The Potential of Information Technology for the Elderly in the Area of Mae Hong Son

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Abstract—**The purpose of this research was; 1) to study the use of information technology for the elderly, 2) to analyze the use of information technology for the elderly, 3) to analyze the potential of using information technology suitable for elderly people. The sample consisted of 380 elders in Mae Hong Son Province. The checklist and rating scale questionnaire was used for data collection. The data was analyzed in terms of percentage, arithmetic mean, standard deviation, t-test, one-way analysis of variance, and LSD. The results of the research revealed that the overall use of social media behavior for the elderly was rated at moderate level. The advantage aspect was rated at a high level, the equipment and objective aspects were rated at a moderate level, the program and the trouble aspects were rated at a low level respectively. The comparison of using the social media behavior of the elderly as classified by gender, educational level, and income had significant differences at the 0.05 level overall. All aspects, when classified by marital status, and occupation showed no significant difference overall however, there were significant differences at the .05 level in all aspects. It was concluded that the elderly in Mae Hong Son have the potential to select and learn new information technology applications. To communicate with people close. I have been using IPAD and SMART PHONES and LINE programs to keep in touch with the people closest to me. The supply of equipment depends on the individual's income. However, most of them will try to learn, so it can be said that the potential for the elderly in the use of information technology cannot depend on age. It depends on the equipment, support, size and price as well as programs that can be communicated clearly.**

Keywords— *information, Information Technology, Elderly, IT*

I. INTRODUCTION

A. Background

Information technology has played an increasingly important role in Thai society and life. Be it work, communication, appointments and travel. The activities in everyday life. All the stories related to information technology are involved, so we cannot deny the importance of information technology. It has influenced many people today. Many people use information technology, especially to find information such as new knowledge or travel. Thailand is stepping into Digital Thailand 4.0 to drive the reform of Thailand with digital innovation and to increase economic empowerment and social equality. This will lead to the adoption and promotion of new technologies as well as increase the economic capacity. It also creates equal opportunity to create a society of quality and quality of life for all people.

This is usually based on retirement or retirement criteria. The mean age is 60 years for developing countries. Including Thailand and many other countries in Southeast Asia, and 65+ for developed countries [1] Information of the United Nations if the number of elderly people over the age of 65 exceeds 14 percent, they will enter the elderly society. The population in this age group will not be able to take care of themselves and often the disease comes after, which requires them to need special care. This requires the elderly need to stay home alone. How to stay safe in the future, the number of elderly people who are likely to use technology may be considered more mature than those in the past. This is due to the fact that they have grown up with technology and facilities.

In the future, there is a change in the activities of the elderly, such as older workers and traveling to find a retirement experience. There is lifelong learning as people grow alongside technology and facilities.

Thus, we as the researchers realized the importance of technology. It was agreed to study the potential of ICT for the elderly to create opportunities and equality in society.

B. Research objective

This research aims to 1) to study the use of information technology for the elderly, 2) analyze the use of information technology for the elderly, and 3) analyze the potential of using information technology suitable for elderly people.

II. LITERATURE REVIEW

The World Health Organization (WHO) [2] estimates that the mean age of the elderly is 60 or older or refers to people who retire from work when they are economically counted. It also refers to those who are socially obsolete by age, by the definition of social, cultural or older age, starting at the very least when entering adolescence. It is a continuous process throughout the life span as measured by biologists.

S. Janobrom [3] has given the meaning of the elderly. It is a continuous process of change in the last stages of the human life cycle, so aging is most often associated with a physical decline. The mind and behavior also decline with age.

James and Rainer [4] have given the meaning of the elderly to mean that changes are commonplace in the organism and that the level of aging is divided. There are 4 types.

1) Chronological aging refers to the age of the calendar year from the year of birth.

2) Biological aging refers to the physical changes and processes that appear during aging.

3) Psychological aging refers to changes in the function of perception, memory, learning, cognitive intelligence and the appearance of various stages of aging.

4) Sociological aging means changing roles. The status of the person in the social system such as family and job function changes.

The concept is that elderly people aged 60 and over, both female and male are counted according to economic conditions and people who retire from work. The physical condition of the human body is inevitable due to the effect on the body. Mind and society changes in each aspect are processes that relate to the individual. Elderly people may have an aging process on each side or a different pattern.

Technology refers to everything related to production, creation, use, process or operation, as well as to devices that are not in nature.

K. Malithong [5] says that information and communication technology is a combination of two technologies. 1) Information Technology: IT is the collaboration between hardware and software to process, store, access, present and disseminate information with high performance computing electronics. It can work beyond –the processing and storage of data as a medium for 3D visualization as well as mixing and mediating the information presentation. Examples of hardware include any device that contains a computer chip, such as a computer, digital camera, telephone, and includes materials such as a smart card and the graphics program Movie Editor. 2) Communication Technology (CT) is a device and method of telecommunications for accessing, searching and transmitting information, such as modem, satellite signal transmission and Teleconference. When IT and CT are merged into Information and Communications Technology: ICT refers to the use of computer technology, for Data processing, that is systematically stored. It can be accessed and searched, used as a medium to provide information. Including information transmission with high-speed communication technology. To pass information quickly.

K. Phakdiwattanakul [6] has the meaning of the Information System that represents a collection of various elements (data processing network) for input into any form. Then it goes to a process that may help by using a computer. The compiler changes and saves the output is information that can be used to support decision making.

Information and communication technology is used for the process of procurement, storage, processing, and data transmission. The information is published in various media formats such as mixed media or audio, animation images, text or alphanumerics, which are used to increase the efficiency of information access, accuracy and speed, the need to catch up with the use. These technologies will mean that the computer consists of hardware, software, and data, and technology to exchange information using the telecommunications system. Satellite data communication or wired and wireless communication.

J. Pimpiko and S. Loipha [7] presented this research aimed at examining the use, problems and capabilities of use, and needs for the information and communication technology for elderly Khon Kaen Municipality, including their opinions on roles and importance of the information and communication technology. The study sample included 180 elderly living in Khon Kaen Municipality. The data was collected by interviewing them with questionnaires.

The study revealed that most elderly people in the municipal Khon Kaen Municipality did not use a computer nor use the Internet. Their reasons for not using ICT were many and varied, no need to use computer in their daily life, did not own a computer, and did not understand how to use the Internet, and 68.80 percent stated there was no need to make use of the Internet. However, they viewed the necessity for the present society to be competent in the use of computer and the Internet at the highest level.

Finally, the elderly wanted the Khon Kaen Municipality to provide more facilities for them to work and develop their abilities in Information and communication technology in particular, training sessions to develop skills for using computer and the Internet were the needs rated at the highest levels.

S. Mungsing and J. Montiraj. [8] Presented an empirical investigation of needs for information and communication technology (ICT) of senior citizens in Bangkok, Thailand. The objective is to study needs, difficulties and barriers in accessing information and communication technology of Thai senior people in Bangkok area. Data were collected via questionnaires from 120 senior citizens, at ages of 60 or older, random sampling from members of the Seniors Association of Thailand and senior citizens who live nearby community ICT-Training centers in Bangkok. The study results found that the senior citizens in Bangkok area need ICT supports, from relevant public organizations, at high level, in three areas: 1) reducing gap for ICT accessing; 2) provision of facilities for ICT accessing; and 3) ICT training for senior citizens. The difficulties or barriers for ICT accessing include perception that ICT is too complex to use, lacking of knowledge and skills in ICT accessing, and lacking of budget for an Internet service monthly fee. In addition, the analytical results showed that the basic characteristic of careers were correlated to the needs for ICT in senior-citizen health education and assisting, the ages of senior - citizens were significantly correlated to the needs for ICT - training support, by the reverent public organization, and also the ages of senior citizens were correlated to the needs for reducing gap for ICT accessing, by the relevant public organization.

A. Mayoungpong and K. Tayen. [9] Presented the objectives of this research to investigate 1) the level of elderly acceptance of technology and support. 2) Individual factors influence the elderly learning. The quantitative approach was applied by using questionnaire in data collection. Data was collected from 320 elderly people. Descriptive and inference statistics were used: percentage, mean, standard deviation, Pearson correlation and, multiply regression analysis. The findings indicate that there is a highest level of elderly acceptance of technology and support. The elderly people also use the Internet mainly to communicate with others, followed by watching movies and listening to music. The most important technology support for the elderly is the Internet and computer use in a public place such as library, hospital and elderly center with an expert encouragement. Provide knowledge and skills for the elderly using technology is the second most important technology support. Factors influencing the elderly learning in technology media are as follows: 1) Individual factors: the level of education, occupation, current, salary and, computer experience. This factor can explain the influence is 24.60 percent. 2) The elderly acceptance of technology

3) Technological support for the elderly. These two factors can explain the influence is 39.70 percent.

S. Khoocharoensin [10] Presented purposes of this research were; 1) to study the use of social media behavior of the elderly in Muang District Chonburi Province 2) to compare the use of social media behavior of the elderly in Muang District Chonburi Province classified by personal data: gender, marital status, educational level, income, and occupation 3) to study the impact of using social media to the elderly in Muang District Chonburi Province. The sample consisted of 380 elders in Muang District Chonburi Province. The checklist and rating scale questionnaire was used for data collection. The data was analyzed in terms of percentage, arithmetic mean, standard deviation, t-test, one-way analysis of variance, and LSD. The results were as follows: 1) Overall use of social media behavior of the elderly in Muang District Chonburi Province was rated at moderate level. The advantageous aspect was rated at high level, the equipment and objective aspects were rated at moderate level, the program and the trouble aspects were rated at low level respectively. 2) The comparison of using social media behavior of the elderly in Muang District Chonburi Province as classified by gender, educational level, and income were significant differences at the 0.05 level in overall and all aspects, when classified by marital status, and occupation showed no significant difference overall, however there were significant differences at the 0.05 level in all aspects. 3) The impact of using social media to the elderly in Muang District Chonburi Province in a) economic aspects dealing with spending too much money on mobile phone and internet services, b) in social aspects with more communication to family members, c) in mental and emotional aspects to relax from other activities, and d) in health aspects for getting useful information for healthcare.

III. RESEARCH METHODOLOGY

A. The Model

For this research, we have designed the conceptual framework as follows.
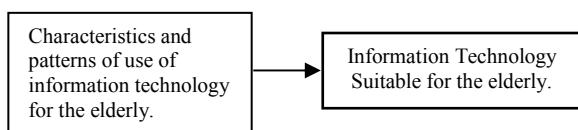
Conceptual framework

Fig. 1. Display conceptual framework of the research project.

B. The Methodology

For this research, we selected a quantitative approach by using questionnaires in data collection. The checklist and rating scale questionnaire was used for the data collection.

A questionnaire for the creation and validation of research tools. 1) Study the research papers related to the use of information technology for the elderly and define the scope of variables for the questionnaire. 2) Create a questionnaire with the scope of the content to cover the objectives of the research. 3) The questionnaire was created

for 3 persons to examine the content validity by selecting the index of item-objective congruence (IOC) [11] to select the items with the index of consistency of 0.50 and above and to improve upon the suggestions of experts. 4) The questionnaire was used to try out the 30 non-sample seniors. The categorical powers were 0.20-0.80 and the reliability was 0.89 [12] 5) the questionnaire was corrected. The data was collected from the sample.

The study population was aged 60 years and over in Mae Hong Son Province in the year 2017 of 30,528 persons as of 31 Dec 2017 (Department of Elderly Affairs, 2560).

The sample used in the study was a seniors residence in Mae Hong Son by selecting specific prescription sample size from table [13] from a population of 30,528 people among 380 people.

The statistics used for data analysis are as follows. 1) Descriptive statistics for the analysis of personal data of the sample, including frequency, percentage, arithmetic mean and standard deviation. 2) Inferential statistics include one-way ANOVA and t-test to test hypotheses. The results are presented in tabular form.
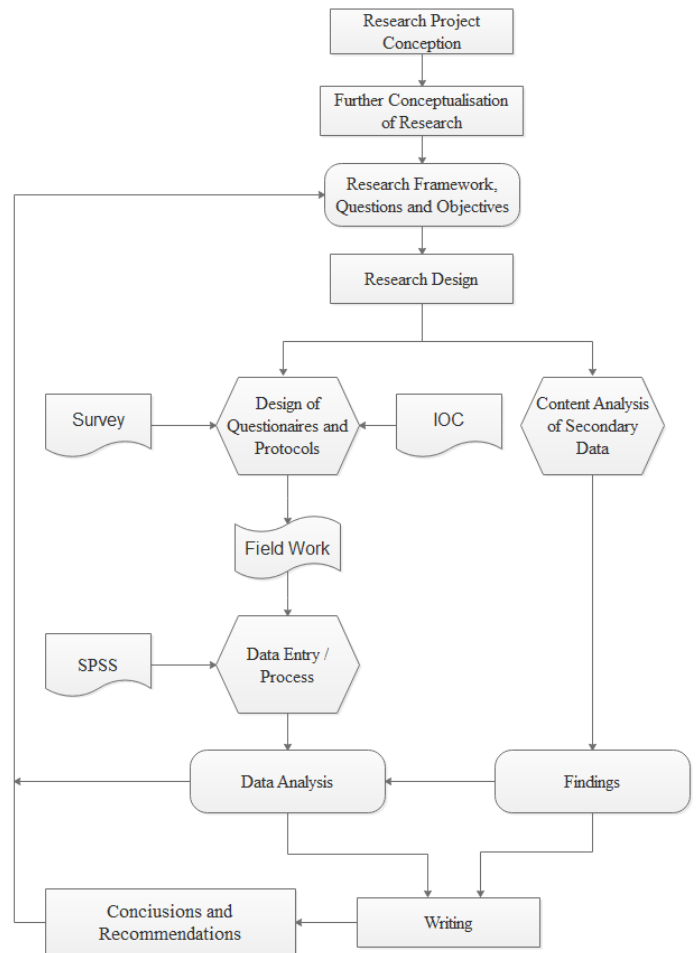

Fig. 2. Research Activities Flowchart

IV. EXPERIMENTAL RESULTS

1. General information of the respondents found that the sex of the respondents were mostly female at 52.60 percent and 47.40 percent male. Married 74.50 percent, followed by the single 16.10 percent and divorced or widowed or separated 9.50 percent. For the level of education, most respondents at the junior high level were 41.80 percent, followed by undergraduate 18.70 percent high school 15.80 percent, primary level 15.30 percent and a high degree 8.40 percent. The mean monthly income 5,000-10,000 baht 53.90 percent, followed by earning less than 5,000 baht 22.10 percent earning 10,001-20,000 baht 14.20 percent and earning more than 20,000 baht 9.70 percent. The occupations were mostly mercenary at 47.60 percent, followed by commercial or private business 21.80 percent, farmers 20.30 percent, not occupations 5.00 percent, a servant pensions by 2.90 percent, government officials or employees of the state 1.80 percent and Employees 0.50 percent

2. General information on the behavior of using information technology showed that the usage time was morning time (05.01-09.00) 48.20 percent, followed by evening time (17.01-19.00) 19.50 percent, the end of the day (12.01-14.00) 6.80 percent, in the afternoon (14.01-17.00) 6.60 percent, in the evening (19.01-21.00) 4.50 percent, in the afternoon 3.40 percent and night (21.01-24.00) 2.10 percent. For the period of usage per day 1-3 hours, up to 43.90 percent, less than 1 hour 40.50 percent, more than 5 hours but not more than 8 hours 10.00 percent , more than 3 hours but not more than 5 hours 5.30 percent and more than 8 hours 0.30 percent. The frequency of use of more than 1 time per day was at a maximum of 65.50 percent, followed by one day 22.60 percent. 1-3 days per time 10.80 percent, once a week 0.80 percent and more than one week at a time 0.30 percent.

3. The behavior of using information technology as a whole was 2.66 at the moderate level. Considering each side respectively the mean was descending. Firstly, the mean benefit is 3.80. Secondly, the mean equipment was 2.62 the mean objectives was 2.51 at the moderate level. The program mean of 2.23 and obstacles mean 2.12 were low. By aspects,

1) Behavior in using information technology for the purpose overall, the mean was 2.51. Sort by mean from more to less. The first three are: For communicating with family members or acquaintances, the mean was 4.20 at the very highest level, followed by the health information was 3.66 at the high level and to keep track of new information and knowledge the mean was 3.50 at moderate level.

2) Behavior of using information technology on the equipment as a whole was at a moderate level, and the mean was 2.64. When considering the items, we found that the age was in the correct order. The mean from the least to the first three was the use of mobile phones (smart phones). The mean was 3.96, at a very high level. The tablet (iPad, Galaxy Tab) the mean was 3.06. Using wireless internet (Wi-Fi) is moderate, the mean was 2.51.

3) The behavior of using information technology in the program was at a low level, the mean 2.23 at the low level. When considering each item the mean of the top three is LINE, the mean was 4.18. The second is the Facebook which had a mean of 3.38. YouTube the mean was 3.06.

4) Behavior is also important in using information technology. Overall, the mean was 3.80. When considering the items, the mean of the three lowest was stress or loneliness, the mean was 4.03 at the very highest.

Communication with family members the mean was 3.94 at a high level. The dementia mean was 3.93 at the high level.

5) Behavioral Use of Information Technology in Obstacles Overall, the mean was 2.12. In terms of rankings, the mean of the top three lowest was the Government agencies do not promote the benefits of using information technology to the elderly. The mean level of 2.71 is moderate. Secondly, a device such as a computer or a phone, smart phone is expensive, averaging 2.66 at a low level. Internet service is expensive, averaging 2.62 is moderate.

4. Comparison of Information Technology Behaviors Classified by sex. Information on the use of information technology by male and female in all aspects was significantly different at 0.05 level. On the other hand, it was found that the use of information technology in males was higher than that of females in terms of purpose, equipment, program and benefits. Female gender is more than male on the obstacle were significantly different at 0.05 level.

5. Comparison of the behavior using information technology. Classified by marital status. It was found that the overall difference was statistically insignificant. When considering each aspect, it was found that the difference was statistically significant at the 0.05 level.

6. Comparison of the behavior using information technology, classified by level of education, and specifically all aspects of the program objectives and the benefits and the obstacles difference is statistically significant at the 0.05 level.

7. Comparison of information technology usage by income. The objectives, equipment, programs, benefits and barriers were significantly different at 0.05 level.

8. Comparison of the behavior using information technology. By career the overall difference is not statistically significant when comparing the income side. The difference is statistically significant at the 0.05 level. All aspects of the program objectives and the benefits and obstacles.

V. CONCLUSION AND FUTURE RESEARCH

It can be concluded that the elderly in Mae Hong Son Province have the potential to select and learn new information technology applications and to communicate with people close. I have been using IPAD and smartphones and line programs to keep in touch with the people closest to me. The supply of equipment depends on the individual's income. However, most of them will try to learn, so it can be said that the potential of the elderly in the use of information technology cannot depend on age. It depends on the equipment, the support, size, price and programs that can communicate clearly.

Suggestions in the study are as follows. 1) The research found that older people have the habit of using information technologies. The most advantageous aspect are related agencies such as the Ministry of Social Development and Human then and local governments should provide support for network devices. There should also be awareness and training for the more effective use of older technology. 2) Use of Information Technology The program found that the elderly use the line application (LINE) most, so NHK Japan, which provides this program, should focus on developing programs to suit the elderly. 3) The barriers to using information technology of the elderly. The results showed that government agencies did not promote the benefits of using information technology to the elderly. Therefore, the

concerned agencies should promote the benefits of using information technology to the elderly thoroughly.

Future research can be done for improvement. Firstly, we should study the knowledge-based model for using the appropriate information technology for the elderly. Secondly, research and programs need to be developed for the use of social media appropriate for the elderly. Thirdly, we should study the needs of older people in social media content as well as research and content development to present in social media to meet the needs of the elderly.

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