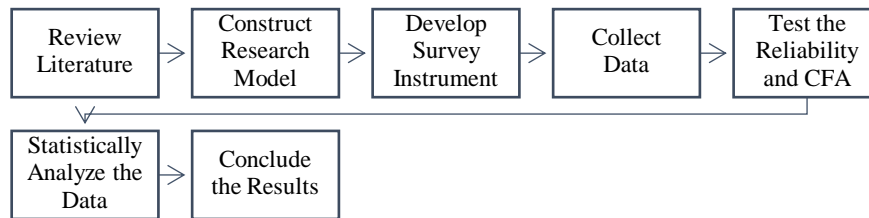


Figure 10 Research methodology (CFA, Confirmatory Factor Analysis)

The study population comprised a total of 8,272 SMEs (Office of SME Promotion (OSMEP), 2016) that process and preserve fruit and vegetable in Thailand in 2015.

Data were collected by field surveying via questionnaires between April 30 and June 1, 2019. A simple randomization plan using the raffle method was used on a list of operators obtained from the National Statistical Office until a total of 576 sample units by means of telephone and field interviews had been collected.

The power of the statistical test and the suitability index of the structural equation model according to the research of MacCallum, Browne and Sugawara (1996) were applied to the sample.

1) $\varepsilon_0 = 0.05$ and $\varepsilon_a = 0.08$, where ε_0 and ε_a are the null and alternative values of the root mean square error of approximation (RMSEA) to measure the suitability of the model used to calculate the sample size.

2) The power of the statistical test = 80% ($1 - \beta = 0.80$).

3) Confidence interval (α) = 95%

4) The number of degrees of freedom for the original model was calculated using this formula (Raykov & Marcoulides, 2006, p. 36):

$$df = \frac{v*(v+1)}{2} - p,$$

Where df is the number of degrees of freedom, v is the number of variables (24), p is the number of estimated parameters (69). Therefore, $df = 231$.

From the sample size finding table (MacCallum, Browne and Sugawara, 1996), it was found that if the number of degrees of freedom is greater than 100, the minimum sample unit size should be 132 units. A small sample size may cause problems with maximum likelihood estimation (inconsistency) and high discrepancy. Therefore, to ensure that there were enough sample units, the sample size of this study was 576 respondents.

Instrument development

The main instrument used in this study comprises questionnaire. This is one of the most effective research instruments used in generating a large amount of primary data for a research study. However, to ensure that the questionnaire was well-designed and structured, the response errors were minimized by conducting a pretest. Another reason for performing the pretest was to check the reliability of the questionnaire. After the pretest had been completed, the questionnaire was revised before being answered by the real respondents. All

measurement items on the questionnaire were adapted from existing studies base on their reliability and relevance to this study.

The English-version questionnaire was translated into Thai by following the back-translation procedure, the purpose of which was to ensure that the Thai respondents could understand the same meaning as in the English-version questionnaire. To conduct the back-translation procedure, a skilled Thai translator translated the questionnaire from English into Thai, and then another English-speaking translator blinded to the questionnaire translated it back into English again. The two versions of the English-language questionnaire (before translation into Thai and after translation back into English) were evaluated and compared and found to be indistinguishable in term of their meaning. After the translation had been completed, the final Thai-version questionnaire was then pretested to ensure that the respondents fully understood all of the questions.

Measurement

The variables used in the study were assessed via Likert's (1932) Summated Rating Scale by adding the relevant question scores. The scores of questions posed in the opposite logical direction were reversed before including them. The questions were analyzed to determine the quality of the variables and whether there were enough of them. Reliability testing was performed using Cronbach's Alpha coefficient: scores of greater than 0.60, a correlation coefficient value between individual scores and the total score (Corrected Item

Total Correlation (CITC)) greater than 0.20, and an exploratory factor analysis to determine whether the group of questions can be combined into one dimension (unidimensionality) were applied to the questionnaire.

Problematic questions were removed from the questionnaire, after which the latter was re-analyzed to determine whether the above statistics were sufficient to obtain a one-dimensional question set.

The unit of this study were the individuals SME entrepreneurs categorized into groups according to the treatment those respondents were randomly assigned. Babbie (2010) stated that individuals are the most typical units of analysis. He also mentioned that "Social researchers tend to describe and explain social groups and interactions by aggregating and manipulating the descriptions of individuals."

In this study, there relationships between three independent variables: including Human Capital, Marketing Capability, and Entrepreneurial Orientation; one mediating variable: Innovative Performance; and one dependent variable: Entrepreneurial Success were measured. The measurement of these variables was adapted from the previous literature.

All items were measured by using a seven-point Likert scale where 1 represents "Strongly Disagree" to 7 which represents "Strongly Agree".

The results of the Cronbach's Alpha, Construct Reliability, Average Variance Extracted, Maximum Shared Variance, and Average Shared Variance (Fornell & Larcker, 1981; Hair, Black, Babin, & Anderson, 2010; Essmui, Berma,

Shahadan, Ramlee, & Mohd, 2014) are presented in Table 1.

From the initial data analysis of the model, it was found that there was a collinearity problem with the observed variables (Entrepreneurial Success,

Entrepreneurial Orientation, Marketing Capability, and Innovative Performance). Hence, these were grouped by using the information from the literature review and a parceling method to analyze this problem (Little, Shahar, & Widaman, 2002).

Table 1 The statistical results for analysis of the variables in the study

Variables	Alpha	CR	AVE	MSV	ASV
1. Human Capital	0.835	0.871	0.580	0.008	0.004
2. Entrepreneurial Orientation	0.906	0.840	0.520	0.225	0.109
2.1 Risk-taking	0.697				
2.2 Innovativeness	0.797				
2.3 Proactiveness	0.792				
2.4 Competitive Aggressiveness	0.858				
2.5 Autonomy	0.876				
3. Innovative Performance	0.876	0.873	0.698	0.486	0.206
3.1 Quantitative Innovation	0.713				
3.2 Innovation Communication	0.794				
3.3 Process Innovation	0.662				
4. Marketing Capability	0.982	0.943	0.847	0.486	0.199
4.1 Market Strategy	0.947				
4.2 Market Communication	0.924				
4.3 Market Management	0.977				
5. Innovative Performance*Marketing Capability	0.908	0.844	0.648	0.088	0.033
5.1 Quantitative Innovation* Market Communication	0.712				
5.2 Innovation Communication* Market Strategy	0.789				
5.3 Process Innovation* Market Management	0.571				
6. Entrepreneurial Success	0.924	0.910	0.773	0.269	0.132
6.1 Financial Performance	0.773				
6.2 Market Performance	0.805				
6.3 Production Performance	0.888				

Note: Alpha, Cronbach's Alpha; CR, Construct Reliability; AVR, Average Variance Extracted; MSR, Maximum Shared Variance; ASR, Average Shared Variance.

Data analysis

Structural equation modeling, a multivariate statistical technique that

combines aspects of factor analysis and multiple regression, was applied in the data analysis. It is capable of

simultaneously of simultaneously dependent relationships between measured variables and latent constructs (Hair et al., 2006). This statistical technique provides researchers with comprehensive methods for assessing and modifying theoretical models, and thus is suitable for testing and developing theories in the social sciences (Anderson & Gerbing, 1988). The following tests were performed for hypotheses testing in this study using IBM SPSS Statistics and IBM SPSS AMOS:

- 1) Cronbach's Alpha test to identify the dimensionality and reliability of the instruments being examined.
- 2) A Confirmatory Factor Analysis to provide confidence that the theoretical model fits with the empirical data.

- 3) The hypotheses based on the significance levels of path coefficients obtaining from the path analysis.

Examining the suitability of the relationship model can be considered in many ways, such as checking the variance tolerance, consideration of the fitted indices of the model, etc.

Examples of the model suitability indices are reported in Table 3.7, which show that each suitability index has different advantages and disadvantages, making it difficult to tell which one is the best. In addition, there are other methods for testing the suitability of a model, such as considering that the standard residual value should be in the range [-19.6, 1.96], etc.

Table 2 Examples of model suitability indexes

Index	Equation	Constraints
Minimum fit function (χ^2) (Bentler and Bonett, 1980)	$(N - 1)F_{under-ML \text{ or } GLS}$ N = Sample Size F = Fitted Function under ML or GLS; ML = Maximum Likelihood GLS = General Linear Least Squares	1. Should have a low value. 2. Every variable must have a normal variable multivariate. 3. Sensitive to relationships - The stronger the relationship line, the lower the χ^2 value. 4. Sensitive to sample size - the smaller the sample size, the lower the χ^2 value.
Root Mean Square Error of Approximation (RMSEA, ε) (Joreskog and Sorbom, 1984)	$\sqrt{\frac{F}{df_m}} = \sqrt{\frac{\delta_m}{N-1}} \sqrt{\frac{1}{df_m}}$ $\delta_m = RMSEA \text{ of Model}$ $df_m = \text{Degrees of Freedom}$	1. Should have a low value (around 0.05). 2. Cut the effect from the sample size. 3. Make the body simple, the most compact.

Adapting the model by increasing or decreasing the number of parameters affects the estimation of the statistics and the suitability index. Therefore, model adjustment is usually carried out to improve its suitability index. Adaptation depends on the context of the research, possible theories, and reasoning, which are the most important. The effects or relationships that occur are explained rather than adjusted to improve the statistical values.

Results of the research hypotheses testing

The data collected from the Thai Fruit and Vegetable Processing and Preservation SMEs were merged and migrated to IBM SPSS Statistics and IBM SPSS AMOS to perform the main data analysis, Structural Equation Modeling (SEM). First, confirmatory factor analysis (CFA) was conducted to verify the reliability of each measurement instrument. Second, a preliminary model was constructed and then carefully adjusted to be optimal. Third, the proposed model was statistically analyzed with SEM methodology and was proved to be a fit with the data.

Hypothesis testing was performed by using the maximum likelihood estimation technique. The results show that GFI (.918), AGFI (.881), NFI (.939), and CFI (.950) all exceed the cutoff value, while CMIN/DF (4.969) and RMSEA (.083) met the recommended threshold criteria.

In detail, these paths can be explained as follows:

H1a: Human Capital significantly affects Entrepreneurial Success

The statistical analysis of SEM clearly demonstrates that there were no statistically significant effects between human capital and entrepreneurial success. Therefore, H1a is not supported, and so this construct was removed from the final model.

H1b: Human Capital significantly affects Innovative Performance

The statistical analysis of SEM clearly demonstrates that there were no statistically significant effects between human capital and innovative performance. Therefore, H1b is not supported and so this construct was removed from the final model.

H2a: Entrepreneurial Orientation significantly affects Entrepreneurial Success

The statistical analysis of SEM clearly demonstrates that there were no statistically significant effects between entrepreneurial orientation and entrepreneurial success. Therefore, H2a is not supported.

H2b: Entrepreneurial Orientation significantly affects Innovative Performance

The statistical analysis of SEM clearly demonstrates that entrepreneurial orientation had a statistically significant effect on innovative performance (path coefficient = .12, $p < .05$). Therefore, hypothesis H2b is supported.

H3: Innovative Performance significantly affects Entrepreneurial Success

The statistical analysis of SEM clearly demonstrates that innovative

performance had a statistically significant effect on Entrepreneurial Success (path coefficient = .31, $p < .001$). Therefore, hypothesis H3 is supported.

H4a: Marketing Capability significantly affects Entrepreneurial Success

The statistical analysis of SEM clearly demonstrates that Marketing Capability had a statistically significant effect on entrepreneurial success (path coefficient = .30, $p < .001$). Therefore, hypothesis H4a is supported.

H5a: Marketing Capability moderates the effects of Innovative Performance on Entrepreneurial Success

The statistical analysis of SEM clearly demonstrates that Marketing Capability did not moderate the effects of Innovative Performance on Entrepreneurial Success. Therefore, H5a is not supported and so this construct was removed from the final model.

Table 3 Results summary

Research Hypothesis	Empirical Support
H1a: Human Capital significantly affects Entrepreneurial Success	✗
H1b: Human Capital significantly affects Innovative Performance	✗
H2a: Entrepreneurial Orientation significantly affects Entrepreneurial Success	✗
H2b: Entrepreneurial Orientation significantly affects Innovative Performance	✓
H3a: Innovative Performance significantly affects Entrepreneurial Success	✓
H4a: Marketing Capability significantly affects Entrepreneurial Success	✓
H5a: Marketing Capability moderates the effects of Innovative Performance on Entrepreneurial Success	✗

The interpretation condition must be viewed from the research conceptual framework (figure 9) and, if the results are not statistically significant, they are eliminated from the model as shown in Table 3 and figure 11.

Table 3 contains the research results based on the proposed hypotheses and the results from the empirical evidence. It

shows that there is an indirect relationship through Innovative Performance on Entrepreneur Success (H2b), Innovative Performance significantly affects Entrepreneurial Success (H3a), the construct Marketing Capability, significantly affects Entrepreneurial Success (H4a), and the other hypotheses are not statistically significant.

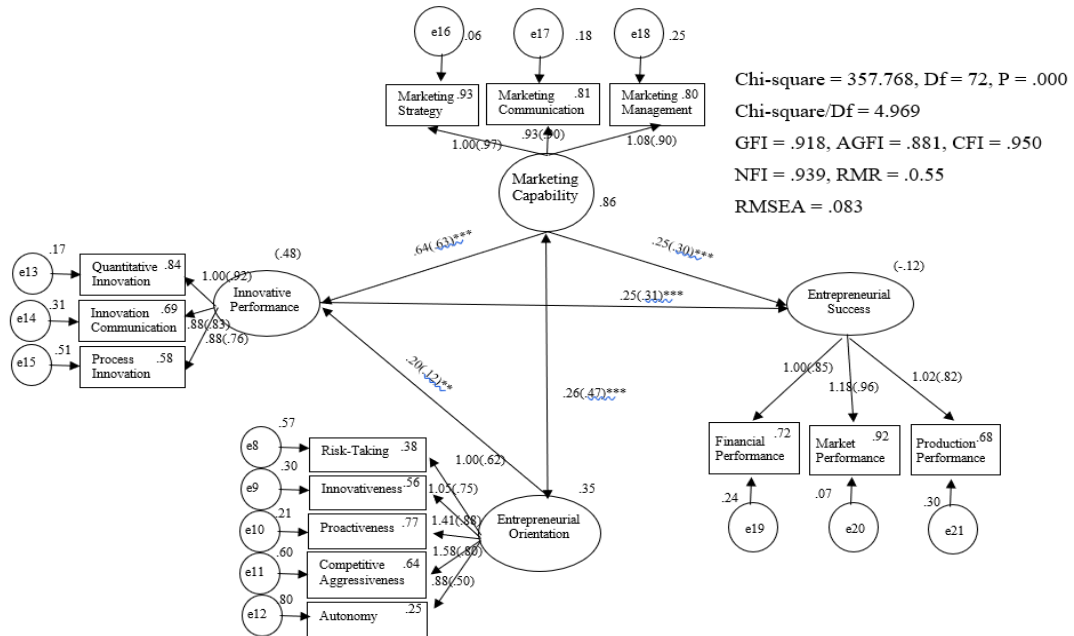


Figure 11 Results of the final structural equation model – Unst.(St.)

Conclusions

The following is a theoretical conclusion related to this research. In this research, the differences were found between the structural equation model of conceptual framework to the improvement of the final structural equation model, which helps to explain the overall of both models that have changed. how can be classified according to the hypotheses:

The Human Capital construct had no statistically significant effects on Entrepreneurial Success (H1a), which means that the former does not directly relationship the latter. Moreover, it can be observed that Human Capital had no statistically significant effects on Innovative Performance as well (H1b), which leads to the conclusion that Entrepreneurial Success was the same as

Entrepreneurial Orientation in that neither has a direct relationship on Entrepreneurial Success (H2a). However, there is an indirect relationship through Innovative Performance on Entrepreneur Success (H2b). As in the Giessen-Amsterdam Model of Entrepreneurial Success (Frese et al., 1998), Entrepreneurial Orientation helps businesses to succeed in the context of the Thai Fruit and Vegetable Processing and Preservation SMEs when considering the relationship of the indirect factor, Innovative Performance on Entrepreneurial Success.

Innovative Performance significantly affects Entrepreneurial Success (H3a). This is in agreement with Gunday et al. (2011) who found that innovative performance is a measurement of the level of achievement of a business or

organization as it has an impact on entrepreneurial success.

Finally, the last construct Marketing Capability, significantly affects Entrepreneurial Success (H4a) but does not moderate the effects of Innovative Performance on Entrepreneurial Success (H5a). This means that relationships with Marketing Capability directly affect Entrepreneurial Success. Similarly, Vorhies and Neil (2005) stated that when linking marketing capabilities and business performance, each marketing capability is emphatically and straightforwardly identified with firm execution, indicating that they are sources of competitive advantage and are thus appropriate targets for benchmarking.

The Final Structural Equation Model shows that there is positive correlation between Entrepreneurial Orientation and Marketing Capability, which corresponds to the findings of Martin, and Javalgi's (2016) research into entrepreneurial orientation, marketing capabilities, and performance; they discovered the moderating role of competitive intensity between entrepreneurial orientation and marketing capabilities for better new international venture performance.

There is a positive relationship between Marketing Capability and Innovative Performance which is similar to Lee and Hsieh (2010) who studied the relationships between entrepreneurship, marketing capability, innovative capability and sustained competitive advantage. The empirical results show that entrepreneurship directly relationships marketing capability, innovative capability, and sustained competitive advantage and indirectly relationships sustained competitive

advantage through marketing capability and innovative capability. Although marketing capability does not relationship sustained competitive advantage directly, its relationships sustained competitive advantage indirectly through innovative capability. On the other hand, innovative capability relationships sustained competitive advantage directly. Therefore, they suggest that an enterprise needs to develop its organizational culture of entrepreneurship as its marketing and innovation capabilities to enhance its sustained competitive advantage.

Limitations

The main reason for limiting this research is that it causes the hypothesis to not follow the conceptual framework because the researcher reviews most of the literature in research in the European countries which are countries in the industrialized development industry, so the industry in Thailand, especially the industry used in this research, is an industry that still focuses on activities agricultural production is a major industry, unlike that of the literature review above. When comparing the industries used in this research, it is the processing industry of fruits and vegetables which are agricultural products, but the result of the literature review will be industries that are processed in a heavy industry or use innovation and higher technology than the industries used in this research such as machinery, robot, and automotive industry etc.

According to this research, there are still variables that review literature that is not consistent with the fruit and vegetable

processing and preservation industry in Thailand, such as variables related to Digital Literacy, Media Literacy, and Health Literacy, including Agile or Scrum, which are techniques. Management in a new dimension is a concept of work (not a form or process) and is not limited to being used for product development in the software line only. Agile places great importance on communication with all relevant parties and product development to meet the needs of users.

In the survey, the question was asked by the entrepreneur at the trade show or by telephone, in which the entrepreneur would have time to answer the questionnaire as well as the concentration in answering the questionnaire would be less as well. The results may affect the results of the research and may not be true, therefore, should have an appointment with the entrepreneur in advance and explain the purpose of the research including the scope of time to ask the entrepreneur to understand and cooperate with investigators. However, all these limitations can be resolved in future research.

Discussion

It can be concluded that a plausible way to evaluate entrepreneurial success Thai Fruit and Vegetable Processing and Preservation SMEs in Thailand should be based on the following factors: the ability to achieve the goal, profit trend, the prospect five number of customers, the sales volume trend, overall business trend, satisfaction from other people's view, entrepreneur's satisfaction when compared to his/her competitors,

entrepreneur's satisfaction as an owner, profit satisfaction, current numbers of employees, and entrepreneur's self-evaluation.

From the results of this research, there are three main points to help Thai Fruit and Vegetable Processing and Preservation SMEs in Thailand become successful:

1) Develop the desirable characteristics of entrepreneurs (Entrepreneurial Orientation), along with the improvement of products and services in a modern and innovative format in Thai Fruit and Vegetable Processing and Preservation SMEs in Thailand that will help entrepreneurs succeed with the following methods:

(1) Assessing the desirable characteristics of the entrepreneur in order to identify which entrepreneurs have the qualifications that meet the desirable characteristics of the entrepreneur. From there, it may be divided into 2 main groups, which are the groups that have the desirable characteristics of the entrepreneurs and the groups that have the desirable characteristics of the entrepreneurs a lot.

The first group will be taken to the business incubator course in order to create entrepreneurs by using desirable characteristics from research to develop entrepreneurs to meet the desired characteristics and know the methods or desirable characteristics of the entrepreneurs that It should be 1) Risk-taking, 2) Innovativeness, 3) Proactiveness, 4) Competitive Aggressiveness, and 5) Autonomy. Lumpkin and Dess (1996, pp. 138-153) explained that management strategic is linked to the performance of

entrepreneurs who involve themselves in the management process, decisions, and actions at all levels. Entrepreneurial orientation, a key ingredient for a successful organization, is a deviation from the norm since changing the values ingrained before becoming an entrepreneur contributes to high entrepreneurial performance. Entrepreneurial orientation has five aspects:

- 1) Autonomy. The means to act on his/her own, independent of other people or teams to bring forward an idea or vision and implement it successfully. (Training, framework, concepts, planning, and methods of success should be provided.)
- 2) Innovativeness. The means of engaging and supporting new ideas and novel experimental creative processes that may result in a new product, service, or process. (Create new experiences for leaders by studying trips, comparing their products and services with competitors, and practicing to differentiate themselves from competitors.)
- 3) Risk-taking. Undertaking the burden of debt or building a property in exchange for a large market opportunity that will bring high returns. (Practice activities that measure risk-taking skills, such as role playing. Entrepreneurs try to play stocks in simulation games to practice entrepreneurial risk.)
- 4) Proactiveness. The implementation of plans to find new opportunities including participating in emerging markets. (Train curiosity for entrepreneurs by using various technologies to help, such as trying out data analysis tools, social media tools to discover business

opportunities, including participating in emerging markets)

- 5) Competitive aggressiveness. Engaging in direct competition to gain success and an increase in good standing in the market compared to his/her competitors. (Let entrepreneurs compete to present their work using various business strategies to convince customers to be interested and able to close sales better than competitors.)

The remaining group will skip to point 2.

- (2) Determining and able to select entrepreneurs who have desirable characteristics of entrepreneurs to develop and further develop products and services in modern and innovative ways that will help entrepreneurs to be successful achieved with regard to 1) Quantitative Innovation, 2) Innovation Communication, and 3). Process Innovation. The innovative performance of entrepreneurs can be divided into three groups.

1) Quantitative Innovation, Banbury and Mitchell (1995) studied the effect of introducing important incremental innovations on market share and business survival. They found that incremental product innovation is a fundamentally significant aggressive factor in start-up ventures. The more regularly an industry stakeholder was among the first to present a significant item development, his/her piece of the overall industry in the business.

2) Innovation Communication, Pfeffermann (2011) studied innovation communication as a cross-functional dynamic capability in the strategies of organizations and networks. He found that previous researchers concentrated on innovation communication and its effect

on the innovation process from the idea to launch as a part of corporate communication (e.g. Fink, 2009; Zerfaß, 2009). Three communication fields are utilized in this procedure: 1) internal communication, 2) external communication, and 3) public relations (Nordfors, 2009).

3) Process Innovation, besides innovation (Pfeffermann, 2011), dynamic capabilities are essential factors in the innovation economy to address environmental dynamism (Teece, Pisano, & Shuen, 1997) such as new stakeholder demands or new markets. Due to knowledge-empowered customers and advanced information and communication technologies various new business models and market entry strategies have emerged for launching new products and added-value services (Davenport, Leibold, & Voelpel, 2006). As a result, enterprises manage a broad spectrum of innovations in new market structures beyond product nowadays and process innovations (e.g. managerial innovations, marketing innovations, and co-created targeting innovations) based on internal and external information sources and knowledge (e.g. Davenport et al. 2006; Lichtenthaler & Lichtenthaler 2009; Waarts, van Everdingena, & van Hillegersberg, 2002). In this context, the question is how the communication of innovations can be understood in the innovation economy.

2) Some entrepreneurs have good products and services but are unable to communicate or offer sales to customers due to a lack of marketing capability. Particular attention should be paid to this skill which may create a business incubator linked from Entrepreneurial Orientation, which will focus on

Marketing capabilities in this research is considered by applying the following indicators: (1) marketing strategy (pricing, product development, and selling), (2) marketing communication (channel management, and marketing communication), and (3) marketing management (marketing information management, marketing planning, and marketing implementation). These 3 factors can evaluate which entrepreneurs are capable of and then classify by the interests of entrepreneurs or according to the aptitude of the entrepreneur as well. There are also various organizations, both public and private, that are interested in developing skills for entrepreneurs, such as the Department of Industry Promotion, Ministry of Industry, Department of Business Development, Ministry of Commerce, and Association of Thailand etc.

3) There are many entrepreneurs capable of producing similar products to their competitors. In this digital age, entrepreneurs should rely on techniques, marketing capabilities, and innovation to give them competitive advantage in the market.

The results of the research show that the global increase in entrepreneurs has rocketed, resulting in increased quantities of imitation goods and services offered by Thai fruit and vegetable processing and preservation SMEs. Moreover, the results show that innovative performance and marketing capability are highly related to entrepreneurial success. Finally, the development of strategies by using innovative performance and marketing capability as drivers will induce many successful entrepreneurs in a variety of industries.

Future research

1) According to this study, marketing capability did not moderate the relation of innovative performance on entrepreneurial success. It may be because the industry being analyzed is still using less marketing capabilities and innovations than other industries. Therefore, this model may be tested with other industries in order to study the factors that relate the success of entrepreneurs in the future e.g. robot, automobile, device, and high technology product etc.

2) If this research is to be implemented in the future, the researcher thinks that Digital Literacy, Media Literacy, and Health Literacy are factors that should be studied since, as today is a digital society and digital trends, consumption of products and services may increase and depend on the above factors and they are possible for entrepreneurs to be successful.

3) In addition, there are some variables that relationship and are fundamental to the success of entrepreneurs from literature reviews in many countries, especially European countries: human capital, but in the context of the Thai fruit and vegetable processing and preservation industry does not have any relationship on the success of entrepreneurs at all. Therefore, if this research is to be developed in the future, study and analyze the variables in the context of Thailand's industry.

4) The results show that there are three main variables that are related to entrepreneurial success: marketing capability, innovative performance, and entrepreneurial orientation, therefore, relevant agencies, both public and private, with the creation of incubator and accelerator to develop small and medium-sized businesses in Thailand are able to bring discussion of practical research results to further and develop entrepreneurs to be able to run their sustaining business.

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FACTORS AFFECTING PROFITABILITY OF FAMILY BUSINESS LISTED IN THE STOCK EXCHANGE OF THAILAND

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Article info

Article history:

Received
16 June 2019
Revised
-
Accepted
7 August 2020

Keywords:

Profitability, Gross Profit Margin, Net Profit Margin, Return on Asset, Return on Equity

Abstract

The objectives of this research are to examine the factors affecting the profitability of family businesses listed in the Stock Exchange of Thailand. The study compares the effects of CEO factors and Board-of-Director factors on the profitability of the companies measured by Gross Profit Margin, Net Profit Margin, Return on Asset, and Return on Equity, employing financial data during 2007-2017. The results show that companies with women CEOs exhibit Gross Profit Margin different than those with men CEOs at statistically significant level of .05, while the differences with respect to profitability indicators of Net Profit Margin, Return on Asset and Return on Equity are not statistically significant at level of .05. Regarding the Board of Director factors, the companies with women family-member directorship exhibit Return of Asset and Return on Equity different than those with no women family-member directorship at statistically significant level of .05, while the differences with respect to Gross Profit Margin and Net Profit Margin are not statistically significant at level of .05.

Introduction

Family business is one of the oldest form of commercial organization and remains a prominent one today driving the global economy substantially. Two thirds of the current business firms worldwide are in the form of family businesses accounting for more than 70 percent of world annual GDP (European Family Business (EFB) and KPMG, 2015). According to a respected research, the success of family business is closely related to the capability of family members and the management of non-family members. The ability to be oneself enabling flexibility and immediate decision-making to handle the ongoing challenges facing the family firms, together with the pride and unity of the family would positively improve the growth and profitability of the business (KPMG, 2017). The family firms would appreciatively know how to run the business successful in the long-run with positive growth and capable of enduring economic recession. The advantages of being a family firm are long-term vision, agility, flexibility, strong family values and culture of trust. However, these attributes alone cannot guarantee success, several others factors are required such as the presence of a strong and dedicated leader (KPMG and EFB, 2016), either man or woman, being a family member or not. Some family firms are aware of the proven capability of non-family members in effecting successful change in the business and some study shows that women have been promoted highly with the confidence in their leadership ability (Hall, 2018).

During the expansion of family firms, professional management is more essential than during the early phase. This involves the adoption of strict application of procedures for decision making and operation and could be implemented in several ways including the appointment of independent director(s) to the board and the formalization of operating practices in written form as well as the recruitment of non-family members for executive positions, thus adding an independent view. The independent director would be the main trust of good corporate governance and professional business management. However, most family firms still appoint family members to the board of directors. Only a few firms include non-family members in their board of directors. The directors of family firms are often diverse and less influential than firms in general while the firms have to compete to attract and keep these experience professional (White, 2017). While the advantages and disadvantages of bringing non-family members in to run the family firms are still debatable widely, the role of women in executive positions in such firms is being examined as another factor affecting success. It would thus be interesting to look at the financial performance in the form of profitability of family firms listed in the SET, comparing the effect of CEO factors and Directorship factors on the profitability indicators. The study could point to factors affecting the performance of family firms listed in the SET valuable to the long-run growth and the maintenance of competitiveness and operational efficiency for sustainable business goals.

Objectives

The objective of this study is to examine the factors affecting the Profitability of family firms listed in the SET and to contribute to the knowledge in the promotion and capability development of family businesses in Thailand.

Research hypotheses

1. CEO Factors (being Gender, Generation, Education Level, and Age of CEO) affect the Profitability of family firms listed in SET.
2. Directorship Factors (being Number of Directors, Family Member Director, Women Family Member in the Board, and Women Director) affect the Profitability of family firms listed in the SET.

Scope of research

The Profitability in this study includes four indicators of Gross Profit Margin, Net Profit Margin, Return on Asset, and Return on Equity. The data used are from financial reports during 2007-2017 of firms listed in the SET for 10 or more years meeting the criteria of family business.

Literature review

Family firms succeed and fail similar to any other firm. The difference is in their leadership structure. A strong leadership is the necessary foundation for firms to ensure success, thus the search for qualified leaders is always a challenging task (Taylor, 2012 cited in Rajesh, 2012). It is not surprising for family firms to

appoint non-family members as CEOs. This is in line with the survey by PwC (2015) of family business in the U.S. showing that one out of four of the respondents would hand over only the ownership of the business to the next generation not the executive power. The appointment of executives from within the company is a valuable approach because the founder/CEO and the board of directors are aware of the strength, weakness and success of these executives who have a good understanding of the company, its culture, the industry, the customers and personnel. Most significantly is the fostered relationship and trust of the family. However, in the case with no capable executive or family member ready to assume the position of CEO, the next alternative is the recruitment from outside. With the high level of competition in the marketplace at present, professional management must be mastered successfully by the family firms. The hiring of executive from outside is an approach to achieve this by improving operational practices through the clear division between operation and supervision roles and responsibilities enabling the executive to focus more on new initiatives and strategic planning (Norton, 2017).

Carrie Hall (2018), an expert on family business, examines the role of women in family business relying on the study of EY and Kennesaw State University (2016) pointing out that the oldest and largest family firms are those promoting women and non-family members to higher positions faster than firms in general. The survey of the largest family businesses in the world in 2015 found that 22 percent of them have women in high executive positions and 16 percent in the board of directors. Women were

also found in C-Suite positions (CEO, CFO, COO, etc.) and the number increased by 20 percent compared to the previous year. While sexual equality is still a little understood area at all level of business management, family business is an attractive choice for women seeking leader positions. In addition, family business is an example of business seeking success and advancement of women.

It is also an important task for the family members to understand the good practices for the appointment of the board of directors. Family firms often elect them from family members, friends of major shareholders or acquaintances. On the other hand, experts would point out that highly experienced outsiders could better improve the working of the board of directors; these include executives or former executives from related industries (either upstream or downstream), persons with added skills such as merger and acquisition, and other specialists. These skills could add new perspectives unrecognized by the current management team. The goal is to add and expand the vision of the board and to recognize its importance of being more than a rubber stamp or being the duplication of the executive committee at present (Peake, 2018). The study of these factors' influence on the profitability of the business is of great interest.

Research method

The sample group for this study is family firms listed in the SET for 10 or more years, amounting to 164 companies, excluding mutual funds/firms with SP status. The firm being controlled by a family is considered a family firm

employing the criteria of the Family Business Center, the University of the Thai Chamber of Commerce for the definition of "Family Business" as follows:

- 1) Being the founding family,
- 2) At least one of the top five director being a family member, and
- 3) Family members (all members) as a group are major shareholders (Strategic Shareholders)

Note: According to the Securities and Exchange Commission (SEC) Strategic Shareholder mean: (1) Holding of more than 50 percent of voting shares of the juristic person, (2) Having control of the majority votes at the general meeting of the juristic person either directly or indirectly or for whatever reason, (3) Having the authority to appoint or remove half or more of the directors either directly or indirectly.

The data used in this study are the financial indicators measuring profitability of family firms listed in the SET during ten-year period of 2007-2017. The effects of CEO Factors and Directorship Factors on the Profitability indicators are compared with respect to the means and tested statistically by Independent Sample t-test. Pearson's product moment coefficient of correlation and Spearman's Correlation are used for the test of relationship between the variables.

Research results

Profitability ratios for 2007-2017

With respect to the Profitability ratios of family firms listed in the SET (see Table 1), the Gross Profit Margin shows an increasing trend with a drop in 2009 and 2016, while the Net Profit Margin,

Return on Asset, and Return on Equity show similar trends fluctuating with the economic situation with a noticeable drop in 2009, 2012 and 2017.

Table 1 Profitability ratios of family firms listed in the SET during 2007-2017

Year	Gross Profit Margin (%)	Net Profit Margin (%)	Return on Asset (%)	Return on Equity (%)
2007	21.92	6.08	7.34	7.30
2008	22.36	6.06	7.17	6.62
2009	21.94	2.40	6.71	6.58
2010	23.21	6.34	7.60	9.17
2011	23.18	6.39	8.15	9.32
2012	23.31	5.64	6.36	-1.83
2013	23.38	6.59	7.52	4.85
2014	23.32	7.37	7.63	10.05
2015	23.59	7.09	7.09	9.89
2016	21.92	6.82	7.35	9.12
2017	22.61	5.18	6.12	6.62
Mean	22.79	6.00	7.16	7.06

CEO factors

Type of CEO

The CEOs of the majority of the family firms (116 firms) are family members, accounting for 70.70 percent while the remaining (48 firms) are non-family

members, accounting for 29.30 percent (see Figure 1). The comparison of Gross Profit Margin, Net Profit Margin, Return on Asset, and Return on Equity between the two groups is found to have no statistical significance at the level of .05.

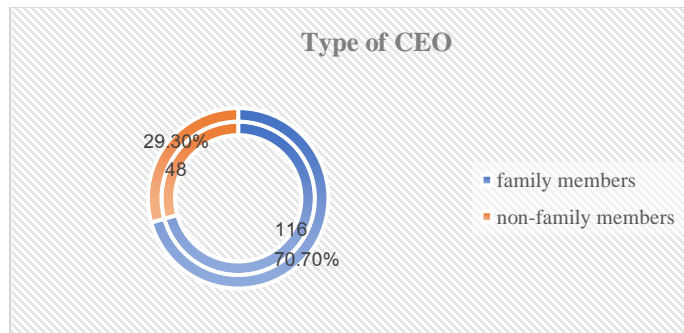


Figure 1 Type of CEO

Gender of CEO

The majority of the CEOs (138 firms) are men, accounting for 84.10 percent, the remaining (26 firms) are women, accounting for 15.90 percent (see Figure 2). The Gross Profit Margin of the women group (average of 27.34 percent) is found to be different than that of the

men group (average of 21.78 percent) at statistically significant level of .05. With respect to the other three indicators of Net Profit Margin, Return on Asset, and Return on Equity, the women group is found to have no statistically difference that of the men group at significant level of .05.

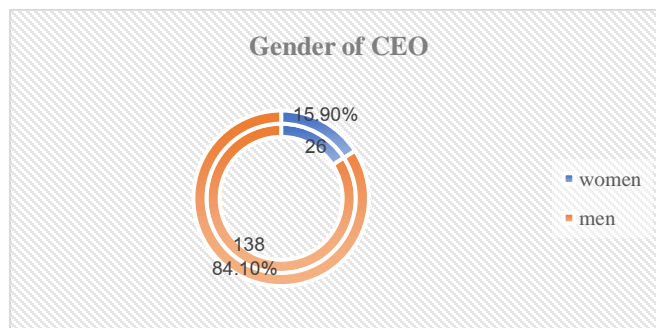


Figure 2 Gender of CEO

Generation of CEO

The largest group for this variable is the second generation (79 firms) accounting for 48.20 percent, followed by the first generation (78 firms) accounting for

47.60 percent, the third generation (5 firms) accounting for 3.00 percent and the fourth generation (2 firms) accounting for 1.20 percent (see Figure 3). Generation of CEO is found to have negative relationship with Gross Profit

Margin at no statistically significant level of .05, while it has positive relationship with Net Profit Margin, Return on Asset,

and Return on Equity at no statistically significant level of .05.

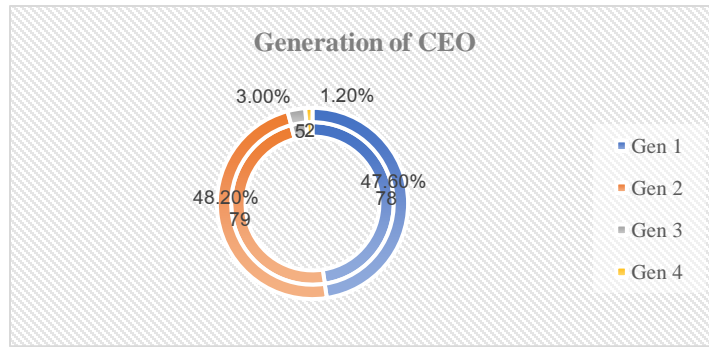


Figure 3 Generation of CEO

Education level of CEO

The largest group for this variable is Master Degree (92 firms) at 56.80 percent classified into being from foreign institutions (53 firms) of 32.70 percent and domestic institution (39 firms) of 24.10 percent, followed by Bachelor Degree (57 firms) at 35.20 percent classified into from foreign

institutions (26 firms) of 16.00 percent and domestic ones (31 firms) of 19.10 percent (see Figure 4). Education Level of CEO is found to have negative relationship with Gross Profit Margin at no statistically significant level of .05, while it has positive relationship with Net Profit Margin, Return on Asset, and Return on Equity at no statistically significant level of .05.

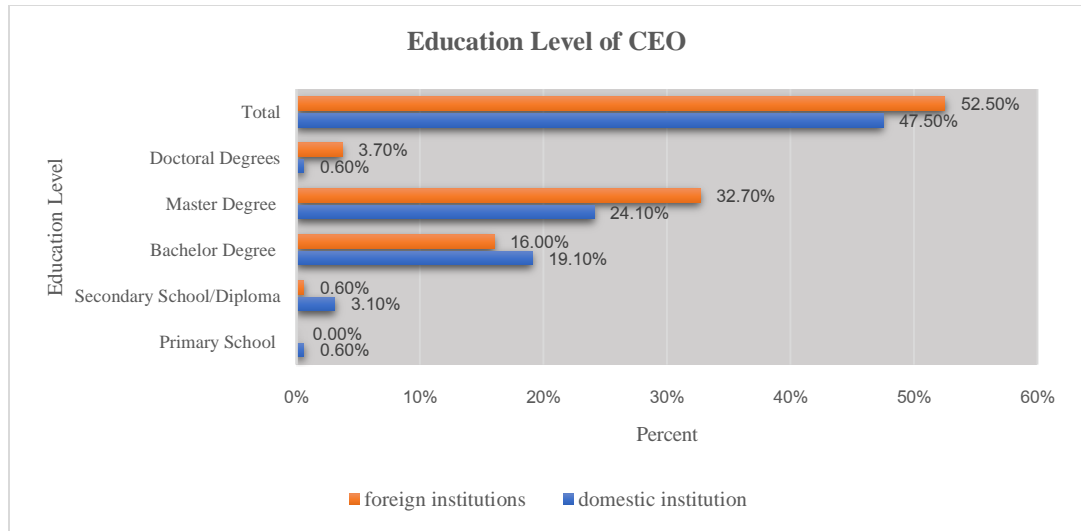


Figure 4 Education level of CEO

Age of CEO

The average age of the CEOs is 59.44 years with the oldest at 93 years and youngest at 32 years (see Table 2). Testing the relationship between Age and Profitability Ratios, Age of CEO is found

to have positive relationship with Gross Profit Margin, Net Profit Margin, and Return on Asset at no statistically significant level of .05, while it has negative relationship with Return on Equity at no statistically significant level of .05.

Table 2 Age of CEO

Variable	n	Min (Years)	Max (Years)	Mean (Years)	SD
Age of CEO	164	32	93	59.44	11.352

Directorship factors

Number of directors

The average number of directors is 10.34 persons with the highest being 21 and the lowest being 5 (see Table 3). Testing the relationship between Number of

Directors and Profitability Ratios, the Number of Directors is found to have negative relationship with Gross Profit Margin and Net Profit Margin at no statistically significant level of .05, while it has positive relationship with Return on Asset and Return on Equity at no statistically significant level of .05.

Table 3 Composition of the board of directors

Variable	n	Min (Persons)	Max (Persons)	Mean (Persons)	SD
number of director	164	5	21	10.34	2.629
family member in the board	164	1 (6.67)	10 (66.67)	3.07 (29.99)	1.696 (14.115)
women family member in the board	164	0 (0.00)	4 (100.00)	0.74 (22.01)	0.904 (26.437)
women director	164	0 (0.00)	7 (75.00)	2.16 (21.32)	1.698 (16.564)

Note: () = %

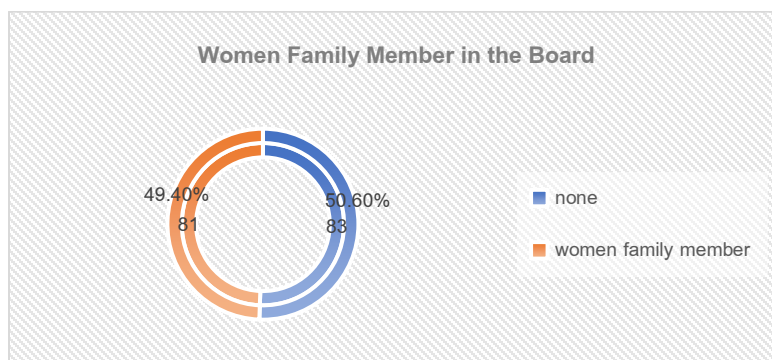
Family member in the board

The average number of family members in the board of directors is 3.07 persons with the highest of 10 and the lowest of 1 person. The average percentage of family member in the board of directors is 29.99 with the highest of 66.67 and the lowest of 6.67 (see Table 3). Testing the relationship between Family Member in the Board and Profitability Ratios, this variable is found to have negative relationship with Gross Profit Margin at no statistically significant level of .05, while it has positive relationship with Net Profit Margin, Return on Asset, and

Return on Equity at no statistically significant level of .05.

Women family member in the board

The average number of Women Family Member in the Board is 0.74 person with the highest of 4 and the lowest of 0. The average percentage of women compared to the total Family Members in the Board is 22.01 with the highest of 100 and the lowest of zero. There are 81 firms with Women Family Member in the Board accounting for 49.40 percent and 83 without, accounting for 50.60 percent (see Figure 5).


Figure 5 Women family member in the board

Testing the relationship between Number of Women Family Member in the Board and Profitability Ratios, this variable is found to have positive relationship with Gross Profit Margin and Net Profit Margin at no statistically significant level of .05, while it has positive relationship with Return on Asset, and Return on Equity at statistically significant level of .05. Upon testing the differences of Profitability Ratios between the group with Women Family-Member Directors and the Non-Women Family-Member Directors, there is no statistically difference with respect to Gross Profit Margin and Net Profit Margin at significant level of .05, but having statistically difference with respect to Return on Asset and Return on Equity at significant level of .05. The average Return on Asset for the former group (at

8.63 percent) is higher than the latter (at 5.74 percent); and the Return on Equity for the former (at 9.86 percent) is higher than the latter (at 4.22 percent).

Women directors

The average number of women in the Board is 2.66 persons with the highest of 7 and the lowest of zero. The average proportion of women in the Board is 21.32 percent with the highest of 75 and the lowest of 0 (see Table 3). Upon classification of firms, there are 139 firms (84.80 percent) with Women Director(s) and 25 firms (15.20 percent) without (see Figure 6). Testing the difference between the two groups shows no statistically difference at significant levels of .05 with respect to Gross Profit Margin, Net Profit Margin, Return on Asset, and Return of Equity.

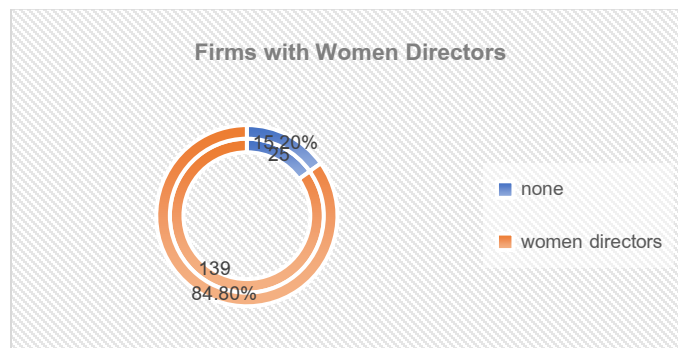


Figure 6 Women directors

The first hypothesis postulating that CEO Factors are related to the Profitability of family firms is supported with respect to the result showing relationship between Gender and Gross Profit Margin. The second hypothesis on the possible

influence of Directorship Factors is supported by the finding of positive relationship between the Number of Women Family Member in the Board and the Return on Asset, and the Return on Equity.

Conclusion and discussion

CEO factors

The CEO Factors of Type of CEO, Generation of CEO, Education Level of CEO and Age were found to have no significant relationship with Profitability Ratios of family firms in the SET, but with respect to the Gender variable, the group with Women CEOs exhibits higher average Gross Profit Margin than that with Men CEOs (27.34 percent compared to 21.78 percent). The differences between the two groups for Net Profit Margin, Return on Asset, and Return on Equity were not significant statistically, this may be the result of the women proportion (15.90 percent) being substantially less than that of men (84.10 percent). This is supported by the finding of EY and Kennesaw State University (2014) that companies with women leadership and role in strategic formulation would improve their economic performance. Women also have increasing interest in working for the family businesses as leaders and in other areas on the recognition of sexual equality. They also tend to foster the sense of ownership, trust and family tie. The added solidarity often leads to better business performance. According to the study of PwC (2016a), family firms possess the environmental factors facilitating the promotion of capable women with ambition to high career advancement even though in some culture or local setting the confidence of the family is placed on the success of

men. Currently, the gap between men and women in business is still a major issue in terms of remuneration, participation or even directorship.

According to the study of EY and Kennesaw State University (2016), the largest family firms in the world believe in the value of women leadership not confiding to just those of family members, they also provide environments conducive for the development of women. The family firms seem to possess the appropriate environments for women to achieve greater success in business compared to non-family firms (Van, 2018). The contributing factors are the balance between the interest of family and the requirement of business focusing on solidarity, participation and commitment to the happiness and wealth of the family and the business. In the short-run the human factors are considered, not just profit. Within such an environment women are easily promoted (EY and Kennesaw State University, 2016). This is consistent with the study of Shaffer (2016) finding that women (including non-relatives) working in family firms in ASEAN are found in executive positions in greater incidents than firms in general. Several other studies also suggest that firms with women in high executive positions exhibit higher profit than those without. Because daughters are able to communicate with their parents better, the succession process is much smoother. Women today tend to gain higher level of education than men and thus more competitive.

Directorship factors

The Directorship Factors of Number of Directors, Family Member in the Board, and Women Directors are found to have no influence on Profitability of family firms, while the Women Family Member in the Board is associated with Profitability indicators of Return on Asset and Return on Equity. The group with Women Family-Member in the Board exhibits higher Return on Asset and Return on Equity compared to the group with no Women Family-Member. More specifically, while Number of Women in the Board does not affect the Profitability of family firms statistically, the group of firms with Women Directors exhibits greater average Gross Profit Margin, Return on Asset, and Return on Equity, while the group without Women Directors exhibits greater average Net Profit Margin. Consistently, on the variable of Women Family-Member in the Board, the group of firms with this attribute can on average attain higher Return on Asset (8.63 percent versus 5.74 percent) and higher Return on Equity (9.86 percent versus 4.22 percent) compared to the group without. An explanation could be the fact that women would demonstrate their transformational leadership upon assuming executive roles enhancing the morale and motivation of their superiors and followers. The consequences are observed by the loyalty of employees, open communication along organization levels and efficient operation as a result of employee-based problem solving. This role is key to the sustenance of

essential characteristics for success of family business (Brown, 2018).

According to the study of PwC (2016b), the women heirs do not think that gender is an obstacle to running of family firms compared to other firms and the family firms do recognize the value of appointing women in important positions in the business. These heirs are ambitious and highly capable. They are prepared to work hard to prove that they are qualified for directorship of the family firms. This is consistent with the finding of EY and Kennesaw State University (2014) that firms with women directors perform better with respect to Return on Equity, Net Income Growth, and Price-to-Book Value. In addition, these firms tend to focus more on governance, and risk reduction which would enhance the ability to achieve better financial returns. Firms with the largest number of women executives tend to perform better on the Return on Equity and other financial indicators (EY and Kennesaw State University, 2014). Therefore, it would be of great interest to investigate whether family firms will accept this notion. However, it would certainly depend on the contexts of social and cultural factors as well as the locally held beliefs.

Recommendations

The use of Profitability Ratios is only one approach of measuring the performance of family firms. To gain a more comprehensive view, additional variables should be included such as the term of service of CEO, and other non-

financial performance indicators. Qualitative research could be undertaken in conjunction in order to gain more accurate and valid results. For the Stock Exchange of Thailand, in addition to the SET index, an index for family firms should be formulated. The Loyola University Chicago Family Stock Index (LuCFFSI) (McConaughy et al., 1996) is

an example which could reflex the performance of this group more accurately than the stocks selected to represent the entire market. The new index could be the Performance Benchmark for the evaluation of performance of individual firms or industrial sectors.

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Guide for authors

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- Research explaining about business management thought and practice;
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The UTCC IJBE will mainly consider for publication three types of articles:

1. Articles that report empirical research on business management issues.
2. Articles that report on the development of methodologies and techniques that can enhance business management decision making.
3. Articles that report the application of decision tools to generic or specific business management problems.

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Chirapandu, S. & Yoopetch, C. (2009), "Bank Credit Card Adoption Criteria and Marketing Implications," *International Journal of Business in Asia, Vol.1, No. 1*, pp. 1- 20.

Books:

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