

The Development of Online Community Model to Promote the Life Quality Level of the Elderly in Urban Society

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Abstract— The research of the Study and Develop Online Communities to promote quality of life for the elderly in Urban Society is a research and development by integrating qualitative and quantitative methods. The objectives of the study are: 1) to study the problems and needs of the urban elderly in Nang Rong Municipality, Nang Rong District, Buriram Province. 2) to analyze and to design an online community to promote quality of life for the elderly in urban society of Nang Rong Municipality, Nang Rong District, Buriram Province and 3) to develop an online community model for promoting the quality of life of the urban elderly in Nang Rong municipality, Nang Rong District, Buriram Province.

The population in this study were the elderly in Nang Rong municipal area, Nang Rong Subdistrict, Nang Rong District, Buriram Province (Young-old persons aged. 60 to 69) by using purposive sampling method and the chosen population were the retired teachers having experience in using online media, the senior school instructors, doctors, and senior welfare officers. The instruments used in this research were questionnaires for collecting quantitative data and interview, group discussion, lesson conclusion, and participant observation were the methods for collecting qualitative data. The statistics used to analyze data were the average and the standard deviation.

For the result of the online life-quality promoting in the online model for the urban elderly, it was found that the elderly can post pictures, write blogs, send messages to the senior school instructors, doctors, and senior welfare officers, read press releases from the elderly welfare department, attend elderly school, read health articles, read community blogs, create polls and write a trading post in the online market. And the overall result of the online community performance and satisfaction to promote the quality of life of the elderly in the urban society from the local elderly, the senior school instructors, doctors, and senior welfare officers is a high level.

Keywords— elderly, online community, information technology application

I. INTRODUCTION

In family planning, it is expected in the next 3 years or 2021 that Thailand will be a completely Aged Society with the elderly population of 20% of the total population. [1]

There are 1,585,064 people in the Buriram province, the 790,255 are men and the 794,809 are women. Of these, 210,743 or 13.30% are elderly. The Office of Social Development and Human Security in Buriram has held a workshop to develop a strategic plan for the elderly in Buriram Province, 2015-2017. For every involved

organizations (i.e. Senior Representative, Government agencies, Private sector, local government, Elderly organization, elderly care volunteers, volunteers for Social Development and Human Security, Women's Organizations, Village Committees, and The Children and Youth Council) together have brainstormed on a strategic plan for the elderly in Buriram, 2015-2017. In the meeting, they have discussed on the topic of the analysis of the working environment of the elderly in Buriram Province (SWOT Analysis) and have encountered several problems. One problem was that older people could not access services/activities for the elderly in various fields such as health, occupation, recreation. Moreover, from the survey on the problems of the elderly in Buriram, one another problem is the lack of integration of the elderly aspect. The work is scattered. There is no real connection between all working levels. [2]

And from the behavioral survey of the internet users in Thailand in 2017, it was found that the elderly, the age group between 52-70 years-old, have a tendency to use the internet more [3] and according to research conducted by Saman Loyfa [4] found that information technology can be beneficial to the elderly in several aspects including helping improve and promote quality of life and helping them solve their problems. The internet will allow the elderly faster and easier access to information. From the result of the survey of the elderly problem by the Department of Health [5], it was found that one of the problems in the elderly is knowledge. The elderly have no opportunity to gain knowledge to develop themselves to suit their age, to adapt to social change, and to be compatible with the new generation.

Then, the researchers have an idea to develop an online community for the elderly. It can help promote the quality of life for the elderly in emotional aspect, in the social aspect, in the psychological aspect, and in the economic aspect. This is because the online community is a source of information that is useful to the elderly including health news and knowledge. In the online community consists of elderly people joining to talk to each other. On the platform, they can trade through the online community and can transcend their experience through the blog to later generations. Elderly school teachers who come to the knowledge. Medical staffs who can give advice to them. Elderly Social Welfare Department can use this channel for spreading useful news or information for the elderly. This involves the cooperation of local agencies in the care of the elderly. Moreover, this is a channel that allows the elderly to

be able to rely on themselves and to improve their quality of life. From the problem of entering the elderly society, it is an active aging society that will lead to a better quality of life for the elderly. Ultimately, the problem of entering the elderly society can become the Active Aging society which leads to the better elderly's quality of life.

II. BACKGROUND KNOWLEDGE

A. Online Community

Jenny Preece [6] has mentioned that the online community is a community of people exchanging their information through the internet. Amy Jo Kim [7] has defined that an online community is a community that allows the members to be involved in other members' activities. Yuen Poovarawan [8] has given the meaning of a website that it is the computer that can display information on the World Wide Web.

From the mentioned above, it can be concluded that the online community means the website which is a place gathering people who share their interests over the Internet. It consists of web pages that are linked together by displaying information on the World Wide Web.

The important elements in the development of an effective online community in Sociability aspect; the development of the system must be emphasized in 1) Objective: It must be clear and have the standpoint. 2) People: It must emphasize the building of credibility among themselves. 3) Policy: It must be clear, support the creation and preservation of the community. Apart from that, the usability of the webpage has to: 1) Focus on the design of the system that encourages users to access the data easily. 2) Be simple, friendly, and convenient. 3) Having consistency in the layout of the webpage components (Information Architecture Design) which presents an important component to effective online community development, as shown in Fig. 1.

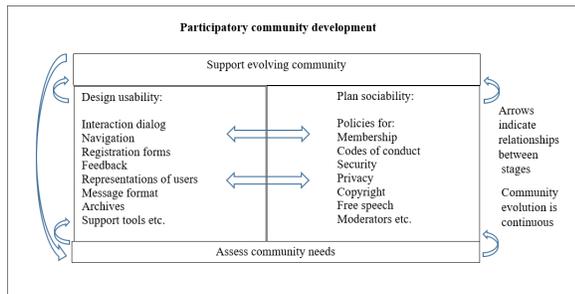


Figure 1. The important elements in the development of online community [6]

B. Problems in the Elderly

The problems that occur in the elderly as a result of the change of age resulting in many problems for the elderly. The Department of Health [5] has shown problems with the elderly, divided into the following problems:

- The Physical aspect includes physical health problems. Elderly people often have health problems from their body deterioration. They have various diseases including both physical and brain disease.

- The Psychological aspect includes psychological problems. The elderly could not be given sufficient attention and warmth from their offspring making them feel lonely, desolate, and may have an anxiety, such as worrying about being abandoned by their relatives or worrying about their death. Elderly people often have a mood swing, such as grief, apathetic, or self-centered. Some elderly people also have a sexual desire, which is not suited for their age letting them be disappointed.
- The Economic aspect is the economic problem. The elderly who are poor; there are no children for caring for them. Some may have no income or just a little income which is not enough for a living. Some of them may be homeless which can be in difficulty.
- The Social aspect includes the problem in value change. At present, the change in socio-economic conditions has made the youth less likely to have access to their parents, teachers and elderly leading to a rising need in nursing homes. Knowledge problems: The elderly have no opportunity to gain knowledge to develop themselves to suit their age, to adapt to social change, and to be compatible with the new generation. Social problems: Elderly people may not have the same respect by the society. Especially, those who used to be high ranking officials. Children and young people have a bad attitude toward the elderly seeing old people outdated, talking nonsense and helpless.
- The Socio-economic needs of the elderly include the need to get attention from others and the need to be a part of the family, society, and parties. They need a help from the society and a role in the society by their aptitude. The elderly need support from their family and the society in the aspects of their living, their income, and services from the state. They want to live in the community and to participate in community and social activities. They need to rely on themselves; and, no need for compassion. They need Income guarantee and insurance for old age.

C. Technology Acceptance Model: TAM

The concept of technology acceptance (TAM) [9] is intended to be a model for predicting information technology acceptance, consisting of two key factors that influence the factor of Adoption or intention to use the technology (usage). Those are:

- Perceived Usefulness: Perceived Usefulness refers to the level at which individuals believe that the use of information technology improves the performance and the efficiency of the work; for example, a person recognizes that the use of technology is beneficial, resulting in better work quality or faster completion. This results in an increase in revenue as external motivation (Extrinsic Motivation). Perceived benefits can have indirect effects on the usage by passing on the acceptance of the economic and social needs of the elderly, such as the need to get attention from others,

the need to be a part of the family, society and parties, the need to get help from the society, and the need to live in a community and to participate in community and social activities as well as to reduce dependency on others.

- Perceived Ease of Use (PEOU) refers to the level which users expect to have on a targeted technology is easy to use and effortless. Which technology simple and easy to use is very likely to be accepted by users. Perceived ease of use has a direct influence on users' acceptance behavior or willingness to use and indirectly influence their use by passing on acceptance behavior. It also found that perceived ease of use influenced perceived benefits as shown in the technology acceptance model (Fig. 2).

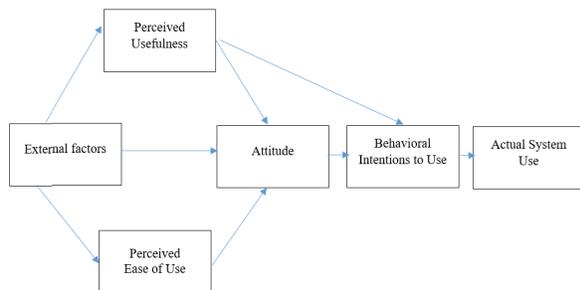


Figure 2. Technology Acceptance Model [9]

III. METHODOLOGY

The research of the Study and Develop Online Communities to Promote Quality of Life for the Elderly in Urban Society is a research and development comprising of integrating qualitative and quantitative data collection as well as the System Development Life Cycle (SDLC). The objectives of the study are: 1) to study the problems and needs of the urban elderly in Nang Rong Municipality, Nang Rong District, Buriram Province. 2) to analyze and to design an online community to promote quality of life for the elderly in urban society of Nang Rong Municipality, Nang Rong District, Buriram Province and 3) to develop an online community model for promoting the quality of life of the urban elderly in Nang Rong municipality, Nang Rong District, Buriram Province.

A. Area of the Study

The area of this study is Nang Rong Municipality, Nang Rong District, Buriram Province. The reason is the elderly group of the Nang Rong district is a strong group. There are an elderly club and senior School which is the model for the other areas to follow. Moreover, one of the researchers was in the Nang Rong area. There have been an observation and questioning of the concerned people in the area. It was found that people the elderly club in the district of Nang Rong weave a strong bond together; and, organizes activities regularly. Despite, the leader of the Nang Rong age group is a strong leader since they have experienced in being community leaders before. There are also many retirees who were public servant which have the experience and readiness to use the

online media. This is suitable to be the target area to use the developing system.

B. Population and Sample Group

After the participation in group discussions with relevant stakeholders in the area, including community leaders, community health volunteers, and senior welfare officers of Nang Rong Municipality. It was found that the retired public servant teachers will be the target group of this research. Because the group is ready in time and in the device, a smartphone.

• The Population

The population of The Development of Online Community Model to Promote the Life Quality Level of the Elderly in Urban Society research are: 1) The young-old (60-69 years old) who are retired public servant teachers both male and female with the experience in online media in Nang Rong Municipality, Nang Rong District, Buriram Province. 2) The Senior school instructors in Nang Rong Municipality, Nang Rong District, Buriram Province. 3) the Senior Welfare Officer of Nang Rong Municipality, Nang Rong District, Buriram Province. 4) the Primary Care Cluster doctors in Nang Rong Municipality, Nang Rong District, Buriram Province.

• Sample Group

The sample group of The Development of Online Community Model to Promote the Life Quality Level of the Elderly in Urban Society research is divided by the method of the data collection which are:

Quantitative study: 1) 23 young-old elderly (60-69 years old) who are retired public servant teachers both male and female experienced in online media and live in Nang Rong Municipality, Nang Rong District, Buriram Province 2) 3 Senior school instructors in Nang Rong Municipality, Nang Rong District, Buriram Province. 3) 2 Senior Welfare Officer of Nang Rong Municipality, Nang Rong District, Buriram Province. 4) 2 Primary Care Cluster doctors in Nang Rong Municipality, Nang Rong District, Buriram Province.

Qualitative study: The Study, discussions, and interviews as follows: 1) The caregiver for young-old elderly (60-69 years old) who are retired public servants both males and females who are experienced in online media in Nang Rong Municipality, Nang Rong District, Buriram Province 5 people 2) Senior School Instructors in Nang Rong Municipality, Nang Rong District, Buriram Province 3 people. 3) Senior Welfare Officer in Nang Rong Municipality, Nang Rong District, Buriram Province 2 people 4) Primary Care Cluster doctors in Nang Rong Municipality, Nang Rong District, Buriram Province 2 people and 5) The Relevant people in the area including community leaders, village health volunteers, senior school representative, senior club representative, and representatives of Nang Rong district pensioner's club 5 people in total.

C. Research Methodology

In research methodology, it is the integration of quantitative study and qualitative study as well as the System Development Life Cycle (SDLC) which has the process as follows:

- Preparation phase: It is a step before starting the process. The Researchers convened and planned before the fieldwork, then went to the area to coordinate with the relevant agencies in the area.
- Objectives execution phase: The process consists of the following processes: *Requirement Analysis*: A process for collecting problems information and the needs of the elderly in the area using the focus group. *Analysis and Design New System*: It is the process of bringing problems information and needs to analyze and design the online community. *Development System*: It is a process of developing the online community. *Evaluate system by stakeholders*: It is a process of online community assessment by people involved in the area, namely representatives of the elderly club, senior school representatives, local hospital representatives, and village health volunteers. The progress is the assessment, the discussion and the system improvement as suggested after the discussion. *Training and Evaluate System by Sample Group*: It is the training for the sample group of 23 people. *Maintenance*: the results follow up. *Deployment*: Deliver the system to the area.
- Conclusion phase: This is a summary of the results and the discussion.

The Research Methodology is presented in Fig.3.

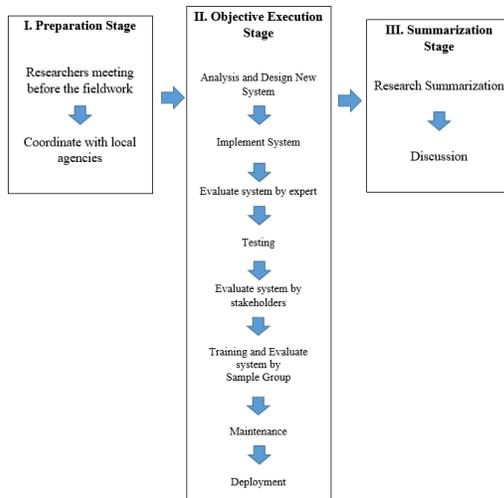


Figure.3. Research Methodology

IV. RESEARCH RESULT

Research results, according to the research objectives, are as below:

A. Research Result from Objective 1: To study the problems and needs of the urban elderly in Nang Rong Municipality, Nang Rong District, Buriram Province, from the focus group, are as follows: The results from the elderly group's representatives, senior school representatives, community leaders, health care volunteer representatives, and Nang Rong government representatives panel discussion finding the elderly problems and needs in urban area are:

1) The problems encountered in using online media include visual health problems, brain development, the decrease in learning ability, income insufficiency, the lack of tools such as no WiFi or no internet signal, the lack of budget to buy IT equipment, limited knowledge of IT, the Internet has no coverage, and the need to rely on their children in communication.

2) Expectations in the research include the needs of the elderly to participate in the program, to exchange their knowledge, to have the high quality of life. The researcher also expects to reach the information of the urban elderly and make them more sociable and see the benefits of using the IT media. The elderly are expected to be able to use online media in professional development and communication with related organizations and to be able to make more friends by using their IT knowledge. The researcher also expects on the individual IT system in the community, with the online media training program in order to make the elderly more self-reliance, with the good social quality of life and reduce the gap to understand and use IT as a learning center.

3) The approach in the development of online media for the elderly's quality of life includes the development in the local community, online media for brain development making the elderly away from depression, fast and easy access to online media, publications such as brochures about online media, learning resources for improving the quality of life in Nang Rong, IT systems as well as consistency training, high quality of life for the elderly in social aspect, the monitored training, counseling center with available contact point, and the leader can give the advice to project members and every elderly in this program can use IT.

The results of the problems data collection and the needs of the elderly from the elderly sample group. The results are as follows: Based on the summary of the questionnaire, the problems encountered by the elderly in the Internet activity. It was found that the most occurred problem in the Internet activity was online ads accounted for 9 people, or 42.9%. The next problem was the junk mail problem 8 people in total accounted for 38.1%. Followed by health problems such as eye problems, 7 people accounted for 33.3%. The next is a difficult or frequently disconnected Internet connection and lack of knowledge and skills to use the apps. The number was 6 people, 28.6%. The next problem was three people didn't have their own PC (14.3%). The next problem was the lack of hands-eyes relationship skill i.e. problem in using mouse and keyboard, two people in total accounted for 9.5%. Lastly, one person cannot find what they want on the internet accounted for 4.8%. Apart from that, in terms of the needs, they wanted a

bigger font, the instruction to use the app to chat with their friends and the app improvement to be easier to use. Because they are the elderly if there were so much process they would lose the will to use the apps.

B. Research Objective 2: To analyze and design the online community model in order to promote quality of life for the urban elderly. The results of the analysis and design of the system are as follows:

1) *The analysis result of The Use Case Diagram*

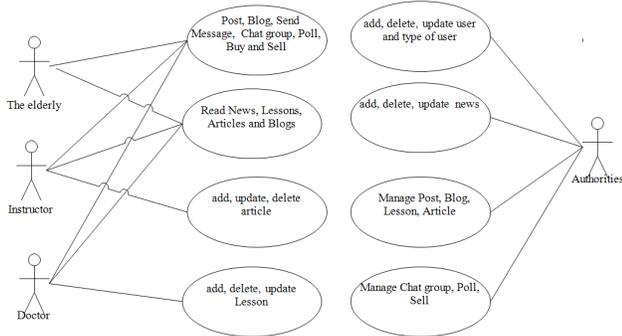


Figure.4. The Use Case Diagram

2) The screen design result is as follows:

For the online community application design, the results of the analysis of the needs of the elderly are as follows: they wanted a bigger font, the instruction to use the app to chat with their friends, and the app improvement to be easier to use. Because they are the elderly if there were so much process they would lose the will to use the apps. The study and research found that website design for the elderly needs to have large images, clear pictures, readable characters, and illustration to explain the content easily and not use too many colors and use bright colors. The content should be categorized to understand easily. [10-11] The design of the screen is shown in Fig.5.

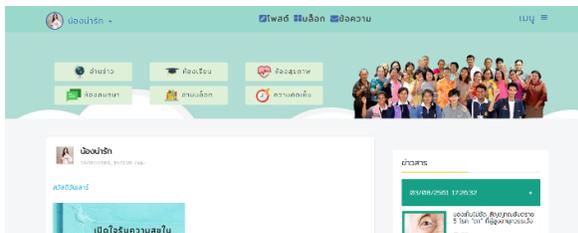


Figure.5. The screen design result

C. Research Objective 3: To develop an online community that promotes the quality of life of the urban elderly in Nang Rong Municipality, Nang Rong, Sub-district, Buriram Province. The results are as follows:

1) The result of the online life-quality promoting in the online model for the urban elderly in Nang Rong Municipality, Nang Rong District, Buriram Province in the elderly's part, elderly school instructors, and the Primary Care Cluster doctors. The elderly can post pictures, write blogs,

send messages, read press releases from the elderly welfare department, attend elderly school, read health articles, read community blogs, create polls and write a trading post in the online market.

2) The result of the online life-quality promoting in the online model for the urban elderly in Nang Rong Municipality, Nang Rong Sub-district, Buriram Province in the officers' part is consisted of the following menus: user login, advanced users, news and information, web board, voting system, online lesson management, health article management, blog management, post management and online marketing management as shown in Fig. 6.



Figure.6. Samples of the elderly's life-promoting online community screen

From Fig. 6. The homepage in the Social Welfare Section contains the following menus: Users, advanced users, news and information, forums, voting systems, online lesson management, health articles management, blog management, post management, and online marketing management.



Figure.7. Samples of the elderly's life-promoting online community screen

Fig.7. News and information management screen, which the officers can add, search, edit and delete news and information.

3) The results of the system evaluation from the users. The online community promotes the quality of life for the elderly living in the urban society in Nang Rong Municipality, Nang Rong District, Buriram Province in terms of the usage, user interface, and efficiency in the use. User evaluation results of the online life-quality promoting in the online model for the urban elderly in Nang Rong Municipality, Nang Rong Sub-district, Buriram Province from the 3 experts; computer expert, media design experts and elderly expert: The average point of 4.58 with standard deviations at 0.62, and the average of 3.83 with standard deviations at 1.07 from the experimental groups of 30 people. The user evaluation is each group is as TABLE I

TABLE I: Evaluation Result from Each User Group

User	Result		Decode
	Average, (X)	Standard Deviation (S.D.)	
Elderly	3.62	1.05	High
Instructor	3.97	0.34	High
Doctor	3.62	0.29	High
Authorities	4.73	0.15	Very High

From TABLE I: The results from each group are as follows: 1) 23 the young-old elderly (age 60-69 years) who are retired teachers, both male and female experienced in online media in Nang Rong Municipality, Buriram Province. The results of the evaluation were 3.62 and with standard deviations at 1.05, which decoded as high level. 2) 3 elderly teachers in Nang Rong Municipality, Buriram Province evaluated as the average of 3.97, with standard deviations at 0.34, which decoded as high level. Two Primary Care Cluster doctor in the Nang Rong Municipality area, Buriram province, who had an average score of 3.57, with standard deviations at 0.54, which decoded as high level. 4) Two Elderly Welfare Officer who had the average score of the system at 3.79, with standard deviations at 0.24, which decoded as very high level.

V. RESEARCH RESULT DISCUSSION

The results of the research can be discussed by the purposes as follows:

1) To study the problems and needs of the urban elderly in Nang Rong Municipality, Nangrong Sub-district, Buriram Province. The results of this study were as follows. The problems found in using online media include visual health problems, brain development, which is in accordance with research by Saman Loyfa [4] about the internet usage of rural adults. The problem which is at the high level is that when they use computers for a long time, they will get sore eyes, neck and back pain. The Department of Health [5] said that problems in the elderly are physical and mental problems

2) To analyze and design an online community in order to promote the quality of life for the urban elderly in Nang Rong Municipality, Nang Rong Sub-district, Buriram Province. The design was specifically designed for the elderly in the municipality. Which is in accordance with Jenny Preece's Important Elements of Efficient Online Community [6]. In the sociability side is the development of a system that emphasizes: 1) clear and well-defined objectives and 2) People focusing on building trust in each other.

3) To develop an online community to promote the quality of life for the urban elderly in Nang Rong Municipality, Nangrong Sub-district, Buriram Province. The development results about the elderly section consist of the functioning menu: posts, blogs, chat, news, classroom, health room, reading blogs, activities and going to market. Which is

developed to support the elderly's needs [5] that include 1) The physical need of the elderly, which is health and wellbeing 2) Psychological needs of the elderly and 3) Economic and social needs of the elderly. They need support and help from family and society, as well as the income and the services from the state, and want to be a part of the community and social activities to reduce the dependency on others.

VI. SUGGESTIONS FOR FURTHER RESEARCH

In the further research we hope that there would be the development of systems that are beneficial to the care of the elderly, such as the elderly's online health check-up linked to the online community application for elderly or elderly caregivers to check their health records through the online community or further develop in the elderly tracking system using online communities. Because the elderly may have malaise or Alzheimer. If an elderly person is missing, they can track them through an online community application.

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