THE USAGE OF ONLINE SHOPPING AMONG
THE OLDER ADULT

PRAEWPAT PUPANEAD

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....
Miss Praewpat Pupanead
Candidate

....
Asst. Prof. Randall Shannon,
Ph.D.
Advisor

....
Asst. Prof. Channin Yoopetch,
Ph.D.
Chairperson

....
Duangporn Arbhasil, Ph.D.
Dean
College of Management
Mahidol University

....
Suthawan Chirapanda SATO,
Ph.D
Committee member

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September 19, 2019

....
Miss Praewpat Pupanead
Candidate

....
Asst. Prof. Randall Shannon,   Asst. Prof. Channin Yoopetch,
Ph.D.   Ph.D.
Advisor   Chairperson

....
Duangporn Arbhasil, Ph.D.   Suthawan Chirapanda SATO,
Dean   Ph.D
College of Management   Committee member
Mahidol University

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PRAEWPAT PUPANEAD   6049075

M.M. (MARKETING AND MANAGEMENT)

THESIS ADVISORY COMMITTEE: ASST. PROF. RANDALL SHANNON, Ph.D., ASST. PROF. CHANNIN YOOPETCH, Ph.D., SUTHAWAN CHIRAPANDA SATO, Ph.D.

ABSTRACT

According to the world population, the older adult population has been increasing. The online shopping has become popular. However, the older adult usage of online shopping is the lowest of all demographic groups. This research explores the reason why the older adult bought products and services online. Many past researches have been using Technology Acceptance model to find the factor that influences the older adult to buy online, however, the technology Acceptance model is not enough to find the insight of why the older adult buy the products and services online. This study finds the factor that affects older adults to buy the products online from past research and use multiple regression to find the relationship between the independent variable and the dependent variable. There are six independents variable including loneliness, mobility limitation, trust, support, past technology experience, and electronic word of mouth. While the dependent variable is the usage of online shopping among older adults. The data is collected by using primary data of 300 respondents who are 50 years old and above.

KEY WORDS: Older Customers, Online Shopping, Customer Behavior, Factor Analysis

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CHAPTER I
INTRODUCTION

1.1 Introduction

Due to the advanced technology people can live longer. Since the 19th century, global life expectancy is increasing more than double and approaching 70 years (Roxer, 2018). Even though the older adult is increasing, the marketer focuses less attention to this age group (Vuori et al., 2018). Thailand approached aging society since 2004. In twenty years (2035), Thailand will become an aged society (Bank of Thailand, 2018). The birth rate is also reducing in Thailand. This cause the less labor worker. Moreover, the advance of technology also effort to the way a private company does their business. For example, online shopping on social media, and e-commerce platform.

According to Thailand Internet User Profile 2017 by ETDA, the older adult is the people who born in 1946 - 1964. The report shows that Thai older adult uses Internet 4 hours 54 minute per day. The top five Internet activity in three months including searching the Internet (88.8%), playing social media (77.9%), sending the email (73.9%), Online shopping (34.8%), mobile banking (34.4%). Online shopping is not the first Internet activity, but it comes in the fourth top five Internet activity (ETDA, 2017).

This dissertation aims to explore the reason why the old age consumer shops online by using potential variables with quantitative research method. The variables base on life course perspective theory and past research. The variables including loneliness, mobility limitation, trust, supports, and past technology experience. These variables have proof in the past study that they influence the aging behavior adoptive the use of Internet and online shopping.

This research seeks the explanation for why the older adult adapts themselves to buy the product online. What shifts their behavior from buying the product in the traditional store to online store. The older adult online shopper is the main focus target

of this research. The correlation model and SPSS are used to find the relationship between the variables and consumer behavior.

1.2 Problem Statement and Research Objectives

According to the World Population Ageing 2017 report, the number of world aging population is 962 million. It is more than twice of the aging population in 1980. In 2050, the number of the aging population also expected to be increased by double again. Which is predicted to reach around 2.1 billion. The aging population growth is a global phenomenon. It not effects to just a specific country but it happens to every country in the world. The number of aging population is growing significantly. In 1980, the aging population is still less than children (0-9 years old). However, in 2030 the prediction number of the aging population will be more than children (0-10 years old).

Today technology becomes a part of daily life. The smartphone owner has increased significantly in the past year. Not only it can make a phone call, but the smartphone also has abilities to make a video call, transfer files, and Internet application. This is making online shopping easier for the older adult. They can buy the product and service while sitting at home at any time they want. The older adult has lowest the adoption of technology compared to the rest age group. However, from the year 2011 - 2016, the number of older adult smartphone owner increase by 31% (Anderson, 2017).

According to the Pew Research, 59% of older adult are Internet user, 47% has high-speed Internet at home, 77% own a mobile phone (Anderson, 2017). However, the number of the older adult is behind when it comes to technology adoption. There are still many older adults that their life still hasn't connected to the Internet. But once the older adult uses the Internet it becomes a part of their daily life. 71% of an older adult Internet user is using the Internet every day. Also, 11% of them use the Internet a few time per week. (Smith, 2014).

As the increasing trend of e-commerce and older adult population. This research wants to study the behavior of older adult toward buying and adopting the use of e-commerce and other Internet shopping channels. To gain a better understanding of the main factors affecting aging behavior intention to shopping online.

The research objectives are:

1. Give an explanation of why older adult buy the products and services online

2. Test the relationship between each variable and the adoption of the older adult online shopper.

3. Explore which products, services, and channel do the older adult buy online.

1.3 Theoretical and Practical Contributions

Technology Acceptance has been the main theory use for online shopping behavior in all age group. However, older adult behavior is different from other age groups because of the change in physical and mental. The physical change including a change in mobility, and other diseases. The mental change is an effect from life course transition. The older adult faces the retirement transition and the loss of family and friends. For the future research should focus on mobility, sensor, and cognitive (Smith, 2007). Since older adult has different behavior, study specific variables could broaden up the adoption of their online shopping behavior.

Firstly, the life course perspective theory is used to define the potential variables that can drive the older adult to change their behavior to shop online. The events that happen in each period of life could drive the specific need of products and services. For example, the older adult experience fraud during the most stressful in their life e.g. the death of their spouse (Moschis, 2007). Life course perspective can consider as a life path. It is not a strength path and each people experience different path of life. There are six potentials variables from the past research that could affect the adoption of online shopping in the older adult. According to the past research also suggest that the more variables could give more explanation of the adoption of online shopping in the older adult. This research using the variables that there is no past study has been explored like the loneliness, mobility, and cognitive age.

Secondly, cognitive age is suited to predict the adoption of online shopping in the older adult. The older adult perceived themselves younger than chronological age. For example, the adult age 60 years old may feel that they are actually 45 years old. The older adult who uses the Internet perceived themselves younger than their actual age. The adult with lower cognitive age also feels more confident when they use the

Internet. The older adult with lower cognitive age perceived them self as more youthful and willing to learn a new thing (Eastman et al., 2005). This could also drive the adoption of online shopping behavior in older adult

Thirdly, the older adult physical is changing from their younger age. The mobility in the older adult is an interesting factor use for exploring online shopping in the older adult. In traditional shopping involve a lot of physical movement. People have to walk from place to place and carry the package. This could be a burden for the older adult to go shopping. While online shopping doesn't involve physical activity. The physical fitness is reduced when people get older (Milanović, 2014). So, this research what to explore if this factor really affects the adoption of online shopping in the older adult.

Finally, to understand why the older adult buying product online can be a benefit to the marketer. Because they're a high potential and purchase power from this age group. Moreover, there are not many marketers focus on this target group which soon will be the largest group of the population. Not only for some country but it including the whole world. The effective variables could be used to influence non-user to buy the product online.

1.4 Scope of the Dissertation

This study aims to explore the relationship between the older adult and online shopping by using life course perspective theory and the potential variables. The older adult population has grown significantly. According to the United Nation World Population Ageing report 2017, show that the number of global aging is 962 million. Only 37 years, the aging in 2017 is more than double of the aging population in 1980.In 2050, the number of aging people also predicted to be twice as large as in 2017. This time it will reach around 2.1 billion people. In twelve years, the population of aging people is expected to be more than the children under 10 years old.

Also, each generation has a different factor influence the adoption of online shopping. The number of the older adult who has been visited the online store is 80% but only 50% buy the products online. While 90% of the younger generation has been visited the online store. 80% of them buy the product online. From this comparison, the number of the older adult has the lowest buying rate (Rouythanasombat, 2015). To

understand the factor that influence the adoption of online shopping in the older adult, it will help drive them to shop online.

The focus group of this dissertation is the older adult living in Bangkok and the urban area near Bangkok. who have experience buying products or services online from all the technology device, for example, laptop, smartphone, and tablet. The focus online channel including social media (Facebook, Instagram), e-commerce platform (Lazada, Shoppee, Central online). There are many theories discuss when can we call the adult older adult. For this research, we are focusing on 50 years old and over (WHO, 2002). As 50 years old people are getting retire soon. However, they are still working and have access to technology. This research wants to explore what categories of the products and online services that older adult buys online.

Secondly online shopping has an increasing trend as same as the world older adult population. This makes an older adult become importance age target for e-commerce. The older adult has more time, and money to spend on e-commerce. The use of Internet in adult has improved the quality of older people life. The younger adult has more experience on the technology on their early age than the adult. For adult when they were in the school the personal computer still not use in common (Venkatesh et al., 2006). It interesting that what factor could drive the older adult from traditional store to online store.

In the past research, Technology adoption model (TAM) is a popular model to explain the adoption of new technology in the older adult. The researchers found that age does effect on the adoption of online shopping. Also, there are not many researches focus on the adult age over 50. From the previous research, they suggest that future study should focus on different variables. It could help broaden the study scope (Lian et al., 2014). Furthermore, in different age group also have different factors in technology adoption (Venkatesh, 2000).

CHAPTER II
LITERATURE REVIEW

2.1 Older Adult Definition

There are many definitions of old age. According to past research, there are four age groups including babies, young adult, middle age adult, and old adult (Anuradha et al., 2014). The old age starts when work activities move to the new phrase of life. For example, the old age starts when people get retirement. However, people retire at a different age. Some people are continuing their work after retirement age. As the average retirement has gone down in the recent year, it is now the age between 55 and 60 in a developed country (Settersten, 1997). There are many terms for the old age, and many people study the aging people. However, there is no general agreement on the term that we can people in this age group. People in 50 years old is start to entering the old age.

The psychological decline begins to affect young adult physical development starting from 20 to 30 years old. However, when a human reaches 40 to 50 years old, the physical retrogression becomes visible. This is also including eyesight, hair color, and wrinkle (Colarusso, 1992). There is no clarity on the older definition in this research, our participation is 50 years old and above. People at the age of 50 still working and has more access to technology and has a various lifestyle. They are still social active and use the Internet in daily life.

Being old is when the people age reaching the middle of the century. People will reach old age when they get 50 years old. This age group has owned a lot of things including a home, televisions, and cars. They are remodeling and redecorated things and prepare to become old. This age group also have a high purchasing power. Also, their children graduated and leave on their own, so the older age group have more money to spend for themselves. The product categories that older adult spending the money on are entertainment, activities, travel, and personal toy (Reisenwitz et al, 2007).

There are many terms that can refer to the people who age 50 years old and above, for example elderly, baby bommer, and ageist. However, the older adults are dislike the term elderly when it uses to refer to themselves. According to the survey as, the older adults don't like the term old, aged, and elderly. From the United Nations Committee on Economic Social and Cultural Rights of Older Persons is using the term of older person instead of elderly. Moreover, The International Longevity Center is using the term of older adult instead of elderly and senior an it refers to people over 50 years old (Avers et al., 2011)

2.2 Electronic Commerce

According to Electronic commerce by Marilyn, electronic commerce is the use of electronic transmission medium (telecommunication) to exchange including buying and selling the products and services. Those products and service need to be transported by physically or digitally, from place to place. Electronic commerce requires all the transaction size. The transaction happens in the technology device such as a smartphone, laptop, and PC. While the transportation of products happens in the physical channel such as mail delivery, or digital form as download the product on the Internet (Greenstein et al., 2001).

2.3 Online Shopping and the Older Adult

The number of senior Japanese online shopper is growing. Surprisingly, most of the online shopper buying the product in the late at night. However, the senior shopper places their order in the morning around 11 a.m. until noon. According to Yahoo Japan, the number of senior shoppers rose 40 percent from 2011. The company thinking to launch the new campaign aim to target this group of customers (Nikkei, 2012).

The marketer targets the young Internet user group while the person who has the money to spend is their parent and grandparent. The US senior Internet user is growing rapidly. They reveal that 15 percent of US Internet user is over 50 years old. Moreover, 40 percent of over 50 years old Internet user is an online shopper (McLuhan, 2000).

The most popular product category that Thai older adult buying online clothes by 25%. The second product category is accessories for 22%. The third product category is music, entertainment, and travel 12%. The interesting fact is the older adult by the third product category 4 times more than the other age group. Moreover, the older age group also has a high click-through rate of online advertising (Thai Retailers Association, 2014)

The past study of the different between attitude and age different in online buying, they found that there is a difference between each age group in online shopping. The older customer buys the products online less than the younger age group. In term of searching, the younger adult is searching for the product online more than the older age group. The older age group also less agree that the online shopping is convenient than the younger age group. According to the research result, it is suggested that different marketing approach is important for each age group of online shoppers (Sorce et al., 2005).

2.4 Technology Adoption Theories

2.4.1 The Technology Acceptance Model (TAM) (Davis, Bogozzi and Warshaw, 1989)

TAM model is created to predict the use of the new ITs. It explains that there are two beliefs that drive people to use IT. First is perceived of usefulness. It is a believes that using the technology will help them have better job performance. The second is perceived ease of use. It is a believed that use of an IT will be free of effort (Lai, 2017).
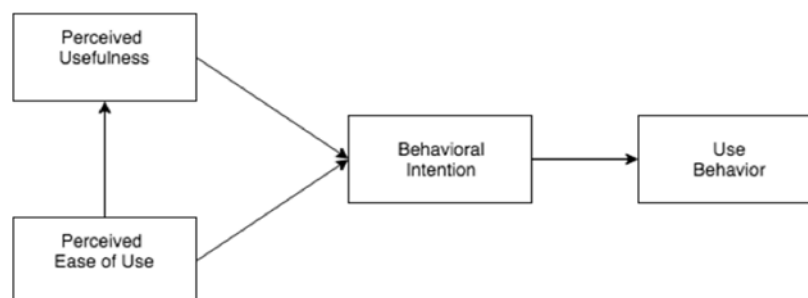
Figure 2.1 Technology Acceptance Model

2.4.2 Final version of Technology Acceptance Model (TAM) Venkatesh and Davis (1996), Technology Acceptance Model 2 (TAM2) Venkatesh and Davis (2000)

In 2000 Venkatesh and David, created the new model which developed from the TAM model. Perceived usefulness and perceived ease of use are from fours factors. Those fours factors including individual differences, system characteristics, social influence, and facilitating conditions. The individual differences are personality characteristics, age, gender, ethnicity, previous knowledge, and experiences. System characteristic is the system functions that the users use to achieve their goal. It can create a good or bad perception. Social Influence is others person can have an effect on the use of IT. The last one is facilitating conditions. It is the technical or organizational support the use of IT (Lai, 2017)
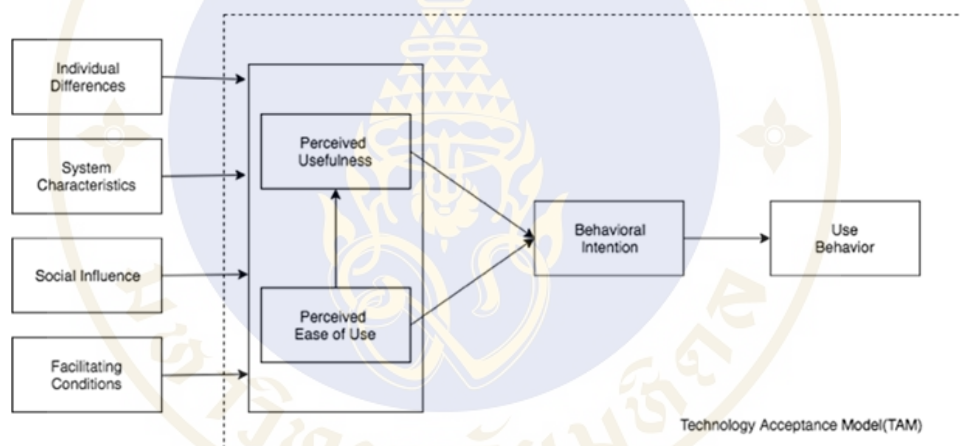
Figure 2.2 Technology Acceptance Model 2

According to the past research by using UTAUT 2 model, found that the factors that can influence the older adult to shop online are including hedonic motivation, trust, and facility conditions (Rouythanasombat, 2015). For this research study further by select potential variables from the past study on technology adoption and online shopping in the older adult. Also using life course perspective theory to explain some of the variables.

2.5 A Life Course Perspective
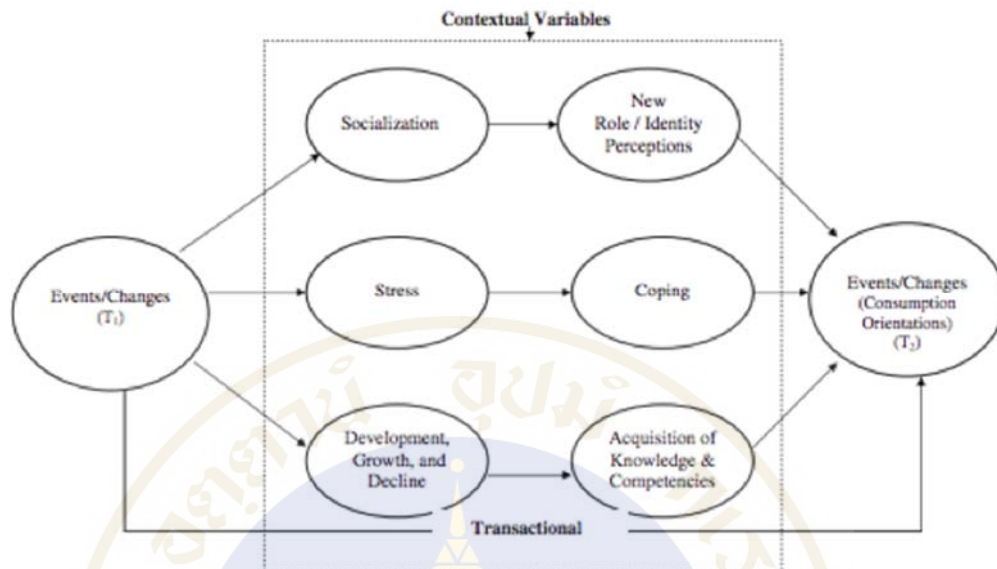
Figure 2.3 Life Course Perspective Model

According to the model, there is an event that happens in the people lifetime (T1) that has the consequences to the change of people consumption later (T2). People experience the different event in a lifetime such as a parent's divorce of loss of their spouse. The change in the event also effects to physical, social, and emotional that people need to adapt. The adaption is a consequence of socialization, stress, and development and growth (Moschis, 2007).

Life course is a state when people transit from one role to another, for example going to school, getting a first job, and retiring. A lot of transitions connect with the family including marriage, birth, and divorce. Family status and role have been changed in each transition depend on the member exit and entrance. Stress could cause from the transition change in life. Coping is how people try to take control and deal with their stress (Hutchison, 2007).

Human development refers to the growth of human different life period. It a human biological growing process which transfers from fertilized egg to adult (Alwin, 2012). There are many transitions and the social status change in the older adult. The change in life course event could help the marketer understand consumer behavior.

2.6 Past Research

This section is the future research suggestion from the past research on the adoption of the new technology and online shopping in the older adult. Most of the past research study the adoption of online shopping in the older adult by using technology adoption model. They suggest that for future research more variables can give more insight into the adoption of online shopping in the older adult.

For the future research should focus on the different level of cognitive, mobility, and sensory. Furthermore, he suggests that future research should study only for the senior that already have an experience buying the product online (Smith, 2007).

The older adult is also an active online user. The older adult finds it most difficult when they try to buy the product for the first time. Once they get familiar with the system their attitude may not differ from other users. They suggest that for future research should expand to the developing country because the developing country may have lower education which is might impact to the use of IT (Martin et al., 2011).

The older adult life quality could be increased through the use of information technology. According to this, older adult online activities are increasing including online shopping, virtual community, and online learning. TAM model can be used to understand the adoption of technology usage in the older adult. However, in order to better understanding the adoption of information technology in adult, the more variables are required. (Jiunn et al., 2014)

The study of the adoption of online shopping in Malaysian older adult found that ease of use, Internet safety perception, and attitude are effect perception of online shopping in the older adult. However, the most influential variable is ease of use. For the future research should study potential impact variables like social status, income, and the living area (Rahman et al., 2014)

The study of online shopping driver and barrier in the older adult by using UTAUT and innovation resistance theory. Most of the past research using only one theory to explore the adoption of online shopping in the older adult. But the technology adoption in the older adult is a multi-disciplinary phenomenal. Beside using TAM model, other additional variables are required to better understand the adoption of online shopping in older adult (Lian et al., 2014).

In conclusion for the past research, they were focusing on using Technology acceptance model to predict the adoption of online shopping in the older adult. The earlier study has a little insight on how each individual variable use to predict online shopping adoption in the older adult. While this research focuses on the individual variable that could affect the adoption of online shopping in the older adult. The variables that use in this research is based on the past study and a life course perspective theory.

Table 2.1 Previous Study on older adult adoption of technology

Variables	Citation	Finding
Loneliness	Pettigrew, 2007	The Internet makes the older adult feel less lonely
	Choi, 2012	Internet and computer can reduce the loneliness in the older adult.
	Lim et al., 2011	Loneliness influence T.V. shopping in the older adult.
Cognitive Age	Eastman et al., 2005	The older who use the Internet perceived themselves younger than their actual age
Mobility Limitation	Selwyn, 2004	The older adult starts using the Internet because they are preparing for the old age. So, when they are immobility, they still can live independent.
Trust	McCloskey, 2006	If the older adult trusts the system, they will be shopping online more frequency.
Support	Lian et al., 2014	Training and manual can influence the older adult to use technology
	Smith, 2014	Most of older adult said they would need an assistant to learn a new technology
Past Technology Experience	Lee et al., 2014	The first successful experience can create confidence for the older adult to use the technology
eWOM	Lee at al., 2014	The low risk message on social media have increase the purchase intention in the older adult.

2.7 Selected Variables

TAM model is useful to understand online shopping usage, but the relationships between the variables are different for the older adult (Lian et al., 2014). This theory is popular in many technologies adoption research while there are no research study specific variables that could affect older adult behavior. This research aims to study specific variables that can affect adult behavior. As currently, there are not many researches study on older adult and the adoption of online shopping. The variables are from the past study of the Internet and technology adoption and online shopping in older adult including loneliness, cognitive age, physical burden, trust, support, and past experience.

2.7.1 Loneliness

According to a life course perspective in later life, it could influence the behavior in online shopping in the older adult. The major transition in the older adult is including retirement. Since the older adult is not going to work, the stay home with their spouse. Many older adults find the new role as a single. The widowhood is a common change for the older adult. Women have a higher percent to become widow than men. They are also finding themselves abandon and individuate. So, they try to cope by making themselves busy. The most adult would be watching television, reading, and shopping (McInnis, 1999).

Also, the more people get older the less friend they will have. Some of their friends start to pass away (Munnichs, 1964). Because of this, the older group feel most loneliness compare to other age groups (Toepoel, 2012). It is hard for the lonely people to be a friend with each other because the loneliness makes them feel unattractive to each other. While the older adult is not comfortable with making the new friend, they find a way to reduce the loneliness by using the Internet. The older adult who spends more time on the Internet has a higher degree of loneliness (Sum et al., 2008). Because using the Internet let them feel less lonely. Leisure activities can help older adult feel less isolated. Moreover, shopping is one of the sources of social interaction for elderly people (Pettigrew, 2007).

The older adult who use the Internet was 52.8 percent. They were using the Internet for 5 hours per week. The online shopping is the major activity the older adult use the Internet. The older adult use the Internet to stay in touch with their family

and friends (40%), catch up the news and events (26%), shopping (23%), entertainement (11%), search for health information (24%), and other (24%) (Reisenwitz et al., 2007). Furthermore, loneliness in older adult is related to mall shopping. Moreover, the loneliness is influenced T.V. shopping in older adult. The loneliness, mobility limitation, and convenience are the factors that lead to T.V. shopping in the older adult (Lim et al., 2011).

The loneliness also come from when the older adult has less responsibility in their life. Most of them are retired. Their child all grows up and their work is stable. They are not going out often anymore, so they have more free time than other age groups. Moreover, an aging person who was married is a maximum Internet user (Vromen et al., 2015). One of the interviewees states that they use the Internet to keep him busy. Moreover, online shopping is helpful for him because he lives in a rural area (Heinz, 2007).

Some of the older adult have small social ties as they have to reallocation from where they used to live or stay in the hospital for some periods of time, as they might have suffered from the chronical disease. Moreover, they might have physical limitation to move freely. Being isolation is a lack of social contact. The loneliness can cause by isolation. 10 to 43 percent of the older adult are isolated. Furthermore, 35 percent of the older adult are facing chronic loneliness (Baecker et al., 2014).

2.7.2 Cognitive Age

Chronological age is a common tool for the segment the market. But it might not be good to predict consumer needs (Myers et al, 2008). People are considering their age to differ from their birth age. Cognitive age is a better predictor of older customer behavior more than chronological age. In the past research has confirmed that cognitive is better prediction factor of older adult lifestyle, purchasing decision, and choice, than education, health, and income (Guido et al., 2014).

Cognitive age also influences purchase behavior (Barak et al., 1981). The elder who user Internet tends to perceive themselves younger than their actual age (Eastman et al., 2005). Most of the aging people who use Internet feel younger than they are (Vuori et al., 2018). The elderly with lower cognitive age is using the Internet more than the elderly with higher cognitive age. Also, women have lower cognitive age than men (Eastman et al., 2005). The cognitive age might correlate with online shopping behavior.

When the older customer shopping, they perceive themselves younger than their chronological age. A lot of the people think that they are ten years younger than their actual age. The product that their buy also has a purpose for them to feel younger. Moreover, they are seeking not only the product but also the youthfulness experience. The older adult who is 55 years old perceives themselves as 45 years old. As people live longer, the older adult may perceive themselves ten to fifteen year younger (Myers et al., 2008).

2.7.3 Mobility Limitation

In older adult has a physiological change including a change in eyesight, and the ability to walk. This may lead them to online shopping because they don't have to travel to the mall. Shopping increase with the elder age group but decrease in eldest age because of mobility (Toepoel, 2012). In this era, we have online shopping. This will help eldest age group shopping while they sitting at home. The motivation of online shopper is the convenience of order product from home at any time (Rohm et al., 2004). The elderly with limited mobility tend to spend their time on the Internet than the those who have the ability to go out of home (Eastman et al., 2005).

For the older adult to go shopping could be a hard job for them due to a physical burden. It takes a lot of effort to go shopping including driving, walking, and carrying the products. Moreover, most of the older adult avoid driving during the night, rush hour, high traffic, and the rain (Ball et al., 1998). These factors could make a difficult for the older adult to go shopping. The shopping might not be done with just one store. The older adult might have to travel from store to store for price comparison. Online shopping doesn't need a lot of physical effort. The older adult may shop online because of this benefit.

From an interview with the older adult, they said that they start using the Internet for preparing for the old age. So, when they are immobile, they still can shop online and send the email. Moreover, it also makes them feel more independent (Selwyn, 2004). The Internet can help them develop a better quality of life. For example, they cannot go shopping in the physical store but they still can go shopping online.

2.7.4 Trust

Trust is including the rely able of the e-commerce platform, seller, money transaction, and security of private information. Older people are taking seriously on security and privacy (Tatnall et al., 2003). Especially the online credit card transaction. Half of the respondent agree that the Internet should be safe to use (Vuori et al., 2018). Many older people decide not to use the Internet because they concern the risk of identity theft and information risk. Moreover, the older are more concern about privacy than younger people (Maaß, 2011).

The older adult has less knowledge about Internet security including privacy, spam, passwords, and virus. The main barrier to use the Internet is to learning and understanding other computer concepts such as privacy and security. On the other hand, older adult also has more concern about a virus, identity theft, and credit card theft online than younger age group (Grimes et al., 2010).

Trust also have a direct impact on frequency use of online shopping in the older adult. Online shopping is easy to use because they believe that their financial and personal data are safe. If they have more trust that their data will be safe, they can create their user profile, fill in the address, and payment information. In this way, the can simply buy the product in just a few clicks (McCloskey, 2006).

The five constructs including perceived usefulness, perceived ease of use, trust, personal initiatives, and content influence. The trust is the factor that is the most influence the online shopping adoption in the older adult. The online retailer should implement the system to prevent identity thief, fraud, and other security risks (Morga, 2016).

2.7.5 Support

The user believes that the e-commerce company will support when they have trouble with the system. For example, a call center, live chat, or contact address. This will have a positive effect on online aging behavior. From the study on the past research, the older adult mentions that he rarely shopping online. He explains that he bought a product online but couldn't contact them by phone. He was desperate to order a product online (Kim, 2012). Because of bad support, it could create the adoption of online shopping in the older adult.

According to Thailand Internet User Profile 2017, shows that the aging people decide to buy the product from an online shop that has a call center, quality guarantee, and product refund service. The training and manuals can influence the use of technology. As the old adult may find a different problem from younger people (Lee et al., 2014). In the older adult, there is a positive relationship in the willingness to ask for help when they have a problem towards using the new technology. The relationship between the store and older adult are important. It is giving them the trust when they are shopping. Also, it can give them the advice and information on the products. The older adult more likely to ask for the store assistant than the younger generation (Parment, 2013).

In order for the adult to learn new technology and digital services, most of them said they would need assistance. If they need to learn the new technology, 77% said they would need help from someone. Only 29% said they can use the new technology on their own (Smith, 2014). The learning and support help older adult reduce the stress. Moreover, it helps them create confidence using the new technology.

2.7.6 Past Technology Experience

The aging people feel more anxiety when they use the new technology (Gudur et al., 2013). The aging user would choose to use the website that easy and simple to use. The expert suggests that aging people should have a different website, with larger font size and graphics (Vuori et al., 2018). The aging people who have an experience using technology is more comfortable with Internet shopping and spend more time using the Internet.

A less education people have more technology anxiety than the higher education person (Rouythanasombat, 2015). The past experience also includes the IT experience from their job. The older adult with the job with IT experience tends to buy the product online. The older adult doesn't like to try the new product as it is difficult to understand, such as medication wearable sensors. The first success training is important for the older adult. It can create the confidence to use the technology (Lee et al., 2014). The older customer is more resisting to use e-commerce than younger adults and has less technology experience.

One bad technology experience can create a bad feeling toward the adoption of new technology in the older adult. According to the past interview found that the older adult who have a negative experience of online shopping will have the negative to other types of technology. On the contrary, the positive technology experience can create positive feeling to the new technology (Kim, 2012).

2.7.7 eWOM

Electronic word-of-mouth (eWOM) is the direct communication to the customers via Internet-based technology. The communication related to the characteristic or usage of the products and services. Furthermore, the communication can be between the seller to customer or customer to customer. The different between word of mouth (WOM) and electronic word of mouth (eWOM) is eWOM happen online. eWOM has a low cost and can reach to many people, but it hard to control once the message went viral (Litvin et al., 2008).

The younger adult age group search for product online more than the older adult. But when it comes to purchasing decision, if the older adult searching online, they are more likely to buy the product than the younger adult. eWOM on online shopping website has is a better way to influence the online shopper compare to social media website. From the past study also confirm that the review online (Sorce et al., 2005). The positive eWOM is also affect the intention to shop online. The popular product tends to has a higher review than the non-popular product. The online product with the high review rate can create the trustworthy for itself (Zhu et al., 2010).

eWOM has an effect to online shopping in the women older adult. Many of the older adult women who buy apparel online are confirmed that they read the review of the item. The review also influencing the decision to buy the product online. If there is negative review about the product, they won't be buying it (Lee at al., 2014).

CHAPTER III
RESEARCH FRAMEWORK AND HYPOTHESES

3.1 Research Framework

To explain older consumer shop online by using independent and dependent variables. The independent variables are loneliness, cognitive age, physical burden, trust, support, and technology experience. The dependent variable is the adoption of online shopping in the older adult. The conceptual framework of this dissertation is formed as follows:
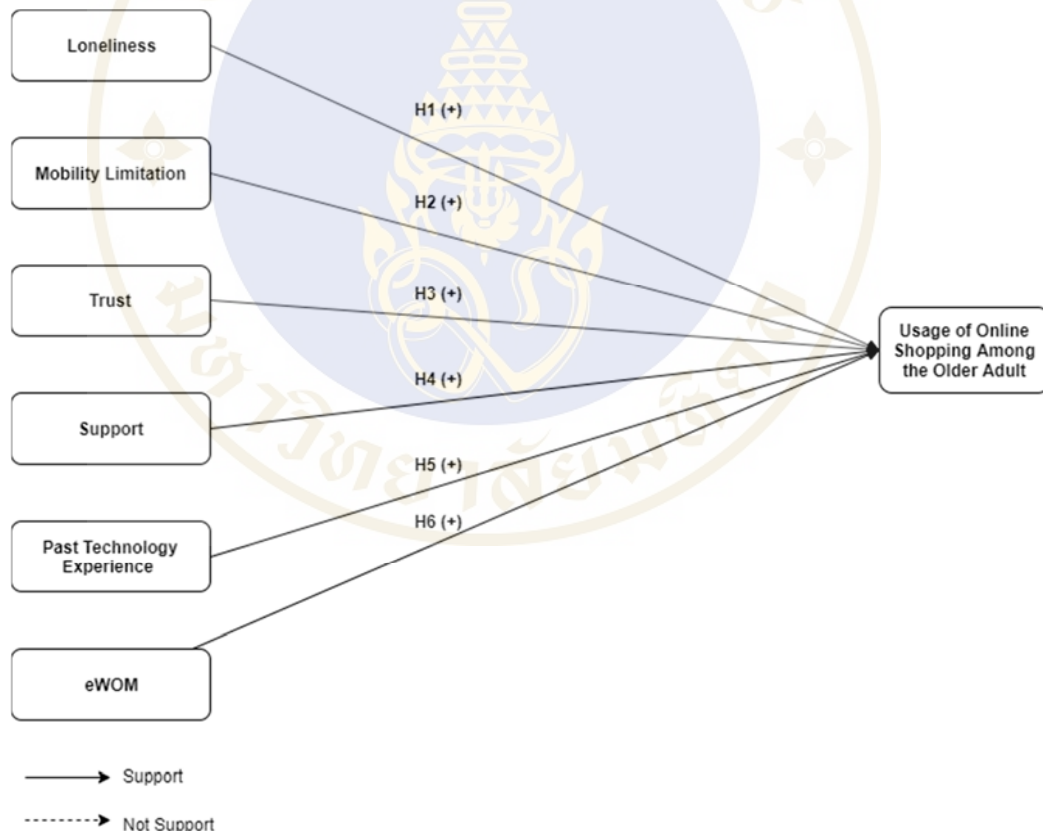
Figure 3.1 Conceptual Framework of this Dissertation

H1: Among older adult online shopper there is a positive relationship between a level of loneliness and the usage of online shopping.

There is no previous research on the loneliness and online shopping in the adult. However, there is a past research study the Internet use and loneliness in the adult. The more hour the older adult spends on the Internet, the more loneliness they have (Sum et al., 2008). The study of loneliness and Internet use found that older adult who use the Internet also has lower loneliness score than people who don't use the Internet (Khalaila1, 2017). This research wants to study further if the loneliness also effects to online shopping in the older adult. As the previous study that the loneliness has a positive relation with Internet usage in older. I expect that the loneliness in the older adult should have the effect to the adoption of online shopping.

H2: Among older adult online shopper, there is a positive relationship between a level of limited mobility and the usage of online shopping.

When people get older the physical ability starts to change. The older people can walk slower or less distance than they use to be. In 2010, the most common disease in older adult is hypertension (51.4%), cardiovascular disease (38.3), overweight (31.2), diabetes (13.6), hyperlipidemia (8.9%), liver disease (7.5), and poor kidney function (4.8%) (Zhou et al., 2018). These diseases may affect the ability to go outside from the house. However, the older adult still needs to consume the product and the service. I expect that limited mobility in the older adult could lead to a negative impact on the adoption of online shopping.

H3: Among older adult online shopper, there is a positive relationship between a level of trust and the usage of online shopping.

The high level of trust could lead the older adult to shop online. The older adults who do not shop online because they are concern about the security risk (Maaß, 2011). Also, if older adult trusts the system, this could lead to an increase in online shopping frequency (McCloskey, 2006). Trust is also the most effective factor that influences the adoption of online shopping in older adult (Morga, 2016). I expect that the older adult with high trust in the platform will likely to shop online more frequency.

H4: Among older adult online shopper, there is a positive relationship between a level of support and the usage of online shopping.

The training and manual can influence the adult to shop online (Lee et al., 2014). If the e-commerce platform provides the user support, the older adult will likely to shop online. The older adult is born without the Internet. They also have more anxiety when using technology than other age groups. The support could also come from family and friend help them buy the product online for the first time. I expect that the support will influence the older adult to shop online.

H5: Among older adult online shopper, there is a positive relationship between a level of past technology experience and the usage of online shopping.

The adult who has experience using the technology will feel more comfortable using Internet shopping. The past technology experience is including using IT device, Internet, and social application. Furthermore, the positive feeling toward the technology experience should influence the older aging to shop online. I expect that the older adult with past technology experience will shop online more frequency.

H6: Among older adult online shopper, there is a positive relationship between a level of eWOM and the usage of online shopping.

The online customer review is linked to the trust of the online shopper (Sebastianelli et al., 2018). As trust in older adult relate to online review, the product review could lead to online shopping in older adult (Morga, 2016). The positive online review is influencing the online shopping. The more number of online review, the higher purchase intention to the product. (Park et al., 2007). I expect that eWOM will influence the older adult to shop online.

H7: Among older adult online shopper, there is a positive relationship between a level of cognitive age and the usage of online shopping.

Cognitive age is how the older people describe themselves younger than their chronological age, their look, and they feel more self-confident and control of their life. The older adult who has lower cognitive age than their chronological differs from a traditional older adult. They are more self-confidence in decision maker and have more ability to adapt the new product that makes them feel more life control. They also have various interesting in activity indoor and outdoor and also include the use of the Internet (Eastman et al., 2005). The cognitive age should have a positive effect on the

older adult adoption of online shopping. The old adult has perceived themselves to stay young, they are anger for the new opportunities, job, and technology. The older people are enjoying the active life (Coleman et al., 2006). I expect that the older adult with lower cognitive age will shop online.

CHAPTER IV
RESEARCH METHODOLOGY

4.1 Research Approach

This research is survey research by using the quantitative approach which is widely used in consumer research. The conceptual framework of this research including Independent variables and dependent variables.

1. The independent variables including loneliness, mobility limitation, trust, support, technology experience, eWOM, and cognitive age.
2. The dependent variable is the adoption of online shopping.
3. The moderator variable is the consumer age range.

4.2 Sampling Method and Sampling Size

Multiple Linear Regression (MLR) is a common tool for predicting the dependent variable base on the set of the predictor. r2 is an indicator (Bujang et al, 2017). To find the effective sample size for factor analysis, the bigger the better. But if the researcher collects the data from everyone, it will take forever. So, the researcher needs the theory to support the number of sample size they select for their study. The first rule explains that the minimum ratio of sample size is 5 per 1 variable. While the ratio of 15: 1 or 20:1 is preferable. For this research has 6 variables, so the preferred sample size for this case is 90 – 120 (Hair, 2014).

Furthermore, there is another rule to calculate the minimum sample size. The first rule is if you want to test your overall regression model fit (r2), the recommends a minimum sample size

$$n = 50 + 8k,$$

where k = number of variables.

n = Sample size

So, with five variables you'd need a sample size of 50 + 40 = 90. The second rule is for testing individual variable, the minimum sample size is 104+k. Again, with 5 variables it will need a minimum sample size of 109 (Green, 1991). This research has 6 variables including loneliness, mobility limitation, trust, support, past technology experience, and eWOM. From the number of variables, we can define the value of k is equal to 6. So, the minimum of the sample size is 50+8(6) = 98.

There is another rule to find the minimum of the sample size for testing each variable. "If you want to test the individual predictors then he suggests a minimum sample size of 104 + k, so again taking the example of 5 predictors you'd need a sample size of 104 + 5 = 109" (Green, 1991). For this research has 6 variables, then it would need 110 cases.
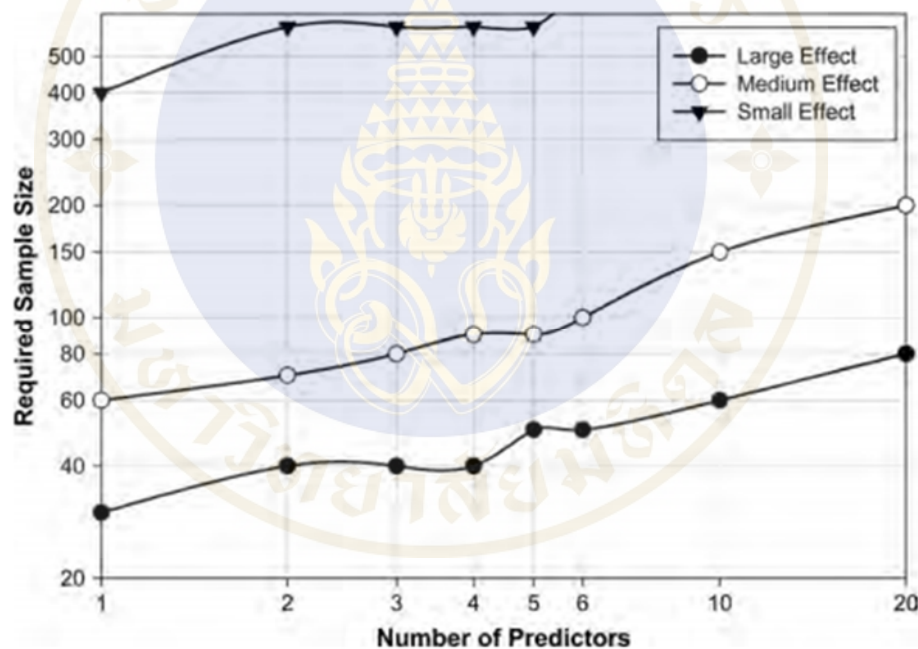
Figure 4.1 Sample size required in regression depending on the number of predictors and the size of the expected effect.

According to figure 4.1, it is a graph represent the number of predictors and require sample size (Miles and Shevlin, 2001). The graph represents the sample size needed in order to reach a high level of power (benchmark of 0.8) based on the number of predictors and the size of the expected effect (Cohen, 1988). It also shows

the number of the sample size required for each of the predictor's sizes. From the graph, if we want the large size effect, the sample size of 80 will suffice (predictor is less than 20). If we want the medium size effect, the sample of 200 is sufficient. And the last, if you want the small size effect, the minimum sample size would be 600 cases. According to the book, the medium effect size is enough for 6 variables (Field, 2009).

According to the Pearson study, the minimum number of sample size (n) equal to 200 is a good Policy. The result from the important study, which uses sample size less than 200 is verified. The predictor testing with around 200 sample size has been sufficiently stable compared to the test with the same predictor and the sample size above 1,000 (Guilford, 1954).

There are many statistic techniques to find the sample size for example Chi-square, Factor Analysis, and Multiple Regression Analysis. Chi-square is a statistical technique to find the sample size. The Chi –square value (X2) is sensitive to the sample size. When the sample size increase (above 200) the indicate significant probability is also go up. In the other hand, when the samples size decrease (below 100), the non – significant probability is go up. When the sample size is exceeded the range, the reliable become less significant. For the factor analysis, the sample size should be at least 200 to obtain the stable solution for factor analysis. The sample size is also depending on the number of factor. The sample size of 200 is suitable for the factor less than or equal to 10 (Siddiqui, 2013).

For a multivariate technique, the smaller sample size can lead to small statically power to achieve a significant result. While the larger sample size can make the test too sensitive. The researcher needs to check the significant result again if the sample size is larger than 400 responders. The 200 sample size is acceptable, and 300 is good for conjoint analysis which provided the acceptable margin of error. The minimum sample size which is acceptable is 50 respondents, and the recommended sample size is 200 respondents (Hair et al., 2014). For this research will use 300 cases of data.

For the factor analysis, the sample size is classifly as below table (Siddiqui, 2013).

Table 4.1 Sample size classification

Sample Size	Quality
50	Very Poor
100	Poor
200	Fair
300	Good
500	Very Good
1,000	Excellent

4.3 Questionnaire Design

The measurement from the past study is selected for the questionnaire implement in this research. The measurement is listed in the table in 4.4. From the rules of thumbs, the minimum number per each construct is three or four (Hair et al., 2014). For this study, three - five measurement items are used for each construct. The questionnaire consists of two parts. The first part includes demographic questions. The second is the measurement of each construct which is including Loneliness, mobility, trust, support, past technology experience, and eWOM.

4.4 Independent Variable Measure

4.4.1 Loneliness

According to UCLA Loneliness scale, there are 20 questions self-measurement of the loneliness. The questionnaire has high internal consistency (coefficient alpha of 0.94). This construct is based on a Likert scale (1 = "strongly disagree", 6 = "strongly agree").

Directions: Indicate how often you feel the way described in each of the following statements. Circle one number for each.

Table 4.2 The Revised UCLA Loneliness Scale

Construct	Question Items
Loneliness	1. I am an outgoing person 2. There are people I feel close to 3. There are people who really understand me 4. There are people I can talk to 5. My interests and ideas are not shared with those around me

4.4.2 Mobility Limitation

When people get older, the physical start to change including eyesight, diseases, physical fitness. When people get older, they become less flexible. Also, the ageing process is result in increase of the body fat (Milanovic, 2013). According to this, three questions below are related to the physical change in older adult. For the older adult, it might be hard for them to travel to the physical store. This construct is based on a Likert scale (1 = "strongly disagree", 6 = "strongly agree").

Directions: During the last three months you ...

Table 4.3 The mobility limitation items in the older adult

Construct	Question item
Mobility	1. I can go to the mall every time I want to. 2. I don't need people to help me to get to the mall. 3. I don't find it difficult to find a product in a store. (e.g. poor lighting, poor store layout) 4. I don't have a problem to carry the package

4.4.3 Trust

The measurement from the past research is used to measure trust in older adult adoption of online shopping. The measurement has a coefficient equal to 0.824 (Lian et al., 2014). This construct is based on a Likert scale (1 = strongly disagree", 6 = "strongly agree").

Table 4.4 Trust items in the older adult

Construct	Question item
Trust	1. I feel safe to give out the personal particulars with this website and online shop 2. I feel safe to give out financial details on Internet and online shop 3. I trust the Internet technology 4. I feel safe that the particulars used for the intended purpose 5. Website has adequate security feature

4.4.4 Support

There is no previous questionnaire on the effect on the support and adoption of online shopping. The measurement created based on past research. The Likert scale has been used for this construct (1 = "strongly disagree", 6 = "strongly agree").

Table 4.5 Support items in the older adult

Construct	Question item
Support	1. When I have a problem, the website shows a sincere interest in solving it. 2. The online shop is willing and ready to respond to customer needs. 3. Inquiries are answered promptly. 4. When I have a problem, the website can solve it.

4.4.5 Past Technology Experience

A part of past technology experience questionnaire was selected for this research. This questionnaire is created in 2006 - 2008 as a part of CREATE research program (O'Brien, 2010). This construct is based on a Likert scale (1 = "Never used", 4 = "Used frequently").

Direction: Please specify the frequency with which you have performed each of the following activities using the Internet in the past year

Table 4.6   CREATE research proram past technology experience questionnaire

Constructs	Question item
Technology Experience	1. Banking/Money management (e.g., pay bills online, transfer money, buy or sell stocks) 2. Communication (e.g., e-mail, instant messaging, social media) 3. Education (e.g., participate in online degree or training program, search for information about educational courses or materials, use instructional/training software) 4. Health information (e.g., find information about an illness or order medication or health product) 5. Entertainment (e.g., entertainment events, find information about TV or radio shows, cultural or entertainment events, or information related to hobbies)

Furthermore, for the past technology experience, we also ask the older adult the following question to use it in multiple regression model.

Table 4.7   Past technology experience items in the older adult

Constructs	Question item
Technology Experience	1. I have good technology knowledge. 2. I have experience using technology device doing some online activities. (e.g. money transfer, video call, social media) 3. I am comfortable using IT devices. (e.g. computer, tablet, mobile phone, etc.) 4. My job requires using technology. (e.g. Laptop, Internet, smartphone, etc.) 5. I found myself is doing more things now with advance technology than a couple of years ago

4.4.6 eWOM

The question is selected from the past study (Yayle et al., 2012).

Table 4.8 eWOM questionnaire from the past study

Constructs	Question item
eWOM	1. When I buy a product online, the reviews presented on the website make me confident in purchasing the product. 2. When I buy a product online, the reviews presented on the website are helpful for my decision making. 3. Reliability of the site that presents the reviews affects my purchase decision. 4. Receive high ratings for produt affect my purchase decision 5. Consistency of other reviews posted on the website affect my purchase decision.

4.5 Data Collection and Analysis

This research is using an online questionnaire created by Google form. The target respondents of this study is an older adult who has bought products and services online. They will be familiar with the technology. The online questionnaire will be screening people who never bought products and services out. The data after the respondent submitted the form will be saved online with a security password. The questionnaire is a text-based survey. The respondent will need a technology device for access and answer the question by themselves. The respondents will use around 10 minutes to complete the questionnaire. To collect the data, the questionnaire will be published online. The questionnaire link and QR code are sharing via Facebook and chat application (Line).

The participants of this research were informed that the study is a voluntary basis, and their information will be collected confidentially. The target sample size is 300 respondents. The questionnaire consists of 55 questions with four parts, screening questions, Internet behavior, construct testing, and respondent's information.

CHAPTER V
DATA ANALYSIS AND RESULTS

In this Chapter, descriptive analysis, regression, and factor analysis are applied for analyzing the data. Cronbach's alpha has been used to identify reliability and validity. For the first six hypotheses, I used a regression model to test the relationship between each factor and the adoption of online shopping among the older adult. The last hypothesis, I use crosstab to analyze the relationship between the cognitive age and the adoption of online shopping among the older adult.

5.1 Descriptive Statistics

The participant of this study was an older adult at the age of 50 - 88 years old who live in Bangkok metropolitan region. The target size of this questionnaire is 300 respondents. However, the majority of the respondents were 55 years old or 20.7 percent of the respondents (n = 62). Follow by 13.7 percent of the respondents were 56 years old (n =41). The third is 12.7 percent of the respondents were 59 years old (n = 38). The rest were the respondents age between 50 to 88 years old.

Table 5.1 The age range of the respondents

(Sample size n = 300)

Age	Amount (person)	Percent
50	4	1.3
51	5	1.7
52	6	2.0
53	18	6.0
54	23	7.7
55	62	20.7
56	41	13.7

Table 5.1 The age range of the respondents (cont.)

Age	Amount (person)	Percent
57	17	5.7
58	37	12.3
59	38	12.7
60	16	5.3
61	7	2.3
62	3	1.0
63	4	1.3
64	3	1.0
65	3	1.0
66	6	2.0
67	2	0.7
68	1	0.3
70	2	0.7
84	1	0.3
88	1	0.3
Total	**300**	**100.0**

Figure 5.1 shows the gender of the responder. The woman is the majority of the respondent. The gender ration of the respondent was 69 percent female (n = 207) and 31 percent male (n = 93).
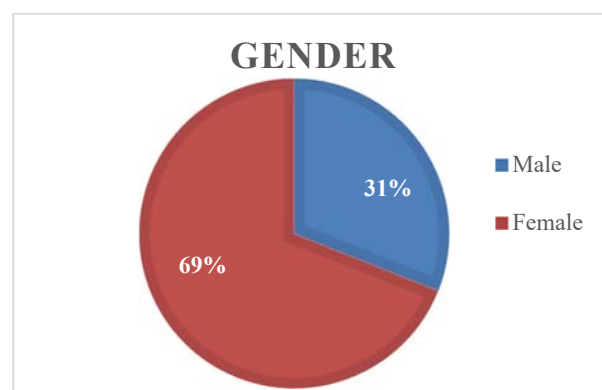
Figure 5.1 The gender of the respondent

Note: Sample size n = 300

This research divided the respnder into two statuses, married and single. From figure 5.2, a seventy percent of the respondents were married (n = 231) and 69 percent were single (n = 69).
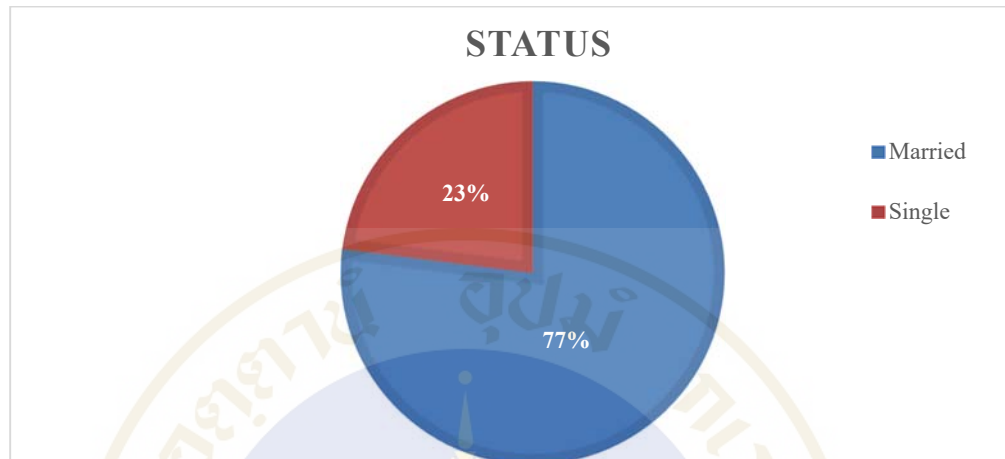
Figure 5.2 The status of the respondents

Note: Sample size n = 300

Figure 5.3 shows the occupation of the responders. There are five catagories, gorverment officer, employee, business ower, retired, and freelance. Most of them are government officer (45%).
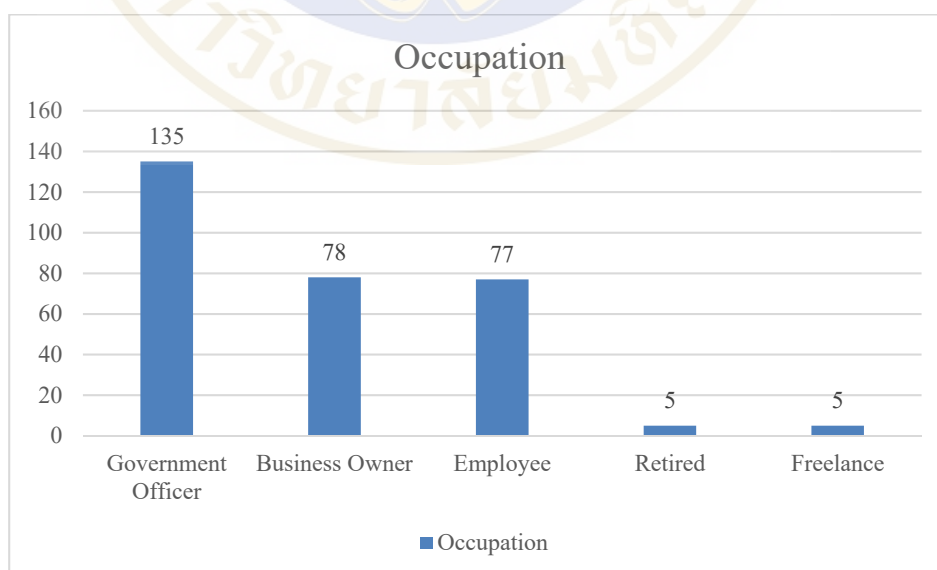
Figure 5.3 The occupation of the respondents

Note: Sample size n = 300

The majority of the respondents have an income more than 30,000 baht. Eighty-two percent earn more than 30,000 baht/month (n = 246). Follow by 10.3 percent of the respondent earn 20,001 – 30,000 baht/month (n = 10.3). While 5.7 percent of them earn 10,001 – 20,000 baht/month (n = 17). The last is 2.0 percent earn below 10,000 baht (n = 6).
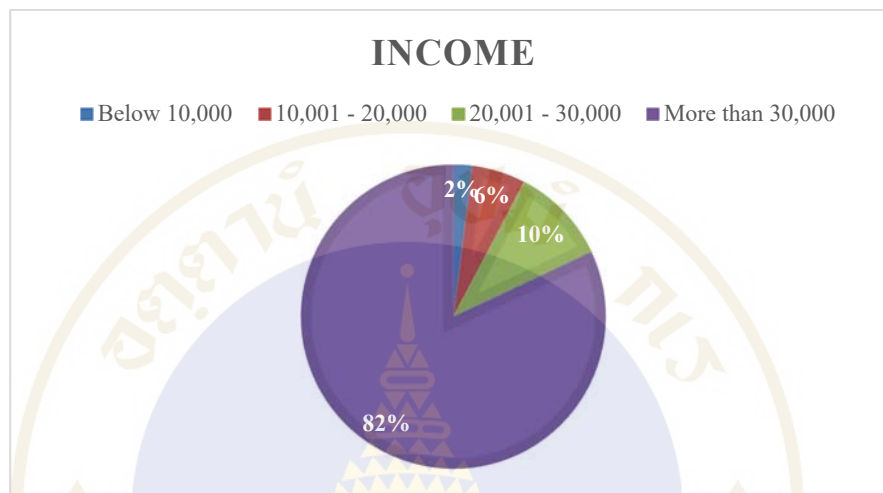
Figure 5.4 The income of the respondents

Note: Sample size n = 300

The result shows that 52.7 percent of the respondents are graduated bachelor's degree (n = 158) followed by 33 percent of the respondents are graduated Master's degree (n = 99), 9 percent is Doctoral degrees (n = 27), high school (2.3 percent), junior high or below (1.7 percent), high vocational certificate (1 percent), and diploma (0.3 percent).

Table 5.2 The highest education of the respondents

(Sample size n = 300)

Education	Amount (Person)	Percent
Junior high or below	5	1.7
High School	7	2.3
High Vocational Certificate	3	1.0
Diploma	1	0.3
Bachelor's Degree	158	52.7

Table 5.2 The highest education of the respondents (cont.)

Education	Amount (Person)	Percent
Master's Degree	99	33.0
Phd.	27	9.0
Total	**300**	**100.0**

Figure 5.5 shows the descriptive statistic of number of year the respondents have been using the Internet. Eighty-three percent have been using the Internet for more than 5 years (n=249). Follow by 8.3 percent of the respondents have been using the Internet for more than 3 years but less than 5 years (n=25). Six percent of the respondents have been using the Internet more than 1 year but less than or equal to 3 years (n = 18). The last is 2.7 percent of the respondents have been using the Internet less than or equal to 1 year (n = 8).
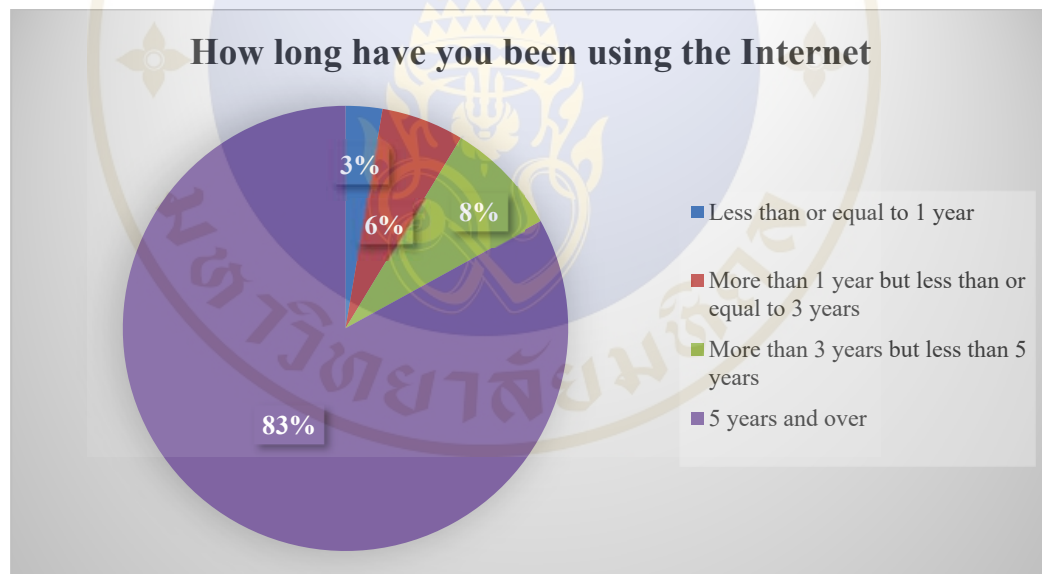
Figure 5.5   The number of year the respondents have been using the Internet.
Note: Sample size n = 300

Figure 5.6 shows the descriptive statistic of number of year the respondets have bought the products and services online. Fourty three percents of the respondents have been bought the products and services online for more than or equal to 1 year but less than 3 years (n = 118). Follow by 39.3 percents bought the products and services

online more than 3 years (n = 118). The third is 13 percents of the respondents bought the products and services online more than 6 months but less than 1 year (n = 39). The last is 4.7 percent of the respondent bought the produsts and services online (n = 14).
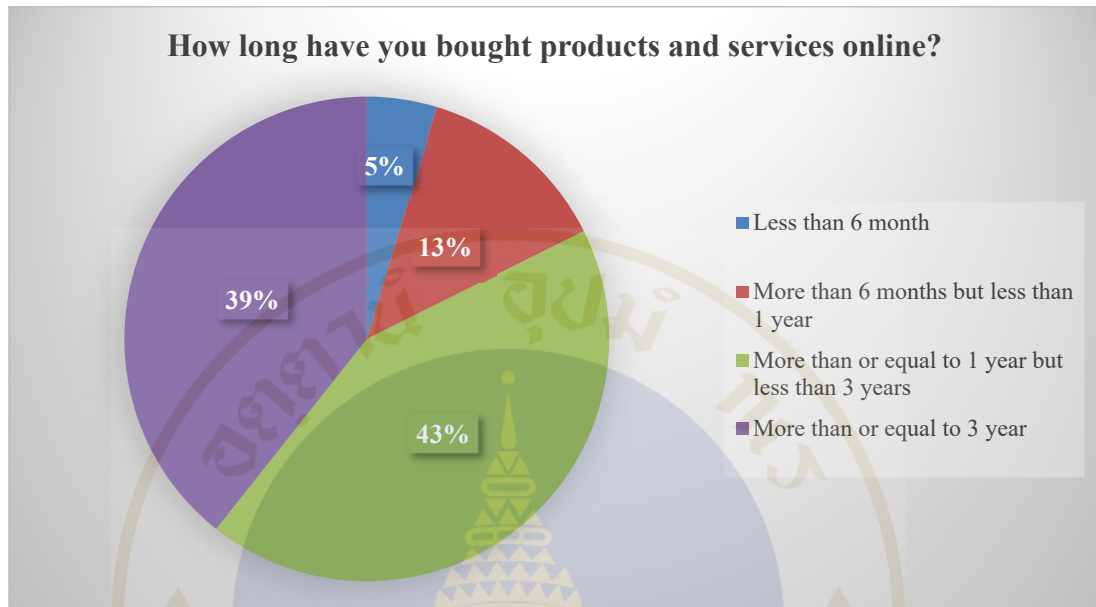
Figure 5.6 The number of year the respondents bought products and services online
Note: Sample size n = 300

Figure 5.7 shows the frequency in a year the older adult buy the products and services online. Most of the responder buy products and services 1-3 times in 6 months (34%). Follow by 30 percents of the responder buy products and services online 1-3 times a year (30.7%). The third is 1-3 times a month (24.3%).

Figure 5.7 The frequency in a year the respondents bought products and services online

Note: Sample size n = 300

Figure 5.8 shows payment method the responder uses to buy products and services online. Most of them pay via credit card (63.0%). Follow by cash on delivery (52.3%), mobile banking (49.3%), promptpay (8.7%), and bank (6.0%).
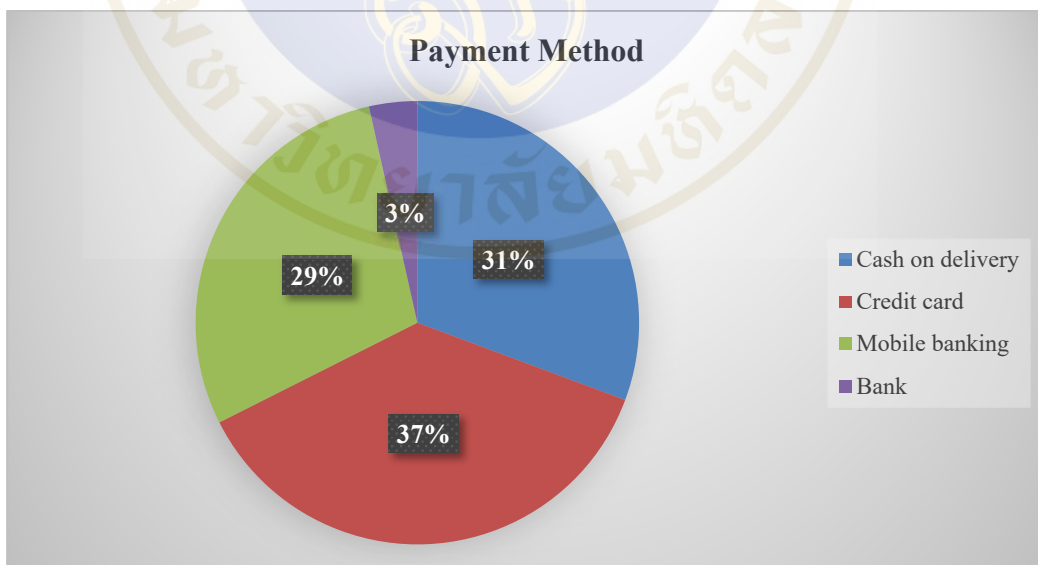
Figure 5.8 Payment method the responder pays when they buy products and services online

Note: Sample size n = 300

Figure 5.9 shows the payment amoung per each transaction. Most of the responders pay 1,001 – 3,000 Baht per each transaction they bought the products and services online (43.0%). Follow by 500 – 1,000 Baht (26.0%), 3,001 – 5,000 Baht (15.0%), 5,001 – 10,000 Baht (7.0%), more than 10,000 Baht (5.0%), and less than 500 Baht (4.0%).
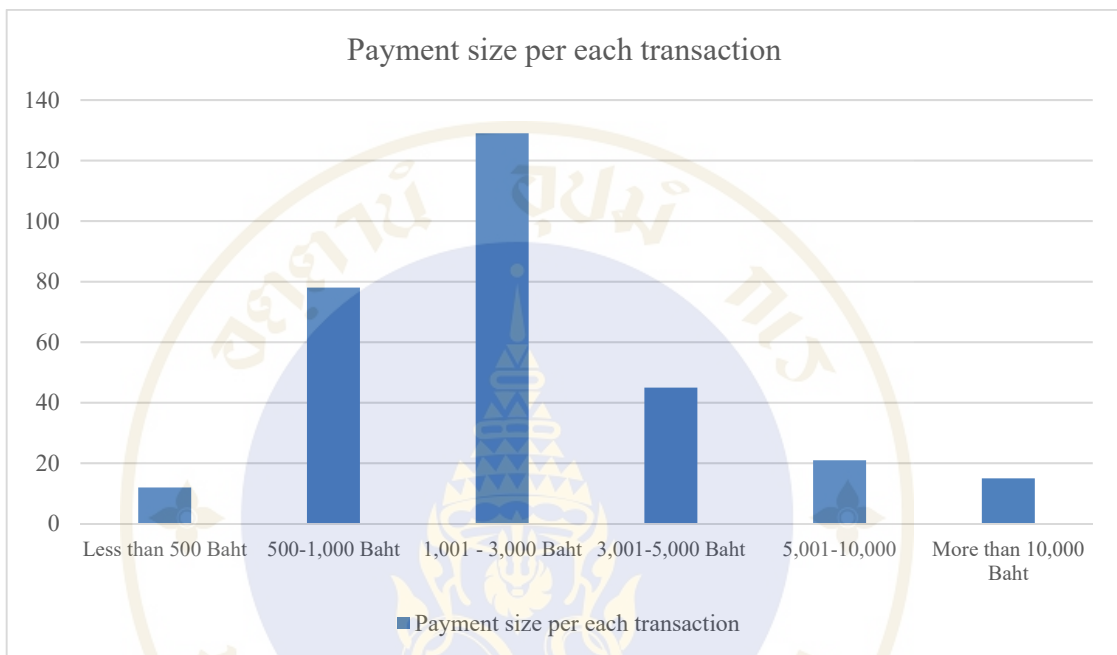
Figure 5.9 The payment size per each transaction (Sample size n = 300)
Note: Sample size n = 300

Figure 5.10 shows the device responder buy products and services online. The most device that the responder use is smartphone by 91.3 percent. The second device is notebook/laptop/PC by 33.3 percent. The last is tablet by 16.7 percent. One person can use more than one device to buy products and services online.
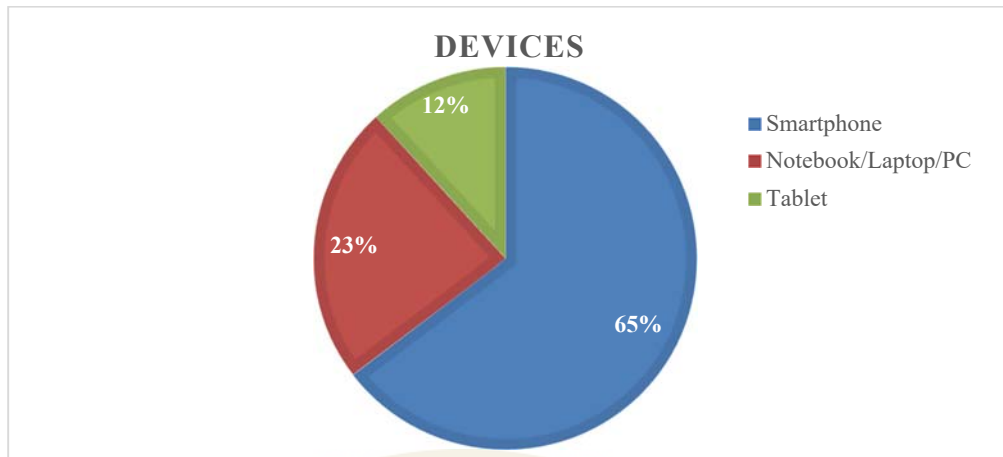
Figure 5.10 The device the responder uses to buy products and services online

Note: Sample size n = 300

       Figure 5.11 shows the percentage of online shopping the older adult use to buy the products and services. Most of the responder buys products and services via E-commerce e.g. Lazada, Shoppee, e-by by 68.3 percent. Follow by 58.7 percent buys products and services online via online booking. The thrid is official website by 52.7 percent. The thrid is social network website by 49.3 percent. The last is coomunication application e.g. Line, What apps, and Wechat by 40.3 percent.

Figure 5.11 Percentage of online shopping for each channel

Note: Sample size n = 300

Figure 5.12 shows the percentage of the products and services the older adult buy on the Internet. The most products that the older adult buy online is clothes and accessories (55.3%). Follow transaportation ticket (49.3%), hotel reservation (46.7%), beauty product (35.3%), hobby product (23%), food and beverage (20.7%), household product (20.7%), health related product (20.0%), entertainment (13.7%), and electronice device (7.7%).
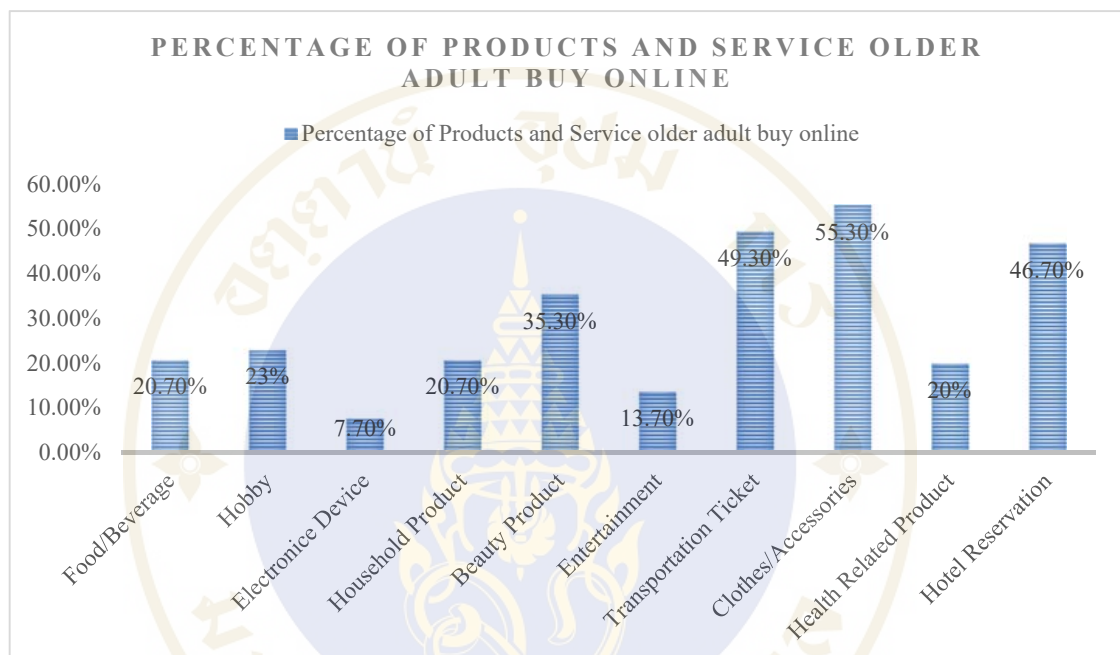
Figure 5.12 Percentage of products and services older adult buy online
Note: Sample size n = 300

In addition, the characteristic of the responders shows on table below the descriptive statistic of the questionnaire response data. There are six independent variables including loneliness, mobility limitation, trust, past technology experience, eWOM, and support. The range of mean score is from 3.5 to 4.5 (see table 5.3).

Table 5.3 Descriptive statistic of the construct variables

	N	Minimum	Maximum	Mean	Std. Deviation
eWOM	300	1.00	6.00	4.3060	.97203
Past Technology Exp.	300	1.00	6.00	4.5433	.87728
Loneliness	300	1.00	6.00	4.2522	1.00634
Mobility Limitation	300	1.00	6.00	3.6956	1.12301
Support	300	1.00	6.00	3.8842	.97979
Trust	300	1.00	6.00	3.5427	1.13546
Valid N (listwise)	300				

5.2 Reliability Analysis

Lee Cronbach has developed the Alpha to test the internal consistency of the scale. Internal consistency is a measurement of the relation of each item within each factor. Moreover, the Cronbach alpha uses to measure the error. The acceptable value starts from 0.70 to 0.95. If the alpha is lower than 0.70, it means that there is a poor correlation between items. If the alpha is higher than 0.95, it could mean that there is redundancy within each item.

Table 5.4 Scale Reliability Test Results

Constructs	Cronbach's alpha	Number of items
Loneliness There are people I feel close to There are people who really understand me There are people I can talk to	0.803	3
Mobility Limitation I can go to the mall every time I want to. I don't need people to help me to get to the mall. I don't have a problem to carry the package	0.691	3

Table 5.4 Scale Reliability Test Results (cont.)

Constructs	Cronbach's alpha	Number of items
Trust I feel safe to give out the personal particulars with this website and online shop I feel safe to give out financial details on Internet and online shop I trust the Internet technology I feel safe that the particulars used for the intended purpose Website has adequate security feature	0.899	5
Support When I have a problem, the website shows a sincere interest in solving it. The online shop is willing and ready to respond to customer needs. Inquiries are answered promptly. When I have a problem, the website can solve it.	0.816	4
Past Technology Experience I have good technology knowledge. I have experience using technology device doing some online activities. (e.g. money transfer, video call, social media) I am comfortable using IT devices. (e.g. computer, tablet, mobile phone, etc.) My job requires using technology. (e.g. Laptop, Internet, smartphone, etc.) I found myself is doing more things now with advance technology than a couple of years ago	0.823	5

Table 5.4 Scale Reliability Test Results (cont.)

Constructs	Cronbach's alpha	Number of items
eWOM When I buy a product online, the reviews presented on the website make me confident in purchasing the product. When I buy a product online, the reviews presented on the website are helpful for my decision making. Reliability of the site that presents the reviews affects my purchase decision. Receive high ratings for produt affect my purchase decision. Consistency of other reviews posted on the website affect my purchase decision.	0.861	5
Intention to shop online I will recommend online shopping to the other I am satisfied with the product and service from online shopping I intend to shop online again in the future	0.843	3

5.3 Hypothesis Testing

For this study, the regression model has been used to test the hypothesis. According to table 5.5, adjusted r^2 is equal to 0.536. This means that 53.6 percent of the older adult who shops online can explain by loneliness, mobility limitation, support, eWOM, past technology experience, and trust.

Table 5.5 The table of regression model

Model Summary									
Model		R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
						R Square Change	F Change	df1	df2	Sig. F Change
dimension0	1	.739[a]	.546	.536	.72416	.546	58.652	6	293	.000
a. Predictors: (Constant), Compound.Past Technology Exp., Compound.Mobility Limitation, Compound.Trust, Compound.eWOM, Compound.Loneliness, Compound.Support										

The significant value for mobility and loneliness is more than 0.05. Which means that these two factors are not statically significant. From the table 5.7.2, can create the new regression model as below:

$$Y = -0.15 + 0.103X_1 + 0.375X_2 + 0.293X_3 + 0.388X_4$$

Where X_1 = trust, X_2 = support, X_3 = eWOM, X_4 = Technology Experience

Multiple regression. Variance inflation factor (VIF) forecasts the liner relationship between predictors. VIF tells the effectiveness of independent variables on the standard error of the regression coefficient. The acceptable value for VIF should be lower than 10. From the table 5.6, the highest value of VIF is 2.386, which still lower than 10 (Hair et al., 2014).

Table 5.6 Multiple regression analysis for all six factors

Coefficients[a]								
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	-.015	.267		-.055	.957		
	Trust	.103	.052	.110	1.988	.048	.504	1.982
	Support	.375	.066	.346	5.683	.000	.419	2.386
	Mobility Limitation	-.078	.042	-.082	-1.868	.063	.804	1.243
	Loneliness	-.066	.054	-.062	-1.226	.221	.604	1.655
	eWOM	.293	.053	.267	5.569	.000	.672	1.488
	Past Technology Exp.	.388	.055	.320	7.017	.000	.747	1.338
a. Dependent Variable: compound.IntendToShopOnline								

5.3.1 Regression using backward elimination

The r^2 value after run backward elimination shows on the table below. In the 2nd model R = 0.737, r^2 = 0.543, and adjusted r^2 = 0.536. Sig. F change is 0.000 means that there is no statistic significant.

Table 5.7 Regression using backward elimination

Model Summary									
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
dimension0 1	.739ᵃ	.546	.536	.72416	.546	58.652	6	293	.000
2	.737ᵇ	.543	.536	.72478	-.002	1.504	1	293	.221
a. Predictors: (Constant), Compound.Loneliness, Compound.PastTechExp., Compound.MobilityLimitation, Compound.eWOM, Compound.Trust, Compound.Support									
b. Predictors: (Constant), Compound. PastTechExp., Compound. MobilityLimitation, Compound.eWOM, Compound.Trust, Compound.Support									

The table below shows the excluded varibles from the equation. Loneliness has the lowest partial correlation (-0.71), so it has been removed.

Table 5.8 Excluded variables from backward elimination

Excluded Variablesᵇ							
Model	Beta In	t	Sig.	Partial Correlation	Collinearity Statistics		
					Tolerance	VIF	Minimum Tolerance
2 Compound.Loneliness	-.062ᵃ	-1.226	.221	-.071	.604	1.655	.419
a. Predictors in the Model: (Constant), Compound.PastTechnologyExp., Compound. MobilityLimitation, Compound.eWOM, Compound.Trust, Compound.Support							
b. Dependent Variable: compound. IntendToShopOnline							

The statistic value for backward elimination can interpret the same way as a forward selection. The difference is the backward elimination shows the value of two models. First is the model that calculates the value from all the factors (loneliness, mobility, trust, support, eWOM, technology experience). While the second model show calculates the value after remove loneliness. After run backward elimination found that it has statistical significant (sig F <0.05).

In the 2nd model, loneliness has been removed. The rest factors have been included to check statistical significant. Even though loneliness has been removed, the rest factors still can predict the dependent variable. It means that loneliness is not important and can be excluded from the equation.

Table 5.9 Anova after remove loneliness

ANOVA[c]					
Model	**Sum of Squares**	**df**	**Mean Square**	**F**	**Sig.**
1 Regression	184.545	6	30.758	58.652	.000[a]
Residual	153.651	293	.524		
Total	338.197	299			
2 Regression	183.757	5	36.751	69.962	.000[b]
Residual	154.440	294	.525		
Total	338.197	299			
a. Predictors: (Constant), Compound.Loneliness, Compound.PastTecnologyExp., Compound.Mobility Limitation, Compound.eWOM, Compound.Trust, Compound.Support					
b. Predictors: (Constant), Compound. PastTecnologyExp., Compound.Mobility Limitation, Compound. eWOM, Compound.Trust, Compound.Support					
c. Dependent Variable: compound. IntendToShopOnline					

5.3.2 2nd Regression

After running the regression and backward elimination, loneliness and mobility limitation are removed from the equation. The table below shows the result of the 2nd regression after removing those two factors. The r^2 after remove two insignificant factors is 0.535. Which mean that from these model there is 53.5% that these variables can predict the adoption of online shopping amoung the older adult. The adjusted r^2 is similar to r^2 but adjusted for the number of factors in the model. For the 2nd regression, adjusted r^2 is 52.9%

Table 5.10 Model summary of 2nd regression

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
0 1	.732[a]	.535	.529	.72985
a. Predictors: (Constant), Compound.PastTechologyExp., Compound.Support, Compound.eWOM, Compound.Trust				

Table 5.11 Anova of 2nd regression

ANOVA[b]					
Model	Sum of Squares	df	Mean Square	F	Sig.
1 Regression	181.056	4	45.264	84.974	.000[a]
Residual	157.140	295	.533		
Total	338.197	299			
a. Predictors: (Constant), Compound.PastTechnologyExp., Compound.Support, Compound.eWOM, Compound.Trust					
b. Dependent Variable: compound. IntendToShopOnline					

Table 5.12 Coefficients of 2nd regression

Coefficients[a]					
Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
1 (Constant)	-.239	.255		-.937	.350
Compound.Trust	.084	.052	.090	1.629	.104
Compound.Support	.330	.064	.304	5.199	.000
Compound.eWOM	.292	.052	.267	5.586	.000
Compound.PastTechnologyExp.	.366	.055	.302	6.668	.000
a. Dependent Variable: compound. IntendToShopOnline					

5.3.3 3rd Regression

After ran multiple regression and backward elimination, loneliness, mobility limitation, and trust are not statistical significant. For the 3rd regression, those three variables are removed from the equation. The result of r is 0.729, and r^2 is 0.526 or 52.6% and adjusted r^2 is 0.526 or 52.6%. The significant value for all three variables are 0.000, which means that they can use to predict the online shopping among the older adult.

Table 5.13 Model summary of 3nd regression

Model		R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
						R Square Change	F Change	df1	df2	Sig. F Change
dimension0	1	.729a	.531	.526	.73188	.531	111.790	3	296	.000
a. Predictors: (Constant), Compound.PastTechnologyExp., Compound.Support, Compound.eWOM										

Table 5.14 Coefficients of 3nd regression

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
1 (Constant)	-.233	.255		-.913	.362
Compound.Support	.396	.049	.365	8.069	.000
Compound.eWOM	.284	.052	.259	5.445	.000
Compound.PastTechnologyExp.	.382	.054	.315	7.038	.000
a. Dependent Variable: compound.IntendToShopOnline					

H1: Among older adult online shopper there is a negative relationship between a level of loneliness and the usage of online shopping.

This research uses a regression model to evaluate the item relationship between the independent and dependent variables. The first variable is the loneliness. The significant value for the regression model should be lower than 0.05. From table 5.7.2. The significant value is 0.221, which is more than the acceptable value. Moreover, backward elimination has been used to test the significance of each factor. It shows that loneliness has been excluded from the equation because it has the lowest partial correlation.

This can conclude that loneliness is not significant and cannot use to predict online shopping in the older adult.

H2: Among older adult online shopper, there is a negative relationship between a level of mobility limitation and the usage of online shopping.

The significant value for mobility is 0.63, which is more than 0.05. The beta value also has a negative value. This is mean that when limited mobility increases by one level, the usage of online shopping will be decreased by 0.078. In conclusion, mobility limitation is not significant and cannot use to predict online shopping in the older adult.

H3: Among older adult online shopper, there is a positive relationship between a level of trust and the usage of online shopping.

For the first regression, the significant value for trust is 0.048, which is less than 0.05. The beta value for trust is 0.103. For the first regression trust is significant. After ran spss using regression and backward elimination, it shows that loneliness and limited mobility have to be removed from the equation. The 2nd regression ran by remove loneliness and limited mobility. However, the result shows that trust is not significant. The 2nd regression result shows the significant value for trust is 0.104, which is more than 0.05. This can conclude that trust is not significant and cannot be used to predict the online shopping amoung the older adult.

H4: Among older adult online shopper, there is a positive relationship between a level of support influence and the usage of online shopping.

The significant value is 0.00, which is less than 0.05. The beta value is 0.346. This means that if the support increase by 1 level, the usage of online shopping in the older adult will be increased by 0.346. This can conclude that support can use to predict online shopping in the older adult.

H5: Among older adult online shopper, there is a positive relationship between a level of past technology experience and the usage of online shopping.

The significant value is 0.00, which is less than 0.05. This can conclude that past technology experience can use to predict online shopping in the older adult. The past technology experience variable also has the highest beta of 0.32. It is the most statistically significant of all the independent variables to the usage of online shopping in the older adult.

H6: Among older adult online shopper, there is a positive relationship between a level of eWOM and the usage of online shopping.

The significant value of eWOM is 0.00. It shows that there is a positive relation between eWOM and online shopping. The beta value is 0.267. This can conclude that eWOM is supported and can use to predict online shopping in the older adult.

H7: Among older adult online shopper, there is a positive relationship between a level of cognitive age and the usage of online shopping.

Cognitive age can define into three groups including feel age, look age, do age, and interest age. Cross tab has been used to analyze the relationship between actual age and cognitive age. Most of the older adult see themselves younger than their chronological age. The older adult who think that they are younger than their chronological age tends to be more innovative than the older adult who pecieve themselves older in cognitive age (Barak et al., 1981). The 300 responders were asking to answer four cognitive age questions. All of the responders are buying products and services online.

For this study divided the age into 4 groups. There are 50 years old, 51-60 years old, 61-70 years old, and 80 years old and over. The first table shows the data for the feel age or how old the person feels (Barak et al., 1981). Most of the responders are 51-60 years old (n=263). The majority feel age of this group is 50 years old (51%). Follow by 40 years old (28.9%), and 30 years old (12.5%). As the result show on the table below means that the older adult who shop online have a feels age as the same as their chronological age (see table 5.15).

Table 5.15 The table of feel age crosstabulation

			Age (Binned)				Total
			<= 50	51 - 60	61 - 70	81+	
Feel Age	20 years old age group	Count	0	4	0	1	5
		% within Age (Binned)	.0%	1.5%	.0%	50.0%	1.7%
	30 years old age group	Count	0	33	2	0	35
		% within Age (Binned)	.0%	12.5%	6.5%	.0%	11.7%
	40 years old age group	Count	2	76	5	0	83
		% within Age (Binned)	50.0%	28.9%	16.1%	.0%	27.7%
	50 years old age group	Count	2	134	11	0	147
		% within Age (Binned)	50.0%	51.0%	35.5%	.0%	49.0%
	60 years old age group	Count	0	15	12	0	27
		% within Age (Binned)	.0%	5.7%	38.7%	.0%	9.0%
	70 years old age group	Count	0	1	1	0	2
		% within Age (Binned)	.0%	.4%	3.2%	.0%	.7%
	80 years old age group	Count	0	0	0	1	1
		% within Age (Binned)	.0%	.0%	.0%	50.0%	.3%
Total		Count	4	263	31	2	300
		% within Age (Binned)	100.0%	100.0%	100.0%	100.0%	100.0%

The table 5.16 shows the result of look age or how old person looks (Barak et al., 1981). The majority do age for 51-60 years old is 50 years old (38.7%). Follow by 40 years old (37.0%), and 30 years old (8.0%). The older adult who buying products and services online have their look age the same as their chronological age.

Table 5.16 The table of look age crosstabulation

			Age (Binned)				Total
			<= 50	51 - 60	61 - 70	81+	
I look as though I am in my...	20 years old age group	Count	0	2	0	0	2
		% of Total	.0%	.7%	.0%	.0%	.7%
	30 years old age group	Count	1	24	0	0	25
		% of Total	.3%	8.0%	.0%	.0%	8.3%
	40 years old age group	Count	2	111	1	0	114
		% of Total	.7%	37.0%	.3%	.0%	38.0%
	50 years old age group	Count	1	116	22	0	139
		% of Total	.3%	38.7%	7.3%	.0%	46.3%
	60 years old age group	Count	0	10	8	0	18
		% of Total	.0%	3.3%	2.7%	.0%	6.0%
	80 years old and above age group	Count	0	0	0	2	2
		% of Total	.0%	.0%	.0%	.7%	.7%
Total		Count	4	263	31	2	300
		% of Total	1.3%	87.7%	10.3%	.7%	100.0%

The table 5.17 show the result of do age or how involved a person is in doing "things" favored by members of a certain age group (Barak et al., 1981). The majority do age for 51-60 years old age group is 40 years old (36.7%). Follow by 50 years old (35.3%), and 30 years old (12.0%). The older adult who buying products and services online have their do age 10 years younger than their chronological age.

Table 5.17   The table of do age crosstabulation

I do as things as though I were in my... * Age (Binned) Crosstabulation							
			Age (Binned)				Total
			<= 50	51 - 60	61 - 70	81+	
I do as things as though I were in my...	20 years old age group	Count	0	6	0	1	7
		% of Total	.0%	2.0%	.0%	.3%	2.3%
	30 years old age group	Count	2	36	3	0	41
		% of Total	.7%	12.0%	1.0%	.0%	13.7%
	40 years old age group	Count	1	110	5	0	116
		% of Total	.3%	36.7%	1.7%	.0%	38.7%
	50 years old age group	Count	1	106	14	0	121
		% of Total	.3%	35.3%	4.7%	.0%	40.3%
	60 years old age group	Count	0	5	9	0	14
		% of Total	.0%	1.7%	3.0%	.0%	4.7%
	8	Count	0	0	0	1	1
		% of Total	.0%	.0%	.0%	.3%	.3%
Total		Count	4	263	31	2	300
		% of Total	1.3%	87.7%	10.3%	.7%	100.0%

The last is interest age or how similar a person's interest are to members of a certain age group (Barak et al., 1981). The majority of the responder is in 51-60 age group is doing thing as they are 50 years old (38.0%). From the result shows that the older adult who buying products and services online have their interest age as the same as their chronological age (see table 5.18).

Table 5.18 The table of interest age crosstabulation

My interests are mostly those of a person in her... * Age (Binned) Crosstabulation							
			Age (Binned)				Total
			<= 50	51 - 60	61 - 70	81+	
My interests are mostly those of a person in her...	20 years old age group	Count	0	6	0	1	7
		% of Total	.0%	2.0%	.0%	.3%	2.3%
	30 years old and above age group	Count	0	43	1	0	44
		% of Total	.0%	14.3%	.3%	.0%	14.7%
	40 years old and above age group	Count	2	93	9	0	104
		% of Total	.7%	31.0%	3.0%	.0%	34.7%
	50 years old age group	Count	2	114	12	0	128
		% of Total	.7%	38.0%	4.0%	.0%	42.7%
	60 years old age group	Count	0	7	9	0	16
		% of Total	.0%	2.3%	3.0%	.0%	5.3%
	80 years old and above age group	Count	0	0	0	1	1
		% of Total	.0%	.0%	.0%	.3%	.3%
Total		Count	4	263	31	2	300
		% of Total	1.3%	87.7%	10.3%	.7%	100.0%

For this hypothesis predict that the responders who have younger cognitive age than their actual age will shop online. The cognitive age including feel age, look age, do age, and think age. The majority of the responder is 50-60 years old. Their feel age is 50 years old. Their look age is 50 years old, do age is 40 years old, and interest age is 50 years old. In conclusion, people who shop online have the same cognitive age as same as their chonological age.

In this research, crosstabulation use to calculate the relationshop of intention to shop online in the future and feel age. From the data found that the majority of the responders have feel age in 50 years old age group. The respondents in 50 years old feel age group, most of them or 31.5% agree to shop online again in the future (n=45) (see table 5.19).

Table 5.19 The table of crosstabulation between feel age and intention to shop online in the future

Crosstab									
			I intend to shop online again in the future						Total
			Strongly Disagree	Disagree	Somewhat disagree	Somewhat agree	Agree	Strongly Agree	
I feel as though I am in my...	20 years old age group	Count	2	0	0	2	0	1	5
		% within I feel as though I am in my...	40.0%	.0%	.0%	40.0%	.0%	20.0%	100.0%
	30 years old age group	Count	0	0	1	13	14	8	36
		% within I feel as though I am in my...	.0%	.0%	2.8%	36.1%	38.9%	22.2%	100.0%
	40 years old age group	Count	1	2	6	22	29	25	85
		% within I feel as though I am in my...	1.2%	2.4%	7.1%	25.9%	34.1%	29.4%	100.0%
	50 years old age group	Count	3	4	22	36	45	33	143
		% within I feel as though I am in my...	2.1%	2.8%	15.4%	25.2%	31.5%	23.1%	100.0%
	60 years old age group	Count	0	2	4	5	8	9	28
		% within I feel as though I am in my...	.0%	7.1%	14.3%	17.9%	28.6%	32.1%	100.0%
	70 years old age group	Count	0	1	0	0	1	0	2
		% within I feel as though I am in my...	.0%	50.0%	.0%	.0%	50.0%	.0%	100.0%
	8	Count	0	0	0	0	1	0	1
		% within I feel as though I am in my...	.0%	.0%	.0%	.0%	100.0%	.0%	100.0%
Total		Count	6	9	33	78	98	76	300
		% within I feel as though I am in my...	2.0%	3.0%	11.0%	26.0%	32.7%	25.3%	100.0%

The majority of respondents have do age in 40 years old age group. Most of them (31.9%) somewhat agree to shop online again in the future (n = 37).

Table 5.20 The table of crosstabulation between do age and intention to shop online in the future

			Strongly Disagree	Disagree	Somewhat disagree	Somewhat agree	Agree	Strongly Agree	Total
			I intend to shop online again in the future						
I do as things as though I were in my...	20 years old age group	Count	1	1	0	3	1	1	7
		% within I do as things as though I were in my...	14.3%	14.3%	.0%	42.9%	14.3%	14.3%	100.0%
	30 years old age group	Count	1	0	2	12	19	7	41
		% within I do as things as though I were in my...	2.4%	.0%	4.9%	29.3%	46.3%	17.1%	100.0%
	40 years old age group	Count	2	2	7	37	35	33	116
		% within I do as things as though I were in my...	1.7%	1.7%	6.0%	31.9%	30.2%	28.4%	100.0%
	50 years old age group	Count	2	5	22	26	34	32	121
		% within I do as things as though I were in my...	1.7%	4.1%	18.2%	21.5%	28.1%	26.4%	100.0%
	60 years old age group	Count	0	1	2	0	8	3	14
		% within I do as things as though I were in my...	.0%	7.1%	14.3%	.0%	57.1%	21.4%	100.0%
	8	Count	0	0	0	0	1	0	1
		% within I do as things as though I were in my...	.0%	.0%	.0%	.0%	100.0%	.0%	100.0%
Total		Count	6	9	33	78	98	76	300
		% within I do as things as though I were in my...	2.0%	3.0%	11.0%	26.0%	32.7%	25.3%	100.0%

The majority of respondents have look age is in 50 years old age group. Most of them (28.1%) agree to shop online again in the future (n = 39).

Table 5.21   The table of crosstabulation between look age and intention to shop online in the future

Crosstab									
			I intend to shop online again in the future						Total
			Strongly Disagree	Disagree	Somewhat disagree	Somewhat agree	Agree	Strongly Agree	
I look as though I am in my...	20 years old age group	Count	1	1	0	0	0	0	2
		% within I look as though I am in my...	50.0%	50.0%	.0%	.0%	.0%	.0%	100.0%
	30 years old age group	Count	0	1	1	6	12	5	25
		% within I look as though I am in my...	.0%	4.0%	4.0%	24.0%	48.0%	20.0%	100.0%
	40 years old age group	Count	1	0	13	32	39	29	114
		% within I look as though I am in my...	.9%	.0%	11.4%	28.1%	34.2%	25.4%	100.0%
	50 years old age group	Count	3	6	18	35	39	38	139
		% within I look as though I am in my...	2.2%	4.3%	12.9%	25.2%	28.1%	27.3%	100.0%
	60 years old age group	Count	0	1	1	5	7	4	18
		% within I look as though I am in my...	.0%	5.6%	5.6%	27.8%	38.9%	22.2%	100.0%
	80 years old and above age group	Count	1	0	0	0	1	0	2
		% within I look as though I am in my...	50.0%	.0%	.0%	.0%	50.0%	.0%	100.0%
Total		Count	6	9	33	78	98	76	300
		% within I look as though I am in my...	2.0%	3.0%	11.0%	26.0%	32.7%	25.3%	100.0%

In conclusion, the older adult has the same level of cognitive age and choronical age. According to the crosstabulation result, the older adult who have cognitive age in 50 years old age group has an intention to shop online again in the future.

5.4 Summary Diagram

The diagram below shows the result from regression model. This research focus on 6 factors including loneliness, mobility, trust, support, technology experience, and eWOM. After running regression model there are three factors that not influence the usage of online shopping amoung the older adult which are loneliness, mobility limitation, and trust. While the three factors that influence the usage of online shopping amoung the older adult are support, past technology experience, and eWOM.
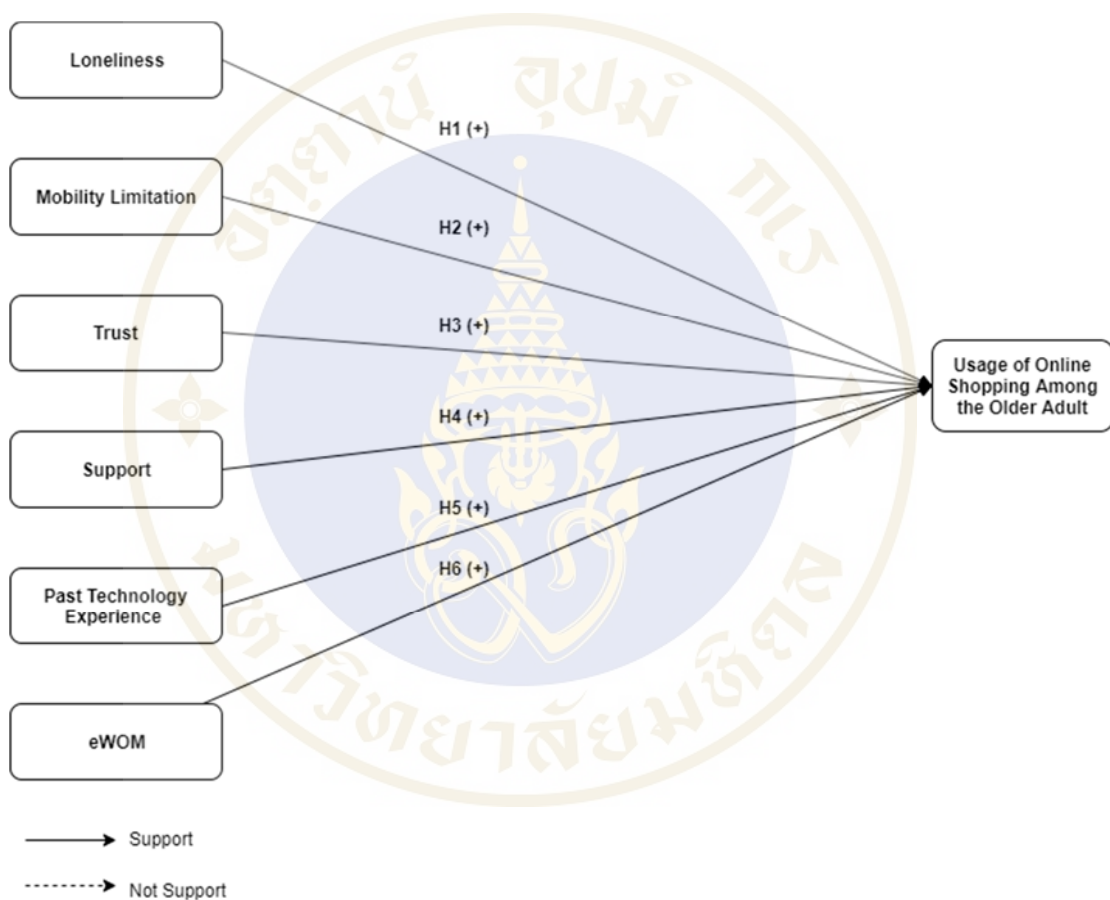
Figure 5.13 Conceptual Framework of this Dissertation
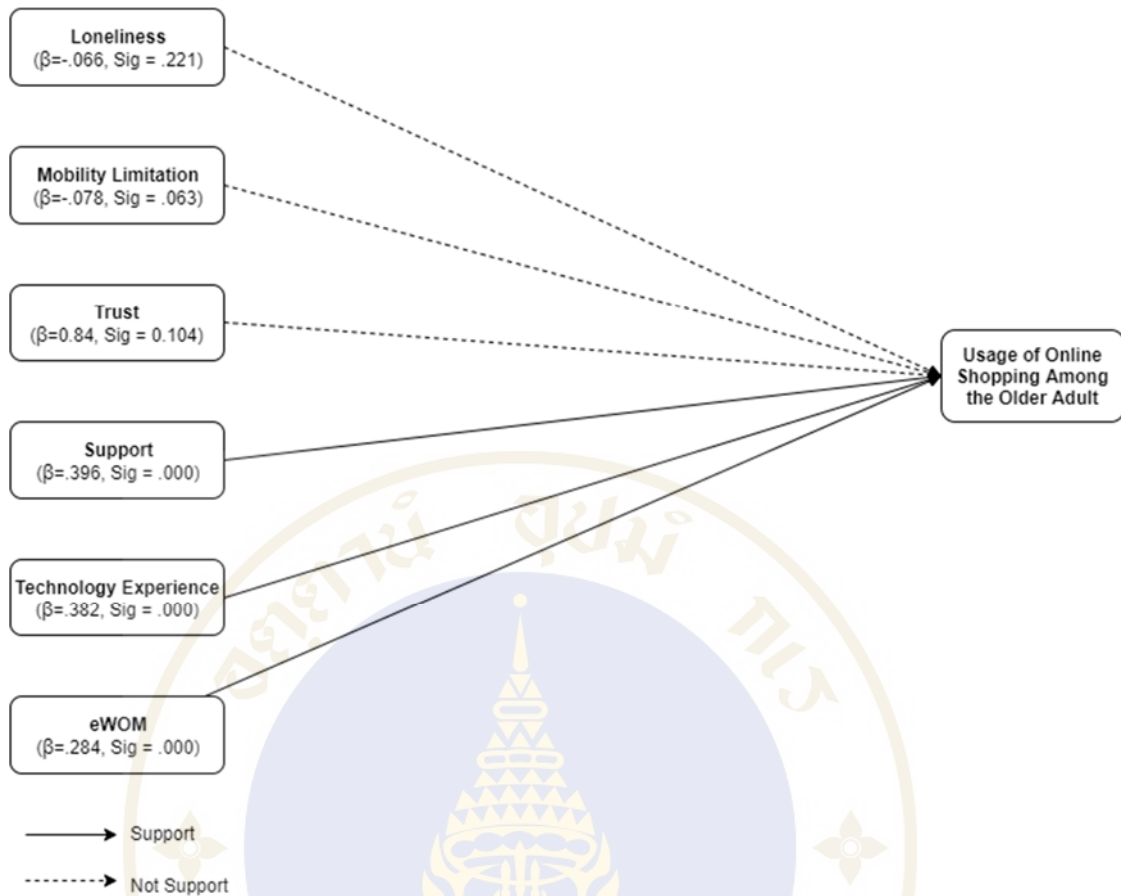
Figure 5.14 Result Framework of this Dissertation

According to the inferential statistic on the usage of online shopping among the older adult, it can summary to the following table.

Table 5.22 Hypothesis summary

Hypotheses	Result
1. Among the older adult online shopper there is a positive relationship between a level of loneliness and the usage of online shopping.	Not Support
2. Among the older adult online shopper, there is a negative relationship between a level of mobility limitation and the usage of online shopping.	Not Support
3. Among older adult online shopper, there is a positive relationship between a level of trust and the usage of online shopping.	Not Support
4. Among older adult online shopper, there is a positive relationship between a level of support influence and the usage of online shopping.	Support

Table 5.22 Hypothesis summary (cont.)

Hypotheses	Result
5. Among older adult online shopper, there is a positive relationship between a level of past technology experience and the usage of online shopping.	Support
6. Among older adult online shopper, there is a positive relationship between a level of eWOM and the usage of online shopping.	Support
7. Among older adult online shopper, there is a positive relationship between a low level of cognitive age and the usage of online shopping.	Not Support
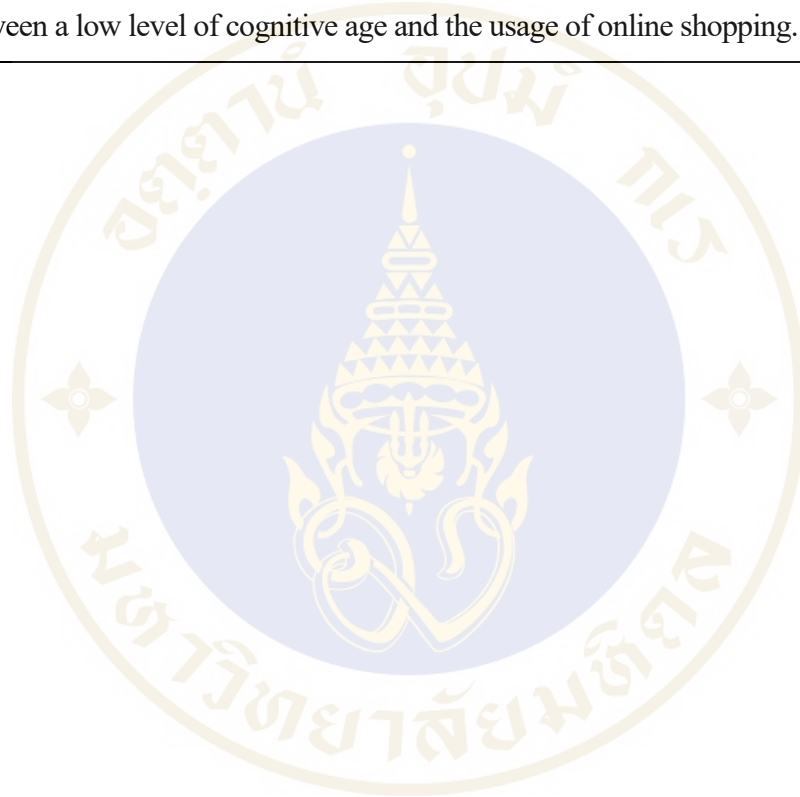
CHAPTER VI
DISCUSSION AND CONCLUSION

6.1 Discussion and Conclusion

This research explores the factors that influence the online shopping in the older adult in Bangkok metropolitan region. It also studies the older adult market online shopping trends, customer behavior, and other factors that influence online shopping in the older adult. This research study older adult and online shopping because both segments are increasing. According to the advance technology that helps people nowadays connect to the Internet. The technology device helps online shopping easier to buy, anywhere and anytime. Online shopping is not complicated anymore due to Internet banking is easier to use. A report shows that people over 55 years old are the fastest growing market for online shopping. But not many marketers are focused on this age group (Alexander, 2015). According to this, the researcher wants to study the online shopping in the older adult.

This research is based on past studies. The data collected from the older adult in Bangkok metropolitan region who have experience buying products and services online. The responder has received the questionnaire via the Internet. The questionnaire created on Google Form. The responder has to answer all the questions. There are 300 responders for this study. After collected data, the statistic method is used to analyze the data.

The first objective of this study was to explore which products and services do the older adults buy on the Internet. The study finds that the top three products the older adult buy online are clothes and accessories (55.3%), transportation ticket (49.3%), and hotel reservation (46.7%), beauty product (35.3%), hobby product (23.0%), household product (20.7%), food and beverage (20.7), health related product (20.0%), entertainment (13%), and electronic device (7.7%).

According to the result, if the online business owner wants to increase the older adult target segment, they should be focusing on clothes and accessories products.

For the fashion website, the older adult is feeling left out. The online clothes online shops mostly target the younger customer. The older adult customer also complaint when they go to fashion website they don't see the product that targets the customer over 55 years old (Alexander, 2015). The most products that the older adult buy online is clothes and accessories, so this research suggests that the online fashion website should be more focusing on the customer 55 years old and above.

The second objective is to explore the behavior of the older adult and online shopping. Most of the older adults use the Internet for more than 5 years (83.0%). Which means that they have experience using the Internet. They have been buying products and services online mostly for more than 1 year but less than 3 years (43.0%). The older adult has become an online shopper a few years ago. The most online channel that they buy the products and services online is e-commerce (68.3%) and the payment method is credit card (63.0%). The device that the older adults use to buy the products and services online is a smartphone (91.3%).

The finding from this study shows that eWOM, technology experience, and support are factors that influence the older adult to shop online. The unexpected finding for this research is loneliness, mobility limitation, trust, and cognitive age are not influenced the older adult to use online shopping. Most of the older adults in this research are still working so they might not find themselves lonely or mobility limitation. After retirement, the older adult might be lonelier because they have less responsibility in their life (Vromen et al., 2015). For this study, 98.3% of the responders are still working so they might still not find themselves feeling lonely. In the same way, the older adult who still working means that they still can travel by themselves. For the cognitive age, the responders have the cognitive age as the same as their actual age. So the loneliness, mobility limitation, trust, and cognitive age do not influence the older adult online shopping.

6.1.1 Loneliness

The past study found that there is a relationship between the older Internet user and the loneliness. One of the Internet activities that older adults use to reduce loneliness is online shopping. However, for this study, the researcher wants to study further whether the loneliness affects the usage of online shopping in the older adult. The multiple regression was used to test the relation of loneliness in the older adult.

The result shows that loneliness is not statistically significant. Most of the older adults in this research still working. The older adult who working their mentally is still in shapes, physically active, and socially connected than the older adult who is not working (Scommegna, 2018). So, loneliness does not affect the older adult to shop online.

The loneliness is consistent with the age. In the older adult, when their age increase, the level of loneliness also increases. The loneliness increase over time. Those who age 80 years old and above are commonly feeling lonely. The loneliness might affect online shopping in this age group. However, the majority of the respondent in this study is the older people in 50-60 years old. They might be lonely less than the older adult in the older age group (more than 60 years old).

The loneliness and mobility limitation is related to T.V. shopping in the older adult. There is a relationship between mobility limitation, loneliness, and T.V. shopping in the older adult (Lim et al., 2011). However, this study found that the older adult who buys online is not influenced by loneliness and mobility limitation. The online shop owner may don't need to worried about the interaction with the older adult age group as they are not shopping online for reducing their loneliness. Unlike the T.V. shopping that the purchasing related to the T.V. host (Lim et al., 2011).

6.1.2 Mobility Limitation

The older adult has physical change. Surprisingly, the mobility limitation in the older adult has no effected on online shopping in the older adult. The mobility limitation in the older adult including the change in physical e.g. walking in the long distance, the ability to drive a car, and carry the products. According to the responders, most of them still working and active. They still go out to work. The people who not yet retired, might not find themselves have mobility limitations.

Moreover, the research study the older adult who lives in Bangkok area, which has better public transportation than a rural area. This might help the older adult in Bangkok easier to access to the mall. From this factor, the online shop owner can try to segment the older adult who has limited access to the shopping mall like people who live in a rural area. Online shopping might be more beneficial to them. The older adult who has mobility limitations and tend to be lonely.

One of the benefits of online shopping is convenience. The customer can buy products and services anytime and anywhere. Moreover, the customer gets the products sending to their door. However, the older adult in the research doesn't have a problem with carrying their goods. When the online shop owner wants to promote their online store, convenience is still not enough to catch this customer segment.

6.1.3 Cognitive Age

The older adult who has cognitive age younger than their chronological age is capable to try new things and feeling young. These older adult who has lower cognitive age are likely to use the Internet. The past studies also support that the cognitive age is influence the older adult consuming behavior (Insin et al., 2017). However, from this research, a lower cognitive age does not influence the older adult to shop online. Most of the responder for this study has an age group in 50-60 years old. Their cognitive age is also in the same group as their actual age. The online retailer should be aware that the older adult is not perceived them younger than they are. So the product that they sell and the website should be appropriate for the customer in this age group.

6.1.4 Trust

The older adult is very concerned about security and privacy. Surprisingly, the most payment method that the older adult pays online is a credit card. Which mean that the older adult nowadays is more comfortable using the credit card to pay for the products and service on the Internet. Trust in this research includes the system that will protect the data and customer security including the payment.

People older than 55 years old have the risk barrier in online e-commerce shopping (Jiunn et al., 2014). However, for this study, trust is not significant. The older adult in this study already have experience using online shopping and use Internet banking in the past. Most of the older adults in this study also use online money management 1-3 times/ week (52.7%). This behavior might encourage them to buy the product online.

The younger adult is less worried about their security when they buy products and services on the Internet (Chakraborty et al., 2014). Likewise, the older adult buy the products and services online without trust that the system will secure their data. The result shows that the older adult who been bought the products and services online

also less worried about the security. However, they still buy products and services online. Surprisingly, most of the older adults also use the credit card to pay online.

The older adult is a target of Internet fraud. When they buy the products and services online should consider the security of the payment method. Their data could be stolen. Most of the information that has been stolen online is credit card data (Chakraborty et al., 2014). online shopping websites should provide more security of the credit card method since most of the older adults pay the money via credit card. Which including fill up the sensitive information before purchasing. If the website does not take it seriously the data could be hack from the Internet thief.

Also, the channels that the older adult buying products and services online also include social networks like Facebook and Instagram. Facebook provides a feature for the user to add a comment and the product information. However, it doesn't support payment features. The adult who buys products and services online via this channel should be aware when they buy the products and services via this channel. Facebook developer should include the feature like shopping cart and online method to support the user (Huang et al., 2013). As same as Instagram, there is no payment method if the customer wants to buy the products online. Both shop owners and customers should be aware of their payment method.

6.1.5 Support

The support from the system influences the older adult to shop online. The support including the help from the system owner when the customer has the problem, the ability to answer the customer question promptly. The past study shows that the older adult had a problem with the call center, and he is not satisfied with the service (Kim, 2012). As a result of this study also support that the support from the online system is important for the usage of online shopping in the older adult.

The online shop owner should have answered the question that the older customer may have promptly. This customer age group may need more support than the younger customer as they are not familiar with the technology. The online shop owner should show sincere and interest to help the older adult customer get their problem solving. Since the customer can buy the products and services anytime, the business

owner should have the support ready all the time. The support should include both online and offline channel, for example, online chat boxes or call centers.

The online business owner should make sure that there is a channel that the older adult can reach for support them when they found the problem. The older willing to use the Internet if their anyone who guild them, so the shop owner should have someone that can guild them to all the process of online shopping. If there is no one support the older customer when they have a problem, they might create the bad experience for them. This can lead to avoiding online shopping in the future.

The older customer may need more human touch than the other age group. In order to stastified the customer in this age group, the business owner should have speficific employee who train to serve the older adult. Becase they might have different help than younger customer. Moreover, the older customer may have past technology experience but still less than the younger customer. So the business owner should have a real person for them to contact everytime they are calling for help.

The customer service has influence the older adult than generation Y (Kumar et al., 2008). The employee who will be a contact point for the older adult should be respectful and polite. To deal with the older adult customer, the employee should be patient and willing to help. If the older adult got a bad customer experience, the chance that they will come back will be reduce. To make sure that the employee can handle the older adult properly, the online business owener should has a training on how to deal with the older adult customer.

6.1.6 Past Technology Experience

Technology experience influences online shopping in the older adult. Most of the responders have been using the Internet for more than 5 years (83%). But most of them just became online shoppers a few years ago. The older adult bought the products and services online for more than or equal to 1 year but less than 3 years. Moreover, older adults also familiar with online banking. They use online banking a few times per week.

The education and income are factors that can predict Internet usage (O'Brien M. et al., 2008). Most of the responder in this research studied Bachelor's Degree (52.7%). Also, they are still working and they have experience using the technology.

Income is also related to Internet usage. The person who has more than 30,000 baht (82.0%) has a high level of the online shopping usage. From the study found the insight that Internet usage, education level, and income are related to online shopping in the older adult.

Once the older adult buys more often online, they will be more comfortable in purchasing the products and services online (Reisenwitz et al., 2007). This suggests the online marketer that there is a potential online buyer in the older adult segment. Soon there will be a large target segment for online shopping. Moreover, 91.3% of the older adult by the products and services online via smartphone. The online business owner should design the user interface to support the customer in this age group.

The business owner who want to target the older adult should be aware that the older adult who shop online have experience on technology. They can use credit card and online banking, so the business owner should design the good payment journey for them. Since the older adult have a technology knowlage, the online business owner can add technology technique to make them shop more frequently like Virtual reality to show the clothes really look like if they try it on.

Most older adults buy products and services online via smartphones. They have experience using online shopping for around three years. The older adult has physical change including the change in eyes sight. They might have a problem staring at the small screen for a long time. However, this study found that the older adult using a smartphone to buy products and services online. So the online business owner should invest in making their website easy to use via smartphone for older adult. The image and text size should not be too small when the customers visit their website via smartphones.

6.1.7 Electronic World of Mouth

Due to the advanced technology, it is easier and quicker to access the volume of information. From the research on mobile commerce adoption in older adults, suggest that future research should study eWOM (Morga, 2016). Moreover, the older adult purchase intend is also depends on the message show on social media. If they saw a low risk message, they will be more likely to buy the products and services on the Internet (Croslin, 2017). The study found that eWOM is influenced by the adoption of online

shopping among older adults. The marketer should concern that the electronic message affects the purchase intention in the older adult.

The result of this study can help develop brand communication strategies to target the older adult. Once the older adult received a good message about the product, this will help increase the sale on the online channel. There are not many older adult Internet influencers right now. One way to promote their online channel is via the influencer. It may be the older adult actor or someone who famous among the people in this age group. The influencer can review the products and services online and create eWOM among the older adult age group.

One of the channels that the older adult buy the products and services is social media through Facebook or Instagram. This social media application has the feature that the user can review on the product. The products with high rating also influence the purchasing decision in the older adult. To drive the older adult to purchase the products and services online, the review should come from the trustable source or the real user. The business owner creates the promotion for the older customer to buy the products and get discount on the next purchase. Once the other older adult customer see other people review the product that they are interested, it will influence them to buy online.

6.2 Limitations and Recommendations

First, this study only studies the online shopping usage of the older adult at the age of 50 years old and above. Most of them studied a bachelor's degree. The people in this group are not representative of the whole Thai population. However, the e-commerce and aging population are considered as a future trend. Future study can focus the older adult in a different segment. The older adult age group can also divide into the older adult in the younger age group and the older adult in the older age group. This two segment migh also have different lifestyle and factors that influence their online shopping.

For this research, the focus group is people in Bangkok metropolitan area. The further research could study in rural area. In the rural area may not have facilities like in the metropolitan area. People who live there may not access to all the facilities. In Bankok is easier to find a shopping mall than in the rural area. Also, there are more public transportations, so it is easier to travel around Bangkok. According to these

issues, people in rural areas may find online shopping more convenience than people in metropolitan Thailand.

Secondly, this research limits the scope of online shopping by focusing only on people in Thailand. Online shopping is worldwide. It should not be limited only in Thai country. In differebt country may have different culture. The researcher in a different country can study whether these factors also apply to the older adult customer in their country. Also, all of the responders for this research have experience shopping online. For the future study can try to test the difference of the older adult who shop online and the older adult who doesn't shop online.

Thirdly, the majority older adult for this research still active and have not yet retired. They still interact with the co-worker at their workplace. Also, they can travel by themselves to work. This might affect the result of this study. The older adult who is not working and the older adult who still working may have different lifestyle and frequency to go out.

Lastly, the responder in this research is not represent the whole older adult population in the whole Bangkok and metropolitan area. The questionnaire has been sent out to the older adult and then they sent over to their friends and people that they know. So most of the older adult in this research is a Gorvorment officer age around 55 years old.

6.3 Further Research

There are many electronic activities that further research should focus on. From this research is focusing on the online shopping among the older adult. The service including mobile banking, investment services, and insurance are also included in e-commerce. A similar model could be used to test these service and the adoption in the older adult as the older adult is a growing trend.

There are sixs variables that study on this research (loneliness, mobility limitation, trust, eWOM, past technology experience, cognitive age) that effect the usage of online shopping among the older adult. There are more variables that can influence the older adult to shop online. The future study can do a test on the different variable and see what insight they might find from the study.

This reseach study only the older adult who have been bought the products and services online. The further research could study the older adult who have never bought the products and services online. It might help find the barriers that effect their decision not to buy online. So the business owner can use this insight to improve their online channel.

Further research could study the features of the website or ecommerce platform that useful for the older adult. The web design that might effect the online shopping in the older adult. The older adult has physical change including change in eyesight. According to this, the future research can study whether the font size, color, website layout would effect the older adult usage.

Most of the older adult in this study still active and go to work. They can travel by themselves. But once they retired and stay at home, they behavior might have change. The future research should study the older adult who retired and stay at home and compare the result with the older adult who still active. They might find more factor that drives older adult to change their behavior from shopping at the mall to online store.
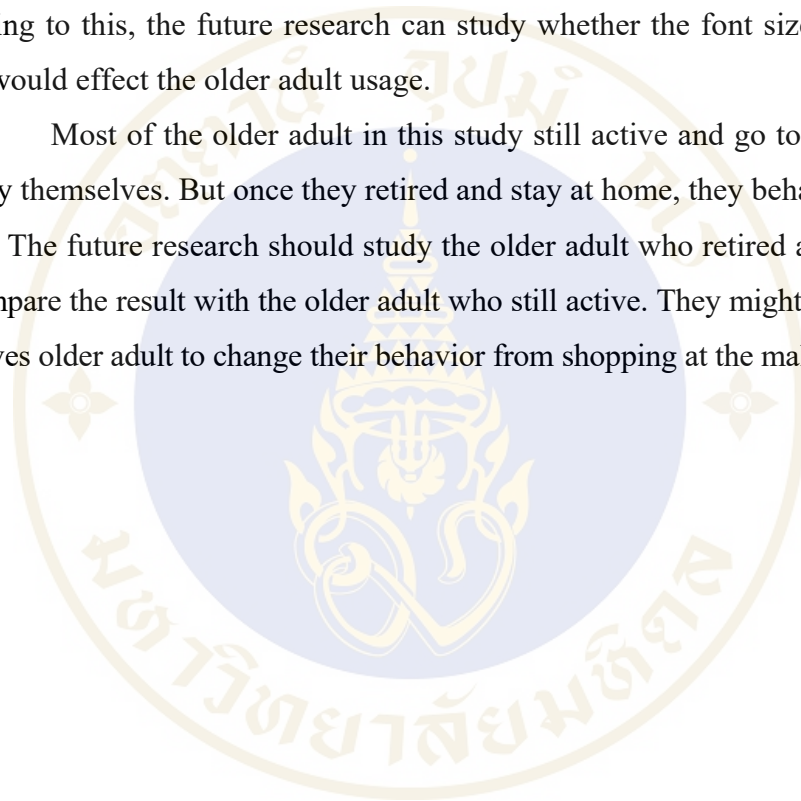
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