# Health Communication to Promote the Well-Being for the Thai elderly with New Media via Smartphone by Undergraduate Students

Nattanun Siricharoen

*Faculty of Communication Arts, Huachiew Chalermprakiet University, Samut Prakan, Thailand*
*Corresponding author: nattanun2004@yahoo.com*

## Abstract

The major objective of this research was to propose a model for the practical application of new media for health communication via Smartphone that would allow university students to help promote the well-being of elderly family members. The sample population was 400 first-year students enrolled at Huachiew Chalermprakiet University in the first semester of 2016 in 13 study programs covering 4 core subject groups, who were surveyed by questionnaire, as well as 13 representative students who participated in focus group discussions and 14 qualified experts who were consulted for opinions and recommendations. Data were analyzed using the descriptive statistics of frequency, percentage, mean, and standard deviation and the inferential statistics of Chi-square, Independent Samples T-Test and One-Way ANOVA. Data were collected from January to October 2016.

The results showed that most of the students wanted to use a form of communication by Smartphone that enabled both parties to see each other's faces and hear each other's voices in order to sure that health communication information was transmitted clearly and could be understood clearly. Hypothesis testing revealed that there were differences between males and females in their new media use behavior, regular activities, attitudes about health information, ways of transmitting health care information, and attitudes toward the use of new media to help promote the physical and emotional health of the elderly.

The main conclusions from the experts were that 1) students required advice from their university instructors. and 2) The content, media and method of transmitting messages about health should be compatible with the way of life and desired benefits of the elderly if they are to be effective in helping the older people adjust their attitudes or behavior

***Keywords***:  Health communication, New media, Smartphone, Undergraduate Students, Well-Being, Thai Elderly

**Introduction**

    **Background and Significance of the Problem**

    In this day and age communications using new media and social media via Smartphones have become a part of almost everyone's daily lives. There are numerous applications available to use that make it easy to access, send and receive news and information. These applications, including Facebook, Line, blogs, Youtube and Instagram etc., provide benefits and satisfaction to the message senders and the message receivers. Recent surveys confirm that large numbers of university students use Smartphones for many activities. (Khwansomkid and Phanjam, 2012; Suwannasaen, Kanjanavajee and Oumpram, 2014; Hinsuwan, 2012; Petkom, 2014) Research shows that university students' number one use for Smartphones is to contact other people, their second main use is to relax by watching videos or listening to music, and their third major use is to chat online. Most students (94.2%) use their Smartphones every day, and on average they use them more than 30 times a day. The time they use them the most is 19:00 to 24:00 and they usually use them for 6-10 minutes at a time. The students surveyed reported using social media every day to keep in touch with their friends, mainly using Facebook, followed by e-mail, SMS, and MMS. In addition, they also used their Smartphones for work and for searching information.

    We can conclude that both male and female university students, no matter what region or province they live in, no matter who they live with, and no matter how long they have been using a Smartphone, almost all have experience using Smartphones for various activities. However, there has been little if any research done that sheds light on the question of how or to what extent university students use new media and social media on their Smartphones to communicate health messages for the well being of the elderly.

    Knodel, Prachuabmoh and Chayovan (2013) reported in a survey on household appliances in Thailand that one item that was getting much more prevalent was the Smartphone. It has become practically a necessity for communications in every Thai household. Young people can teach their

parents or grandparents how to use a Smartphone so that they can communicate with them at any time when they are out of the house at work or school. Older people can also use the Smartphone to call for assistance by themselves in the case of a medical emergency. This can contribute to well being and a sense of security. Most elderly people inevitably suffer from physical or mental health problems including vision problems (47.4%) or hearing problems (15%) which make their daily lives more difficult and could be the cause of accidents. Advanced age may bring other health problems like incontinence, cardiovascular disease, emphysema, diabetes and liver cancer (especially among males) and cardiovascular disease, diabetes, dementia and clinical depression, especially among females (Department of Mental Health, 2013).  The 3 major mental health problems found in Thai senior citizens are anxiety, depression and sleep disorders.

If you look at the statistics about the rising numbers of elderly people, you will see that 2 out of 3 elderly people in the world live in developing countries, especially in Asia (United Nations, 2009).  Thailand is now classified as an aging society because there are 9,928,000 people over the age of 60 (more than 10% of the population). In the next 20 years Thailand will become an aged society with more than 20% of its population in that age group. (Foundation for Older Person's Development, 2013; Sajjasophon, 2013) What is more concerning is that an estimated 1.7 million people will have dementia  (Office of the National Economic and Social Development Board, 2009). Since this is the reality, it is important to take stock of the issues and consider approaches for preventing and solving aging-related problems. People who are getting older should learn new things so that they can adapt and have a good quality of life as they age, maintaining their self respect and self confidence and finding ways to avoid becoming a burden to their children or society (Taveesit, 2010). The younger generations need to learn how to protect their elders and help them maintain good physical and mental health as they age.

The author has many years of related experience and has personally benefitted from using a Smartphone for health communication with family members, so this led to the research questions: can advancement in

communications technology and social media applications be used to improve the convenience and speed of communications, and reduce the costs, for better physical and mental health-related communications among family members? Can they be efficiently and effectively used by every family? How can they best be implemented? Can we make use of the knowledge and skills of university students to help look after the health of their family members who are elderly? The author has worked as an instructor in the university setting since 1999 and has developed a deep appreciation of the potential of undergraduate students, who have the physical capacity and the open mindedness and willingness to participate in activities and perform tasks to which they are assigned. If we can tap into the these abilities and strengths of university students and make full use of them for health communications via new media on Smartphones to improve the well being of the elderly, then it will have positive effects on an individual, family, community and national level. The personal happiness index is based on a person's satisfaction with physical health, personal relationships, sense of security, standard of living, and assurance of a safe future in society (Australian Unity, 2016). Happiness thus is connected with many factors including personal factors and the family environment. The family unit is normally the center for providing happiness, including quality of life and holistic care with a balance of physical, mental, emotional, environmental and social well being (Buntong, 1988). The author was inspired to deeply research this topic in order to add to the body of knowledge that will bring tangible benefits to every family in Thai society

**Research Objectives**

1) To study the demographic characteristics of the sample population of university students, their new media via Smartphone use behavior, and their attitudes towards health communication using new media via Smartphone

2) To study students in the 4 core subject groups and their attitudes/ satisfaction with different methods of sending information via Smartphone

3) To study the samples' attitudes about using new media to help care

for the physical and mental health of elderly family members and their satisfaction with the quality of life and overall happiness of elderly family members

4) To study the entire sample population's opinions on their demand for different methods of health communication via Smartphone and

5) To summarize the data and reach their suggestions on ways to communicate health-related messages to improve the well being of the elderly, as well as additional suggestions from the 13 students representing the 13 study programs and the panel of qualified experts conclusions on new knowledge about methods to use new media for health communication via Smartphone by university students to contribute to the well being of elderly family members
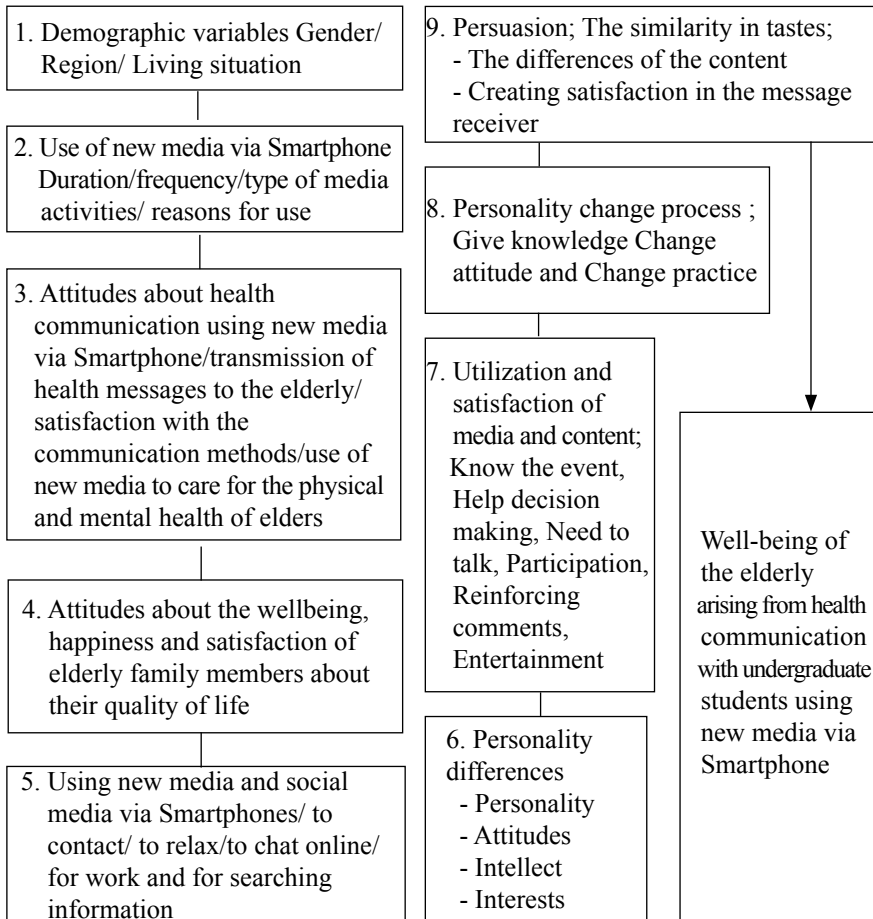
**Research hypotheses**

1) The demographic characteristics of Gender, region of residence and length of time using new media are related to new media use behavior and attitude towards using new media via Smartphone for health communication with elders, as analyzed by Chi Square to test relationships between variables comparing frequency and proportion.

2) The demographic characteristic of Gender is a predictor of the usage behavior of each kind of new media, regular activities, attitude towards using new media for caring for the physical and emotional health of elderly family members, attitude about elderly family members' happiness and satisfaction with their quality of life, based on statistical analysis using Independent Samples T-Test to compare the mean scores of males and females.

3) Living arrangement (living with ones' parents, siblings, grandparents, other relatives or friends) and length of time using new media influence students' message transmitting behavior, and frequency of using different new media, as analyzed by using One Way ANOVA for testing the differences between means of three or more data groups independently.

## Conceptual Framework

1. Demographic variables Gender/ Region/ Living situation

2. Use of new media via Smartphone Duration/frequency/type of media activities/ reasons for use

3. Attitudes about health communication using new media via Smartphone/transmission of health messages to the elderly/ satisfaction with the communication methods/use of new media to care for the physical and mental health of elders

4. Attitudes about the wellbeing, happiness and satisfaction of elderly family members about their quality of life

5. Using new media and social media via Smartphones/ to contact/ to relax/to chat online/ for work and for searching information

9. Persuasion; The similarity in tastes;
- The differences of the content
- Creating satisfaction in the message receiver

8. Personality change process ; Give knowledge Change attitude and Change practice

7. Utilization and satisfaction of media and content; Know the event, Help decision making, Need to talk, Participation, Reinforcing comments, Entertainment

6. Personality differences
- Personality
- Attitudes
- Intellect
- Interests

Well-being of the elderly arising from health communication with undergraduate students using new media via Smartphone

**Figure 1** Conceptual framework

### Theoretical Framework and Related Research

The researcher reviewed the literature, starting with the concept of new media, which has begun to play a role in changing the ways of thinking, ways of spending time in everyday life, and social mores of people all over the world. Today's university students, who have grown up with new media technology, are known as the Digital Generation. They are accustomed to connecting with other people through virtual relationships in the digital world. This is consistent with the concept of Powerful Technological Determinism

(common, 2016), which holds that technological developments and events strongly impact the society, culture, traditions, attitudes and behavior of people in each era. For example, young people belonging to the Digital Generation express their love and concern for their parents and friends by using new media, such as sending SMS and using communication applications to convey their feelings on different occasions. Sometimes, this way they can express things that they would feel uncomfortable saying out loud, face to face, in person. In this way, new media help the youth strengthen their personal bonds and relationships with friends and family members. The meaning of "new media" covers both hardware and software. The hardware components include Smartphones, computers, notebooks, and tablets. The software programs and applications include social media, the Internet, and computer games. Turkle (1999) wrote that young people use new media, especially mobile phones, to create links between themselves and their parents and friends to be closer and to share news and information. This concept is in keeping with the idea that new media and social media are efficient communication media because they create participation and facilitate networking for all kinds of activities. This is another reflection of the way in which new media
play a role in building constructive values (Mayfield, 2007)

Another important variable comes from the Individual Differences Theory. Defleur and Ball-Rokeach (1989) explained that individual people differ in many ways, such as personality, attitudes, intellect and interests. These differences also depend on the social and cultural conditions in which an individual lives. These differences influence people's communication behavior. For instance, males and females differ in their physical bodies, preferences, inclinations, and emotional states. Much psychological research has indicated that many attitudes and behaviors are strongly correlated to gender. Society and human culture has assigned certain roles and activities as primarily for males or females. One hypothesis of this research is that the variables of gender, region of habitation, living situation (cohabiters), and length of time using new media will have an effect on students' behavior in health communication with elderly family members. The Uses and Gratifications Theory by Blumler and Katz (1974) posits that users of media

will choose to watch, listen to or utilize the media that best meet their needs and bring them the greatest satisfaction. This choice is very individualized, and is based on each individual's needs and motives. This theory can be applied in the context of health communication with the elderly. If aged family members become aware of the benefits they can receive from engaging in health communication via new media with their grandchildren then they will be more inclined to try using it and will gain more gratification.

In addition, this research involves some concepts from KAP Theory, which focuses on knowledge, attitude and practice. Knowledge is an ability to use facts and ideas and connect them with events happening around you. When a person receives a message that is communicated, he or she will gain knowledge. The knowledge will lead to a mental attitude, and that, in turn, will lead to behavior (Roger & Storey, 1987). Knowledge can be the cause of various things such as recall (pulling other knowledge from memory), comprehension (interpretation of the new knowledge and comparison with other things), application (bringing facts and ideas into action), analysis (being able to identify and differentiate things), synthesis (creating something new by combining ideas and concepts), and evaluation (the ability to measure the effectiveness of an act) (Bloom, Hastings, & Madaus, 1971). Attitudes are feelings and opinions about objects, people, situations, events and other phenomena. They may be positive or negative attitudes, such as a liking for something or an obstinate bias against something. People usually display their attitudes through their behavior by having the same reaction to a given thing consistently  (Thurstone & Chave, 1966; Munn, Fernald and Fernald,1972) Zimbardo & Ebbesen (1970) and Triandis (1971)  wrote that attitudes can be changed in a number of ways, such as by receiving new information from personal media or mass media, but it also depends on the Gender, age, consciousness, environment and experiences of the individual. Walter (1970) suggested that attitude adjustment can be developed in 3 circumstances a) through contact with another individual; b) by transmission of an example of behavior or way of thinking from one person to another; and c) through an individual's efforts to meet his or her needs. Kolesnik concluded that people can change their attitudes if they get reinforcement or evidence that stimulates

them to analyze their information systematically. Lastly, as for the "P" in KAP Theory, practice means participating in an activity. In terms of communication, the concept is that when a message is transmitted to a message receiver, it may cause the individual to change his or her attitudes, resulting in changed behavior in practice. Sotanastean (1990) stated that behavior means the actions or expressions of an individual that are based on his or her specific knowledge and attitudes. Each individual may choose to receive information from different sources and interpret that information, and the accumulated individualized experiences will influence his or her behavior or practices.

K (Knowledge)  $\Longrightarrow$  A (Attitude)  $\Longrightarrow$  P (Practice)
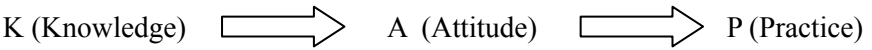
**Figure 2** Concept of KAP Theory

In short, we may say that in most cases the knowledge and attitudes a person has will guide their actions. The KAP process is a cohesive process with a direct correlation. In the ideal case, a person can communicate a message to another person, and as a result that person will gain knowledge, change his or her attitude as intended by the message sender, and subsequently change his or her behavior.

The Theory of Persuasion indicates that in communication often the message sender has the intention of transmitting a message for the purpose of changing the attitudes and behavior of the message receiver(s) in a specific way. The message sender wants to persuade the message receiver(s) to accept his or her alternative by using 3 methods of persuasion: a) appealing to the similarity in tastes between the message sender and the message receiver(s); b) bringing attention to the differences of the new information or content; and c) creating satisfaction in the message receiver(s) through the method of communication, such as the arrangement of the content, the wording of a written message or the eloquence of a spoken message (Suttivorasat, 2011). Persuasion means presenting new information or a new approach that will add to the receiver's existing experiences a in a creative way, while requesting their cooperation in analyzing and considering it (Parusouk and Ponghanyut, 1999). All the above theories serve as the conceptual framework for the present research.

**Review of the Literature (Research in Thailand)**

ICT for All Club and Rangsit University (2009) reported that many senior citizens want to learn how to use new media and social media like the Internet because they want to connect with a new world of learning, be able to look up information on websites, follow news, use e-mail to contact their friends and family, and also for entertainment, such as watching movies and listening to music. In particular, older people want to have a better relationship with their children and grandchildren and have shared experiences at home if their children or grandchildren will teach them how to use a Smartphone, computer, the Internet and social media etc. The researcher believes that if young people can teach their elders how to use a Smartphone for health communication, it will be even more beneficial. In related research, Kongrach (2011) and Sauyrog (2013) found that the majority of their samples who were university students utilized Facebook as a communication medium to create "friend" relationships by joining different groups, commenting to express themselves, searching for games and other entertainment, clicking "like," searching for and reconnecting with old acquaintances, and uploading photos and video clips, so that they acted as both message senders and message receivers.

The research of Innjun and Aiumchai (2014) showed that nursing students found that the most effective way to give villagers a better understanding and a feeling of confidence in caring for their own health was by utilizing a self sufficient model with the self care concept at the forefront. This is consistent with the findings of a report on Strategies to Improve the Quality of Life and Promote Lifelong Learning for Persons with Disabilities, the Elderly, and the Disadvantaged in the Convergence Era, which concluded that the world is shifting to an Aged Society simultaneously with the shift to the age of technological convergence. (Strategies to Improve the Quality of Life and Promote Lifelong Learning for Persons with Disabilities, the Elderly, and the Disadvantaged in the Convergence Era, 2014). Elderly people need to be prepared to learn more about new information technology that will affect their communications. The relevant agencies should try to develop hardware and software that will be suitable for use be people of advanced years. The

phones and applications should be easy to use. For example, they should be able to call their children, call an ambulance, or call for assistance with the press of a single button. These advances can contribute to a better quality of life for the elderly. A report by the Information and Communication Technology Programme, Faculty of Science, Prince of Songkhla University, Hat Yai, (2015) told about the development of an application to help people care for Alzheimer's patients. A common problem is that Alzheimer's patients will leave their homes and get lost. The application helps the caregivers track the movements of the patients and enables the patients to easily call for help if they get lost.

Research into the emotional health of the elderly by Choorat, Sawangdee and Arunraksombat (2012)  indicated that mental health problems become more likely with advanced age, but people with more education are significantly less likely to suffer from mental health problems. Elderly people who are unemployed are slightly more likely to have mental health problems compared to elderly people who are still employed. This indicates that the younger generation should pay more attention to their elder's emotional health.

**As for related literature from other countries**, Eyrich-Garg (2010) researched the benefits of Smartphones and found that they enabled people to connect with others without limitations on time and place. The majority of samples in the research (61%) received messages or phone calls regularly and used their Smartphones to connect to the Internet and online social networks. The Smartphones were also utilized for healthcare. AArsand, Froisland, Skrovseth, Chomutare, Tatara, Hartvigsen, Tufano (2012) found that Smartphones could aid in self care for patients and change the way of life of people with chronic diseases like diabetes. Users were able to use their Smartphones to support personal health-related decision making according to their goals by entering in data manually or automatically. The research was also about applications to monitor patients' blood sugar level, applications to provide nutrition information and applications that allowed direct communication with health experts. They concluded that applications such as mHealth could increase the role of patients in managing their own health. Research by Ritvo (2014) indicated that Smartphones opened up several

diverse channels of communication between patients and their caregivers, such as close checks using voice and digital messages, providing immediate and convenient ways to provide warnings, ask questions, and give accurate reminders on medication times.

Breslau and Engel (2016) reported that the evolution of the Smartphone quickly led to new innovations in behavior-based health care for the prevention and treatment of problems such as clinical depression, stress and anxiety. Modern communications technology helps inform more effective decision making by healthcare providers. We can conclude that the Smartphone has become a health communication tool that enables more complete access to information. This is consistent with the conclusions of Takeshi Kimura, a representative of the Japan Well-Aging Association (WAJ), who predicted that in the future our ways of caring for the elderly will incorporate digital technology in a health system that will let the elderly care for themselves while staying at home (ThaiPBS Television Station, 2014), such as pulse monitors, blood pressure gauges, and devices to take other important readings, as well as easy methods for the elderly to contact medical personnel. Smartphones could easily be the conduit for all these digital technologies.

The review of the literature from Thailand and other countries showed that the Smartphones, new media, social media and other applications being put to use in everyday life would become indispensable because they are appropriate tools to facilitate efficient health communications between university students and their elderly family members. In turn, this will help create greater happiness for the elders. The researcher thus used this information to further build up the body of knowledge with additional research.

**Methodology**

The study population was 1) 2,457 first-year students, both male and female, enrolled at Huachiew Chalermprakiet University in the first semester of the 2016 academic year; and 2) 13 representatives of students and 14 qualified experts with academic experience and at least 3 years of expertise using new media, Smartphones and doing health communication.

A sample population of 400 students was selected using probability

sampling and multi-stage sampling representing students from all 13 departments across the 4 core groups of 1) Psychology for Living, 2) IT & Learning, 3) World View & Way of Life and 4) Intercultural Communication. The sample size was determined using the Yamane method (Yamane, 1976).

**The research tools** consisted of a questionnaire, a focus group discussion form, and an in-depth interview form for interviewing the qualified experts. The tools were tested for 1) content validity by using the IOC (Index of item-Objective Congruence), which found a mean score of 0.5 – 1.0, and 2) reliability using Cronbach's Alpha-coefficient with a sample group of 30 and the alpha coefficient was 0.852, indicating high reliability.

Data analysis was performed using descriptive statistics and inferential statistics, consisting of Chi-square, Independent Samples T-Test, and One Way ANOVA. The data collection period was January to October 2016.

**Results**

According to the first research objective, it was found that 142 of the samples (35.5%) were male and 258 (64.5%) were female. The students came from the following 6 regions of Thailand: 1. 9.5% from Northern Thailand (the 6 provinces of Chiang Rai, Lampang, Chiang Mai, Nan, Uttaradit, and Lampoon); 2. 28.6% from Central Thailand (the 18 provinces of Bangkok, Kamphaengpet, Nakhon Pathom, Nakhon Sawan, Nonthaburi, Phatum Thani, Phichit, Phitsanulok, Petchabun, Lopburi, Samut Prakan, Samut Sakhon, Saraburi, Singburi, Sukhothai, Suphanburi, Ayuthaya, and Ang Thong); 3. 27.0% from Northeastern Thailand (the 17 provinces of Ubon Ratchathani, Udon Thani, Amnatcharoen, Nong Bualamphu, Surin, Loei, Sisaket, Sakhon Nakorn, Roi-Et, Mahasarakham, Mukdahan, Bueng Kan, Burirum, Nakhon Rajchasima, Kalasin, Chaiyaphum, and Khon Kaen); 4. 9.5% from Eastern Thailand (the 6 provinces of Chanthaburi, Chachoengsao, Chonburi, Prachinburi, Rayong, Sra Kaeo); 5. 7.9% from Western Thailand (the 5 provinces of Kanchanaburi, Tak, Prachuab Khirikhan, Petchaburi, Ratchaburi); and 6. 17.5% from Southern Thailand (the 11 provinces of Krabi, Chumphon, Trang, Nakhon Si Thammarat, Narathiwat, Pattani, Phatthalung, Phuket, Yala, Satun, Surat Thani).

For living arrangement, the greatest number of students, 178 or 44.5%, lived with their parents. Next, 104 students (26.0%) lived with siblings. Of the remainder, 49 (12.3%) lived with friends, 41 (10.3%) lived with grandparents and 28 (7.0%) lived with other relatives.

In analyzing new media use behavior, the first question was how long the students had been using Smartphones up to the present. The largest number, 164 students (41.0%), said they had used a Smartphone for more than 5 years ($\bar{x} = 4.32$, S.D. = 0.62). As for frequency of their new media use via Smartphone, the greatest number of students, 249 (62.3%), rated the frequency of their use at the highest level ($\bar{x} = 4.62$, S.D. = 0.49). When asked which kinds of new media they used regularly on their Smartphones, 365 students (91.3%) said they used Facebook regularly ($\bar{x} = 4.91$, S.D. = 0.28), while 322 (80.5%) said they used Line regularly ($\bar{x} = 4.80$, S.D. = 0.39), 197 (49.3%) said they used Youtube regularly ($\bar{x} = 4.47$, S.D. = 0.54), and 40 (10.0%) said they used Instagram regularly ($\bar{x} = 3.48$, S.D. = 0.79).

When asked about the reasons (in terms of benefits and satisfaction) that they chose to use different kinds of new media, the greatest number of students, 323 (80.8%), said the major reason was to be able to access up-to-date information at all times ($\bar{x} = 4.80$, S.D. = 0.39).

applications and social media on their Smartphone, the largest number of students, 260 (65.0%) said they looked up information for their classes ($\bar{x} = 4.65$, S.D. = 0.47), and another 84 students (21.0%) said they communicated with family members ($\bar{x} = 3.96$, S.D. = 0.67).

Another question was intended to analyze students' attitudes about health communication by using new media via Smartphone. It turned out that most of the students, 181 or 45.3%, thought that health information portrayed in new media was mainly overstated false advertising ($\bar{x} = 3.96$, S.D. = 0.67) and only 12 students (3.0%) thought that health information portrayed in new media was the right information that met their needs ($\bar{x} = 3.01$, S.D. = 0.70).

The students were asked about their attitudes about sending health communication messages to their elder family members via Smartphone. The greatest number of students, 210 or 52.5%, agreed with the response

that they should pay more attention to it because they did not often send any health-related messages to family members ($\bar{x}$ = 4.52, S.D. = 0.50). Another 202 students (50.5%) agreed with the response that they did not know what topic of health communication messages to send ($\bar{x}$ = 4.43, S.D. = 0.61). A substantial number, 137 (34.3%), responded that they felt embarrassed to send health-related messages to people older than themselves and were worried they would be accused of overstepping boundaries ($\bar{x}$ = 4.19, S.D. = 0.67). About a quarter of the samples, 102 students (25.5%), gave the response that they were not confident and did not dare to send health-related messages ($\bar{x}$ = 4.14, S.D. = 0.58). Some students, 89 or 22.3%, responded that their elder family members were better able to look up relevant health information themselves rather than receiving it from their grandchildren ($\bar{x}$ = 4.07, S.D. = 0.60), while others (82 students or 20.5%) thought they were not yet at an appropriate age for sending health-related messages to their family members ($\bar{x}$ = 3.95, S.D. = 0.67).

When asked about what method of sending information via Smartphone satisfied them the most, 265 students (66.3%) said it was sending a link to a video clip ($\bar{x}$ = 4.61, S.D. = 0.57), followed by recording and sending a video (232 students or 58.0%) ($\bar{x}$ = 4.54, S.D. = 0.56), typing in a message (41 students or 10.3%) ($\bar{x}$ = 3.50, S.D. = 0.78), typing a message together with a link to a Youtube video (23 students or 5.8%) ($\bar{x}$ = 4.31, S.D. = 0.57), sending a photo together with a typed message (21 students or 5.3%) ($\bar{x}$ = 3.21, S.D. = 0.65), recording and sending a voice message or audio recording (19 students or 4.8%) ($\bar{x}$ = 2.91, S.D. = 0.81) and sending a sticker with a typed message (16 student or 4.0%).

When divided by core subject area according to the second objective of the research, the following differences were seen in the students' attitudes about their relative satisfaction with the different methods of communicating via Smartphone:

**Table 1** The students' attitudes about their relative satisfaction

| | |
|---|---|
| Psychology for Living core | First choice recording a video 63.0% ($\bar{x}$ = 4.63, S.D. = 0.48) |
| IT & Learning core | First choice sending a link to a video 73.0% ($\bar{x}$ = 4.72, S.D. = 0.47) |
| World View & Way of Life core | First choice sending a link to a video 83.0% ($\bar{x}$ = 4.83, S.D. = 0.37) |
| Intercultural Communication core | First choice recording a video 63.0% ($\bar{x}$ = 4.62, S.D. = 0.50) |

Third research objective: When queried on their attitudes towards using new media to help look after the physical and mental health of elderly family members, most students, 318 (79.5%), thought it was a good thing and that everyone should help to do it. Next, 294 students (73.5%) thought that children and grandchildren should help do it because younger people are more adept at using new media than their parents or grandparents. Another 261 students (65.3%) agreed with the statement that there should be more public education campaigns to raise awareness of this issue among Thai people, while 171 students (42.8%) agreed that Thai society was paying more attention to this but that only a few families did it. Another 185 students (46.3%) were fans of the "Sukhapahp Dee…Meua Mee Ajarn Dohng" video series on Youtube, which could be spread through social media, with content about caring for the physical and mental health of elderly family members, and 81 students (20.3%) felt that health communication with the elderly through new media was a subject that all the family members should sit down and talk about to decide together what types of health communication messages should be sent and how.

**Figure 1** "Sukhapahp Dee…Meua Mee Ajarn Dohng"

When asked to rate their satisfaction with the quality of life and general happiness of their elderly family members, most of the students reported that the overall quality of life, wellbeing and happiness of their elderly family members was at "high" level ($\bar{x}$ = 3.99, S.D. = 0.61). They perceived that the relationships among family members with the elderly family members were at a "high" level of warmth and closeness ($\bar{x}$ = 3.89, S.D. = 0.53). They rated the level of talking about health issues face-to-face with elderly family members as "medium" ($\bar{x}$ = 3.24, S.D. = 0.77) and the level of using new media via Smartphone to transmit health-related news and information to their elderly family members as "medium" ($\bar{x}$ = 3.46, S.D. = 0.88). The majority of students agreed to a "medium" level with the statement that the physical wellbeing of their elderly family members should be developed the most ($\bar{x}$ = 2.97, S.D. = 0.69) and the majority of students agreed to a "medium" level with the statement that the emotional wellbeing of their elderly family members should be developed the most ($\bar{x}$ = 3.05, S.D. = 0.70). The majority of students agreed to a "high" level with the statement that the quality of life and wellbeing of their elderly family members affected health communications to create greater happiness for all family members ($\bar{x}$ = 4.12, S.D. = 0.60). The results of analysis following the fourth research objective are shown in Table 2

**Table 2** Opinions on demand for different methods for health communications
via Smartphone

| Methods or things desired | Number of respondents (n=400) | % |
|---|---|---|
| 1) Applications for talking about health issues directly with family members | 39 | 9.75 |
| 2) Applications for general health care and to promote exercise | 33 | 8.25 |
| 3) Fact-checking applications to tell what health information is true or not | 24 | 6.00 |
| 4) Messages illustrated with pictures or videos for easier understanding | 24 | 6.00 |
| 5) Short films about the benefits and dangers of everyday foods | 21 | 5.25 |
| 6) Applications by hospitals providing health education for the public | 18 | 4.50 |
| 7) Specialized doctors to provide clear and correct information | 17 | 4.25 |
| 8) Voice-activated applications that can be used on every platform | 17 | 4.25 |
| 9) A Smartphone health check function that allows people to check their pulse, blood pressure,etc. and share the information to all the family members | 16 | 4.00 |
| 10) Applications open 24 hours a day that allow people to talk with doctors about their health problems | 11 | 2.75 |
| 11) Easy-to-use health check applications for Smartphone | 9 | 2.25 |
| 12) E-books with health information on various topics with an application for sending the information to others directly | 9 | 2.25 |
| 13) Fun and interesting animations about health care for the elderly | 7 | 1.75 |

**Table 3** Suggestions on methods of health communication to promote the
wellbeing of elderly family members

| Methods of health communication to promote the wellbeing of elderly family members | Numberof respondents (n=400) | % |
|---|---|---|
| 1) Chatting through social media applications like Video Call, Voice Message, or Free CallinLineso that you can see each other's faces and/or hear each other's voices, or creating a group for the exchange of health-related information among family members onFacebook or Line, taking videos, sending photos, sending stickers, sending messages, and sending links to Youtube videos for greater understanding. | 38 | 9.50 |
| 2) Emphasizing communication in which you see each other's faces for better emotional health | 34 | 8.50 |
| 3) Video calling so you can see each other's faces for clearer communication | 26 | 6.50 |
| 4) Making video clips demonstrating healthcare methods in detail, step by step, for elders to follow | 18 | 4.50 |
| 5) Turning on Youtube videos for elders to watch for greater understanding | 17 | 4.25 |
| 6) Talking in person, face to face, to demonstrate health care procedures | 16 | 4.00 |
| 7) Sending stickers with sound effects to show you care, providing warmth and cuteness | 16 | 4.00 |
| 8) Using video media for the clearest explanations of details | 14 | 3.50 |

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**Table 4** Summary of suggestions from the 13 student representatives in the focus group discussion

| Opinions/suggestions of representative students from 13 academic departments | Number of respondents (n=13) | % |
|---|---|---|
| 1) They want their elderly family members to be happy, not lonely, and in good health with no pain | 13 | 100.00 |
| 2) Most Thai families are not seriously aware of the importance of health communication with the elderly. They might ask vague questions like "How are you feeling?" but they don't really try to pay attention to the answer and gain useful information. A campaign should be held to educate university students about how to ask pertinent questions and really listen to the answers so that they can pick up on any changes in their elders' health status and they can try to determine what they might need to help them. Then the elders will feel that their grand children are really concerned about them. | 13 | 100.00 |
| 3) They want government or non-government agen cies to provide free training for the elderly about how to use a Smartphone, taught by experienced instructors, so the elders can learn it more quickly and easily | 13 | 100.00 |
| 4) The government and private sector should reduce the costs of Smartphones and Internet access so that it is more affordable for every family to buy a Smartphone for the elderly to communicate with their children and grandchildren. | 13 | 100.00 |
| 5) The problem for university students is that they have to attend classes almost every day, do homework, and participate in many other university-related activities, so they don't have much free time for communicating with their elderly family members. Sometimes the elders don't understand and feel hurt or worried when they don't hear from their grandchildren. Smartphones could help the elders feel less distant. | 11 | 84.62 |
| 6) Public relations media about health communication with the elderly should be broadcast on TV, on the radio, in newspapers, in magazines and through a specialized website so that the general public can have greater awareness about the importance of health communication with the elderly. | 11 | 84.62 |

**Table 4** Summary of suggestions from the 13 student representatives in the focus group discussion (Continues)

| Opinions/suggestions of representative students from 13 academic departments | Number of respondents (n=13) | % |
|---|---|---|
| 7) It would be a good thing, and should be possible, to communicate with their elderly family members every day. A communication tool is necessary, and in this day and age a Smartphone is the most useful because almost everyone has one, but the elders need to be taught how to use them, and they have to be reminded many times because they often forget how to use them. | 10 | 76.92 |
| 8) Some of the students said that in their direct experience, their elderly family members do not esteem them as reliable sources of health information. When they try to talk about health topics, their grand parents tease them that they think they're "big doctors." This made the students reluctant to talk about health issues because their parents and grandparents think they're too young to know. The most they can do is help fetch things for them, hand them their medicine, massage them or assist them with something when asked. When using a Smartphone to communicate, the students pass on health information they got from friends or the mass media to their elders through a family Line group. | 10 | 76.92 |
| 9) There should be training courses where elderly people can learn about how to monitor their own physical and mental health by understanding the symptoms of the different diseases or disorders that might arise, including mental health problems like depression, so that the elders themselves will be more aware of age-related health problems. | 10 | 76.92 |
| 10) There should be activities where the students can periodically get together with students from other universities to exchange knowledge and experiences about caring for elderly family members to create greater learning opportunities | 10 | 76.92 |

**Table 4** Summary of suggestions from the 13 student representatives in the focus group discussion (Continues)

| Opinions/suggestions of representative students from 13 academic departments | Number of respondents (n=13) | % |
|---|---|---|
| 11) Some older people don't like to use Smartphones because they think it's complicated. They are not adept at using them and don't want to have to ask their grandchildren for help again and again. The students should observe how their elders are doing and ask them often so they can help explain what they need to do. | 7 | 53.85 |
| 12) They want the university to provide more learning about caring for the physical and mental health of the elderly so they can learn about it more thoroughly and their instructors can advise them. | 7 | 53.85 |
| 13) Male students feel shyer and more awkward asking about health issues than female students, because girls are normally closer to their grandparents. This might be because women are socialized to be softer and more caring while men are not taught how to care for and pamper others. | 5 | 38.46 |

**Table 5** Opinions and suggestions of the qualified experts

| Topics and recommendations | Number of respondents (n=14) | % |
|---|---|---|
| **Opinions on health communication in the Thai context** | | |
| 1) It means providing all kinds of public health to the general public about how to prevent and treat all kinds of physical and mental health problems | 5 | 35.71 |
| 2) It means using mass media, such as public relations, advertising, special activities, academic seminars, radio programs, television, print media, and the Internet to broadcast news about health to target groups so that they can learn about health problems affecting themselves, their family members and their friends or colleagues. | 4 | 28.57 |

**Table 5** Opinions and suggestions of the qualified experts (Continues)

| Topics and recommendations | Number of respondents (n=14) | % |
|---|---|---|
| **Opinions on health communication in the Thai context** | | |
| 3) It is a way to make all Thai people aware of how to care for their own health by eating the right kinds of nutritious foods, exercising regularly, getting enough sleep, and using stress management for good mental health; how to be careful in everyday life to avoid injury and illness; and how to use first aid and basic health procedures to care for oneself and others. | 3 | 21.43 |
| 4) It is a process of informing the public about both general and specific health topics | 2 | 14.29 |
| **Opinions on the wellbeing of the elderly in the Thai context** | | |
| 1) It means having enough to eat, enough to live, and one's family members all nearby | 6 | 42.86 |
| 2) It means staying together with one's children and grandchildren; not being alone or abandoned; with good physical health; being able to live unassisted for everyday tasks and not being a burden to one's children. | 4 | 28.57 |
| 3) It means being in good physical and mental health, with no debts and with a home of one's own | 2 | 14.29 |
| 4) It means being part of society and able to interact with and spend time with friends of the same age, with children or grandchildren looking after you as appropriate, and being able to do some work for greater enjoyment and fulfillment in everyday life | 2 | 14.29 |
| **Opinions on the capacities of under graduate students in the Thai context** | | |
| 1) All respondents agreed that the different kinds of new media were overall more beneficial than harmful because they enable people to do things more quickly and conveniently and to reduce costs | 14 | 100.00 |
| 2) All respondents thought that Smartphones are very useful because they have become indispensable for most work tasks, buying things and communicating with people. The Smartphone is an innovation that has provided greater convenience. | 14 | 100.00 |

**Table 5** Opinions and suggestions of the qualified experts (Continues)

| Topics and recommendations | Number of respondents (n=14) | % |
|---|---|---|
| **Opinions on the capacities of under graduate students in the Thai context** | | |
| 3) All respondents agreed that Smartphone applications are very useful in everyday life. People depend on applications like Line and Facebook for work and to contact relatives and friends because it is fast and not expensive. People can see each other's faces and can easily send photos, audio files or videos to each other. It provides amazing functions that people didn't think would be possible in an earlier age. | 14 | 100.00 |
| 4) They have many abilities, such as knowledge and skills for using Smartphones and other IT gadgets. They can certainly utilize this to help care for the health of their elderly family members, but they have to teach the elders how to use Smartphones too so that they can communicate effectively | 8 | 57.14 |
| 5) They are well equipped to help care for the elderly because they're strong and have love and respect for their parents and grandparents | 6 | 42.86 |
| **Suggestions for university students were** | | |
| 1) They have the capacity to be very useful in providing health communications for the elderly | 14 | 100.00 |
| 2) They should be advised by their university instructors. The instructors have to have the right attitude about health communications. They can assign their students to practice health communications via Smartphone with their elderly family members, and this will give the students greater awareness and experience in choosing effective methods for health communication that will result in increased wellbeing and quality of life for the elderly. | 14 | 100.00 |

**Table 6** Hypothesis testing by Chi-Square analysis of the relationships between variables

| Relationships between variables by Chi-Square (n=400) | value | P-value $\alpha = 0.05$ |
|---|---|---|
| 1. Gender is related to Line use behavior | 107.480 | .000* |
| 2. Gender is related to Facebook use behavior | 5.912 | .015* |
| 3. Gender is related to information searching activities using new media applications andsocial media via Smartphone for study | 5.091 | .024* |
| 4. Gender is related to attitude about using new media via Smartphone for health communication with the elderly in the category of "don't know what topic of health information to send" | 9.965 | .007* |
| 5. Gender is related to attitude about using new media via Smartphone for health communication with the elderly in the category of "elder family members are better able to look up relevant health information themselves rather than receiving it from their grandchildren" | 9.593 | .008* |
| 6. Gender is related to satisfaction with the method of sending photos via Smartphone | 13.060 | .005* |
| 7. Gender is related to satisfaction with the method of sending Youtube links via Smartphone | 6.863 | .032* |
| 8. Gender is related to the attitude that Thai society is paying more attention to the issue of using new media to care for the physical and mental health of the elderly, but only a few families really do it | 14.602 | .001* |
| 9. Gender is related to the attitude that the "Sukhapahp Dee…Meua Mee Ajarn Dohng" video series on Youtube has useful content about caring for the physical and mental health of the elderly | 111.028 | .000* |
| 10. Length of time using a Smartphone is related to Line use behavior | 11.398 | .003* |
| 11. Length of time using a Smartphone is related to Youtube use behavior | 10.244 | .037* |

*p< 0.05

Table 6 shows that there were statistically significant relationships (p< 0.05) between the variables named in items 1 – 11, but no statistically significant relationships were found between the variable of region of residence and the other various questionnaire responses.

**Table 7** Hypothesis testing using Independent- Samples T-Test to compare means and see differences between the samples grouped by Gender and other variables

| Variable studied | Male (n=142) | | Male (n=258) | | t | Sig. |
|---|---|---|---|---|---|---|
| | $\bar{x}$ | S.D. | $\bar{x}$ | S.D. | | |
| New media use behavior | | | | | | |
| Line | 4.52 | 0.50 | 4.95 | 0.20 | -9.77 | 0.00* |
| Facebook | 4.86 | 0.34 | 4.93 | 0.24 | -2.21 | .028* |
| Regular activities behavior | | | | | | |
| Look up information for study | 4.57 | 0.49 | 4.68 | 0.46 | -2.22 | 0.02* |
| Attitude toward health information in new media | | | | | | |
| Not diverse | 3.60 | 0.68 | 3.43 | 0.64 | 2.48 | 0.01* |
| Attitude toward sending health communication messages | | | | | | |
| Don't know what topic to send | 4.53 | 0.62 | 4.38 | 0.60 | 2.35 | 0.01* |
| Attitude toward use of new media to care for the physical and mental health of the elderly | | | | | | |
| The "Sukhapahp Dee..Meua Mee Ajarn Dohng" video series | 4.69 | 0.61 | 3.66 | 0.89 | 13.54 | 0.00* |

*p< 0.05

The data in Table 7 indicate that the behavior and attitudes of male and female students differed to a statistically significant degree ($p < 0.05$) in several areas, such as 1) Line and Facebook use behavior; 2) activities they do regularly with new media (looking up information for class work); 3) attitude toward health information in new media (lack of diversity); 4)attitude toward sending health communication information to the elderly (they don't know which health-related topics to send messages about); and 5) attitude toward using new media, i.e. the "Sukhapahp Dee…Meua Mee Ajarn Dohng" video serieson Youtube that has content about caring for the physical and mental health of the aged.

The results of One Way ANOVA statistical analysis of the data are shown in Tables 8 – 12

**Table 8** Tests of differences between means for data on the students' behavior in terms of use of Smartphones to send photos when students are divided into groups by living arrangement (living with parents/siblings/grandparents/ other relatives/friends)

| Source of variation | Sum of Squares | df | Mean Square | F | Sig. |
|---|---|---|---|---|---|
| Between groups | 4.190 | 4 | 1.047 | 2.460 | .045[*] |
| Within group | 168.170 | 395 | .426 | | |
| Total | 172.360 | 399 | | | |

*p< 0.05

Table 8 shows that there was at least one pair of statistically significant differences ($p < 0.05$) when comparing photo sending behavior among students with different living situations (living with parents, siblings, grandparents, other relatives or friends). It was found that there was a difference between students who lived with their parents or siblings and students who lived with other relatives.

**Table 9** Tests of differences between means for data on the students' behavior in terms of regular use of Instagram via Smartphone when students are dividedinto groups by living arrangement (living with parents/siblings/ grandparents/other relatives/friends)

| Source of variation | Sum of Squares | df | Mean Square | F | Sig. |
|---|---|---|---|---|---|
| Between groups | 7.102 | 4 | 1.775 | 2.864 | .023[*] |
| Within group | 244.836 | 395 | .620 | | |
| Total | 251.938 | 399 | | | |

*p< 0.05

Table 9 shows that there was at least one pair of statistically significant differences ($p < 0.05$) when comparing Instagram use behavior among students with different living situations (living with parents, siblings, grandparents, other relatives or friends). It was found that there was a difference between students who lived with their parents and students who lived with their grandparents or other relatives.

**Table 10** Test of differences between means comparing data on regular Line use behavior and length of time the students have used a Smartphoneup to present

| Source of variation | Sum of Squares | df | Mean Square | F | Sig. |
|---|---|---|---|---|---|
| Between groups | 3.122 | 2 | 1.561 | 10.385 | .000* |
| Within group | 59.668 | 397 | .150 | | |
| Total | 62.790 | 399 | | | |

*p< 0.05

The statistical data in Table4.10 shows that there was at least one pair of statistically significant differences (p < 0.05) when comparing Line use behavior among groups of students who had been using Smartphones for different lengths of time. There were differences in Line use behavior between all 3 groups, that is, students who had been using a Smartphone for 1-3 years, 3-5 years and 5 years or more.

**Table 11** Test of differences between means comparing data on regular Facebook use behavior and length of time the students have used a Smartphoneup to present

| Source of variation | Sum of Squares | df | Mean Square | F | Sig. |
|---|---|---|---|---|---|
| Between groups | .537 | 2 | .268 | 3.393 | .035* |
| Within group | 31.401 | 397 | .079 | | |
| Total | 31.938 | 399 | | | |

*p< 0.05

Table 11 shows that there was at least one pair of statistically significant differences (p < 0.05) when comparing Facebook use behavior among groups of students who had been using Smartphones for different lengths of time. There were differences in Facebook use behavior between students who had been using a Smartphone for 1-3 years compared to the groups who had been using a Smartphone for 3-5 years and 5 years or more.

**Table 12** Test of differences between means comparing data on regular
        Instagram use behavior and length of time the students have used
        a Smartphoneup to present

| Source of variation | Sum of Squares | df | Mean Square | F | Sig. |
|---|---|---|---|---|---|
| Between groups | 7.518 | 2 | 3.759 | 6.106 | .002* |
| Within group | 244.419 | 397 | .616 | | |
| Total | 251.938 | 399 | | | |

*p< 0.05

Table 12 indicates that there was at least one pair of statistically
significant differences ($p < 0.05$) when comparing Instagram use behavior
among groups of students who had been using Smartphones for different
lengths of time. There were differences in Instagram use behavior between
students who had been using a Smartphone for 1-3 years or 3-5 years compared
to the group who had been using a Smartphone for 5 years or more, but there
was no statistically significant difference in Instagram use behavior between
the groups of students who had been using a Smartphone for 1-3 years and
those who had been using a Smartphone for 3-5 years.

**Summary of Results**
        The demographic data showed that in the sample there were more
female students than male students but there were more or less equal numbers
of students coming from all 6 regions of the country, so the sample could be
said to represent the population of Thailand fairly well. The greatest number
came from the Central Thailand region, which is the region with the highest
population density overall. The greatest number of students lived with their
parents. Most of them had used a Smartphonefor more than 5 years. The
students' living arrangement affected their behavior in terms of their choice
of using new media, because photo sending behavior and use of Instagram
differed between the students who lived with their parents and the students
who lived with grandparents or other relatives. There were also differences
in Line, Facebook and Instagram behavior between students who had been
using Smartphones for 5 years or more and those who had only been using a
Smartphone for a shorter period of time.

The new media for Smartphones that are very popular in Thailand are Facebook and Line, and the sample group of university students in this study also was very satisfied with these applications, giving the reason that they are useful for accessing up-to-date information all the time. As for the students' attitudes about using new media via Smartphone for health communication, the majority thought that most of the health-related information appearing in new media was exaggerated false advertising.

As for their attitudes about using new media via Smartphone for sending health-related messages to their elderly family members, most of the students thought that people should pay more attention to this issue because they don't do it often. Their overall preference was to send links to video clips for this purpose.

As for the students' attitudes about using new media via Smartphone to help care for the physical and mental health of elderly family members, most students thought it was a good thing to do and that everyone should help in doing it. Overall, they were satisfied with the quality of life, wellbeing and happiness of their elderly family members, but thought that their elderly family members' physical wellbeing was only at medium level.

There were two major conclusions from the focus group discussion with qualified experts: 1) they thought that students could engage in health communication with the elderly effectively if they received guidance from their instructors, who had to have appropriate attitudes and the ability to demonstrate proper health communication methods. The instructors have to pay close attention and continually stimulate the students to be energetic and enthusiastic in engaging in health communication by sending messages and by coordinating between family members to look after each other's physical and mental health; and 2) the choice of new media, ways of using it and incentives for using it should be chosen carefully, taking into account the satisfaction and needs of the elderly foremost, because if they do not like it much they might oppose using it or entirely neglect and dismiss the messages sent by their grandchildren. For greatest efficiency and effectiveness, the students should take care in selecting content, media and transmission methods that are the most suitable for their elderly family members.

**Discussion**

The researcher concluded that both male and female students had similar new media use behavior but may have differed in the type of media they chose to use most often, such as preferring Facebook over Line or preferring to send video clips more than photos. Overall, there was a great degree of homogeneity in the sample group and students who came from different regions of the country behaved similarly and had similar attitudes. Most wanted people to invent, develop and produce Smartphone applications that would be useful for changing the physical and mental self care behavior of the elderly, and they wanted the technology to be easy to use, convenient and affordable for the elderly and their caregivers. This is consistent with the researches of Prince of Songkhla University, Hat Yai (2015); Eyrich-Garg (2010); Arsand, Froisland, Skrovseth, Chomutare, Tatara , Hartvigsen, and Tufano (2012); Ritvo (2014); and Breslau and Engel (2016), who also studied demand for the development of technology to support health communication via new media,social media and Smartphone. Most of the students in the present study expressed a desire for communication modes in which the communicators could see each other's faces and hear each other's voices for greater clarity in explaining health-related information. Therefore, we can conclude that it is important for the elderly and other family members to learn how to use social media applications such as video calling, voice messaging, free calling in Line, creating and participating in groups on Facebook and Line, and recording videos using your Smartphone. A similar finding was reported by the ICT for All Club and Rangsit University (2009), who wrote that the world is shifting to an aging society at the same time it is moving towards greater technology convergence. Thus it is important to design and develop Smartphone applications that match the way of life, values and culture of Thai people in particular, since Thai people's attitudes and behavior regarding new media and social media are different from people in other parts of the world. These research finding indicate a demand for more Smartphone advancements that will rapidly open up new possibilities for shaping people's attitudes and behavior in a way that will help prevent and treat health problems in the elderly. University students, who have the required youthful energy, knowledge, skills

and expertise in using new media, can be a powerful force in improving the happiness and wellbeing of older people in every family. They can directly help prevent and relieve the symptoms of many physical and mental disorders of the elderly, such as depression, stress and anxiety.

**Recommendations for Application**

In order for the research findings to be applied in a tangible way, university students all over the country should use these concepts and theories to communicate health topics with their elderly family members. They should consider the individual differences between each elderly person in terms of personality, attitudes, intellect and personal interests (following the Individual Differences Theory). They should think about the elderly person's satisfaction and the benefit they will derive from health communication each time (following the Uses and Gratifications Theory). They should use the KAP process to provide the right knowledge that will help change the elderly person's attitude and lead to the desired change in practice. They should use the art of persuasive communication by providing additional information to build on the elderly family member's existing knowledge, communicating creatively, and expressing their good intentions in order to get their elderly family members to listen to and accept the alternatives for better self care that they propose, following the Theory of Persuasion.

**Applications for Future Research**

1. In-depth studies should be made of each new media separately to gain more information about its strengths and weaknesses for use in health communication, such as research about health communication via Line only or health communication via Facebook only.

2. Similar studies on health communication with the elderly should be done using other sample populations, such as secondary school students.

3. More research should be done on how new media and Smartphones can provide better quality of life and wellbeing for the elderly and for entire families, with more specific sample groups, such as families in the northern region or the southern region.

**A Model Approach: Health Communication for Thai Elderly**
**"UnderC-UKAP-TApps-CE-Well-Being"**

Summary of the new body of knowledge from this research
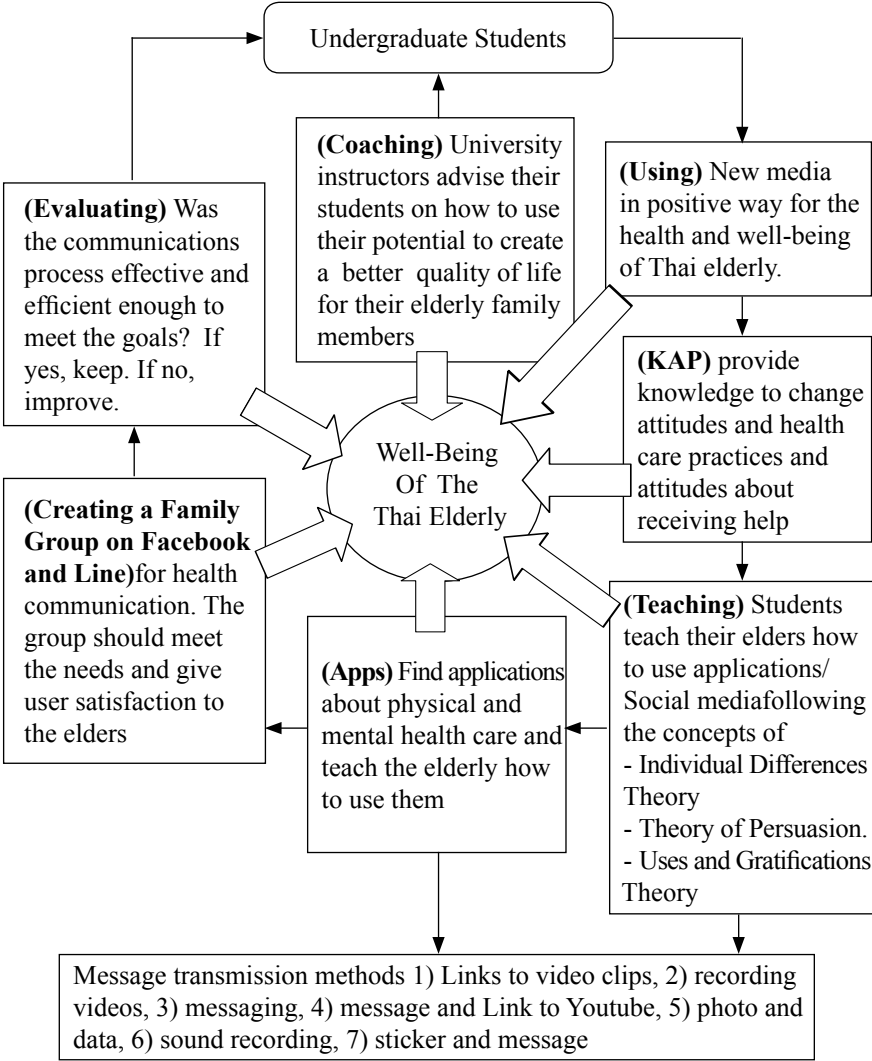


**Figure 5** A Model Approach: Health Communication for Thai Elderly
    "UnderC-UKAP-TApps-CE-Well-Being"
    Source: Nattanun Siricharoen (2016)

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