

# Knowledge Sharing and Management via Online Social Networks: A Prototype for Older People in Thailand

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**Abstract**—Knowledge sharing via online social networks may not just be for younger people or people who are still working. This study shows that a prototype of an online social network for older people in Thailand can be of importance for people at this age. The study used qualitative research methods to investigate attitudes of older Thai people who live in the capital city and its surrounding towards social networks and knowledge sharing. This particular online social network prototype was designed, developed and tested by researchers then by experts before conducting the experimental tests with the real sample groups of older people. The researchers conducted the second experimental tests as a follow up study. From the results of UAT (User Acceptance Test) it can be implied that this online social network successfully met the needs of older Thai people in this area.

**Index Terms**—online social network, Thailand, older people, CoPs, edutainment, qualitative method, UAT

## I. INTRODUCTION

Information and Communication Technology (ICT) today plays a significant role to the human society. One of the benefits is that ICT helps people to transfer, disseminate and share data, information, and knowledge to others quickly, easily, and widely. One of the most popular channels that people use to do that is the Internet [1]. Thailand is one of the developing countries in South East Asia. In 2013, National Statistical Office, Thailand, reported that from 63.5 million which is the majority of Thai people, only 18.3 million used the Internet [2]. 70.7% of these people liked to use the Internet to share information and knowledge via online social networks which has become a very popular activity on the Internet [2]. Social networks provide a platform for people to talk, share and make friends. Especially, people who are in the same age group or have similar interests in particular issues, for

instance Facebook fan pages. But not only Facebook, there are also a lot of other social networks available for people to communicate over. In Thailand for example, the Website "GotoKnow.com", this is one of the most popular online social networks for people who are of working age. "Pantip.com" is another famous online social network for everyone who wants to share and talk about issues covering many different categories.

Results from research [3] shows that Thai senior educators who are willing to keep working believed their current skills and abilities can continue to be used and support their work in their professional life and that ICT will benefit both themselves and society. Many researches' have confirmed that older people agree and realize the significance and benefits of this technology too [4]-[8].

Nevertheless, online social networks have some limitations for older Thai people. The structure of Thai society is a hierarchical one where older individuals enjoy more status and seniority than younger ones and thus many senior citizens may find their skills more sought after than in a western society. Naturally, people in this group are usually not familiar with new technology. However, because of their age and the fact that they feel out-of-date, as they retired before the new technology came in, it may be hard for them to learn how to use this particular technology by themselves.

The purpose of this research is to develop a prototype of a knowledge sharing and management system via an online social network for older people in Thailand. Research questions stemming from this purpose are 1) what are their attitudes about using social networks for knowledge sharing; 2) what appropriate social network do they need.

## II. LITERATURE REVIEW AND SIMILAR STUDIES

In recent years, there has been a lot of literature and similar studies carried out that relate to this work and supports the initial idea, statement of problems, research

methodology, design and development tools, and the evaluation of the experimental tests. Thus, the reviews in this particular study includes; ICT in Thailand, today's online social networks, definitions of older people, older people and the participation, the needs of older people, older people's use of ICT, differences between younger people and adults as learners, entertainment concepts, qualitative methods, data collection and analysis, UAT, and similar studies.

### III. METHODOLOGY

#### A. Scope and Samples

This study focuses on investigating information from a specific age group of older people and people who have experiences in teaching, training, and advising older people or relevant work to them to help answer research questions. Data collection techniques used in this study includes in-depth interviews, open-ended questions and UAT (User Acceptance Test). Infor-Tech Research Group [9] stated that UAT is a type of testing application which is conducted by end users or stakeholders. Munawar [10] also mentioned about this particular tool, UAT can also be used to reflect the users' satisfaction towards the tests. In this particular study, the UAT was applied for testing in the experimental phases as a testing tool of users' satisfactions and enables them to determine whether the system meets their needs.

Patton [11] mentioned, "There are no rules for sample size in a qualitative inquiry." The samples were based on two methods; purposive sampling and availability sampling. This study focused on Thai people aged 60 and above who are healthy and still have abilities, live in Bangkok or its surroundings where the Internet and IT environments are at present are very good. The phrase "older Thai people" means people over 60, as 60 is the official age for retirement of Thai public servants [12]. There is no standard numerical criterion for the age of older people which might be different in other countries but the UN agrees the cutoff age of 60 is suitable [13].

#### B. Explore and Investigation

The initial idea of this study began with the ICT which is not just for younger people or people who are still working. An online social network is one of the popular activities for people today, including Thai people. The researchers of this paper developed detailed questionnaires to archive the objectives of this study as stated below.

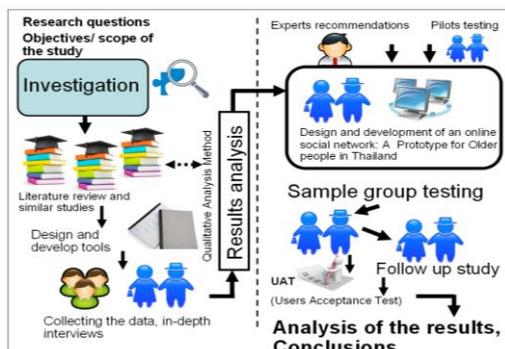


Figure 1. A conceptual research methodology of the study

#### C. Design and Development Tools, Collecting the Data

Designed and development tools, the method of data collection used semi-structured interviews to seek descriptive data which focused on this precise area. The interviewees are stated above (in section A. Scope and Samples). The following images are from some of the in-depth interview activates conducted by the researchers of this paper.



Figure 2. Researcher interviewing experts on teaching and training for older people from a local business (OPPY Club: Older people play young)



Figure 3. Researcher interviewing a retired teacher who is getting use to computers and the Internet



Figure 4. Researcher interviewing the leader of the older people community of Klong Kwai District, Pathum Thani province



Figure 5. Researcher interviewing the director of Center of Academic Resource and Information Technology, Rajamangala University of Technology Krungthep, the program director of the basic computer training for older people.



Figure 6. Researcher interviewing the staff trainers who have experiences with the training of older people to use a computer



Figure 7. Researcher interviewing retired ladies



Figure 8. Researcher interviewing another retired lady

#### D. Explore and Investigation

The collected data was analyzed base on the constant comparison technique, one of the methods of qualitative data analysis [14]. The interviewees' transcriptions were translate into document files and indicators of categorizes for events and issues were added which were then named and coded. Then, the compared codes generated consistencies and differences. The results revealed significant information which played a large role in designing and developing the prototype of an online social network dedicated to older people.

#### E. Design and Development

The prototype of an online social network for older people in Thailand was designed in terms of the social community web page style. The design reflects the significant data revealed from the research investigation and relevant studies. They are; the simplicity of layout but should not be too basic, the casual style (unofficial format) is important, color format and design including some cartoon images, easy to use navigation with

appropriate size font and buttons, clarity and alignment. The ethical consideration of privacy referring to information which allows the users to control their personal data by themselves is also very important and will increase confidence to use it. The concept of the CoPs (Community of Practices) [15] was used to categorize the content issues suggested from the older people. The data collected revealed, older Thai people CoPs can be categorized into 8 groups as follows 1) Plant lovers 2) Healthcare 3) Travelling mania 4) Religion talk 5) Reader mania 6) Entertainment 7) Collection, design, and creation 8) Other general topics. The researchers also considered other relevant concepts from the literature reviews to help the design and development phase, for instance; hierarchy of needs theory - social needs [16], interesting social network sites for older people [17], last but not least was the edutainment concept which was one of the significant issues mentioned by many interviewees [18]. Fig. 9-11 are the samples of this particular webpage.



Figure 9. The homepage of the prototype webpage



Figure 10. User icon and the identification of his/her topics with the number of Like, Readers and Comments

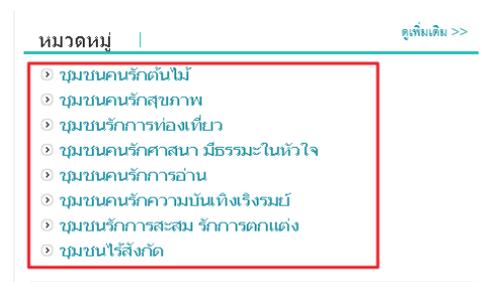


Figure 11. The Categories of CoPs



Figure 12. Useful links, entertainment corner



Figure 13. The example of YouTube VDO posted by older people



Figure 14. The example of knowledge sharing by older people

### F. Experimental testing

A prototype of the online social network for older people in Thailand was tested by the researchers in the first step. Second, the experts in teaching and training were invited to evaluate and provide feedback. Third, the pilot older people test. Then, adjusted and corrected to achieve the final prototype. The experimental testing for the sample groups of older people to use this prototype was carefully planned out. The sample groups were volunteers of older people, comprising of both

individuals and from Clubs for Older People in the area mentioned above. The first experimental tests consisted of 22 older people.



Figure 15. Sample group registering for the experimental tests

After a brief introduction, the researchers gave them the exercises to practice. They were left to continue using the web pages by themselves. The first exercise focused on how to register in order to gain the username, and then filling in the profile and attempting to log in and log out from the website. The second exercise allowed them to share their knowledge to the website. The older people can choose where their knowledge will be shown in the proper categories of the CoPs. The third exercise asked them to share their favorite photos or VDO clips from youtube.com on the webpage. The last exercise asked them to find a knowledge topic that they were interested in to post on the webpage and also provide comments to the other people's inputs (Fig. 16-17).



Figure 16. First sample group using the prototype web page



Figure 17. First sample group

A few months later, the researchers conducted the follow up study with the same group (Figure 18-20 depicts the testing atmosphere). The UAT (User Acceptance Test) were performed at the end of both experimental tests (Fig. 21-23). They were allowed to feel free to express their opinions. The researchers did not convince them to answer but only explained each

question meaning to guarantee that the older people understood the questions clearly.



Figure 18. A follow up study with the sample group



Figure 19. Sample group discussion



Figure 20. Sample group using the prototype web page



Figure 21. Sample group evaluating the prototype web page



Figure 22. Sample group using the prototype web page

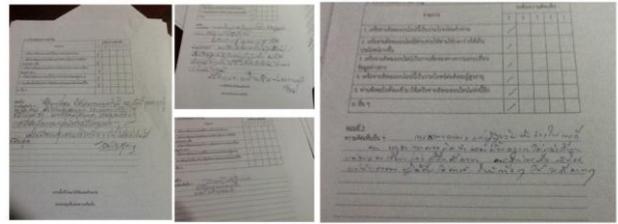


Figure 23. Collection of evaluations and comments

#### IV. RESULTS

After the sample groups of older people had practiced with the prototype of the online social network, the results of the experiment were collected. The first experimental test was conducted with 22 older people. 45.45% of these people indicated that they never used a computer before or had very low experience. 36.36% had some experience but very limited, and 18.18% had a basic understanding. However, nobody said that they fully understand and use computers regularly. Results from the follow up study with the same group, indicated that 4.55% believed their computer skills increased significantly. The intermediate levels equaled 31.82%. And 45.45% said their computer skills were still low with 18.18% stating that they had very low experience with computers.

The results from UAT (User Acceptance Test) from the first and the second experimental tests are summarized in the following tables (Table I-II).

TABLE I. GENERAL USABILITY ACCEPTANCE

The General usability acceptance List of issues	The first experimental		The followed up study	
	$\bar{X}$	SD	$\bar{X}$	SD
Suitable screen layout	4.73	.550	4.68	.72
Appropriate font size	4.77	.429	4.73	.46
Appropriate Buttons and the navigation of the screen	4.73	.456	4.73	.46
Appropriate color; tone and shade	4.73	.456	4.73	.55
Texts and terms of words used on the screen are easy to understand	4.73	.456	4.73	.46
Functionality of the system	4.59	.590	4.59	.50
The system is easy to use	4.36	.581	4.41	.67
Happiness and Contentment to join this social network	4.82	.395	4.91	.29

TABLE II. SIGNIFICANCE AND UTILIZATION

The significance and Utilization List of issues	The first experimental		The followed up study	
	$\bar{X}$	SD	$\bar{X}$	SD
This Social network provides significant benefits to you	4.68	.581	4.73	.46
This Social network helps you get most out of your time	4.55	.671	4.41	.80
This Social network provides more communication channels for you	4.77	.429	4.64	.58
This Social network provides significant benefits to the other older people	4.59	.590	4.55	.51
You would use this Social Network again	4.59	.503	4.86	.35

The researchers explained each question's meaning and allowed them to feel free to express their opinions. The results from the questionnaire consisted of 3 sections. Section 1 was the respondent profile. Section 2 was the rating scale of satisfaction level to accurately reflect their views and the last section was an opened-end question. The results of UAT indicated in Section 2 used the Likert rating Scale technique. It allows the respondent to rate a question on a scale that most accurately reflects their view [19].

Results of the arithmetic mean and the standard deviation from the Sections 2 are indicated in Table I and II above. In Table I, the satisfactions levels indicated the usability from users towards this particular prototype. The arithmetic mean in each case was higher than 4 meaning they were satisfied. Scale of scoring, 5 refers to very satisfied, 4 refers to satisfied, 3 refers to somewhat satisfied, 2 refers to unsatisfied, and 1 refers to very unsatisfied. If one looks at each category in Table 1, they are comfortable to use this social network which gained a high score (4.82, SD .395). Meanwhile, the ease of use and complication received the lowest score (4.36, SD .581). However, this score is still at a satisfactory level.

A comparison of the scores between the first tests and the follow up study in Table I show that the satisfaction levels of the participants increased in each category. Table II shows the comparison of both evaluations. The average score of the satisfaction levels were higher than 4.5, except category number 2 that focused on using this social network alone to help them to use their free time appropriately. The score was a marginally lower than the first time and slightly lower than the other categories (4.55, SD.671 and 4.41, SD.80 respectively). From these results, it could be interpreted that older people might not desire to use online social networks in all of their free time. As one can understand, the natural of these older people still cherish communication face to face.

## V. CONCLUSIONS

This study was to investigate the attitudes of older people about using social networks for knowledge sharing and to acquire an idea of what an appropriate social network needs to achieve in order to develop a prototype for older people. The evidence revealed from this study tended to be on the positive side. The older generation agreed that computers and the Internet now play large roles in everyday life. They restated that technologies should not just be for younger people and that everybody should know how to use a computer and the Internet. Because they believed that their current skills and abilities can continue be used to enjoy their lives, if an appropriate technology for people of their age was discovered they were willing to try, learn and use them. The online social network for older people was designed and developed appropriately based on the research findings. The model of this social network included the concept of simplicity of layout but not too basic. The older people liked the casual style (unofficial format), the color format, design and cartoon images. The

edutainment concept was another significant finding which was implemented into this prototype too. The ethical considerations of privacy of information which allowed the users to control their personal data by themselves, definitely made them confident to use it. The concept of the CoPs was used to categorize the knowledge sharing issues. For older Thai people the CoPs can be categorized into 8 groups as follows 1) Plant lovers 2) Healthcare 3) Travelling mania 4) Religion talk 5) Reader mania 6) Entertainment 7) Collection, design, and creation 8) Other general topics. The UAT were performed after the sample group had practiced with it. The positive results indicated they were overall satisfied with the usability of this prototype.

## VI. RECOMMENDATION FOR FURTHER STUDY

The significant outcome of this research was that the online social network satisfied older Thai peoples' needs and achieved all goals successfully in this area. It may also be of international importance to groups of senior people in both developing and developed countries where there are similar environments and factors, thus should be studied further to gain a better insight into the different significant factors. Some technical recommendations for further work are; consideration of an algorithm to help older people classify their fields of interest to be shared into the right CoP. Many older people made mistakes by sharing their knowledge into the wrong CoP. The admin of the system can manually moved those cases to the right groups but it makes no sense to monitor this issue all the time. Even though, older people themselves can edit their message, very few will notice that they made a mistake and placed it wrongly. Another interesting suggestion is how to integrate this particular site with other popular social networks to help develop a social network for people of all ages without forgetting the concept of older generation satisfaction.

## VII. ACKNOWLEDGMENT

The researchers wish to thank all stakeholders who were involved in this research, especially, the sample group of older people from a variety of places both in Bangkok and its surrounds. The researchers would also like to thank all the experts from the private sectors and government organizations who provided meaningful recommendations. Last but not least, this work was supported in part by a grant from the Faculty of Technology, KMUTNB, Thailand.

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