DIGITAL COMPETENCE AND DIGITAL LITERACY IN SOCIAL MEDIA USAGE FOR THE VISUALLY IMPAIRED YOUTHS IN THAILAND

Prapaporn Ratano

A Dissertation Submitted in Partial
Fulfillment of the Requirements for the Degree of
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ABSTRACT

Title of Dissertation	DIGITAL COMPETENCE AND DIGITAL LITERACY IN SOCIAL MEDIA USAGE FOR THE VISUALLY IMPAIRED YOUTHS IN THAILAND
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The objective of this study to examine the social media usage for the visually impaired youths in terms of digital competence and digital literacy, the result of social media using and create guidelines for the development of digital literacy in social media usage for visually impaired youths. This research utilized the mixed methods research methodology. The quantitative study or survey used the questionnaire as the data collection tool to collect data from a sample of 260 high school or equivalent and undergraduate students. The qualitative study utilized the in-depth interview and focus group.

The results indicate that the visually impaired youths used social media in particular YouTube and Facebook. They used social media for chat and clicking “like” on content at a high level. The results of the hypotheses demonstrated that types of visual impairment, starting session and length of social media usage significantly affected digital literacy at .05 level. Digital competence significantly correlated with the results of social media usage at the .01 level. Moreover, digital competence in information management and communication also significantly influenced in digital literacy at the .01 level. It is also found that the positive result of using social media include ease, speed, and convenience in accessing information together with maintaining relationships. Social media is also a place to showcase their personal talents and exploring new experiences. The negative result of using social media include poor time management and reduced concentration at the neutral level. In addition experts are concerned that social media might results in sexual harassment, legal, and security risks.

The guidelines for the development of digital literacy in social media usage for visually impaired youths includes (1) create understanding of the social media usage of

visually impaired youths; (2) create knowledge in terms of digital literacy, including social media usage, critical, legal knowledge, content creation, and creating engagement; (3) the knowledge has to be transformed into action through activities in the curriculum and extra curricular engaging their senses. The activities should use the SATI concept for developing both online and offline activities led by teachers, friends, and family; and (4) supporting factor should be provided by government agencies, private sector, civil groups, educational institutions, and persons with disabilities organizations to ensure that visually impaired youths can participate in social media safely, reducing inequality, and creating an inclusive society.

ACKNOWLEDGEMENTS

This dissertation would not be successfully completed without the kind support of Assistant Professor Dr. Warat Karuchit, my advisor. The continuous advise and direction derived from our joint dedication on the topic has been the major driving force leading to the successful completion of this research. On this occasion I would also want to express my sincere gratitude to Associate Professor Patchanee Cheyjunya, Committee Chairperson and Dr. Issavara Sirirungruang, committee, for their kind recommendation in making this dissertation more complete.

I also take this opportunity to thank the visually impaired, who have always been the inspiration and giving me the moral support throughout the research process. I especially thank the visually impaired students at Roi-Et Rajabhat University, who inspired me to work on this topic. In addition I express my gratitude to the various organizations that work with the visually impaired, the experts, organizations, and personnel, who have given up their precious time in sharing their knowledge and experience. This has allowed the researcher to have better knowledge and understanding of the visually impaired.

I express my deepest gratitude to my family for their support on this journey I have chosen to embark upon. I thank you all for the kind words that helped me when I was down alleviating the problems leading to the successful completion of this dissertation.

Finally, I believe the world is full of diversity. These diverse perspectives invite us to learn more and appreciate one another for a harmonious inclusive society.

Prapaporn Ratano

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CHAPTER 1

INTRODUCTION

1.1 Research Background

In the past interaction or interpersonal was done through face-to-face encounters. Communications behavior is shaped through social learning that is bounded by the limits of time and space. However, in the present day advances in information and communications technology have transformed the meaning and the process of human communications. Technology mediated communications or new media has resulted in the interaction of sender and receiver transcending the limits of time and space. Internet connectivity is more than just a technical connection. It has created the connectivity leading to social networking that is manifested in social networks. The use of social networks has grown to include the implementation of activities for both individuals and organizations. Online communities are formed as platforms for exchange and sharing information for those who have similar interests. From the report of the Digital Advertising Association (2016), Thailand has a population of 68.1 million people. There are about 38 million who are using the Internet, which is 56% of the total population. There are 41 million who are using social media, which is 60% of the population. It is found that 92.1% use Facebook followed by LINE 85.1%, and Google+ 67% respectively.

Social media has changed the roles of the sender and receiver. This is because on social media the receiver is also the creator of messages at the same time. In addition social media plays the role in creating the identity and developing a platform for people to show their potential. The use of social media is greatly varied depending on format, type of platform, and content. The users of social media are greatly varied. They can be categorized based on demographic characteristics or interests that may differ. However, the categorization based on demographic characteristics does not cover the entire population. This definition appears to have overlooked the visually impaired. The logic is that the visually impaired due to their limitations cannot access social media. However, in reality the visually impaired is one of the groups that access social media through their notebooks and smartphones. They have access through programs that transform the words into sound called screen reader. In addition Artificial Intelligence (AI) has come to play an important role in helping the visually impaired experience the world around them. One of the applications enables the visually impaired to take pictures, it does so by providing verbal explanations of the objects in the image. The development of technology has supported the access of the visually impaired by reducing their limitations. However, of interest is the gap in the research about the use of social media and the visually impaired. Previous

research works appear to focus on the superficial issue regarding the use of technology to enhance the access because it is assumed that the visually impaired cannot do so.

Although these people cannot see, their needs in accessing the Internet are no different from other people. Having access has resulted in the improvement of the livelihood of the visually impaired in many ways. A review of the literature regarding the visually impaired and media use, there have been research studying the impact of television media and Internet on this group of people with the aims for policy development. The research for television media was conducted by the National Broadcasting and Telecommunications Commission (NBTC), which is tasked with the responsibility in monitoring the broadcasting industry as well as promoting and protecting the rights of the consumers of broadcast media. This protection also includes those who are disabled. The NBTC has issued a policy for television broadcasters to provide access to the media including sign language and caption for the listening impaired and audio description for the visually impaired in scenes when there are no words spoken. The description includes the movements of the actors on the screen.

In addition to the study of the visually impaired and television, in 2007, there have been studies that examine the Internet use of this group of people in Thailand. The research works focused on the issues regarding the policies, rights, access, benefits of use, problems, obstacles, and the inequality experienced by the visually impaired. These studies reflect another aspect of the media use of the visually impaired so that others may better understand them Suetrong (2007) studied the access and benefits that the visually impaired received from the Internet. It is found that the government policy in promoting access for the visually impaired has limited results. It is found that the visually impaired still have the problem of access to the media especially those that have come to replace the print media. This is because technology comes with a high price. In addition most websites are not designed to enable access for the visually impaired. This is because they do not have the necessary knowledge coupled with the lack of social standards for such access. The visually impaired believed that the Internet would eventually help to reduce the inequality in using technology. Jitjakool (2010) also studied the visually impaired and the use of the Internet. The study found that the visually impaired used the Internet in their daily life and some used it for their work. The obstacles that are faced by the visually impaired in using the Internet tended to be the person's own personal factors. In terms of factors that do not support the access to the Internet and the policy for enabling access to technology, the visually impaired said there is nothing concrete in these regards. They suggested that online access should be open freely.

International research works have focused on the use of social media by the visually impaired. Martiniello et al. (2012) found that the visually impaired would like to develop their technology skills and use of the Internet. The most popular social media included YouTube (90%), Facebook (83%), and MSN/Windows Live Messenger (75%). The visually impaired used social media so they would not feel

lonesome. They used social media to talk to friends they already have and make new friends. Once they know the new friends well enough they will reveal themselves.

With the change in the context of technology the means and benefits sought by the visually impared for going on line has also changed. From simply searching for information it is seen from previous research that the visually impaired also join social networking platforms. These social networking sites have become the space to communicate and create meaning increasing the bargaining power of the diabled through the creation of their own content. Thus, it has become a place for creating value for the disabled. Wuthiastasarn (2014) said that new media enabled immediate interaction. As a consequence the sender becomes the receiver also simultaneously. At the same time the receiver also becomes the sender immediately. This type of communications destroys the barriers that serve as limitations in the physical world. New media is place that opens the opportunities for the disabled to create their presence.

It is undenialble that social media has the benefits of driving the power for positive change as a platform for self expression encouraging engagement among people. The expansion of the ethos without limits of space and time over the same network builds, strengthens, and maintains relationships. Online communities can also be used for business, education, entertainment, and creating participation on various important issues in society. However, social media may also lead to risks that result in negative effects on physical, mental, and financial wealth of the user (Kongrach,2011) . Conflict may arise from negative content including bullying, crime, and other risks. These dangers tend to have more effects on fragile groups including children as well as the handicapped. Due to certain physical disabilities they may not be aware of the risks. The risks might result from the lack of skills in using the technology or lack the digital literacy. For instanc there is a case against a visually impaired person who allegedly violated the Computer Act. The arrest warrant included charges for posting false information online and libel. The victim went to the police and accused a Facebook user for making rude remarks after they were trying to settle a deal for the sales of a “Luk Thep” doll. After initial investigation it is found that perpetrator is a visually impaired person. The police said that their are many ways to look at this case. the perpetrator might not really know at all and someone else used their name. In another case the perpetrator might be aware and allow someone close to them to do it. Or the perpetrator can even do it themselves (Thairath Online, ,2016,Febuary 26).

The case above shows the importance of creating knowledge and understanding. Digital literacy is important for the visually impaired in using social media to ensure the suitable, safe, creative, and responsible use of the media. Pimpakun (2017) explained about the use of social media of the visually impaired, “In my opinion there are both positive and negative especially the use of Facebook or Line as well as other platforms as a channel for connection. If the user does not have sufficient maturity and make the wrong decisions in the use of social media, there would be a negative effect on the user. However, if the user has good judgment in selecting the use of social media in an appropriate manner, the user will get positive benefits.”

As a result the researcher is aware of the importance for developing a study to examine the use of social media by the visually impaired. The goal is to create an academic connection that incorporates the various perspectives that encompasses the use of media in the present day. This is especially important in the development of digital literacy for the visually impaired that will grow together with the global evolution driven by the technologies of the future. The researcher is interested in the visually impaired youths aged from 16 – 23 years, who are studying in high school or the equivalent. There are two topics of interest. Youths in this age group ranks highest in accessing the Internet through their smartphones. This is in line with the research conducted by the Electronic Transactions Development Agency (ETDA, ,2016). The findings indicate that those aged 17 – 36 years are the highest users of the Internet. They spend 53.2 hours per week online. Their activities include chatting on social media followed by watching videos on YouTube, reading electronic books, information search, and doing financial transactions respectively. The second issue is the fact that the visually impaired once in high school have been trained to attend classes with regular students. At the university level these visually impaired students are independent in their studies and their daily life. As a consequence of attending classes together with regular students, there is another aspect of using social media that is different from previous research.

Although digital literacy is an important issue that is necessary in the preparation of Thailand 4.0, a period with growth driven by technology and innovation, inequality is rooted in the poor process of income distribution. As a result it is important to reduce the inequality to create economic and social stability through proper income distribution to create equality of opportunity together with wealth. Thus, it is important to promote digital literacy that will enable the development of skills through the changes in the learning process. It is envisioned that there would be a development of foundation through the utilization of various channels. This will lead to the promotion of potential of those with low income, marginal groups, and the disabled to have more opportunities. For this to happen it is important to have the digital development because technology is an important part of daily life. In addition there is constant development in the presentation of content creating more variety than ever before. Even in the case of the disabled technology has stepped in to increase convenience. This might be in terms of improving the function of organs or the improvement of the mental condition improving the livelihood in general. Also the disabled have the ability to learn and use technology no differently from others. The development of technology skills utilized by the disabled will help them to use information technology effectively. In effect this will reduce the inequality for accessing information. The disabled can use the information to improve their skills, promote their occupation, and develop themselves so that they can live in society with confidence (Khunmuang, 2017)

The plan for digital integration in the development of skills is evident in the “Digital Development for Economics and Society”. The government is aware that world has entered a truly digital era where the impact is not only felt at the economic and social level but also in the daily lives of people. Digital technology is more than just a tool it is integrated into the very fabric of people’s lives. In addition it has led to

a total change in ways people interact. Thus, in order to create a society that is truly equal information and services must be disseminated through digital media to improve the livelihood of people. In addition to the development of the digital infrastructure there must be a society of good quality where people of all groups are treated equally. This is especially true for the disabled who should be ensured access and allowed to take the full benefits of technology.

Digital literacy involves the skills in the use of technology to reap the benefits in a socially responsible manner. It includes the creative use of media including the ability to analyze and evaluate content. The individual who possess these qualities are considered as having digital competence. Thus, it is important to build people who have digital competence in order to support the growth of digital technology in the future. The development of digital competence must be done for all groups in society.

The study examining the use of social media among the visually impaired arises from the realization that this group may be small. However, they have the ability to use technology to communicate, create activities, and develop communities based on their interests. This is especially true in the present day society where there are numerous tools that enable easy access online. The impact of such technology is felt at the individual as well as at the societal level. The use of social media among the visually impaired youth is a platform for presenting their identity. In addition for the visually impaired youth to use social media they would need the necessary skills. As a result this study aims to examine the communications behavior of visually impaired on social media. This will include the examination of their digital competence and digital literacy. The goal is to reduce the inequality, which means more than the reduction of inequality in access to the Internet and social media. It incorporates the reductionof inequality in the opportunity for digital literacy in content that is created especially for the visually impaired. This will enable them to use social media safely and creatively.

1.2 Research Objectives

1.2.1 To study the social media usage behavior of visually impaired youths.

1.2.2 To study the digital competency and digital literacy levels of the visually impaired youths.

1.2.3 To study the result of social media using of visually impaired youths.

1.2.4 To create guidelines for the development of digital literacy in social media usage for visually impaired youths.

1.3 Research Hypotheses

1.3.1 The different demographic characteristics of visually impaired youths will result in different digital competence levels.

1.3.2 The different demographic characteristics of visually impaired youths will result in different digital literacy levels.

1.3.3 The time spent by visually impaired youths on social media will result in different digital literacy levels.

1.3.4 Digital competence of visually impaired youths correlated with results of using social media on visually impaired youths.

1.3.5 Digital competence of visually impaired youths has influence on digital literacy.

1.4 Scope of the Research

This research would collect data from visually impaired youths at the high school or equivalent level and university level only. This is because visually impaired youths in this age group have high use of social media. In addition youths in this age group are in a different context because at a younger age they will be carefully supervised in the school for the blind

1.5 Theoretical and Managerial Contribution

1.5.1 The relevant authorities may use the results of this research in developing digital literacy in social media for the visually impaired in order to reduce inequality and create a peaceful society.

1.5.2 To create guidelines in using social media as the platform for expression of the visually impaired youths in a creative manner.

1.5.3 To develop a perspective in communications studies regarding the visually impaired use of social media which is different from the previous research.

1.6 Definition of Terms

Visually impaired youths are defined as those who have limitations in their daily activities or taking part in society due to their physical condition, which includes vision loss and vision impaired. They are those studying in high school or equivalent level or university level.

Social media is defined as the communications made with information technology tools through Internet connection for engaging with other individuals and doing activities online including Facebook, YouTube, Line, and Zello.

Social media behavior is defined as the type of social media used, time spent, tools for access, objective of use, and type of use.

Digital competence is defined as the ability in using social media of the visually impaired youths. It comprises of for dimensions – information management, communication, digital content creation, and problem solving.

- **Information management** is defined as the ability in using social media such as managing the settings, search for information, and access to information through digital media.

- **Communication** is defined as the ability to use social media in communicating, engaging with individuals and groups, communicating to generate income, communicating emotions, communicating opinions and showing one's true potential. For instance, those who have the ability to play music or speak maybe be able to showcase their talents.

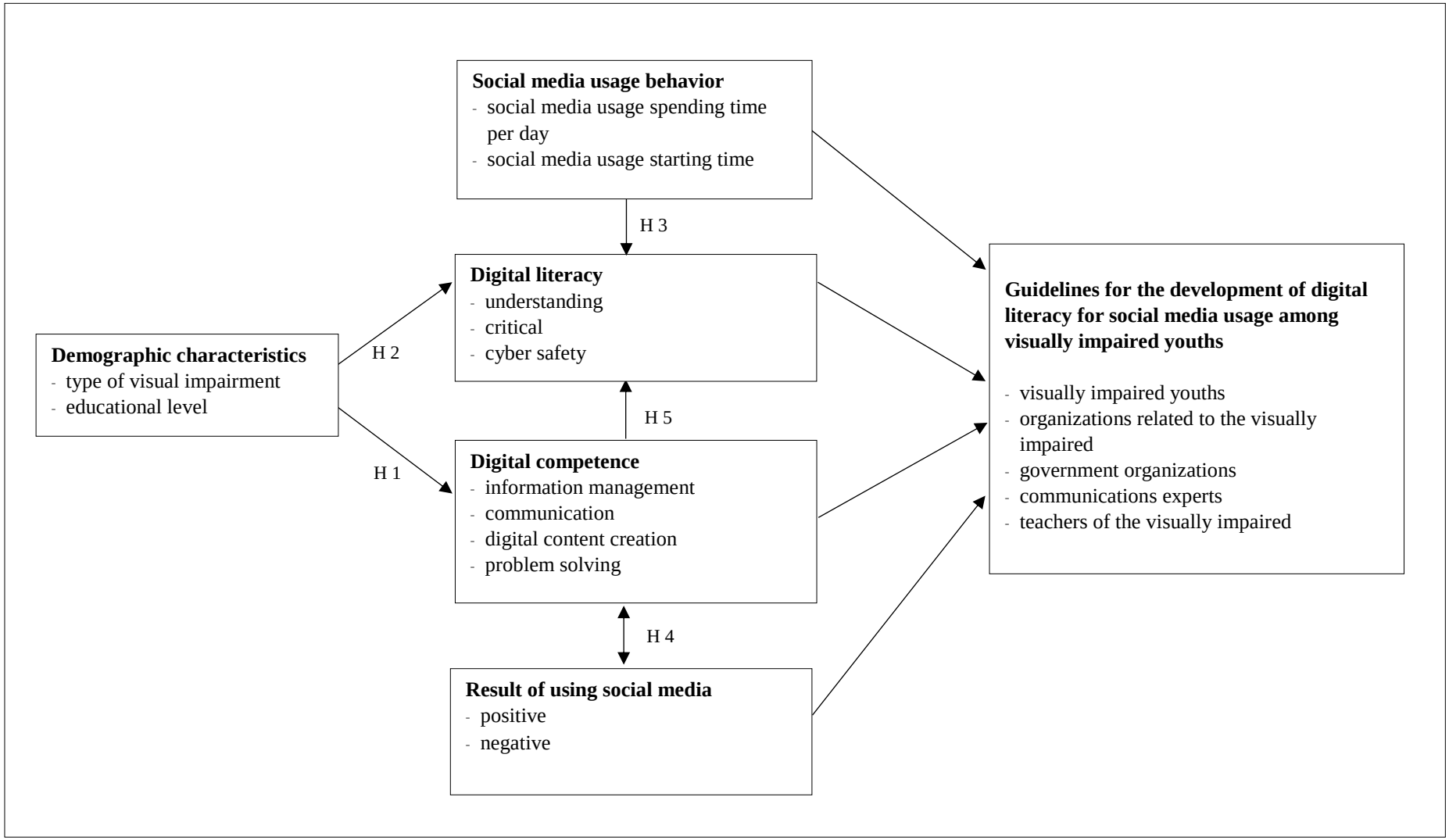
- **Digital content creation** is defined as the ability to create or modify on their own which can be in the form of words, images, or video.
- **Problem solving** is defined as the ability to solve problems that arise in the social media. This includes the selection of tools on social media to suit the objectives and the development of social media use as well as the ability to solve problems in case of bullying. In addition this includes solving relationship problems that might arise through social media.

Digital literacy is defined as the ability to understand and analyze the use of social media. It includes the dimensions of understanding, critical analysis, and cyber safety.

- **Understanding** is defined as the ability to understand the nature of social media. This includes the necessary basic functions of social media use, relationships that might arise online, and understanding one's identity in the digital world.
- **Critical** is defined as the ability to evaluate and analyze the content on social media that are created by senders who have different objectives. It is the ability to interpret or deduce information through consideration of quality and credibility of content. In addition it is the ability to analyze the positive and negative aspects of the content created by others as well as by oneself.
- **Cyber safety** is defined as the ability to use social media with good digital etiquette, ethics, and responsibility to oneself and others. This must be based on the principles of law, good morals, and awareness that social media might result in both physical and mental risks.

Result of using social media is defined as the results both positive and negative from using social media to the individual. This includes impact on the way of life, expression of potential, knowledge, communications, experience, time management, and social groups; for instance the maintenance of relationships in the group and the participation in activities with those who are like-minded.

1.7 Conceptual Framework



CHAPTER 2

LITERATURE REVIEW

The study titled “Digital Competence and Digital Literacy in Social Media Usage for the Visually Impaired Youths in Thailand” used the following perspectives and theories to develop the conceptual framework.

2.1 Social Media Usage

People in today’s world use traditional media together with social media as part of their daily life. According to Thailand Zocial Awards 2016 (2016) there are 41 million Thais using Facebook. This is a 17% increase corresponding to 60% of the Thai population having a Facebook account while more there are more than 700,000 Facebook Pages. There are about 7.8 million Thais using Instagram, which is a 7.8% increase of this number 1 million are active users. There are 33 million Thais using Line.

Social media or social networking is the communications that enables individuals to create their own personal space on a pubic forum within a system that has boundaries. It enables connectivity allowing users to share content to others while blocking access of some within the system (Boyd & Ellison, ,2007)

Chainirun (2010) defined social media as the media that spreads through social interactions. It transforms the traditional media, which used to be a one-way communication to many-to-many communication. There is no one controlling the conversation. Everyone can share their opinions and edit the content freely. In addition the receiver is also the sender, who can choose to disseminate the content freely.

This is inline with Treerayapiwat (2011) who defined social media as a new media that utilizes the same means of communications as traditional media but has more potential in generating interaction with the receiver. Thus, it is a two-

communication that allows sharing of messages that are text, sound, image, or moving images. Social media also allows collaboration in creating messages with the receiver. Hence, the receiver is also the sender at the same time or User Generated Content. Kuljitjuerwong (2017) presented four issues that needed to be considered when analyzing the behavior of receivers in the digital era. First the receiver is more specific. Next is the role of the receiver as the user of social media is more involved in the communications process such as clicking the "like" button. There is the sharing of information, opinions, and symbolic expressions. And finally, the receiver is keener in receiving information.

Types of Social Media

Online media can be categorized using different criteria including the purpose of use and the type of users network.

Thongtab (2008) categorized social media as follows:

1. Publishers are blogs and content sites such as Blogger, WordPress, Blogger, Exteen. Each blog will have categories of content based on the interest of users.
2. Communities are social networking sites that create a network of both old and new acquaintances that enables exchange of content of interest. This includes Facebook, HI5, and MySpace.
3. Media are sites with the objective to present video, movies, and music such as YouTube, Dailymotion, Yahoo Video, and Last.fm.
4. Game include online games that enable users to have an avatar in the virtual world and can communicate as well as go on missions with others. Such games include Second Life, World of War Craft, Audition, Ragnarok, and Pangya.
5. Photo Management sites allow people to upload and share photographs such as Photobucket and Flickr.
6. Business/Commerce sites are used to sell or auction products such as Amazon, eBay, and Tarad.com.
7. Data/Knowledge sites serve as information sources such as Wikipedia, Answers, and Zickr.

Today the visually impaired have access and can use social media as a result of software development making it easier for them to go online. In addition the access to technological gadgets in particular the smartphone has made going online easier and more widespread. From observation and questioning the visually impaired, the researcher has found that they prefer using Facebook and Line for communicating with other visually impaired people as well as with other people. The use of social media of the visually impaired is part of their daily life, in the same way it is with other people. As a result the researcher became interested in learning and understanding the phenomena in order to develop communications that would enhance the potential of the visually impaired in the future.

2.2 The Visually Impaired

According to the "Disability Promotion and Development Act 2007 Section 4", a handicapped person is an individual who has limitations going about doing the activities in daily life and taking part in society due to deficiencies in seeing, hearing, movement, communications, mental ability, emotion, behavior, intellect, or other

limitations. In addition the person might suffer from other obstacles and may have special needs for assistance in order to go about doing daily activities and taking part in society like a regular person would. The Ministry for Human Development has stipulated six types of handicapped people. The first group includes the deaf and mute or those who have deficiencies in communicating. The second group includes those who have physical or movement limitations. The third group includes those who have mental and behavioral problems including autism. The fourth group includes those who have intellect. The fifth group includes those with learning deficiencies and finally the blind.

In regards to the situation of the visually impaired in Thailand, the Thai government has issued 1,649,611 handicapped I.D. cards in 2016 (Ministry of Social Development and Human Security, ,2016). Of this number 182,996 are visually impaired. At the regional level the majority of the visually impaired are found in the northeast (103,555) followed by the north (34,549), the central and eastern region (25,436), and Bangkok 3,933 while 811 did not indicate their location.

Visually Impaired is defined as the person, who has limitations in conducting daily activities and joining society due to deficiencies in seeing. There are two types of visual impairment.

1. Blind is defined as those people, who have limitations in conducting daily activities and joining society due to a defect in their vision. When conducting a vision test the results would be poorer than 3 parts of 60 meters (3/60) or 20 parts of 400 feet (20/400) to the point of total lack of vision including the inability to see light or having the lens open at no more than 10 degrees.
2. Low vision is defined as those people, who have limitations in conducting daily activities and joining society due to a defect in their vision. When conducting a vision test the results would be poorer than 3 parts of 60 meters (3/60) or 20 parts of 400 feet (20/400) to 6 parts of 18 meters or 20 parts of 70 meters or having the lens open at no more than 10 degrees (Thitithananont, 2013)

Causes of Vision Loss

Thaiyamart (2009) explained that the loss of vision could have many reasons categorized as follows:

1. Genetics such as birth defects including cataracts
2. Environment
   - 2.1 Cornea infection
   - 2.2 Nutrition deficiency such as vitamin A deficiency in children
   - 2.3 Injury from accident
   - 2.4 Exposure to poisonous substances
3. Disease
   - 3.1 Retinal detachment
   - 3.2 Diabetic retinopathy or macular edema
   - 3.3 Extreme myopia
   - 3.4 Cataracts

Learning in the Visually Impaired

The visually impaired learn by using their remaining senses of hearing, smell, touch, and taste (Sombutyanoochit, 2011) Lowenfeld (1973) cited in Koomthanom (2014) explained that creating the learning environment for the visually impaired has to be based on the needs and problems of the individual learner. The class size should be about 6 – 9 students. The content should provide tangible learning of day-to-day issues by engaging the senses of hearing and touch to create understanding. It is important to link the experiences they have learned to the new inputs to promote their learning. In addition it is important to expand their experiences to stimulate their creativity. This stimulation of the imagination has to be done systematically starting from something familiar close to them to things that are much further afield. In addition it is important to create opportunities for the students to participate with society more often. The tools used to teach the visually impaired can be categorized into four groups (Supsakorn, 1996). The first type is audio aids, which includes sound recordings and videos. The second type is tactual aids, which students can touch such as Braille and tactile illustrated books. The third type is visual aids for those who have low vision including magnifying glasses and CCTV. The fourth type is the electric aids. The behavior of the visually impaired is related to the relationship between their learning ability and the process through which they receive input from their senses, analyze, collect, and categorize the information to choose the suitable adaptation to the environment (Khuprayon, Tinanon, Yameiym, & Sribua, 1988).

In addition to the teaching aids, the teacher plays a critical role in the learning process of the visually impaired. The study conducted by Punong-Ong (2011) categorized the role of the teacher into four categories – role as a supporter, role as a coordinator, role as a trainer, and role as an advisor. The role of the teacher as a supporter can be further divided into five areas – preparing the necessary teaching and learning materials, providing recommendation about the environment and movements, facilitating the use of information technology equipment, supporting both physically and mentally, and coordinating with stakeholders. The teacher, family, and friends are all important in supporting the visually impaired socially by providing them with love, care, forgiveness, and support. Visually impaired children get their knowledge and information from their parents as a result parents must warn them to take appropriate actions. Parents need to teach children to be reasonable and provide the necessary support when children have problems. It is the duty of friends to provide the recommendations on what is good or bad. It is also the role of parents to provide the necessary resources to support their children, while receiving assistance from teachers and friends.

The Visually Impaired and Information Technology

The visually impaired have limitations in doing certain activities. However, the development of information technology has brought additional convenience to the life of the visually impaired in many ways. Developers have created software that work with the technology tools reducing the limitations to access. There are many programs that have been developed to help the visually impaired use information technology effectively (Web Portal for Dissabilities, 2011) as presented in the following section.

Screen Reading Software is designed to capture the information on the screen, which is then sent to the voice synthesizer that reads to the visually impaired. The software can be designed to read only a sentence or the whole page depending on the setup. There are also different screen reading software serving the different operating systems on the smart phones. The screen reading software on windows is Jaws for Windows. The software captures the Windows message and compiles the data that is passed to the Eloquence Engine, which creates the sound that would be expressed as a voice reading the message through the sound card. For Thai the user must install "Magic Eye" or Mobile Speak for Windows or Symbian operating systems. For the iOS4, VoiceOver is the screen reader program that works together with the touch screen system. When the visually impaired moves their fingers on the screen, VoiceOver would read out the names of the objects on the screen.

In addition to screen reading software there is the zoom software to help the low vision users. One example is the Nuance Zoom on Mobile that magnifies the text on the mobile phone screen up to 16 times for the Symbian operating system. It can also be used together with Nuance TALKS&ZOOMS that can work on Symbian S60 3rd/5th and Symbian^3 edition. In addition there are programs on computers for Zoom Text Magnifier/ Reader, which magnifies the text no less than 16 times on Windows operating system. It is suitable for low vision users who need to use the computer.

From the analysis of the examples of programs assisting the access of the visually impaired to information technology, it can be seen that it started with the need to provide convenience in getting to information in a easy and timely manner. This includes printing in Braille, translating letters into Braille, voice commands, screen reading, and screen magnification. As a consequence there is more equality in access reducing the gap that the visually impaired face in various areas such as education, career opportunities, and engaging in social activities. In the first stage the emphasis is on creating the hardware and software to aid access for the blind and the low vision users.

With the advancement of technology the software for assisting the visually impaired has also improved in effectiveness. This includes screen reading technology and sound books that the visually impaired can use together with their electronic devices.

In addition access to the Internet has transformed the livelihood of the visually impaired in many ways improving their quality of life in terms of education, career, and relationship with others. This is inline with the research of A. Karuchit (2017) who stated that television for the handicapped has five important principles – accessibility, empowerment, independence, opportunity, and universality. The researcher has taken these principles to serve as the foundation of this study. In the early stages the major obstacle of the visually impaired is the problem regarding digital competence and access to electronic devices since they were quite expensive. As a result courses were provided in school to teach the necessary skills in using information technology tools. These courses were developed as part of the drive to

attain equality and reduce the discrepancy experienced by the visually impaired as a consequence of honoring their right to use digital technology and communicate using the Internet effectively.

However, in the face of this continuous technological advancement, the researcher found that people were not searching for information on the Internet through their computers. People including the visually impaired can now access the Internet through smart phones that are conveniently and readily available. These smartphones come equipped with screen reading programs, voice commands, and image description. The visually impaired can engage with other people on social media through electronic devices that are easy to use at affordable prices. In addition these devices come with capabilities that enable visually impaired to have access to the Internet, where people are connected in a big way. Consequently, the visually impaired now spend more time connecting to others on social media. It is the opinion of the researcher that although the hardware and software may be developed to support the digital media use of the visually impaired, it is important to encourage them to use it properly. Thus, it is important to promote digital literacy and in addition the relevant organizations need to be responsible in creating a safe space on social media for the visually impaired to realize their full potential.

2.3 Digital Competence

Digital competence is the concept that has been developed together with the advancement in technology and communications. When information is transformed into digital content, it is necessary that citizens of the 21st century need to be digitally competent to harness the potential of technology in their daily life, engaging in activities, and in terms of their career.

Digital competence was developed from the concept of information and communications technology competencies. Seelapkuea (2012) explained the information and communications technology competencies included the expertise and ability to use information and communications technology to attain the utmost benefit. This starts from the step of information search, access to information, data storage, analysis, presentation of results, use of results in communications, information management, and creating new information for communication purposes. In addition this includes creating synergies and networking resources for optimizing the benefits of using digital technology. Experts who have information and communications technology competence should have the following six characteristics:

1. Basic ICT knowledge means competence in using computers to complete tasks effectively and efficiently.
2. ICT for communications means competence in using ICT to communicate effectively and ethically.
3. Information literacy means ability to access ICT information, evaluate, and use it effectively.
4. Document management means the ability to use ICT to systematically manage documents for convenience in effective search of documents for use in the future.
5. ICT presentation means the ability to use ICT for communicating and presenting information in a suitable and effective way.

6. Data and information management means the ability to transform new information into digital format for future use.

However, in this era of media convergence electronic tools have become facilitators of interpersonal communications and relationships in the digital realm. The word digital competence has come to encompass the skill, knowledge, and attitude to include more than the knowledge of using the computer to work or communicate. The term is inclusive of the knowledge in connecting individuals and organizations in the era of information technology and communications. Digital schooling has defined digital competence as a skill that everyone should have in using digital technology for learning and development of expertise in this knowledge-based society.

This is inline with the European Council's announcement in 2006 that there are eight necessary competences. These include knowledge of the mother tongue, foreign language, basic mathematical knowledge, science and technology knowledge, learning competence, responsibility as a citizen, enterprising, cultural awareness and expression, and digital competence. As a result digital competence is the integration of knowledge, skill, and attitude that is critical in daily life. (European Union, 2006)

Digital competency is defined as the knowledge, skill, attitude, and characteristics that lead to the development of strategies and awareness in using information technology and communications. Digital competency is the ability to solve problems, communicate, manage ITCT, and work well with others while creating and sharing content effectively and creatively. The characteristics include being analytical and ethical in the use of digital technology for work, for leisure, for study, for socializing, for participation, and for expression one's potential (Ferrari, 2012).

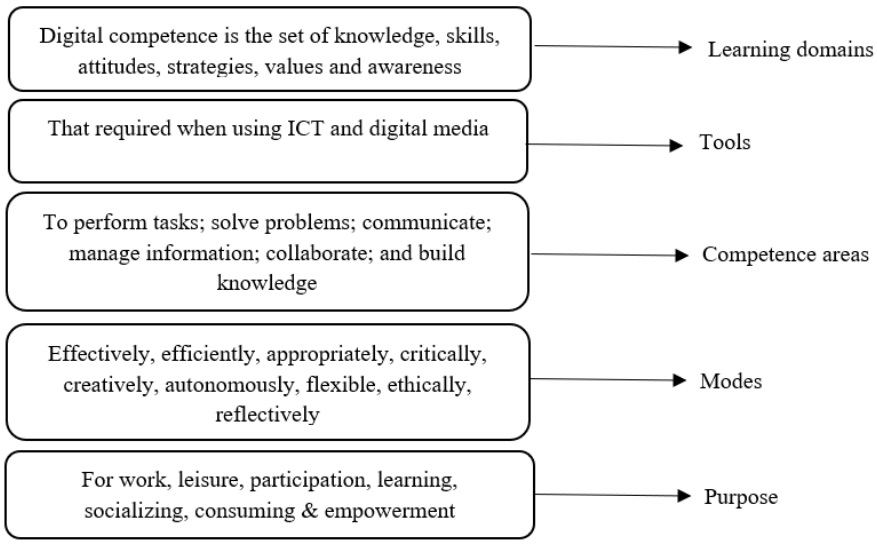


Figure 2.1 Definition of Digital Competency (Ferrari, 2012)

Digital competency is related to digital literacy in the sense that it is the first step towards the development of digital literacy. The user of ICT must understand the

idea, usage, and attitude necessary for using digital technology in daily life and work. Digital competency is the necessary first step that leads to digital literacy. The second step is using digital technology professional and third step is the ability in transforming and innovating through the use of digital technology. This process is explained in Figure 2.2

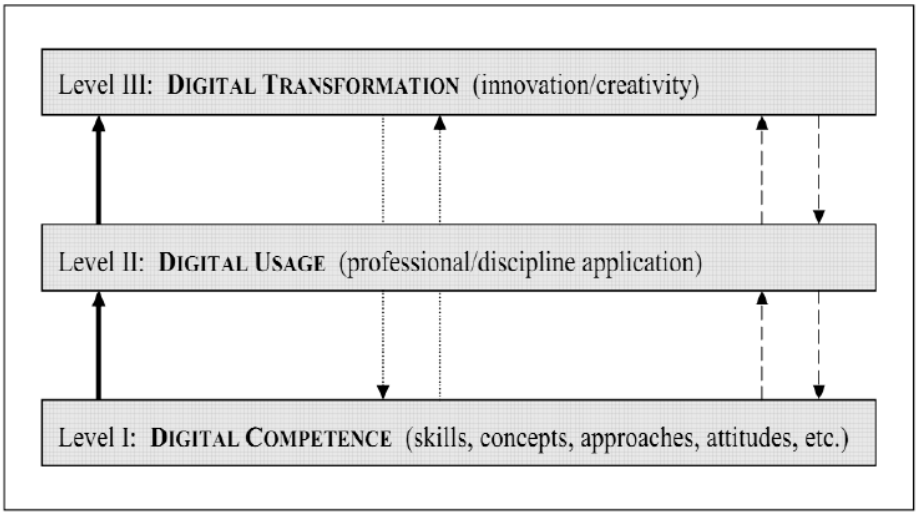


Figure 2.2 DigEuLit three levels (Martin, 2009)

In addition Ferrari (2012) explained that digital competence is much more than know how in using information technology and communications. It comprises of seven dimensions as follows:

1. Information management
2. Collaboration/linkages with others
3. Communications and sharing through the use of online tools
4. Content creation and knowledge integration
5. Ethics and responsibility
6. Evaluation and problem solving includes the ability to identify the needs and solve digital problems whilst being able to appropriately evaluate the media.
7. Technical operation in technology and media usage

Ferrari (2013)defined digital competencies for the 21st century as follows:

1. Information dimension of digital competency includes the ability to select the appropriate tool for search, storage, management, analysis, and specifying the relevant ICT needs.

2. Communication dimension of digital competency includes the ability to communicate in the digital environment through sharing, interacting through online tools, participation in social media community, and having cultural awareness.

3. Content-creation dimension of digital competency includes the creation of content in the form of words, images, and video through the integration of previous knowledge. This includes the creative use of media that takes into consideration the violation of copyrights.

4. Safety dimension of digital competency includes the ability to protect privacy and information including the personal identity of the individual.

5. Problem-solving dimension of digital competency includes the ability to identity the needs and selecting the appropriate digital tool to attain the goal or objective. This problem-solving dimension is inclusive of the creative use of technology in solving technical problems and creating new digital competencies of the individual and others.

From the literature review, the researcher found that foreign academics have focused on digital competencies as one of the important criteria of citizenship. Consequently, the researcher has compiled the relevant research in the following section.

OECD (2005)	Use tools interactively (e.g., language, technology), Interact in heterogeneous groups, Act autonomously
Cartelli (2010)	Technology dimension, ethical dimension, cognitive dimension
Ala-Mutka (2011)	Operational skill and knowledge, medium-related and knowledge, communication and collaboration, information management, learning and problem-solving, meaningful participation, intercultural and collaborative attitude, critical attitude, creative attitude, responsible attitude, autonomous attitude
Ilomäki, Kantosalo, and Lakkala (2011)	Technical skills to use digital technologies, abilities to use digital technologies for working, studying and for everyday life, critically evaluate the digital technologies, motivation to participate in digital culture
Ferrari (2012)	Information management, Collaboration, Communication & sharing, Creation of content & knowledge, Ethics & Responsibility, Evaluation & Problem solving, Technical operation
Ferrari (2013)	Information, communication, content-creation, safety, problem solving
European Union (2016)	Information and data literacy, communication and collaboration, digital content creation, safety, problem solving

From the review of relevant literature, the researcher has used the findings to form the foundation for the study of digital competency in the visually impaired. It is the objective of this study to focus on social media. As a result digital competency in the visually impaired can be defined as having four dimensions of information management, communication, digital content creation, and problem solving.

1. Information management is defined as the ability to use social media in modifying the settings, manage, search, and access information technology through digital media.

2. Communication is defined as the ability to use social media to facilitate interaction with others. This might include income generation, expression of feelings, expression of thoughts, and showcasing talent such as music or public speaking.

3. Digital content creation is defined as the ability to create or modify on their own which can be in the form of words, images, or video.

4. Problem solving is defined as the ability to use social media to solve problems such as cyber bullying and interpersonal conflicts that may arise from social media.

It is found that previous studies regarding digital literacy focused on people in who have different educational backgrounds in organizations. However, there is no such study conducted on the visually impaired. As a result the researcher aims to build upon the previous research to create a body of knowledge that would develop the potential of the visually impaired more effectively.

2.4 Digital Literacy

Communications through social media today is a norm in daily life. However, it requires digital competency and digital literacy. This is because social media can have negative impact on the user. Digital literacy used to have a similar definition as ICT literacy, media literacy, net literacy, online literacy, multimedia literacy, and new literacy (Ng, 2012). The evolution of the digital literacy construct would be explained in the following section.

Gilster (1997) defined digital literacy as the ability to understand the use of multiple ICT formats that are available on the computer.

The European Information Society (Martin, 2005) defined digital literacy as the awareness, attitude, and ability of the individual in using digital media in a suitable manner. It is the ability to access, manage, integrate, evaluate, analyze, and synthesize digital media to create new knowledge and expression of opinions. In addition it includes the communication with others in various contexts and life situations.

British Future Lab (Hague & Payton, 2011) explained digital literacy as the application of digital tools in the creation of communications and use of technology to support the work process.

Ng (2012) explained that digital literacy comprised of three dimensions – technical, cognitive, and social-emotional.

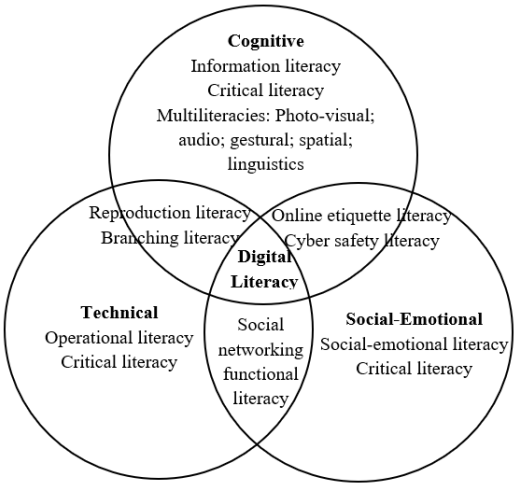


Figure 2.3 Digital Literacy Model (Ng, 2012)

The technical dimension includes the skill in using ICT in daily activities. This includes the ability to connect, use electronic devices, problem solving, and file management such as storage, download, installing programs, and updating information.

The cognitive dimension is defined as the ability to analyze, search, and evaluate the digital media. This includes the appropriate use of programs to suit the task at hand. In addition it includes ethical and legal considerations such as copyright and plagiarism. Also it incorporates the ability to interpret various meanings from images, words, and sound.

The social-emotional dimension is defined as the ability in using the Internet to communicate responsibly. This should be done inline with the online etiquette using appropriate language in communication. In addition the use of ambiguous content or words that may create misunderstanding should be avoided. Also it includes the ability to protect to manage one's security maintaining privacy but not over doing it. This dimension also includes the ability to deal with cyber bullying and harassment by rejection or reporting the person.

The three dimensions of digital literacy require the ability to analyze and understand communications including the context behind the message including motivations that might be reflected in the right or the words. The message would reflect the challenge and attitude of the individual including the norms and beliefs. The ability to analyze the message is an individual skill that would enable the person to appropriately decode the content.

Goodwill (2014) explained that digital literacy is the integration of knowledge, skill, and attitude that would lead to the analysis, evaluation, creation, and application of digital technology. This can be done by the individual or through cooperation with others in order to achieve the goal that has been set.

Digital literacy includes the dimensions use, understand, and create (Jutrakul, 2016). The dimension of use is the skill in using the computer and Internet technologies. The dimension of understanding is the ability to think, analyze, and evaluate digital content in different contexts. As a result the user can make the appropriate decision on what to do with the information because it has an impact on the life, behavior, awareness, belief, and feeling towards the environment. The dimension of create is the ability to effectively create content within ethical bounds and responsibility of the digital citizenship.

In addition the study titled, "Analyzing Digital Literacy of Thai Students" (Phuapan, Viriyavejakul, & Pimdee, 2016) explained that digital literacy had five dimensions. The first is access defined as the ability to reach, collect, and search information in digital media. Manage means the ability to adapt, mange, and categorize information. Integration means the summarization and comparison with other countries. Evaluate means the ability to decide the quality, relevance, and benefits in using the digital media. Create means the creation, adaptation, and design of digital media.

In addition to the definition and dimensions of digital literacy presented in the previous section, the researcher had studied about the various dimensions of digital literacy. The researcher would use the information collected to measure digital literacy in students. Digital literacy is the founding principle in instilling and learning the concepts to develop quality citizens in the digital era of the future. The digital literacy framework has been developed from the various perspectives presented in previous works that vary because of their focus. For instance some works may focus on ICT literacy or media literacy.

Kleechaya (2014) presented the framework for understanding digital literacy based on mass media literacy. The author identified four dimensions as follows:

1. Understanding is defined as the ability of the individual in remembering and analyzing content in mass media. In effect the user can identify the objective of the communication, the source/sender, and know about the production process of mass media.
2. Analysis is defined as the individual's ability to analyze content in mass media. The user can identify the stance of the communications and know that some of the information may have been withheld. Also the user can identify that some techniques were used to grab the attention of the audience. In addition the user can identify the feeling after being exposed to the communications properly indicating the desired result such as the thought, feelings, or action.
3. Evaluate means the ability to discern what is content and what is advertising. The user can recognize the influence of media on the receiver. In addition the user knows the limitations of media influenced by business, politics, and social situation, which have an impact on the message credibility.
4. Safe Engagement is the decision of the user not to be fooled to believe, think, or take certain actions as intended by the media.

Kleechaya (2016) then adapted this definition for digital literacy used to study students at the high school level. Digital literacy is thus defined as the ability of the individual in accessing and receiving news through digital media on the Internet. It is the ability of the individual to be aware in using knowledge to understand, analyze, evaluate, and critique content on digital media. The individual must be able to discern the credibility of the content so as not to be fooled to believe or act in the way intended by the media. This would lead to the behavioral response to digital media, which might eventually become a habit. However, in order for the individual to make their own decisions instead of being swayed by digital media, four dimensions have been identified.

1. Access means having devices that can connect to the Internet. This enables access to information on the Internet. This includes controlling the use of the Internet and searching information online. In addition the user can create their own content, have relationships through interactivity, and participation. As a result the user can access information that can be used to complete their task.
2. Understanding means being able to evaluate and understand the content. It is the ability to critique and analyze the quality, accuracy, credibility, and perspective of the source/sender. The user can understand the content both literally and figuratively speaking. This includes understanding the agenda of the source/sender and being aware of how different media target audience differently.
3. Evaluation means the ability to assess the positive and negative impacts of digital media. In addition the user is able to be responsible invoking ethical standards in managing content. As a result the user can adapt the knowledge in creating communications and experiences.
4. Response means the decision of the individual not to be fooled to believe or act in accordance to the digital media.

As a result it can be surmised that digital literacy means the awareness and individual's ability to understand and analyze the use of media in a literate and safe way. This is because the media landscape has changed due to the media convergence. From the review of relevant literature on digital literacy, the researcher has applied the knowledge to develop the conceptual framework for studying the visually impaired students

1. Understanding is defined as the awareness and understanding of the nature of digital media including the basic functions of communicating on social media. This is the result of relationships that might occur on social media and it includes the understanding of one's identity in the digital world.
2. Critical is defined as the awareness and ability to analyze the content created on social media. The users are able to discern the objective of the source thus being able to interpret the message both literally and figuratively. As a result the user can discern the quality and credibility of the message. This includes the analysis of the positive and negative impacts of the message created by other sources as well as oneself.
3. Cyber Safety is defined as the awareness and the ability of the users of social media to have digital etiquette and ethics. This includes responsibility to oneself and

others under the dictates of law and ethics. Consequently, it is the use of social media that does not result in physical and mental risks.

However, this study aims to study digital competency and digital literacy of the visually impaired. For clarity the researcher has thus defined the difference between digital competence and digital literacy in the following section.

Digital competence is defined as the skill of the individual in using technology especially in social media to communicate in daily life. The skill is dependent on the ability in using technology and communications to manage the communications between individuals and groups. This encompasses the creation of messages in digital media and solving the problems that arise from the use of digital tools in work and communications as part of daily life. Digital literacy is defined as the skill that requires cognitive thought and analysis leading to understanding and awareness in using social media. This requires the understanding of the nature digital media, socio-cultural context, and the different emotional states. The analysis includes understanding the positive and negative effects of social media that leads to the proper use within the limits of the law. In addition it includes the ability to deal with risks that occur as part of the communications on social media. Thus, it can be surmised that digital competence is the ability to use digital media while digital literacy is knowing its purpose.

2.5 Uses and Gratification Theory

The Uses and Gratification Theory posits that media satisfies the needs of humans. The theory explains the use of media to satisfy the needs to communicate and learn about the environment. The emphasis is on the receiver as the person making the choice to communicate. The receiver is the not only on the receiving end of the impact of communications but they make a conscious choice in selecting the media to fulfill their needs. This perspective views the receiver as the impetus in decision making based on their own drives as the main assumption of the theory.

The communications to serve the needs of the receiver is a change in the perspective from the traditional view that the importance is given to the sender. The analysis is thus on the need of the receiver in using media. The needs are driven by social and psychological motives that lead to behavior. In addition the five levels of the hierarchy explained by Maslow namely –physical, safety, belonging, esteem, and self-actualization.

Humans have the inherent need to learn to seek order and understand the environment around them. This desire to know is the major driver that is derived from the need to live as part of society. As a consequence it appears to discredit the idea that humans seek information from media only due to its influence as previously thought. Another important issue of this theory is the search of the importance of the role of individuals in selecting to use media. The consideration is made based on the behavioral pattern in consuming media before studying the result of message consumption from media.

The Uses and Gratification Theory in using media emphasized on the importance of consumers as active participants in the communication process. The receiver is active in selecting the media and content of information to serve their own needs. As a consequence the receiver selects media to satisfy their needs. This is because the receiver is aware of their needs, interest, and relevance of the media in satisfying their motivations. The study of new media is derived from the fact that each media is different. Each receiver has different expectations thus the satisfaction from media would also be different (Ketsomboon, 2012).

Blumler and Katz (1974) explained the process of media selection as the behavior in selecting the media that is relevant to the satisfaction of the individual's needs. The differences in social and psychological context create differences in the needs of individuals. The differences lead to the assumption that the expectations from media would also be different. Finally, satisfaction is derived from media consumption would also be different. The model explaining the Uses and Gratifications process is presented in figure 2.4

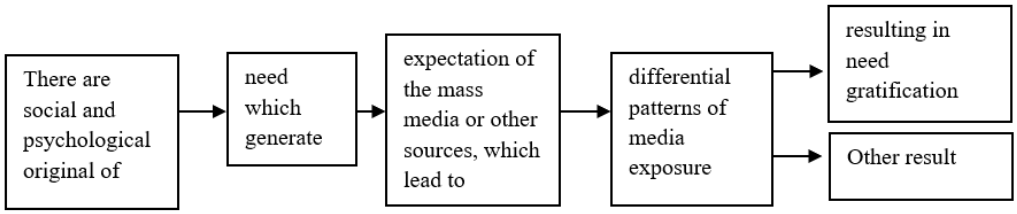


Figure 2.4 Uses and Gratifications Model

The difference in the social and psychological context plays a critical role in driving differences in the expectations from media consumption. As a consequence the media consumption of individuals would be different. Consequently, the gratification from media would also be different.

The model was developed to explain the process of communication in mass media at both the individual and group level. This shows that individuals have the behavior in selecting media consumption to serve their needs based on their motivations. The Theory of Uses and Gratifications posits that receivers select media based on their needs. As a result most of the studies utilizing this theory emphasize the importance of uses and gratification derived from the media content.

The study from Blumler and Katz (1974) indicated that those who have different social and psychological contexts would have different uses of media. These differences in expectations lead to differences in gratification from media content.

Uses and Gratifications Theory has the assumption that individuals intentionally seek information rather than being coerced to do so. In addition individuals can avoid content in mass media that they don't want. As a result mass media must compete with other stimulus in the environment of the receiver as well as the individual's motivations and interests that drive their desires the social factor

plays an important role in determining the individual's gratification as explained in the following section.

1. Individuals have pressure, stress, and conflict from society. As a result individuals may choose to relax from such pressures by consuming mass media. Individuals may choose to seek information based on their interest, to release their tensions, or simply to relate the problems that they have on the conversation boards to reduce their stress.
2. Social context is a major stimulant that drives individuals to be aware of their problems or needs through the search of information from media. This is especially true in the current social situation that is highly volatile as a result of political, economic, and social conditions. This drives individuals to feel insecure as a result they seek information that would satisfy their needs in that regard.
3. When individuals are not satisfied with their social condition they turn to mass media to support and fulfill their needs. This is especially true in the city society where there is a large population as a result the needs also multiply. However, society is unable to fulfill their needs individuals need to seek other ways to achieve gratification.
4. Individuals consume media based on their values that is driven by social situations and trends. This also has an impact on media content. It can be observed that when there is an incident that has gained interest, it would become popular search online.
5. The social situation results in expectations that serve as the identification of membership in a particular society.

McCombs and Becker (1979: 51-52) cited in Numlarp (1998) explained that Uses and Gratifications posits that individuals use media to serve the following needs.

1. Surveillance - This is the observation and monitoring of issues in mass media in order for the individual to keep up to date. This includes the ability to select what is important enough to be learned from mass media.
2. Decision - This is the decision in using mass media in daily life. As a result individuals can determine what are their opinions about incidents happening around them.
3. Discussions - This is the use of mass media to collect information that enables individuals to communicate with others.
4. Participating - This allows the participation of events happening around the individual.
5. Reinforcement - This is support or reinforcement of opinions or decisions made.
6. Relaxing and entertainment - The consumption of media is for relaxation and entertainment.

The communications of individuals who have normal vision and those of the visually impaired differ in the use of media channels, content, and expression. This is based on the differing needs of individuals that are in line with the basic assumptions of the Uses and Gratifications Theory. As a consequence the researcher has selected

this theory to develop the framework for analysis of the pattern and behavior of online communications of the visually impaired. The aim to create knowledge and understanding in terms of the communications of individuals based on their needs, expectations, and communication behavior, which might lead to impact on other dimensions in time.

2.6 Communication Technological Determinism

The Communication Technological Determinism is part of the group of critical school theories made famous at the Toronto School. It is based on the Marxist thoughts regarding the superstructure and infrastructure. The nature of the relationship is that the infrastructure in this case economics plays a role in determining values, ideology, and social institutions. The Toronto School focused on the analysis of technological advancements driving shifts in communications and changing society.

The definition of technology used to be quite limited because the emphasis was on the paradigm of being modern and up to date. The focus has been on machinery, tools, and equipment designed to enhance the intellect. Marshall McLuhan, prominent academic from the Toronto School, explained that technology was the extension of man. It is the extension of man's potential, which requires knowledge and skill. There is nothing that is technology in itself. It is dependent on the mode. Technological determinism explores the cause that leads to effects of media consumption. As a result technological determinism is described as the prime mover of effects in individuals and society as a whole. These effects can come in two perspectives. The first perspective shows appreciation for technology as the advancement of human civilization. However, the critical school views technology as detrimental to humanity. The impact of technology as a driver of change to humanity can be classified in three levels as described in the following section.

Societal level - Innis, another prominent academic from the Toronto School, believed that technology would lead to changes that would impact society as a whole.

Individual level - This view posits that technology would drive change at the individual level as evidenced in the works of Marshall McLuhan.

Social Institution level - It is believed that technology leading to change at the societal level is too large an impact while the individual level impact is also too small. As a result this vein of thought believes that the change would impact social institutions.

These various perspectives have been applied to mass communications in the world of McQuail (2005) cited in Kaewthep and Hinviman (2008) as a result the highlights of Technological Determinism Theory is summarized as follows:

1. Communications technology is the foundation of every society.
2. Each type of technology is suitable to a particular type of social structure.
3. The stages in production and use of communications technology would lead to changes in society. The three stages are invention, application, and control.

4. The revolutionary change in media technology would lead to a revolutionary change in society.
5. The impact of changes in media technology would lead to changes in the perception of time, space, and the human perception.

In this group of theories there are two prominent theorists namely Marshall McLuhan and Harold Innis.

Marshall McLuhan saw the development of media technology as a positive force for change. The development in information and media technology would lead to changes in society. The major points of his views are summarized in the following section.

1. Media and human ethos lead the development of the definition that technology is the extension of man or extension human senses. For instance the mobile phone enables the extension of human ethos of hearing by facilitating communication across long distances. It facilitates the extension of the human ethos of sight by enabling people to see what is happening in places faraway.
2. Technology changes the perception of various dimensions in the human perception. The three dimensions that change as a result of technology shift is the perception of time, space, and human experiences.
3. Media is the message is a powerful quote from McLuhan's book, Understanding Media: The Extensions of Man (McLuhan & Lapham, 1994). McLuhan reasons that the changes to individuals and society are the result of media technology. This is imbued in what humans experience, which he further questions how humans experience the world. Consequently, the message is not as important as the media itself. This is because when there is a change in the media, there is inevitably a change in the message.
4. The analysis of the epoch based on history of media technology can be divided into four periods as follows:

4.1) The Tribal Epoch - This is a period of face-to-face communications through the oral tradition. The exchange of thoughts, story telling and transfer of culture was done through spoken works. Listening and speaking had a major impact on the way of life of people. This is especially important in the period where most of the citizens in society could not read or write. The expression of various activities and the determination of the way of life and its relevant values were intended to form cohesive communities.

4.2) The Literate Epoch - This is a period where communications could be done in the form of symbols or written language. Members in a society can communicate through writing. As a result individuals can search for their own communication and writing soon replaced listening. This led to the development of linear communication that was derived from the formation of words into sentences. Furthermore, this led to linear thinking that led to the development of rules in society. Consequently this evolved into the learning of math and logic.

4.3) The Print Epoch - Although the written word had been developed, its impact was only limited. The people who could read and write were members of

the upper classes or religious teachers. This was because there was no means of producing the printed materials that could be disseminated to the masses.

4.4) The Electronic Epoch - This is the period of development in print and communications through the visual field of experience. There was the invention of the telegraph, which led to the development of information technology and electronic communications. Consequently, this led to the revival of the of speech communication once again.

5. McLuhan explained the definition of hot and cold media. Hot media was the media that presented information in high definition. This meant that the receiver did not have space to add information to the communications. The opposite is cold media, wherein the message is low definition. The cinema is hot media while television is cold media. This is because in the movie theater people sit separately in a dark environment with social etiquette not to speak while watching. However, in television, the audience can have more involvement because of the difference in viewing environment. The media is neither hot nor cold because of itself but it is dependent on the context and condition that differs accordingly.

6. The global village is the concept developed by McLuhan. It explains how media connects people, cultures, economies, politics, and information in an ecosystem. From the individualistic society people are connected through technology. There is an implosion of experiences. This enables individuals no matter where they are to experience an event together with others in a far away location through electronic communications. As a result people experience synchrony, simultaneity, and instantaneity.

Harold Innis is a theorist interested in the economics and politics derived from the power of information technology. His interest is in the macro level impacts. As a result his studies combine the examination media through technology history and culture of each society (Arpavat, Cheevasart, & Dejasvanong, 2011). Innis posited that the more the influence of communications, the people who are further most away from the center of power, would be dominated by the authorities. This proves the relationship between the pattern of communications and the structure of power. Thus, no matter how developed communications would be, it would still be controlled by the few, who are elites. These people, who control media technology, eventually, control power and knowledge. They prevent the proliferation of new media when there is a media revolution and development, which might lead to the changes in the power structure of society. Therefore, the change in power does not move from the upper echelons of society downward. But rather changes hands among those at the same level.

Roger believed that technological determinism led to changes at all levels in society. Technology combined with other factors lead to the changes in society. Technology is, however, a major driver of change but it must work along with other factors. The major characteristics of change are explained in the following section (Sansomedang, 2007).

1. Interactivity used to be a characteristic only of face-to-face communications. However, in mediated communications, interactivity disappeared. With advances in technology enabling real time responses to communications, the etiquette in communications changed significantly.

2. Individualize/Demassified

Technology has enabled individuals to choose the media that suits their needs, demassification of media choice. This is the opposite of the era mass communications, or massified audiences such as during the era of television and radio. With new media individuals can choose to access websites that of their interest.

3. Asynchronous nature of new communications

Current media technology allows communications to be divided into portions, asynchronous. This is unlike in the past were communications comes in one chunk. In addition the information can be kept and divided for storage in many places.

The changes in technology lead to changes in society. As a result the researcher would utilize Technology Determinism Theory as the basis for the analysis of the impact of online social media use of visually impaired youths. The analysis of the impact of online social media use of the visually impaired youths would be done at the level of the individual. The topics of analysis would include their daily routine, the expression of their potential, knowledge, communications, and experiences. At the societal level the topics would include how they join and participate in society.

2.7 Impact of New Media Perspective

The impact of new media can be categorized in three levels based on the Technological Determinism Theory. The first level is the modification of the traditional media. The basic premise or assumption is that the independent variable that explains the impact on the receiver may differ based on context. Thus new media is different from traditional media in the sense that the receivers are active participants in the communications process. In traditional media receivers are passive participants in the communications process. The impact of new media can be divided into two categories –positive impact and negative impact.

Direction of Impact

Positive Impact

The positive impact of new media can be classified at the individual, group, and societal level. This is in line with the explanation of Technology Determinism Theory that the perception of time, space, and human ethos can create experiences that connect humanity into a global village. With this characteristic of new media that is the result of development in information technology, quality of life is improved while communications and its applications enables connectivity that creates an opportunity of equality for all. This is made possible through the reduction of the limitation of space and time. As a result there are more learning opportunities. Moreover, new media has been used as a communications tool in advertising, public relations, and marketing communications among different cultures.

The impact of using media as explained by Siriyuvasak (2007) can classified as intended and unintended consequences in four levels as follows:

1. At the individual level the impact is made at the cognition level. This is related to knowledge and opinions as well as feelings and attitude determining behavior. The addiction of games among teens is an example of individuals exhibiting addiction reducing the relationship with other individuals.

2. At the level of group or organization, the impact would include music and entertainment on youth and teens. This includes the advertising of mobile phones that promotes youths to be addicted to using mobile phones communicating with images and words.

3. At the level of social institutions that present the negative news about monks which led to the initiation to the reformation of the sangkha.

4. At the level of society and culture, this includes the beauty contests and present it has major news. This has led the development of the perception that women have to be beautiful being perceived as sex objects. As a result this leads to the maintenance of a male dominated society.

The impact would often start from one level and impact the other levels. This is because the impact at the small level would lead to effects at a higher level with widespread impact. Over time the impact of media would lead to impact in many ways as follows:

1. Is the cause that leads to desired change
2. Is the cause that leads to undesired change
3. Is the cause that leads to minor changes in various forms or intensity
4. Facilitate changes that are both desired and undesired
5. Reinforce existing beliefs (in case there are no changes)
6. Prevents change

Negative Impact

The negative impact of new media is usually explained through system addiction. Traditionally this was used to explain addiction to drugs, alcohol, exercise, and smoking. In addition this includes addiction to computers and the Internet, which indicates a lack of control leading to other undesired consequences in terms of study, work, life, and family (Chouythanee, 2007). The causes of addiction as explained by Encore (1987) cited in Kongrach (2011) can be summarized as follows:

1. Emotional Reasons may arise from the psychological needs of individuals. It may be derived from the need to feel valued, have confidence, worries, insecurities, and pressure.

2. Physical Reasons may stem from physical needs to relax or to alleviate pain or violent feelings.

3. Environmental Reasons may result from the environment such as society, friends, and family. The people who experience this problem tend to avoid reality.

4. Social Reasons may arise from the need to have relationships with others. These people may seek acceptance and avoid being alone. The people with this tendency may be easily fooled.

5. Intellectual Reasons may result from the need to reduce tension in the brain thus resorting to the use of drugs.

Research about addiction to new media includes the work of Young (1998) The researcher studied the addiction to the Internet. The results of the study indicate that addition to the Internet is much like addiction to gambling. It is uncontrollable behavior. People who are addicted to the Internet must exhibit more than three of the following behaviors. Feel obsessed with the Internet even when not online.

Wanting to use the Internet for longer periods and cannot control Internet use behavior. Feeling irritated when the use of Internet is reduced or terminated. Must use the Internet to avoid problems making the person feel better. Deceive others about one's Internet use behavior. Using the Internet leads to risk in work, study, and financial resources but still the person cannot stop using the Internet. Feeling abnormal such as depressed or having anxiety when not using the Internet.
Spending more time using the Internet than planned. Addiction to the Internet can lead to risks in study, relationship with others, financial issues, work problems, and physical problems.

Kongrach (2011) based his study on the aforementioned framework to conduct his research titled Behavior of Using Social Media Among Teenagers in Thailand: The Case of Facebook. The addictive behavior in using Facebook is derived from the drive of teenagers to use social media. This is because they enjoy being in trend, which is the result of social pressures. The usage level increases steadily to the point of addiction. This leads to feelings of anxiety and obsession when using Facebook as a consequence of the addiction.

In addition to using addiction to study the impact of digital media, there are other studies that examine the negative impact and development of guidelines and preventive measures through the creation of digital literacy (W. Karuchit, 2015). This study was based on the analysis of secondary data reviewing documents including local and international research, academic papers, books, texts both in Thai and English, news columns, interviews, relevant articles, digital content and other media such as video clips and television scoops from 2009. The study identified right negative impacts of digital media 1) seduction, 2) unsuitable content, 3) cyber bullying, 4) conflicts, 5) misunderstanding, 6) waste time, 7) risk of breaking the law, and 8) lead to indecent behavior.

2.8 Impact Related to New Media

Impact that is related to new media may be explained by the Theory of Innovation Diffusion (Roger, 1962). This theory falls within the media effects family of theories (Kaewthep & Chaikunpol, 2013). The definition of innovation diffusion is the process that different people in society accept innovation. There are five types of people in society who accept innovation at differing rates.

1. Innovators are people who are the first to adopt new things. They like change and risk making their decisions quickly. They are willing to accept the consequence of adopting the new technology and introduce the innovation to others.

2. Early Adopters are people who are respected thus are influential in society. They are opinion leaders capable of making others believe them. They are usually thought leaders and are willing to adopt innovation after careful consideration.

3. Early Majority are people who are in trend and tend to accept innovation quickly from the opinion leaders. Once they accept an innovation they would change their behavior as a result of the adoption faster than other people.

4. Late Adopter/Majority are people who follow the trend. They are those who adopt innovation later. They tend to accept innovation after the early adopters and early majority.

5. Laggards are the group who adopt innovation last. They are influenced by the other three groups of opinion leaders, early majority, and late majority. Thus, they are the slowest in adoption innovation.

Based on this theory people can be classified as early adopter, early majority, or laggard. In addition the Technology Acceptance Model (TAM) can be used to identify the factors affecting adoption. These include Perceived Usefulness and Perceived Ease of Use. Sasithanakornkaew (2015) used this framework to study the use of social media in Generation Y. It is found that the respondents knew the benefits and ease of using social media. The research also found that there is a positive relationship between following the opinions of reference group and the usage behavior of social media online.

The research titled “Digital Competence and Digital Literacy in Social Media Usage for the Visually Impaired Youths in Thailand” has reviewed relevant literature that is both quantitative and qualitative studies. The analysis of negative and positive impacts is done at both the individual and societal level.

2.9 Relevant Research

Research on the Visually Impaired Use of Digital Media

Thongma-eng (2015) did a study titled “Accessibility and Use of Information Communication Technology of Visual Impairment Students in the Northern School for Blind Under the Patronage of the Queen Chiang Mai Province”. The respondents are high school students. The study found that respondents used information technology to communicate with their friends and others. They used it for their studies and playing games online. They realize the benefits of use. The respondents expect to have confidence in using the technology effectively. However, the respondents are concerned about using computers in public places and the stability of the system. It is found that most of the respondents used computers and smart phones that are

equipped with screen reader applications. The problems they reported in using the Internet included the lack of stability of the network. Other problems include limitations in using computers in public spaces that do not have the screen reader application. In addition some of the websites don't support accessibility of the visually impaired.

Qiu, Hu, and Rauterberg (2015) conducted the study titled, "Mobile Social Media for the Blind: Preliminary Observations" : Preliminary Observations using qualitative methods with six respondents who were blind or had low vision. The researchers studied access to social media via mobile phones, usage problems, and expectations of social media access via mobile phones. It is found that the respondents were more of recipients of information rather than posting themselves. They have problems in using images. In addition they were very concerned about security. In terms of expectations they wanted the mobile phone application to be able to explain images, information, and color.

Wu and Adamic (2014) conducted the study titled, "Visually Impaired Users on an Online Social Network". The researchers studied visually impaired usage behavior of social networks especially Facebook. In particular the study focused on the activities they did and information they presented on Facebook. The study found that the visually impaired with participating in Facebook through status updates, posting their opinions, and using the Like button just anybody else. The respondents usually shared content with regards to their experiences and issues about the visually impaired. However, the network of the visually impaired is small.

Tongprakob and Limpiyakorn (2014) conducted the study titled, "Increasing Efficiency of Data Accessibility on Web for Visually Impaired". The objective of this study is the development of effective tools used to manage and standardize data in order to ensure equality in access. This would reduce the inequality gap in the digital era by enabling the visually impaired to have more access. The researchers reviewed relevant research from databases and searched for relationships in the improvement of content, presentation of results, determination of shortcuts on the keyboard, and the presentation of web content for the visually impaired. The researchers based their work on the WCAG 2.0 standard. However, the researchers found that the standard did not match with the ability to access the web site enabling understanding of the content. In addition the study found that improving access of the visually impaired came from the synchronization of the various tools like the mouse or keyboard. This increased the effectiveness of access. The recommendations of the research are to develop tools that can support the totally blind and those with low vision across different types of content. Also the researchers suggested that accessibility should be extended to other disabilities such as hearing deficiency.

Brady, Zhong, Morris, and Bigham (2013) did a research on visually impaired users who used VizWiz Social and iPhone Apps. It is found that respondents used 1 – 2 social media networks (92%). The respondents used Facebook (80%), followed by Twitter (52%), LinkedIn (40%), and Google Plus (15%). Those who reported using Facebook explained that they were lurking more than posting. Their friends on

Facebook are their friends, family, and work colleagues accordingly. To the question regarding participation, it is found that many of the visually impaired have a presence online but they do not participate much. This is because the visually impaired come from different levels of society that have different levels of social capital.

Rattanapop (2011) studied the development of guidelines in using new media among the visually impaired from Generation Y. The researcher studied the condition and type of presentations in new media designed for the visually impaired from Generation Y. In addition the researcher studied the wants of the visually impaired from Generation Y. Consequently, a set of recommendations and guidelines were developed. The recommendations are to develop new media in accordance to the needs of the visually impaired from Generation Y. For this the qualitative research method was used. It is found that the condition of presentation in new media and its access had an impact on the usage. This included complicated layouts and limitations in explaining images. In addition the blind need quality screen reader that serves the needs of the user. As a result to better serve the needs of the visually impaired from Generation Y, the researcher suggested simple designs with minimal elements. In addition the designer must be aware of the importance and value of the visually impaired. This would lead the development of new media for the visually impaired continuously and sustainably.

Jitjakool (2010) conducted the study titled, “Communications Through the Internet of the Visually Impaired”. The objective of the study is to examine the means and behavior of using the Internet of the visually impaired in order to understand the needs and wants as well as the problems and obstacles. As a result a guideline was developed to solve the technology problems experienced by the visually impaired in using the Internet. The researcher used the qualitative methodology to collect the data using in-depth interviews and analysis of documents. The respondents are the visually impaired who use the Internet in their careers and daily life.

The study revealed that the visually impaired use accessories in connecting to the Internet, which is the screen reader of “Magic Eyes” application. This is a Thai program that reads the screen in Thai. There is a program that magnifies the contents on the screen. The visually impaired choose to use the programs to communicate in a suitable manner to achieve their goals. This includes writing emails to communicate short explanation messages. They are able to attach files and images without immediate response. For immediate responses they would use MSN, Skype, and Hi5. The Internet is an important part of daily life of the visually impaired. The problems and obstacles in the use of the Internet include the use of time, financial issues from the use of tools and equipment. This is because it is necessary to use quality computers for access. External factors include the quality of the program, which is still not standardized. Also there is a monopoly in the service provider of Internet access. However, there are no guidelines in solving the technology problems and communication for the visually impaired. Also there should be standardization of the development of websites based on the W3C criteria. This includes issuing laws and regulations that need to be enforced to control content. The access to technology has to be improved including the Internet signal that should be open for free access.

Thaiyamart (2009) conducted the study titled, “Need, Access and Utilization of Internet Media of Blind Students in Bangkok Area”. The objective of the study is to examine the use of Internet among the visually impaired. The study examined the use of the Internet of the visually impaired to identify its benefits. The study of problems, obstacles, and benefits of the visually impaired students was conducted using the survey method and qualitative methodologies.

The study found that the need of visually impaired students in using the Internet about 1 – 2 days a week for about 1 – 3 hours per day. The time they spend online the most is between 16:01 = 18:00 on weekdays. In terms of media access, it is found that the respondents used the Internet to search for information. This might include search for content of interest, do their homework, write reports, follow news, and other issues. For entertainment purposes it is found that respondents listed to music, read entertainment news, watch cartoons, chat, and playing games. The most beneficial result of using the Internet is to increase the knowledge in their environment. As a result they can access more information sources including books. This would enhance their knowledge and skills for their learning. The problems and obstacles in using the Internet include unstandardized websites and the use of images. As a result the screen reader cannot read the content. Also the users lack the necessary computer skills to access the Internet and do have the necessary English knowledge.

Martiniello et al. (2012) conducted the study titled, “Accessibility of Social Media for Students Who Are Blind or Have Low Vision” in collaboration with the National Education Association of Disabled Students (NEADS). The study utilized the online survey. There were 723 respondents. It was found that 58% used screen readers. The most popular social media is YouTube (90%), followed by Facebook (83%), MSN/Windows Live Messenger, Skype and LiveJournal accordingly. The ability for access is 4.78, 4.48, 5.03, 4.84, and 5.17 respectively (on a six point scale). The respondents accessed the Internet through their smartphones. The use of social media helped to reduce the feeling of isolation among respondents. They used social media to contact old friends and make new friends. The respondents reported that they were very careful in expressing their opinions. However, they do not hide the fact that they are visually impaired from their new friends in social media. The visually impaired felt that their disability was a limitation in the use of social media to develop their career, create networks, and relationships. Social media enables the visually impaired to meet new people but it also leads to problems and obstacles from the blind and those with low vision. This would especially become critical if these people do not have the knowledge in using technology.

Suetrong (2007) conducted the study titled, “The Access to and Use of Information on the Internet by Visually Impaired People in Thailand”. This study aims to examine the policies of the government in regards to the access and benefits of information technology on the visually impaired. The study examines the problems and obstacles of the visually impaired especially with regards to using the Internet. In addition the study aims to examine the role of the Internet in reducing the inequality with regards to information technology for the visually impaired. In addition the study

examined the changes in society and community of the visually impaired as a result of their access to information technology. The study used both the quantitative and qualitative methods. A survey was conducted along with in-depth interviews to collect data as well as document reviews. The respondents include 30 visually impaired who have access to the Internet, community leaders, and responsible government officials.

Jatupornpitak (2006) conducted a research into how the Internet changed the way of life of the visually impaired. The results indicated that the visually impaired knew about the Internet technology. They learned about in from their teachers in the school for the blind and the Thailand association of the blind. Their expectation of the Internet is access to information and entertainment. They believe that this information would help to improve their lives and their careers. However, they realize that there would be inequality in terms of issues of convenience and career. They explained that there was limitation to their access to technology. As a result the visually impaired need assistance from society. The Internet has enabled the visually impaired to share their information in terms of the daily life and career thus reducing their dependence on others. This has makes them proud and reduces their insecurities that is derived from their disability. As a result there is a good feeling in the family and acceptance among members of the visually impaired community. It is found that the visually impaired students needed different information technology tools to help them learn about the world around them. In addition they would like researchers to study the problems in using information technology faced by visually impaired students on issues regarding usage, the learner, the teacher, and the administrator.

Research Related to Social Media Use and Digital Literacy

W. Karuchit (2018) studied foreign policies for the development of digital literacy for children in youth. The study found that the steps in driving the development of digital literacy comprised of 3Es. The first is education, which must be accurate and suitable for the age of the learner. The second is experience, which is the hands-on approach that drives understanding and memory. The third is expert, who needs to be available to provide the necessary support. In addition there are four drivers of 4Is namely interconnectedness, which includes educational institution, media organizations, and social institutions. The next is information, which includes the government organizations creating the necessary information. Third is integration, which is derived from organizations that help provide the necessary support in terms of knowledge. The last is in trend, which dictates that the activities need to be up to date and interesting. This may be driven through multiple media to create trust and awareness in society.

Kleechaya (2016) studied digital literacy among high school students. The aim is to study the digital literacy of students in terms of over claim advertising, games, and sex using quantitative study methodology. The study revealed that middle school and high school students understand, analyze, and evaluate advertising of beauty products at a high level. They do not believe and do not order the products easily. In terms of games it is found that middle school and high school students understand, analyze and evaluate the content at a fair level. They believe the content in game to a

certain degree. In terms of sex it is found that middle school and high school students understand, analyze, and evaluate content about sex at a high level. They don't believe the content and are not persuaded by the content in a high level.

W. Karuchit (2015) studied the digital media communications and its negative impact on children and youth. This is designed to develop guidelines to protect and prevent problems in youths and children as a result of digital literacy. The information are collected from local and foreign case studies. The research was conducted from academic papers, books, texts both in Thai and English, news columns, interviews, relevant articles, digital content and other media such as video clips and television scoops from 2009. The study identified right negative impacts of digital media 1) seduction, 2) unsuitable content, 3) cyber bullying, 4) conflicts, 5) misunderstanding, 6) waste time, 7) risk of breaking the law, and 8) lead to indecent behavior.

The recommendations from the research were used to develop guidelines for digital literacy for youth and children. In the short term there should laws and regulations to control the risks in the digital media. For the long term the relevant government organizations, private enterprises, and social institutions including schools and the media should assist in developing digital literacy. Parents must also learn to understand social media so that they can provide the necessary recommendation to youths and children. This should lead to reduced risk of fraud online. In addition there should be rules in using digital media in the home or combining it with other activities. Each individual including youths should have the necessary skills and digital literacy to prevent risk in digital media.

Nupairoj (2015) studied the digital literacy lesson plans for Generation Y. The study was conducted based on the digital literacy framework developed by UNESCO. This includes access, creation, and evaluation. It is found that access and creation were in the fair level. The evaluation aspect is at the high level. It is also found that the respondents said they lacked the knowledge and understanding sensitivity of personal privacy and copyright online.

In terms businesses both in traditional media and online, the respondents said they could not discern what is true and what is not. The digital literacy lesson plans were found to be in the form of visual media. This information is passed from the Generation Y to the mobile phone service provider and sent through the social media network. The information would be disseminated through the influencers of Generation Y into their network. The recommended implementation plan for successful deployment of digital literacy should be in the form of an ecosystem. This should include the learner, teacher, and curriculum. At the same time society must drive digital literacy at the community level, parents, media, government agencies, and private enterprises.

Phuapan et al. (2016) conducted the study titled, “An Analysis of Digital Literacy Skill among Thai University Seniors utilized the quantitative research method. Data was collected from 400 respondents who were studying at a total of nine public and private universities. The analysis was conducted using LISREL.

Digital literacy dimensions identified by students included access, management, integration, evaluation, creation, and communication. The most influential dimension is evaluation. Digital competence and digital literacy are related as indicated in the standard learning competency prescribed in the Thai university curriculum.

Sueroj (2013) studied the behavior of teenagers in the public realm on social networking websites. It was found that the respondents had the behavior in using Facebook as a communications media. 1) Creating relationship on Facebook through the connection as "friends". This type of relationship can grow quickly and end almost equally quickly. 2) Entertainment value is created in a variety of ways on the Facebook application. This includes conversations, games, uploading images and video clips. As a result the user is both sender and receiver. 3) Facebook is the public reservoir of varied information from both posts from individuals and public fan pages. 4) Facebook is also the channel for communicating sensitive information. Respondents reported that there are two types of sensitive issues. First is the use of Facebook as a place to express personal issues such as complaining about people who normally have higher authority such as teachers, lecturers, and parents. The second deals with public issues such as political satires or comments that cannot be expressed directly in real life. 5) Surveillance of the environment, commenting about society, and expressing grievances. 6) Facebook is the place to express the true personality of the individual. 7) Facebook is the place to create the desired persona, which includes developing a fake profile with no concern whether other people would believe the information.

Kongrach (2011) conducted the study titled, "The study of Teenagers' Behaviors in Using Social Networking Sites in Thailand: A Case Study of Facebook". The majority of the respondents used most of the services and activities available on Facebook. This includes conversations of the message board, joining groups, playing games, playing quizzes, sharing photographs, sharing videos, searching for old friends, sending messages, expressing opinions, and clicking the "Like" button. It is also found that teenagers enjoyed using online social networks. They were able to keep up with the trend and issues in society from information shared by their friends and other influencers. As a result some of them become addicted to online social networking sites. Thus, they feel anxiety needing to go online because of their addiction.

The review of literature revealed that there are two major observations. The first issue involves the study regarding the visually impaired use of technology. However, the definition of technology is still quite restricted to the Internet. As a result the researcher is interested to study the communication of the visually impaired youths in particular social media online, which is different in terms of social and technological context that is changing. Especially the respondents are at the age wherein social media is an important part of their daily life.

The second issue involves the study of the visually impaired digital competency and digital literacy, which has not previously been studied in Thailand. In addition this framework has always been applied to those who have good vision. As a

result the guidelines developed from this study can be used to develop digital competencies and digital literacy in using social media online. Consequently, the visually impaired can use social media online in a responsible and understanding manner. In addition this is in line with the development of human resources as required by the Thailand 4.0, which is the initiative driving the country with technology. The access to technology should be open to all. Also digital literacy involves awareness of the thinking process. The analysis of social media should be done in the same manner as mass media because of its influence on the modern world

CHAPTER 3

RESEARCH METHODOLOGY

The study titled, “Digital Competence and Digital Literacy in Social Media Usage for the Visually Impaired Youths in Thailand”. This study utilized the mixed methods research methodology. The quantitative study was conducted using the questionnaire as the data collection tool for gathering data from the visually impaired youths. The qualitative study was conducted using the in-depth interview of experts in the area of social media networks and visually impaired youths. In addition, focus groups drawn from visually impaired youths would be conducted. Finally, the data collected would be triangulated for analysis based on the research objectives.

3.1 Population

The population of the study is visually impaired youths who are studying at the high school or equivalent level which numbers 260 students and those at the university level which numbers 466 students. As a result the total population is 726 students.

3.1.1 Sample Size Determination

The sample size is determined based on the formula proposed by Yamane (ใส่ปีด้วย) at the 95% confidence interval with error not exceeding 5% as follows:

$$n = \frac{N}{1+Ne^2}$$

where

n = Sample size
N = Population size
e = Sampling error (0.05)

$$n = \frac{726}{1+726(0.05)^2}$$

$$= 258$$

This research collected data from 260 students, which is more than the minimum requirement of 258 respondents.

3.1.2 Sampling Design

3.1.2.1 Quantitative Study

The researcher used multistage probability sampling. The sampling process is explained in the following section.

In stage 1 the researcher divided the sample of respondents from each educational level equally based on the quota sampling method. Since the sample size is small, the researcher aimed to ensure that each group is represented. As a result the ratio is 50:50. Thus, 50% are those studying in high school or equivalent while the remaining 50% are those studying in the university level. Consequently each group would have a total of 130 respondents.

In stage 2 the researcher divided the high school or equivalent and university level respondents as follows:

(2.1) High school or equivalent

To ensure that the sample is distributed to all regions in the country, the researcher sampled the top three provinces with the highest number of visually impaired students. In addition these provinces must have a school for the visually impaired. The northeastern region includes Nakhon Ratchasima, Khon Kaen, and Roi-Et. The northern region includes Chiang Mai, Prae, and Lampang. The southern region includes Phetchburi, Songkhla, and Surat Thani. The central region the researcher only selected the top two provinces, which are Bangkok and Lopburi. The researcher collected data from schools that provided classes for both the visually impaired and regular students (only in Bangkok because some of the students did not study in the school reserved for those who are handicapped) and schools for the visually impaired.

Table 3.1 High school or equivalent sampling group

No.	School	Managed by	Province
Joint Classes Schools			
1.	Santiratwitthayalai School	Office of National Primary Education	Bangkok
2.	Sri-Ayutthaya School	Office of National Primary Education	Bangkok
School for the Visually Impaired			
3.	The Bangkok School for the Blind	Foundation for the Blind in Thailand under the Royal patronage of H.M. the Queen.	Bangkok
4.	School for the Blind Lopburi	Christian Foundation for the Blind in Thailand Under the Royal Patronage of H.M. The King	Lopburi
5.	The Northern School for The Blind under the Royal patronage of H.M. the Queen.	Special Education Services, Office of National Primary Education	Chiang Mai

6.	School for the Blind Lampang	Christian Foundation for the Blind in Thailand Under the Royal Patronage of H.M. The King	Lampang
7.	School for Blind Santi Jintana	Thailand Association for the Blind	Prae
8.	Thammavika School	Christian Foundation for the Blind in Thailand Under the Royal Patronage of H.M. The King	Lopburi
9.	School for the Blind in the South, Surat Thani	Special Education Services, Office of National Primary Education	Surat Thani
10.	Thammasakol School for the Blind, Haad Yai	Christian Foundation for the Blind in Thailand Under the Royal Patronage of H.M. The King	Songkhla
11.	School for the Blind Nakhon Ratchasima	Christian Foundation for the Blind in Thailand Under the Royal Patronage of H.M. The King	Nakhon Ratchasima
12.	School for the Blind Khon Kaen	Christian Foundation for the Blind in Thailand Under the Royal Patronage of H.M. The King	Khon Kaen
13.	School for the Blind Roi-Et	Christian Foundation for the Blind in Thailand Under the Royal Patronage of H.M. The King	Roi-Et
14.	Vocational School for the Blind Khon Kaen	Christian Foundation for the Blind in Thailand Under the Royal Patronage of H.M. The King	Khon Kaen

(2.2) University Level

The university institutions ranked top ten based on the number of visually impaired students as follows: (1) Ramkhamhaeng University, (2) Thammasat University, (3) Rajabhat University, (4) Suan Dusit University, Rajabhat University Chiang Mai, Rajabhat University Nakhon Ratchasima (equal number of visually impaired students), (5) Chiang Mai University, (6) Rajabhat Mahasarakham, Rajabhat Roi-Et, Rajabhat Somdej Chao Phraya (equal number of visually impaired students), (7) Rajabhat Phetchburi, Kasetsart University (equal number of visually impaired students), (8) Rajabhat Chiang Rai, (9) Rajabhat Lampang, and (10) Payao University.

In stage 3 the researcher used the convenience sampling method based on the required quota.

3.1.2.2 Qualitative Study

The qualitative study is composed of in-depth interview and focus groups. The researcher used the purposive sampling technique. The researcher selected the sampling from visually impaired youths using social media, organizations related to the visually impaired in Thailand, communications experts, and teacher or lecturers of the visually impaired youths.

In-depth Interview

The in-depth interview was conducted on experts regarding the use of social media of the visually impaired. The topics of the interview included the result of using social media of the visually impaired and digital literacy of the visually impaired. The researcher used the purposive sampling method as follows:

1) Organizations related to the visually impaired in Thailand
   - Khun Torpong Selanon, Chairman, Thailand Association of the Blind
   - Acharn Winit Moonwicha, Deputy Director Special Affairs, Christian Foundation for the Blind Under the Royal Patronage of H.M. The King (CFBT)
2) Communications experts
   - Asst. Prof. Arada Karuchit, Deputy Dean for Planning and Development, Faculty of Journalism and Mass Communication, Thammasat University (Expert on Media for Persons with Disabilities)
3) Government organizations
   - Dr. Nunthanuch Suwannawut, Education Specialist, Special Education Services, Office of National Primary Education
   - Dr. Tri Bunchua, Director, Consumer Protection Division, Office of the National Broadcasting and Telecommunications Commission
4) Teachers of the visually impaired
   - Khun Darunphob Nanthareun, Teacher, School for the Blind Roi-Et

Focus Group

The researcher used the purposive sampling method for the focus group. The respondents are selected from the visually impaired students using social media. The topics would include behavior and media use of social media, result of using social media, and digital literacy of visually impaired youths. Four focus groups would be conducted consisting of 4 – 6 respondents. The criteria are selected based on the level of visual impairment and level of education. Each focus group would consist of respondents from different education levels as follows:

1) High school – blind
2) High school – low vision

3) University level – blind
4) University level – low vision

3.2 Data Collection Tool

3.2.1 Quantitative Study

The data collection tool used in the quantitative study is one questionnaire developed to collect data from the 260 respondents. The survey was distributed as self-administered and online survey. The data collected would then be analyzed to answer the research objectives. The questionnaire is comprised of close-ended questions that have been categorized into six parts as follows:

Part 1. Demographics profile including gender, age, level of education, and income

Part 2. Social Media Usage Behavior

Part 3. Digital competences Including Information Management, Communication, Digital Content Creation, and Problem Solving

Part 4. Digital Literacy Comprised of the Dimensions of Understanding, Critical Analysis, and Cyber Safety

Part 5. Results of Social Media Usage on Visually Impaired Youths

Part 6. Recommendations

Parts 2, 3, and 5 measure behavior and use of social media, digital competences, and results of using social media on visually impaired youths. These parts are measured using the 5-Pointed Likert scale defined as follows:

The value 5 means highest	5 points
The value 4 means high	4 points
The value 3 means medium	3 points
The value 2 means low	2 points
The value 1 means lowest	1 points

Part 4 is about digital literacy. The questions are in the form of a checklist. The questions are developed into items that would be scored as follows:

Correct Answer	1 point
Wrong Answer	0 points

3.2.1.1 Interpretation of Average Scores

The researcher would interpret the average score of the rating scale based on the interval presented in the following section.

1. The behavior and use of social media, digital competences, and results of using social media on visually impaired youths

Mean score from 4.21 – 5.00	level	highest
Mean score from 3.41 – 4.20	level	high
Mean score from 2.61 – 3.40	level	medium
Mean score from 1.81 – 2.60	level	low
Mean score from 1.00 – 1.80	level	lowest

2. Level of digital literacy

Scores ranging from 17 – 20	level	high
Scores ranging from 13 – 16	level	quite high
Scores ranging from 9 – 12	level	medium
Scores ranging from 5 – 8	level	quite low
Scores ranging from 0 – 4	level	low

3. Correlation among constructs

The Pearson's Correlation Coefficient can be divided into five levels of relationship (Silpajarn, 2010) as follows:

Correlation coefficient more than 0.80 means high level of relationship

Correlation coefficient 0.60 – 0.79 means quite high level of relationship

Correlation coefficient 0.40 – 0.59 means fair level of relationship

Correlation coefficient 0.21 – 0.39 means quite low level of relationship

Correlation coefficient 0.00 – 0.20 means low level of relationship

3.2.1.2 Validating the Data Collection Tool

The researcher made modifications to ensure that the data collection tool had the desired validity and reliability.

1) Content Validity

The researcher had three experts validate the content of the questionnaire to ensure that it represented the research objectives and theoretical framework. The analysis was based on the Index of Consistency (IOC). The result of the expert evaluation was a score that ranged from 0.67 to 1.00.

2) Reliability

The researcher pre-tested the questionnaire on 35 respondents who had a similar profile to the target sample to measure the understanding and accuracy of the items. In addition the reliability of each of the items was tested using Cronbach's Alpha. The coefficient alpha is presented as follows:

Information management	0.94
Communication	0.80
Digital Content Creation	0.89
Problem Solving	0.87
Results of Using Social Media	0.88

3.2.2 Qualitative Study

The data collection tool for the in-depth interview and focus group is a semi-structured interview question guide. The purpose is to ensure that the data collection fulfills the research questions regarding the results of using social media and the guideline for the development of digital literacy in using social media for the visually impaired youths. The guideline is comprised of the following topics:

Topics for the In-depth Interview

1) Organizations related to the visually impaired in Thailand

(Thailand Association of the Blind and Christian Foundation for the Blind in Thailand Under the Royal Patronage of H.M. The King)

- Social media use of the visually impaired youths in the present day both in terms of form of use and behavior
- Positive and negative results of using social media of the visually impaired youths
- Factors that need to be considered in the use of social media of the visually impaired youths
- Pushing policies related to the use of social media for the visually impaired youths
- Guidelines in the development of digital literacy for the visually impaired youths

2) Communications expert

- The use of social media among the visually impaired
- Results of the use of social media among the visually impaired
- Factors that need to be considered in the use of social media of the visually impaired youths
- Suggestions for policies related to the use of social media for the visually impaired youths
- Guidelines in the development of digital literacy for the visually impaired youths

3) Government organizations related to the social media use of the visually impaired youth

- Social media use of the visually impaired youths in the present day
- Positive and negative results of using social media of the visually impaired youths
- Factors that need to be considered in the use of social media of the visually impaired youths
- Policies related to the use of social media for the visually impaired youths
- Guidelines in the development of digital literacy for the visually impaired youths

4) Teacher or lecturer who teach the visually impaired youths

- The use of social media among the visually impaired students
- Risks that might arise from the use of social media

- Positive and negative results of using social media of the visually impaired youths
- Factors that need to be considered in the use of social media of the visually impaired youths
- Guidelines in the development of digital literacy for the visually impaired youths

Topics for the Focus Group

- General information about the use of social media including the method of use, type of social media used, time since start of social media use, time spent using social media, and activities done on social media
- Definition of social media
- Results of using social media
- Means of self regulation in the use of social media
- Digital literacy in the use of social media of visually impaired youths

3.3 Data Analysis

3.3.1 Descriptive Statistics

The analysis includes frequency, percentage, and means to explain the demographic characteristics, media use and behavior in using social media.

3.3.2 Inferential Statistics

The test of hypotheses utilized t-test, One-way ANOVA, Pearson's product moment correlation, and Multiple Linear Regression.

Hypothesis 1

The demographics characteristics of the visually impaired youths have different levels of digital competences using t-test to compare the difference between 2 variables.

Hypothesis 2

The demographics characteristics of the visually impaired youths have different levels of digital literacy using t-test to compare the difference between 2 variables.

Hypothesis 3

Visually impaired youths who have different length of time using social media have different levels of digital literacy using the One-way ANOVA to compare the difference between more than 2 variables.

Hypothesis 4

Digital competences are correlated to the results of using social media of visually impaired youths. The Pearson's product moment correlation to explain the relationship between digital competences and the results of using social media of visually impaired youths.

Hypothesis 5

Digital competences has influence on digital literacy of visually impaired youths. The multiple linear regression is used to explain the impact of digital competences on digital literacy of visually impaired youths.

3.3.3 Qualitative analysis

Qualitative analysis to answer the research objectives and theoretical framework, which includes behavior in using social media, positive and negative results of using social media, digital literacy, and guidelines in the development of digital literacy for the visually impaired youths.

3.4 Presentation of Results

This study utilized the mixed methods research methodology. The analysis for the survey is a quantitative method using descriptive and inferential statistics in Chapter 4. The qualitative analysis to answer the research objectives is presented in Chapter 5. Finally, the discussions, conclusions, and recommendations are presented in Chapter 6.

CHAPTER 4

QUANTITATIVE RESEARCH

Digital competences and digital literacy of social media usage for the visually impaired youths in Thailand was processed by using a mixed method with a quantitative survey method. The questionnaire is used as a tool to collect data from the blind respondents as well as in-depth interviews with experts in the field of social media and visually impaired people and Focus Group of the visually impaired who is using a social media. In this chapter, the quantitative research was divided into two parts as follow:

4.1 The descriptive study describes the demographic characteristics of the respondents, digital competences, social media usage behavior and the result of social media usage for the visually impaired youths.

4.2 Hypothesis test

4.1 Descriptive research results

4.1.1 Demographics Information

Table 4.1 Number and percentage of respondents by gender

Gender	Respondents number	Percentage
Female	129	49.6
Male	131	50.4
Total	260	100

Table 4.1 showed that most of the respondents were males (50.4 %) and females (49.6 %).

Table 4.2 Number and percentage of respondents by age.

Age	Respondents number	Percentage
16 - 18	69	26.5
19 - 21	108	41.5
22 - 24	52	20.0
over 24	31	11.9
Total	260	100

Table 4.2 found that 41.5 % of the respondents aged between 19-21 years old was the most, second was 26.5 % of the respondents aged between 16-18 years old, third was 20 % of the respondents aged between 22-24 years old and the last was 11.9 % of the respondents aged over 24 years old, respectively.

Table 4.3 Number and percentage of respondents classified by type of visual impairment

Type of visual impairment	Respondents number	Percentage
Low vision	106	40.8
Blind	154	59.2
Total	260	100

Table 4.3 showed that most respondents were blind (59.2 %) and low vision respondents (40.8 %).

Table 4.4 Number and percentage of respondents classified by educational level

Educational level	Respondents number	Percentage
High school or equivalent		
High school year 4	44	16.9
High school year 5	41	15.8
High school year 6	34	13.1
Vocational school year 1	3	1.2
Vocational school year 2	5	1.9
Vocational school year 3	3	1.2
Total of High school or equivalent	**130**	**50.0**
Undergraduate		
Year 1	35	13.5
Year 2	24	9.2
Year 3	34	13.1
Year 4	29	11.2
Year 5	8	3.1
Total of Undergraduate	**130**	**50.0**
Total	260	100

Table 4.4 showed that most of the students study in the high school year 4 (16.9 %) , followed by the high school year 5 (15.8 %) and the high school year 5 (13.1%) respectively.

The undergraduate year 1 respondents were the most at 13.5 %, followed by the year 3 respondents (13.1 %), and year 4 (11.2 %), respectively.

Table 4.5 Number and percentage of respondents classified by monthly income

Monthly Income	Respondents number	Percentage
Less than 2,000 baht	127	48.8
2,001- 3,000 baht	45	17.3
3,001- 4,000 baht	29	11.2
4,001-5,000 baht	31	11.9
More than 5,000 baht	28	10.8
Total	260	100

Table 4.5 showed that the respondents who had the monthly income less than 2,000 baht (48.8 %), second was the respondents who had the monthly income between 2,001-3,000 baht (17.3 %), third was the respondents who had the monthly income between 4,001-5,000 baht (11.9 %).

4.1.2 Social Media Usage Behavior

Table 4.6 Number and percentage of respondents classified by social media usage behavior duration

Social media usage behavior duration	Respondents number	Percentage
Less than 1 year	6	2.3
1-2 years	26	10.0
3-4 years	55	21.2
5-6 years	89	34.2
More than 6 years	84	32.3
Total	260	100

Table 4.6 showed that most of the respondents who used the social media between 5 - 6 years (34.2 %), followed by more than 6 years (32.3 %), 3-4 years (21.2 %) and the respondents less than 1 year (2.3 %).

Table 4.7 Number and percentage of respondents classified by how much time spent online in a day

How much time you spend onlin in a day	Respondents number	Percentage
1-3 hours/day	96	36.9
4-6 hours/day	86	33.1
7-9 hours/day	48	18.5
More than 9 hours/day	30	11.5
Total	260	100

Table 4.7 showed that the time spent online in a day for the 1-3 hours of respondents (36.9 %), followed by the respondents of 4-6 hours per day (33.1 %), the

respondents of 7-9 hours per day (18.5 %), and the respondents of less than 9 hours per day (11.5 %), respectively.

Table 4.8 Number and percentage of respondents classified by the main device used to access social media

The main device used to access social media	Respondents number	Percentage
Smartphone	196	75.4
Notebook	52	20.0
Desktop	6	2.3
Tablet	6	2.3
Total	260	100

Table 4.8 showed that the device most often used to access social media of the respondents were mobile phones (75.4 %), followed by notebooks (20.0 %) as well as desktops and tablets (2.3 %).

Table 4.9 Percentage of respondents classified by the objective for going on social media. (Multiple response)

Objective for going on social media	Percentage
To communicate	66.2
To search for information, news, and knowledge	58.1
To use as a space to express my identity	24.6
To search for entertainment/reduce loneliness	51.2
To do business	8.1

Table 4.9 found that 66.2 % of respondents had social media objective to communicate most, followed by 58.1 % of them had the objective to search for information, news, and knowledge, and the least to do business (8.1%).

Table 4.10 Mean and standard deviation classified by types and level of frequency of social media usage

Types of social media usage	Level of frequency of social media usage					$\bar{x}$	S.D.	Level
	Highest	High	Medium	Low	Lowest			
Facebook	129 (49.6)	80 (30.8)	38 (14.6)	6 (2.3)	7 (2.7)	4.22	0.96	Highest
Twitter	3 (1.2)	5 (1.9)	31 (11.9)	34 (13.1)	187 (71.9)	1.47	0.86	Lowest
Instagram	9 (3.5)	25 (9.7)	36 (13.9)	42 (16.2)	148 (57.1)	1.87	1.17	Low
YouTube	134 (51.5)	78 (30.0)	36 (13.8)	6 (2.3)	6 (2.3)	4.26	0.94	Highest
Line	58	86	67	19	30	3.47	1.24	High

Types of social media usage	Level of frequency of social media usage					$\bar{x}$	S.D.	Level
	Highest	**High**	**Medium**	**Low**	**Lowest**			
	(22.3)	(33.1)	(25.8)	(7.3)	(11.5)			
Zello	4 (1.5)	7 (2.7)	21 (8.1)	40 (15.4)	188 (72.3)	1.46	0.87	Lowest
Skype	6 (2.3)	7 (2.7)	16 (6.2)	47 (18.1)	184 (70.8)	1.48	0.90	Lowest
	Total Average					**2.60**	**0.49**	**Low**

Table 4.10 found that the frequency of any types of social media usage of the respondents were in a low level (mean score 2.60). In terms of the frequency in which social media was used, it was found that the respondents who used YouTube and Facebook in the highest level (mean score were 4.26 and 4.22), respectively, followed by Line in high level (3.47) and the lowest respondents was Zello (mean score 1.4)

Table 4.11 Mean and standard deviation classified by types of social media usage

Types of social media usage	Level of frequency of social media usage					$\bar{x}$	S.D.	Level
	Highest	High	Medium	Low	Lowest			
Communicate								
Post messages	54 (20.8)	53 (20.4)	101 (38.8)	36 (13.8)	16 (6.2)	3.36	1.13	Medium
Post pictures	30 (11.5)	36 (13.8)	83 (31.9)	64 (24.6)	47 (18.1)	2.76	1.23	Medium
Share posts	21 (8.1)	45 (17.3)	105 (40.4)	54 (20.8)	35 (13.5)	2.86	1.10	Medium
Follow news	84 (32.3)	92 (35.4)	59 (22.7)	22 (8.5)	3 (1.2)	3.89	0.99	High
Follow famous people	47 (18.1)	40 (15.4)	78 (30.0)	50 (19.2)	45 (17.3)	2.98	1.33	Medium
Live broadcast	9 (3.5)	22 (8.5)	50 (19.2)	53 (20.4)	126 (48.5)	1.98	1.15	Low
Comment/express opinion	27 (10.4)	38 (14.6)	110 (42.3)	52 (20.0)	33 (12.7)	2.90	1.12	Medium
Like posts	108 (41.5)	70 (26.9)	53 (20.4)	20 (7.7)	9 (3.5)	3.95	1.11	High
Chat	114 (43.8)	71 (27.3)	58 (22.3)	12 (4.6)	5 (1.9)	4.06	1.02	High
Send voice messages	33 (12.7)	53 (20.4)	73 (28.1)	56 (21.5)	45 (17.3)	2.90	1.27	Medium

Types of social media usage	Level of frequency of social media usage					$\bar{x}$	S.D.	Level
	Highest	High	Medium	Low	Lowest			
Phone calls	73 (28.1)	64 (24.6)	66 (25.4)	34 (13.1)	23 (8.8)	3.50	1.26	High
VDO call	14 (5.4)	20 (7.7)	63 (24.2)	70 (26.9)	93 (35.8)	2.20	1.16	Low
		Total				**3.11**	**0.64**	**Medium**
Socialization								
Create groups	18 (6.9)	26 (10.0)	76 (29.2)	67 (2.8)	73 (28.1)	2.42	1.19	Low
Join groups of interest	48 (18.5)	69 (26.5)	90 (34.6)	38 (14.6)	15 (5.8)	3.37	1.11	Medium
		Total				**2.89**	**0.93**	**Medium**
Business								
Buy products	8 (3.1)	22 (8.5)	56 (21.5)	51 (19.6)	123 (47.3)	2.00	1.14	Low
Sell products	7 (2.7)	8 (3.1)	24 (9.2)	41 (15.8)	180 (69.2)	1.54	0.97	Lowest
Review products	5 (1.9)	7 (2.7)	18 (6.9)	34 (13.1)	196 (75.4)	1.43	0.88	Lowest
		Total				**1.65**	**0.81**	**Lowest**
Entertainment								
Play games	21 (8.1)	26 (10.0)	49 (18.8)	43 (16.5)	123 (47.3)	2.14	1.32	Low

Types of social media usage	Level of frequency of social media usage					$\bar{x}$	S.D.	Level
	Highest	High	Medium	Low	Lowest			
Watch videos/clips/movies	87 (33.5)	63 (24.2)	71 (27.3)	18 (6.9)	21 (8.1)	3.68	1.23	High
Listen to music	155 (59.6)	61 (23.5)	28 (10.8)	10 (3.8)	6 (2.3)	4.34	0.97	Highest
Total						**3.38**	**0.85**	Medium
Total Average						**2.91**	**0.54**	Medium

Table 4.11 found that in the respondents had a moderate level of social media usage with the mean score 2.91. When considering each aspect, it was found that for the communication in social media usage was medium level with mean score 3.11, to chat was in high level with the mean score 4.06. Followed by, to like posts was in high level with the mean score 3.95, to follow news with the mean score in a high level was 3.89 and lastly, to live broadcast with the mean in a low level (1.98).

In case of socialization, the respondents used a social media at medium level (mean score 2.89). It was found that the respondents, who joined groups of interest was at medium level (mean score 3.37) and to create groups was at low level (mean score of 2.89).

In case of business, the respondents used social media at the lowest level (mean score 1.65). The respondents used a social media to buy products at low level (mean score 2.00). To sell products and review product were at the lowest level (mean score 1.54 and 1.43) respectively.

In case of entertainment, the respondents used a social media at medium level (mean score 3.38). It was found that the respondents which used social media for listening to music was at the highest (mean score 4.34), followed by using to watch videos/clips/movies was at high level (mean score 3.68) and lastly, to play games was at low level (mean score 2.14).

4.1.3 Digital Competences of Visually Impaired Youths

Table 4.12 Mean and standard deviation classified by digital competences in managing information technology

Digital Competence in managing information technology	Digital Competences					$\bar{x}$	S.D.	Level
	Highest	High	Medium	Low	Lowest			
1) You can download the social media application of your choice.	100 (38.5)	91 (35.0)	48 (18.5)	13 (5.0)	8 (3.1)	4.01	1.02	High
2) You can update the social media application that you use.	124 (47.7)	77 (29.6)	43 (16.5)	10 (3.8)	6 (2.3)	4.17	0.99	High
3) You can set the Talkback/Voiceover function or you know how to increase the size of the screen.	74 (28.5)	82 (31.5)	53 (20.4)	23 (8.8)	28 (10.8)	3.58	1.28	High
4) You can create your own social media account.	90 (34.6)	84 (32.3)	58 (22.3)	14 (5.4)	14 (5.4)	3.85	1.11	High
5) You can determine the privacy settings to your personal information.	84 (32.3)	80 (30.8)	62 (23.8)	23 (8.8)	11 (4.1)	3.78	1.11	High
6) You can manage your friends on social media such as setting groups, adding friends, removing friends, and blocking people.	125 (48.1)	68 (26.2)	49 (18.8)	10 (3.8)	8 (3.1)	4.12	1.04	High

Digital Competence in managing information technology	Digital Competences					$\bar{x}$	S.D.	Level
	Highest	High	Medium	Low	Lowest			
7) You can use social media to search for the information you want.	136 (52.3)	84 (32.3)	30 (11.5)	6 (2.3)	4 (1.5)	4.32	0.87	Highest
8) You can use social media to access the information you want.	115 (44.2)	81 (31.2)	54 (20.8)	6 (2.3)	4 (1.5)	4.14	0.92	High
9) You can categorize and prioritize the level of importance for the information that you want.	71 (27.3)	89 (34.2)	78 (30.0)	16 (6.1)	6 (2.3)	3.78	0.99	High
10) You can check the accuracy of the information that is presented in social media.	52 (20.0)	74 (28.5)	94 (36.2)	31 (11.9)	9 (3.5)	3.50	1.04	High
11) You can download the information you want from social media.	79 (30.4)	90 (34.6)	70 (26.9)	14 (5.4)	7 (2.7)	3.85	1.00	High
12) You can use the social media tools to serve your objectives such as searching information, chatting with friends, and sending digital files.	99 (38.1)	99 (38.1)	51 (19.6)	6 (2.3)	5 (1.9)	4.08	0.91	High
Total Average						**3.93**	**0.74**	**High**

Table 4.12 found that the respondents with high level of digital competences in managing information technology (mean score 3.93). When considering each aspect, it was found that the respondents had the ability to search for the information that they want at the highest level (mean score 4.32), followed by the update the social media application that they use at high level (mean score 4.17). To be able to use social media to access the information they want at high level (mean score 4.14.) Digital competence in communications at the lowest mean score was to check the accuracy of the information that was presented in social media (mean score 3.50)

Table 4.13 Mean and standard deviation classified by digital competences in communications

Digital Competence in Communications	**Digital Competences**							
	Highest	**High**	**Medium**	**Low**	**Lowest**	$\bar{x}$	**S.D.**	**Level**
1) You can use social media in communicating with your groups of friends.	136 (52.3)	94 (36.2)	23 (8.8)	4 (1.5)	3 (1.2)	4.37	0.80	Highest
2) You can use social media in communicating with your groups of new friends you previously did not know.	55 (21.2)	56 (21.5)	94 (36.2)	36 (13.8)	19 (7.3)	3.35	1.17	Medium
3) You can use social media to increase your income by selling products online.	20 (7.7)	31 (11.9)	38 (14.6)	48 (18.5)	123 (47.3)	2.14	1.33	Low
4) You can use social media to communicate your emotions to others such as feelings of happiness, sadness, loneliness, and love.	68 (26.2)	71 (27.3)	64 (24.6)	36 (25.4)	21 (8.1)	3.50	1.24	High
5) You can use social media to express your opinions.	58 (22.3)	73 (28.1)	79 (30.4)	31 (11.9)	19 (7.3)	3.46	1.17	High

Digital Competence in Communications	Digital Competences							
	Highest	**High**	**Medium**	**Low**	**Lowest**	$\bar{x}$	**S.D.**	**Level**
6) You can use social media to show your potential such as your talent in music or speaking.	46 (17.7)	65 (25.0)	70 (26.9)	48 (18.5)	31 (11.9)	3.18	1.26	Medium
Total Average						**3.33**	**0.79**	**Medium**

Table 4.13 found that the respondents with medium level of digital competences in communications (mean score 3.33). The respondents using social media to communicate with a group of friends was at the highest level (mean score 4.37), followed by the use of social media to communicate their emotions to others such as feelings of happiness, sadness, loneliness, and love was at the high level (mean score 3.50). To be able to use social media to express their opinions was at the high level (mean score 3.46). For the digital competence in communications at the lowest mean score was to use social media to increase their incomes by selling products online (mean score 2.14) at low level.

Table 4.14 Mean and standard deviation classified by digital competence in digital content creation

Digital Competence in Digital Content Creation	Digital Competences							
	Highest	**High**	**Medium**	**Low**	**Lowest**	$\bar{x}$	**S.D.**	**Level**
1) You can create content in the form of messages on social media expressing your feelings, your thoughts, and words of wisdom, poetry, and promotional information.	80 (30.8)	65 (25.0)	73 (28.1)	25 (9.6)	17 (6.5)	3.64	1.19	High
2) You can create content in the form of still images (post pictures).	54 (20.8)	50 (19.2)	65 (25.0)	54 (20.8)	37 (14.2)	3.12	1.33	Medium
3) You can use the live function on social media.	43 (16.5)	31 (11.9)	63 (24.2)	51 (19.6)	72 (27.7)	2.70	1.41	Medium

Digital Competence in Digital Content Creation	Digital Competences							
	Highest	**High**	**Medium**	**Low**	**Lowest**	$\bar{x}$	**S.D.**	**Level**
4) You can create video clips on social media (post video)	40 (15.4)	44 (16.9)	65 (25.0)	48 (18.5)	63 (24.2)	2.81	1.38	Medium
5) You can edit content posted on social media.	77 (29.6)	80 (30.8)	64 (24.6)	24 (9.2)	15 (5.8)	3.69	1.15	High
6) You can create content on social media that is beneficial to others and help solve the problem of others.	58 (22.3)	52 (20.0)	92 (35.4)	37 (14.2)	21 (8.1)	3.34	1.20	Medium
Total Average						**3.21**	**0.96**	**Medium**

Table 4.14 found that that the respondents with medium level of digital competence in digital content creation (mean score 3.21). The respondents was able to edit content posted on social media was at the high level (mean score 3.69), followed by to create content in the form of messages on social media expressing their feelings, their thoughts, and words of wisdom, poetry, and promotional information was at the high level (mean score 3.64). To be able to create content on social media that is beneficial to others and help solve the problem of others was at the medium level (mean score 3.34). For the digital competence in creating digital content at the lowest mean score was to use the live function on social media (mean score 2.70) at medium level.

Table 4.15 Mean and standard deviation classified by digital competence in problem solving

Digital Competence in Problem Solving	**Digital Competences**							
	Highest	**High**	**Medium**	**Low**	**Lowest**	$\bar{x}$	**S.D.**	**Level**
1) You can use each type of social media based on its objectives and you are capable of using a variety of functions such as chatting and sending digital files.	109 (41.9)	82 (31.5)	57 (21.9)	8 (3.1)	4 (1.5)	4.09	0.94	High
2) You can solve problems on social media on your own such as setting the notifications and sending digital files.	110 (42.3)	76 (29.2)	59 (22.7)	10 (3.8)	5 (1.9)	4.06	0.98	High
3) You can provide advice for others who have problems in using social media.	57 (21.9)	56 (21.5)	111 (42.7)	25 (9.6)	11 (4.2)	3.47	1.06	High
4) You always develop your skills in using social media such as learning new functions.	71 (27.3)	87 (33.5)	77 (29.6)	19 (7.6)	6 (2.3)	3.76	1.00	High
5) You can handle cyber bullying in social media.	55 (21.2)	64 (24.6)	103 (39.6)	23 (8.8)	15 (5.8)	3.47	1.09	High
6) You can handle relationship issues arising from social media such as the conflict among friends that is caused by social media.	35 (13.5)	44 (16.9)	98 (37.7)	58 (22.3)	25 (9.6)	3.02	1.14	Medium
Total Average						**3.64**	**0.77**	**High**

Table 4.15 found that the respondents with high level of digital competence in problem solving (mean score 3.64). When considering each aspect, it was found that the respondents using each type of social media based on its objectives and they were capable of using a variety of functions such as chatting and sending digital files at the high level (mean score of 4.09), followed by solving problems on social media on their own such as setting the notifications and sending digital files was at high level (mean score 4.06), always develop their skills in using social media such as learning new functions at high level (mean score 3.76). For the digital competence in problem solving at the lowest mean score was to handle relationship issues arising from social media such as the conflict among friends that was caused by social media was at the medium level (mean score 3.02).

4.1.4 Results of Using Social Media on Visually Impaired Youths

Table 4.16 Mean and standard deviation classified by the results of using social media

Statement	Results of Using Social Media					$\bar{x}$	S.D.	Level
	Highest	High	Medium	Low	Lowest			
Positive								
Up to date on events	99 (38.1)	105 (40.4)	53 (20.4)	1 (0.4)	2 (0.8)	4.15	0.80	High
Express your potential	60 (23.1)	76 (29.2)	98 (37.7)	20 (7.7)	6 (2.3)	3.63	0.99	High
Communicate with others more easily.	144 (55.4)	89 (34.2)	22 (8.5)	3 (1.2)	2 (0.8)	4.42	0.76	Highest
Feel valued.	61 (23.5)	63 (24.2)	114 (43.8)	17 (6.5)	5 (1.9)	3.61	0.97	High
Can go through daily life conveniently.	96 (36.9)	99 (38.1)	53 (20.4)	9 (3.5)	3 (1.2)	4.06	0.90	High
Have more knowledge.	87 (33.5)	104 (40.0)	60 (23.1)	6 (2.3)	3 (1.2)	4.02	0.87	High
Have new experiences.	107 (41.2)	94 (36.2)	55 (21.2)	3 (1.2)	1 (0.4)	4.17	0.82	High
Can join activities with those who share the same	49 (18.8)	83 (31.9)	104 (40.0)	18 (6.9)	6 (2.3)	3.58	0.94	High

Statement	Results of Using Social Media					$\bar{x}$	S.D.	Level
	Highest	High	Medium	Low	Lowest			
interests.								
Can maintain the relationship with members in the group.	53 (20.4)	108 (41.5)	80 (30.8)	16 (6.2)	3 (1.2)	3.74	0.89	High
Feel like a part of the group.	46 (17.7)	79 (30.4)	98 (37.7)	29 (11.2)	8 (3.1)	3.48	1.00	High
Total result of using social media positive direction						**3.88**	**0.59**	**High**
Negative								
Have less interaction with friends in real life.	9 (3.5)	25 (9.6)	57 (21.9)	74 (28.5)	95 (36.5)	2.15	1.12	Low
Use feelings more than reason.	6 (2.3)	17 (6.5)	65 (25.0)	76 (29.2)	96 (36.9)	2.08	1.04	Low
Can manage time less effectively.	20 (7.7)	38 (14.6)	103 (39.6)	56 (21.5)	43 (16.5)	2.75	1.12	Medium
Have less interaction with friends in real life.	8 (3.1)	27 (10.4)	52 (20.0)	74 (28.5)	99 (38.1)	2.12	1.12	Low
Risk getting involved in illegal activities.	6 (2.3)	21 (8.1)	37 (14.2)	66 (25.4)	130 (50.0)	1.87	1.07	Low
Escape the reality in society.	11 (4.1)	22 (8.5)	45 (17.3)	72 (27.7)	110 (42.3)	2.05	1.14	Low
Total result of using social media negative direction						**2.25**	**0.82**	**Low**
Total average						**3.21**	**0.48**	**Medium**

Table 4.16 found that the respondents with medium level of the results of using social media on visually impaired youths (mean score 3.21). When considering each aspect, it was found that the results of using social media positive direction were at the high level (mean score 3.88) that was to communicate with others more easily at highest level (mean score 4.42). Followed by having new experiences was at high level (mean score 4.17) and to up to date on events was at high level (mean score 4.15). The result of using social media positive direction with the lowest mean score was to feel like a part of the group (mean score 3.48).

The results of using social media negative direction were at low level (mean score 2.25). The respondents can manage time less effectively was at medium level (mean score 2.75), followed by having less concentration was at medium level (mean score 2.73) and having less interaction with friends in real life was at low level (mean score 2.15). The result of using social media negative direction with the lowest mean score was to risk getting involved in illegal activities (mean score 1.87).

4.1.5 Digital Literacy of Visually Impaired Youths

Table 4.17 Number classified by the answering result of the digital literacy of social media usage for the visually impaired youths

Statement	Right	Wrong
Understanding		
You can present yourself as someone else in social media.	137 (52.7)	123 (47.3)
Social media can create, maintain, and destroy interpersonal relationships.	239 (91.9)	21 (8.1)
Social media use will leave digital footprints in the form of search records on YouTube, liking a page on Facebook, and chat logs in Line.	238 (91.5)	22 (8.5)
People on social media are people who use social media to create changes in society both for the good and bad.	249 (95.8)	11 (4.2)
All net idols can be good examples for a way to live.	200 (76.9)	60 (23.1)
Critical		
All the news/information presented in social media are true.	220 (84.6)	40 (15.4)

Statement	Right	Wrong
Live broadcasts are real time events that have not been prepared in advance.	139 (53.5)	121 (46.5)
All product reviews by celebrities can be trusted because it is reviewed by real people.	213 (81.9)	47 (18.1)
All the posts that have a large number of likes, comment, share means that it is very popular.	155 (59.6)	105 (40.4)
All the posts that have a large number of likes, comment, share means that many people believe it.	201 (77.3)	59 (22.7)
The popularity of the page is a guarantee of the trustworthiness of the content.	152 (58.5)	108 (41.5)
It is necessary to check other sources of information to verify the source before sharing content on social media.	230 (88.5)	30 (11.5)
The posts requesting donations on social media should have verification information such as the picture, video clip, or personal information.	236 (90.8)	24 (9.2)
Cyber safety		
Posting your Line ID on Facebook is a good way to make many friends.	145 (55.8)	115 (44.2)
Using social media does not post any risk in terms of physical and mental security.	209 (80.4)	51 (19.6)
Every new friend you make on social media is real person.	205 (78.8)	55 (21.2)
Personal information on social media can be shared because it is public so there is no need to indicate the source.	195 (75.0)	65 (25.0)
Checking in online increase your safety.	205 (78.8)	55 (21.2)
Chat logs between individuals on social media are confidential.	136 (52.3)	124 (47.7)
Posting false information that causes panic is a offence under the Computer Act (2017).	238 (91.5)	22 (8.5)

Table 4.17 found that the answering result of the digital literacy of social media usage for the visually impaired youths which question the most respondents was able to answer that was people on social media are people who use social media to create changes in society both for the good and bad as 95.8 %. Followed by social media can create, maintain, and destroy interpersonal relationships as 91.9 %. Finally, posting false information that causes panic was an offence under the Computer Act (2017) as 91.5 %.

The most wrong answer in which question was to chat logs between individuals on social media are confidential as 47.7%. Followed by being able to present themselves as someone else in social media as 47.3 %, and live broadcasts were real time events that had not been prepared in advance as 46.5 %, respectively.

Table 4.18 Number, percentage and mean classified by the digital literacy score

Level	Score	Number (Persons)	Percentage	Minimum Score	Maximum Score	Mean	Level
Low	0 - 4	0	0.0				
Quite low	5 - 8	15	5.8				Rather
Fair	9 - 12	30	11.5	5	20	15.16	high
Quite high	13 - 16	113	43.4				
High	17 - 20	102	39.2				

Table 4.18 showed that the mean score of digital literacy was 15.16 that in quite high level. Most of the respondents had the score of 13-16 as 43.4%, followed by 17-20 as 39.2% and 9-12 as 11.5%, respectively.

Table 4.19 Mean and percentage of the score result of the digital literacy classified by the digital literacy aspect.

Aspect	Average	Percentage
Understanding	4.08 (from full score of 5)	81.6
Critical	5.94 (from full score of 8)	74.2
Cyber safety	5.12 (from full score of 7)	73.1

Table 4.19 showed that the respondents which had the highest score of digital literacy in case of understanding was as 81.6% followed by critical was as 74.2% and the lowest was safety as 73.1%.

4.2 Hypotheses Testing

Hypothesis 1 The different demographic characteristics of visually impaired youths will result in different digital competence levels which included with the following sub-hypotheses:

Hypothesis 1.1 Different type of visually impaired youths will result in different digital competence levels.

Hypothesis 1.2 Different education level of visual impairment youths will result in different digital competence levels.

Hypothesis 2 The different demographic characteristics of visually impaired youths will result in different digital literacy levels which included with the following sub-hypotheses:

Hypothesis 2.1 Different type of visual impairment youths will result in will result in different digital literacy.

Hypothesis 2.2 Different education level of visual impairment youths will result will result in different digital literacy.

Hypothesis 3 The time spent by visually impaired youths on social media will result in different digital literacy levels. which included with the following sub-hypotheses:

Hypothesis 3.1 Visually impaired youths with different social media usage spending time per day will result in different digital literacy levels.

Hypothesis 3.2 Visually impaired youths with different social media usage starting time will result in different digital literacy levels.

Hypothesis 4 Digital competence of visually impaired youths correlated with results of using social media on visually impaired youths.

Hypothesis 5 Digital competence of visually impaired youths has influence on digital literacy which included with the following sub-hypotheses:

Hypothesis 5.1 Digital competence in managing information technology has influence on digital literacy.

Hypothesis 5.2 Digital competence in communication has influence on digital literacy.

Hypothesis 5.3 Digital competence in creating digital content has influence on digital literacy.

Hypothesis 5.4 Digital competence in problem solving has influence on digital literacy.

Hypothesis 1.1 Different type of visually impaired youths will result in different digital competence levels.

Table 4.20 Comparison of digital competence classified by type of visually impaired.

Type of visually impaired	Number (Persons)	Percentage	S.D.	t-test	Sig.
Low vision	106	3.62	0.63	0.240	.811
Blind	154	3.60	0.71		

Table 4.20 found that different types of visually impaired had different digital literacy statistically significant at the .05 level, which hypothesis 1.1 was rejected.

Hypothesis 1.2 Different education level of visual impairment youths will result in different digital competence levels.

Table 4.21 Comparison of digital competence classified by education level

Education Level	Number (Persons)	Percentage	S.D.	t-test	Sig.
High school or equivalent	130	3.70	0.68	2.166	.031
Undergraduate	130	3.52	0.66		

* Statistically significant at the .05 level.

Table 4.21 found that the respondents with different education levels had different digital competence that statistically significant at the .05 level, which was supported hypothesis 1.2

Hypothesis 2.1 Different type of visual impairment youths will result in will result in different digital literacy.

Table 4.22 Comparison of digital literacy classified by different types of visually impaired

Type of visually impaired	Number (Persons)	Percentage	S.D.	t-test	Sig.
Low vision	106	14.53	3.80	- 2.441	.016
Blind	154	15.59	2.76		

* Statistically significant at the .05 level.

Table 4.22 found that the respondents with different types of visually impaired had different digital literacy statistically significant at the .05 level; it was supported hypothesis 2.1 that visually impaired with blindness had a higher score than low vision.

Hypothesis 2.2 Different education level of visual impairment youths will result will result in different digital literacy.

Table 4.23 Comparison of digital competence classified by type of educational

Educational Level	Number (Persons)	Percentage	S.D.	t-test	Sig.
High school or equivalent	130	15.30	2.65	0.721	.471
Undergraduate	130	15.01	3.78		

Table 4.23 found that the respondents with different educational levels were not different digital literacy statistically significant at the .05 level, which was rejected hypothesis 2.2

Hypothesis 3.1 Visually impaired youths with different social media usage spending time per day will result in different digital literacy levels.

Table 4.24 Results of the analysis of the variance of digital media literacy classified by the duration for spending online media a day.

Duration for spending online media a day	Number (Persons)	Percentage	S.D.	F.	Sig.
1-3 hours/ day	96	15.17	3.38		
4-6 hours/ day	86	14.91	3.29	3.051	.029
7-9 hours/ day	48	14.58	3.21		
More than 9 hours/ day	30	16.73	2.39		

* Statistically significant at the .05 level.

Table 4.24 shows that respondents with different social media usage spending time per day had different digital literacy statistically significant at the .05 level which was supported hypothesis 3.1.

Table 4.25 Comparison of digital competence classified by duration for spending online media a day

Duration for spending online media a day		Difference of mean	Sig.
1-3 hours/ day	4-6 hours/ day	.25848	.590
	7-9 hours/ day	.59375	.299
	More than 9 hours/ day	-1.55625*	.022

Duration for spending online media a day		Difference of mean	Sig.
4-6 hours/ day	1-3 hours/ day	-.25848	.590
	7-9 hours/ day	.33527	.565
	More than 9 hours/ day	-1.81473*	.008
7-9 hours/ day	1-3 hours/ day	-.59375	.299
	4-6 hours/ day	-.33527	.565
	More than 9 hours/ day	-2.15000*	.005
More than 9 hours/ day	1-3 hours/ day	1.55625*	.022
	4-6 hours/ day	1.81473*	.008
	7-9 hours/ day	2.15000*	.005

* Statistically significant at the .05 level.

Table 4.25 found that the respondents with more than 9 hours of social media usage per day was significantly higher in digital literacy than those who had a significantly lower average social media usage per day as statistically significant at the .05 level, which was supported hypothesis 3.1.

Hypothesis 3.2 Visually impaired youths with different social media usage starting time will result in different digital literacy levels.

Table 4.26 Results of the analysis of the variance of digital media literacy classified by starting duration for using online media.

Starting duration for using online media	Number (Persons)	Percentage	S.D.	F.	Sig.
1-2 years	32	13.37	4.13		
3-4 years	55	14.87	3.16	5.457	.001
5-6 years	89	15.19	3.01		
More than 6 years	84	16.00	2.94		

* Statistically significant at the .01 level.

Table 4.26 found that the respondents with different starting duration for social media usage were different in digital literacy was statistically significant at the .01 level, which was supported hypothesis 3.2.

Table 4.27 Comparison of digital literacy differences classified by starting duration on social media usage

Duration for using online media		Difference of mean	Sig.
1-2 years	3-4 years	-1.49773*	.035
	5-6 years	-1.81601*	.006
	More than 6 years	-2.62500*	.000
3-4 years	1-2 years	1.49773*	.035
	5-6 years	-.31828	.560
	More than 6 years	-1.12727*	.042
5-6 years	1-2 years	1.81601*	.006
	3-4 years	.31828	.560
	More than 6 years	-.80899	.096
More than 6 years	1-2 year	2.62500*	.000
	3-4 years	1.12727*	.042
	5-6 years	.80899	.096

* Statistically significant at the .05 level.

Table 4.27 found that the respondents with 1-2 years of social media experience had less digital literacy than those who had more than 1-2 years of social media usage was statistically significant at the .05 level, which was supported hypothesis 3.2.

Hypothesis 4 Digital competence of visually impaired youths correlated with results of using social media on visually impaired youths.

Table 4.28 Correlation between digital competences and the result of social media usage on the visually impaired

	Digital Competence	
	R	**Sig**
Result of using social media positive direction	.720**	.000
Result of using social media negative direction	.036	.563
Result of using social media	.550**	.000

** Statistically significant at the .01 level.

Table 4.28 showed that digital competence was correlated with the result of using social media statistically significant at the .01 level, which was supported hypothesis 4; the relationship was positive in medium level. Digital competence correlated with result of using social media positive direction as quite high level as

well as the digital competence was not correlated with result of using social media negative direction.

Hypothesis 5 Digital competence of visually impaired youths has influence on digital literacy**.**

Table 4.29 Results of multiple regression analysis of digital competence influence on digital literacy

Digital competence of visually impaired youths has influenced on digital literacy	**B**	**Beta**	**t**	**Sig**
Digital competence in managing information technology	1.50	.342	3.964	.000
Digital competence in communication	-.893	-.218	-2.460	.015
$R = .297$ $R^2 = .088$ $F = 6.145$ Sig = .000				

** Statistically significant at the .01 level.

Table 4.29 showed that digital competence in managing information technology and digital competence in communication were influenced in digital literacy statistically significant at the .01 level, which was supported hypothesis 5.1 and 5.2 as well as rejected the hypothesis 5.3 (Sig .757) and 5.4 (Sig .877)

This variable could explain the variance of digital media literacy (8.8%). The most influential variable was digital competence in managing information technology (β.3 4 2); the respondents with more digital competence in managing information technology had a higher digital literacy score. While the respondents with digital communication was increasing, digital literacy was decreasing.

CHAPTER 5

QUALITATIVE RESEARCH

The study titled “Digital Competence and Digital Literacy in Social Media Usage for the Visually Impaired Youths in Thailand”. This research utilized the mixed methods research. The data collection for the quantitative method was done using a survey with a questionnaire as the data collection tool from respondents who visually impaired youths. The qualitative study was conducted using the in-depth interview of experts regarding the use of online social media among visually impaired youths and focus groups of visually impaired youths. The qualitative study collected data from in-depth interviews and focus groups the details of which are presented in the following section.

In-depth Interview

1). Organizations related to the visually impaired in Thailand

Khun Torpong Selanon, Chairman, Thailand Association of the Blind

Acharn Winit Moonwicha, Deputy Director Special Affairs, Christian Foundation for the Blind Under the Royal Patronage of H.M. The King (CFBT)

2). Communications experts

Asst. Prof. Arada Karuchit, Deputy Dean for Planning and Development, Faculty of Journalism and Mass Communication, Thammasat University (Expert on Media for Persons with Disabilities)

3). Government organizations

Dr. Nunthanuch Suwannawut, Education Specialist, Special Education Services, Office of National Primary Education

Dr. Tri Bunchua, Director, Consumer Protection Division, Office of the National Broadcasting and Telecommunications Commission

4). Teachers of the visually impaired

Khun Darunphob Nanthareun, Teacher, School for the Blind Roi-Et

Four Focus Groups (List of Focus Group Respondents - Pseudonym)

1) High school (Blind) 4 respondents namely Aim (High school year 4), Pan (High school year 5), Na (High school year 5), and Jin (High school year 6)

2) High school (Low vision) 4 respondents namely Dech (High school year 4), Golf (High school year 5), Chai (High school year 6), and Fah (High school year 6)

3) University level (Blind) 6 respondents namely Ran (University Year 1), Prem (University Year 2), Nick (University Year 2), Chol (University Year 2), Yah (University Year 3), and Jay (University Year 3)

4) University level (Low vision) 5 respondents namely Bew (University Year 1), Prang (University Year 2), Mew (University Year 2), Poon (University Year 3), and Mook (University Year 4)

The researcher would present the qualitative study into four parts as follows:

5.1 Behavior of using social media of visually impaired youths
5.2 Results of using social media of visually impaired youths
5.3 Digital literacy in using social media of visually impaired youths
5.4 Guidelines for the development of digital literacy for social media usage among visually impaired youths

5.1 Behavior of Using Social Media of Visually Impaired Youths

The focus group results regarding the behavior of using social media of visually impaired youths revealed that the respondents used social media with the objective to communicate, follow the news and issues of interests, create income, and place for expressing personal talents. The researcher can conclude the issues as presented in the following section.

5.1.1 In terms of using social media as a communications tool, it is found that the respondents used social media to connect to family, and friends, teacher/lecturers primarily through Facebook. The type of communications is usually in the form of short messages through groups of which they have membership such as the group of the class on Facebook.

"Most of the time I use Facebook to contact with my friends or my teachers."

Yah (Blind, University Student Year 3)

"We set up a group online to submit works and tutor each other. There is also a teacher who posts documents in the group."

Mook (Low Vision, University Student Year 4)

5.1.2 With regards to keeping up with the news, it is found that respondents used social media to keep up with the news because the content presented on social media is fast.

"I spend time following the news on Facebook so I can keep up with the post of my friends before I meet them."

Ran (Blind, University Student Year 1)

"I read the news such as the murder news and keep up to date. Social media is very fast now."

Chol (Blind, University Student Year 2)

5.1.3 In terms of following content of interest, it is found that the respondents used social media to follow the content of interest primarily for entertainment purposes. This includes content on hobbies music, and following the celebrities they like.

"I spend most of the time watching YouTube. I like to follow many things. There are some videos that teach us to do things."

Bew (Low Vision, University Year 1)

"I use Instagram and Twitter to follow the celebrities that I like."

Aim (Blind, High school year 4)

5.1.4 With regards to earning income on line through social media, respondents report that social media is a public space through which they can sell products without costs. In addition they perceive that is effective in reaching the target of their products.

"I use Live videos to sell products. It allows me to explain things making it easy to understand. I use Facebook to look for pages to help me deliver the products. I usually sell snacks and perfumes. I would choose to sell in group chats and ask if people want our goods. This is because there are no charges for selling products."

Mook (Low Vision, University Year 4)

5.1.5 In terms of showing their talents, it is found that respondents use social media to showcase their talents including playing music and writing.

"I use Facebook to showcase playing cover songs on my guitar."

Chai (Low Vision, High school Year 6)

In addition to the aforementioned purposes in using social media, the researcher also found that the respondents used social media to follow content rarely expressing their views. If they choose to express their views they would click "like" on the post.

"I usually follow other people. I don't like to post that much."

Mook (Low Vision, University Year 4)

"Most of the time I don't like to post unless it is necessary. I only communicate with people I know well."

Pan (Blind, High school year 5)

5.2 Result of Using Social Media on Visually Impaired Youths

The result of using social media on the visually impaired youths has both positive and negative results. The positive aspect is the speed at which they can keep up with events, enabling interactivity of relationships, and showcasing their talents. In addition they can use social media to open new venues for opportunities and experiences. However, there are also negative aspects in the use of social media. There are risks from sexual issues, conflict, inappropriate time management, lack of confidence in expressing their opinions, and cyber bullying. As a result the researcher has categorized the impacts and consequences in the following section.

5.2.1 Positive result in terms of ease, convenience, speed, and up to date information from social media

"It is very up to date. Sometimes I don't have watch TV to be updated."
Poon (Low Vision, University Year 3)

Respondents also reported that social media could help to maintain relationships through communications negating the limitations of distance.

"We can communicate with others even if they are not close by. We can always be connected. It helps us to keep relationships even though we are close to one another."
Mew (Low Vision, University Year 2)

In addition respondents reported that they could use social media as a place to showcase their talents such as writing, music, speaking, and computer use.

"We created a group to help with computer problems and share information only for blind people. This is a group that discusses about computer programs as well."
Nick (Blind, University Year 2)

"I have a page to post my content, which are usually novels."
Prem (Blind, University Year 2)

Also it is found that the responses of the respondents correspond with the opinion of experts that on social media the users are the creator of their own content.

"Social media makes anyone who has an account to be a reporter and content generator."
Torpong Selanon, Chairman, Thailand Association of the Blind

Respondents report that social media opens them to new experiences making their world wider and providing them more knowledge.

"There are many thoughts circulating in social media making it a wide world. When I read the post others share I also learn. It is a chance to be open to new ideas and viewpoints. It helps to widen my perspective."

Chol (Blind, University Student Year 2)

"Social media allows us to learn about the society that is far from us. There are things that I have never seen from the mobile phone. I am always following the YouTube channel about universities in the US. I think it is very different from the ones in Thailand and in many other places. I like channels about life abroad because it helps to broaden my world."

Golf (Low Vision, High school Year 5)

5.2.2 Negative result from using social media reported in the focus group include inappropriate time management, risk from sexual harassment, actions that have a negative impact on feelings, lack of confidence in expressing their opinions, conflicts, and possible risks in violating the law.

Social media is a space where sexual harassment might occur in the form of disturbances including annoying calls made on messenger.

"Once there was some foreigner who called and talked dirty to me."

Fah (Low Vision, High school Year 6)

"Once I changed my profile picture and I was wearing a dress I had since primary school. I did not know that the zipper on the back was open and it slid off a bit. Then I received a comment from a man who was a friend on Facebook but I did not know this person. He asked to have sex with me."

Jin (Blind, High school year 6)

The researcher also found that some of the respondents had experienced cyber bullying on social media, which had an impact on their feelings and self-confidence.

"Before when I created the group to discuss programs among blind people, I received very strong comments from the keyboard hooligans. They would sometimes set up topics on blogs to make comments about the mistakes I made. So when I learned that I really made those mistakes I stopped. The experience certainly made me lose confidence."

Nick (Blind, University Year 2)

In addition it is found that some of the respondents were concerned about expressing their opinions and sharing information. This is because they have had negative experiences in sharing information that is not true and they have received negative feedback. As a result they do not dare to express their opinions or share content on various issues.

"When you post something that is not true, there will be negative feedback. I don't dare to share these things even if there is evidence and

reference sourcing. Nowadays anything can happen. I am afraid to break the Computer Crime Act."

Yah (Blind, University Student Year 3)

"When others post sometimes I believe it and make comments. Sometimes people will tell me I am wrong to make those comments so I will delete it."

Ran (Blind, University Student Year 1)

Some of the respondents in the focus group also expressed the opinion that using social media led to inappropriate time management resulting in a reduction of time spent on other activities.

"I am very addicted to social media (Facebook and YouTube). This reduces the time I have left to practice my music because I spend a lot of time online."

Chai (Low Vision, High school Year 6)

There are also problems that result from using social media that might violate the law. These instances include doing live broadcasts without knowing the whole context of the environment and taking pictures, which requires those who can see to assist them.

"Facebook Live is a problem because we don't know exactly where the camera is pointing at."

Prem (Blind, University Year 2)

"Taking pictures is also an issue. Sometimes we don't know if we take a picture there might be some people in the background who are not ready to be in it. So before I post any picture I would send to my friends to make sure that it is ok before I put it on Facebook."

Yah (Blind, University Student Year 3)

5.3 Digital Literacy in Social Media Usage for Visually Impaired Youths

In terms of digital literacy in using social media of the visually impaired youths, it is found that the respondents have heard about digital literacy from news and their educational institutions. The respondents explained that digital literacy in social media included the characteristics of being observant, reasonable, and analytical. In the focus group discussion regarding digital literacy in using social media, the researcher has divided the topics into accepting friends, sharing information, privacy settings, reactions to unsuitable behavior, and comparison of social media. The responses of the focus group have been categorized and presented in the following section.

5.3.1 In terms of accepting friend according to the respondents in the focus groups accepting friends can be done in two ways. The first is to accept every request

and the second is to check common friends or whether or not the person is a friend or acquaintance in real life.

> *"I usually accept the requests of people I know. There was this one time someone I did not know tried to add me so I sent a message asking this person for their identity through inbox."*
>
> Pan (Blind, High school year 5)

> *"I only choose to add friends I know including teachers, classmates, and those I know from the other centers."*
>
> Fah (Low Vision, High school Year 6)

> *"I will check from the number of friends that we have in common before I add the person."*
>
> Prem (Blind, University Year 2)

In the focus group some of the respondents discussed deleting friends after not communicating with them or getting annoyed by their behavior such as selling products.

> *"In the past I used to add whoever asked. I have a thousand to two thousand friends but I haven't spoken to them much. I feel that it is too much since some of them sell products and tag me to sell. So, I feel that I want to delete them."*
>
> Nick (Blind, University Year 2)

5.3.2 In terms of sharing information respondents reported sharing information that was of their interest and caused no harm to others. At the same time they are afraid to share information because they are afraid of violating the law. As a result before they decide to share anything they would carefully consider the credibility of the information.

> *"I don't know what to share because it is difficult to prove the truth even if people say it is true. Nowadays, anything can happen. I am afraid that I would violate the new Computer Crime Act."*
>
> Yah (Blind, University Student Year 3)

> *"I will usually share promotions, freebies, and food discounts because it does not hurt anyone. However, for donations I need to make sure that it is credible. I think that if the government is involved it would be more trustworthy."*
>
> Mook (Low Vision, University Year 4)

5.3.3 In terms of setting the privacy it is found that the privacy settings can be done in three ways. The first type is not setting anything because they believe that social media is a public space where they can express themselves. The second are those who set the privacy settings only for friends and the third are those who only set privacy on specific posts depending on the purpose of communications.

"If they are not friends with me on Facebook they will not be able to see my posts. I only want to share with my friends only."

Yah (Blind, University Student Year 3)

"I will set the security for each post. Some I set privacy only for my friends, some are for the public."

Aim (Blind, High School Year 4)

"I don't like to set any privacy settings because I think of myself as a public person. I like to show my ability in writing poems, Live content, and creating brands in Facebook."

Jay (Blind, University Year 3)

5.3.4 In terms of responses to inappropriate content on social media, the respondents chose to delete, block, ignore, or choose not to be involved in matters that do not directly involve them.

"If it's a close friend I will answer immediately to warn them that they should be careful of what they post. If they are not close to me I will not bother."

Jin (Blind, High School Year 6)

"I don't bother with it because it is their problem. If I get involved I might get into trouble too."

Aim (Blind, High School Year 4)

"Sometimes I feel like reporting certain posts. But I think the posts I get are not that bad so I just don't bother. In the end the person posting will get in trouble themselves."

Mook (Low Vision, University Year 4)

5.3.5 In terms of comparison of social media, it is found that respondents made the comparison that social media had both positive and negative aspects. In terms of the positive aspect social media is beneficial in opening new experiences and provides a space for self-expression.

For those who compare the positive and negative aspects that it has both sides. There are beneficial aspects but if used in the wrong way it would also be harmful.

"It like a knife. If you use it in the wrong way it would cause harm but if you use it for good it would be beneficial."

Pan (Blind, High school year 5)

"It is a like a drug. It can help people but it too can kill."

Aim (Blind, High School Year 4)

For those who view social media as opening new experiences view it as a tool for creating knowledge and experiences for oneself. However, the use of such media should be done with caution.

> *"Social media is like a magic eye. You can know everything without going anywhere. For instance an incident can occur somewhere else yet we can know about it. It is a like an all knowing eye that allows us to know everything with out moving."*
>
> Prem (Blind, University Year 2)

"I think it is like a book. We can always open it and read, however, it is important to have discretion about the content."

Ran (Blind, University Year 1)

For those who view social media as providing the place for self-expression, it is believed that each individual has the right to present their identity. However, whether the expression is done in a positive way or not depends on the choice of the person.

> *"For me I think of it like closing. It tells who we are and what we are like. If we wear poor clothing we might not look good. Clothing is our choice because it tells our identity."*
>
> Golf (Low Vision, High school Year 5)

When discussing about digital literacy the respondents explained that the characteristics of the digital literate individual are reasonable, have moral consideration, analytical, and know the use of media to suit the purpose of communications.

> *"Digital literacy means knowing what the content intents to tell us and being analytical. If we don't have digital literacy we might be easily persuaded by bad content."*
>
> Chol (Blind, University Student Year 2)

5.4 Guidelines for the Development of Digital Literacy in Social Media Usage for Visually Impaired Youths

The guidelines for the development of digital literacy in social media usage for visually impaired youths was explored in the in-depth interview. The researcher found that to develop the proper guideline for promoting digital literacy in social media for visually impaired youth, three parts have to be considered. The first part is the various aspects of digital literacy that needs to be addressed including social media usage, critical skills, the law, content creation, understanding, and engagement. The second part is incorporating the relevant parties. And finally the third part is the creation of digital literacy. The researcher has presented the findings in the following section.

5.4.1 Issues Regarding Digital Literacy Dimensions

5.4.1.1 Social media usage - from the in-depth interview with experts, it is found that the most important foundation is the digital competence, which means the ability in using digital technology and accessing the necessary equipment, which would lead to the other dimensions of digital literacy.

"Digital literacy starts with knowledge of digital usage skills."

Darunphob Nanthareun, Teacher, School for the Blind

"Skills start with direct usage experience. It requires using technological gadgets to go online. This starts with access."

Dr. Nunthanuch Suwannawut, Education Specialist

It is found that the opinions of the experts correspond with the visually impaired youths' responses in the development of their personal digital literacy, which includes the privacy settings.

"When it comes to setting the privacy settings on Facebook for instance, I am not sure I can do it. I still need to rely on people who can see to help me."

Jay (Blind, University Year 3)

"If you want the privacy settings to be effective you should be able to know it thoroughly. But there are some settings that we cannot set on our own so we have to depend on others."

Prem (Blind, University Year 2)

"I have not studied about the privacy settings. Some times when I use Facebook I am not sure what to do with spam for instance whether I should accept or deny certain things."

Fah (Low Vision, High school Year 6)

In addition the experts raised concern that visually impaired youths using social media might have risks in terms of security, sexual harassment especially girls, and legal violation.

"Security is a sensitive issue. For the blind or the handicapped there are more limitations. Even for routine usage those who are handicapped become victims. When people who are handicapped do the same things like posting regularly they may become victimized easily."

Dr. Nunthanuch Suwannawut, Education Specialist

"When it comes to the sexual situation there is a threat among the young blind girls. This is because when some of these predators know that these girls cannot see they would contact them and try to strike up a conversation."

Winit Moonwicha, Deputy Director Special Affairs of CFBT

The experts recommended that it is important to protect those who are vulnerable in society from harmful content.

> *"There should be consideration regarding the safety of content especially in regards to child protection. This is because the young children still do not have sufficient knowledge and experience to make the right choices."*
>
> Torpong Selanon, Chairman, Thailand Association of the Blind

Another area of concern includes legal risks. Experts explained that violation of others and organizations might occur because the youths lack the necessary knowledge.

> *"The risks start because they do not know like other people what to do. They don't realize that they have violated others in terms of words or images that result in the damage done to others and organizations."*
>
> Winit Moonwicha, Deputy Director Special Affairs of CFBT

5.4.1.2 Critical - from the interview with experts, analysis is an important aspect of using digital media effectively for self development. However, it is necessary that the individual have the necessary skills for analysis, evaluation, and use of the content in a beneficial manner.

> *"The media itself is not all white therefore it is important to have literacy to be able to separate the good from the bad to reap the benefits. The user must be able to discern what is useful in achieving the goals set because failure to do so instead of improving one's quality of life will make it worsen."*
>
> Dr. Tri Bunchua, Director, Consumer Protection Division

> *"It is important to be able to tell if a piece of content is true or not in order to decide whether to interact with it or net."*
>
> Dr. Nunthanuch Suwannawut, Education Specialist

The promotion of the digital literacy dimension of analysis is an important issue that the relevant authorities and organizations need to emphasize as a mission of priority.

> *"At this point the emphasis of our activities is to get them access. In the future we will start dealing more with literacy. The training prepares them in learning about content and we add some points about digital literacy. In the later training we will add about analysis of content."*
>
> Dr. Tri Bunchua, Director, Consumer Protection Division

5.4.1.3 Legal consideration - experts agree that digital literacy involves the explanation of both positive and negative aspects of using digital media. This must also include legal considerations that include personal rights and the rights of others.

It is the duty of the teachers to impart on their students the importance of such matters.

> *"It should be part of the learning the use of technology. It is important to learn that although it has benefits it also has the negative aspects, which could lead to problems for them later. The issues that should be taught include privacy and their own rights. The older children would know some of the basic laws."*
>
> Dr. Nunthanuch Suwannawut, Education Specialist

> *"It is important to know about the law when going online. For starters I will talk about the basic issues and risks that might happen because they did not know enough. I teach them like I would anyone that there are risks involved. Some of them may not realize that some of the content might violate others through images and words. Some posts may lead to damage to others maybe both individuals and organizations."*
>
> Winit Moonwicha, Deputy Director Special Affairs of CFBT

This issue corresponds with the findings from the focus group where the respondents expressed that they would like to learn about digital literacy content especially the legal aspects.

> *"I think it is important to talk about the law because we need to know what is the correct thing to do."*
>
> Jay (Blind, University Year 3)

> *"The Computer Crime Act is something we need to learn about."*
>
> Na (Blind, High School Year 5)

5.4.1.4 In terms of content creation - experts agree that it is important to be responsible for the content one has created. This is a defining characteristic of the citizen 4.0. Thus, it is important to create content that is digital literate by respecting the freedom of others and showing the necessary responsibility.

> *"The characteristic of a 4.0 citizen is a responsible user of digital technology."*
>
> Darunphob Nanthareun, Teacher, School for the Blind

> *"There are only a few of those who post with a real issue and have any thoughts about the consequences of their actions. Freedom with no limits is not a good thing. Freedom comes with responsibility. You cannot violate the rights of others."*
>
> Torpong Selanon, Chairman, Thailand Association of the Blind

5.4.1.5 Creating understanding - From the interview with experts, the researcher found that the most important aspect in working with the handicapped is to understand the nature of their communications. It is important to consider the

diversity of the message received as well as how the visually impaired can engage with certain issues. It is critical to understand that being handicapped is not being different but it is part of the diversity of the people in the audience.

> *"It is important to understand about the visually impaired. They are a varied group in the eyes of the medical profession; however, people outside do not have the same knowledge. This must be dealt with based on the society concept that takes into consideration the differences of the handicapped much in the same way we take into consideration the differences in gender."*
>
> Asst. Prof. Arada Karuchit, Expert on Media for Persons with Disabilities

In using social media of the visually impaired, it is important to view them as one of the consumer groups that needs development supporting their access. Also it is important to understand how they communicate in order to create communications that they can access. The researcher found two aspects in communications first is the producer or creator and second is the consumer of the content.

The producer or creator must realize the need of this group and develop technology that will enable their access.

> *"When the blind are subscribers and technology developers realize they are a countable number they will develop tools to serve them. We are not just talking about serving people in America. Let's say that there are billions of people in the world today so if there are 300 million visually impaired people their needs cannot be ignored. This is why Facebook has AI technology to explain images for the visually impaired. IPhone has a voiceover function to help the blind because it is a globally sold product. This is academic proof that these developers recognize the importance of the visually impaired that is they developed these features. This is because they recognize the importance of these people."*
>
> Torpong Selanon, Chairman, Thailand Association of the Blind

From the perspective of the consumer, experts view that the visually impaired are a group of consumers that society must develop their potential. They should be strengthened and given a space rather than confining them to a limited space in their own group. It is necessary for other users of social media to understand this diversity.

> *"From the perspective of a media consumer, the visually impaired is a group that has to have their potential fully developed. As individuals they all have good potential but they may have some limitation in media usage. They are a group that has issues that we must deal with. They are like everyone they want to see to experience things like others do. They cannot be zoned off to an area all by themselves just because they are handicapped. Other people in society must make sacrifices to look out for one another. Setting up laws is not the only way to make this successful."*
>
> Dr. Tri Bunchua, Director, Consumer Protection Division

However, experts agree that social media is a large landscape where the differences are very pronounced between the haves and the have-nots. There is a large divide in terms of access because there are still many of the visually impaired who cannot access the Internet because of low income and education

"Digital media is a big landscape that has a huge digital divide."
Dr. Tri Bunchua, Director, Consumer Protection Division

"The real problem of the visually impaired is the difference in education levels and social status. The blind, who can have access are those who have money and education. A majority of them lack the resources to do so."
Asst. Prof. Arada Karuchit, Expert on Media for Persons with Disabilities

As a result it is important to encourage the equality in the use of digital media. It is important for everyone in society to have access to information even if the way they receive the message may be different. This equality is important in creating a society of peace and harmony.

"Montien Boontan, Member of the National Assembly said that under the Thailand 4.0 initiative everyone should live in peace and harmony together. This means everyone has to be equal so everyone should have the same level of access. For the blind this means having assistive technology so that all can live together in harmony."
Winit Moonwicha, Deputy Director Special Affairs of CFBT

"Whatever we receive the blind should have the same. This includes all policies in developing media and the media created. The visually impaired should be able to understand it. For instance if there is a campaign to promote any cause it should be inclusive, the visually impaired should not be excluded. They should have access to the information. There is a belief that the blind children should be in their own group thus being excluded from society."
Asst. Prof. Arada Karuchit, Expert on Media for Persons with Disabilities

5.4.1.6 In terms of creating engagement, the in-depth interview of the experts revealed that digital literacy was more than knowing how to use technology, analysis, being responsible for content, and knowing the law. Creating potential on social media meant that there had to be engagement as a digital citizen. Most importantly, the experts said that the media use had to be more than just about personal benefits. As a result digital literacy has many levels and those who are more engaged tend to have higher digital literacy.

"Digital literacy is one of three steps. Many people think that it is understanding and learning the benefits of the media use at varying levels. But many don't realize it is about being able to participate as a citizen. It is not only about using media for personal benefit but rather for a driver of change. For me digital literacy is step 2 or 3 of this process."

Dr. Tri Bunchua, Director, Consumer Protection Division

Experts from organizations supporting the visually impaired explained that social media is a tool for change if the user is aware of public causes.

"The blind have not used social media for any changes. At this point they are only using it to vent their feelings. There is no power in sharing in response to any public agenda for the blind. Social media has the capability to create a big impact if done properly."

Torpong Selanon, Chairman, Thailand Association of the Blind

5.4.2 In terms of the relevant organizations in developing digital literacy in visually impaired youths, the experts agreed that this included educational institutions, government agencies, social institutions, and organizations for the blind are responsible in creating knowledge, understanding, and providing recommendation regarding the use of social media.

"There are many agencies that are involved in digital literacy in the government and in public sector. However, there are not that many private companies doing this. The government has a fund for developing media as part of the National Broadcasting and Telecommunications Commission. In terms of the social institutions, the Institute for Child and Youth Development also has a fund for promoting digital literacy. There should be cooperation with the educational institutions at both the high school and university level to develop digital literacy."

Dr. Tri Bunchua, Director, Consumer Protection Division

In addition experts provided the recommendation that educational institutions that teach about communications should promote the knowledge about digital literacy to the public.

"Communication arts programs should bring their knowledge out of the classrooms. They should bring the content about digital literacy to schools and society in general."

Torpong Selanon, Chairman, Thailand Association of the Blind

At the same time experts recommended that the education personnel should develop their own personal digital competence so that they would be in a better position to provide advice to the youth.

"The teachers themselves need to learn how to use digital media so they can teach the children to choose. In the future teachers might only be

facilitators because children can search for themselves. Teachers have to give advice to students what to do not just teach like in the past. This is teaching digital literacy, which will be the new role of teachers."

Dr. Nunthanuch Suwannawut, Education Specialist

There is also recommendation regarding the way organizations are structured. The experts recommended that there should be a partnership with government agencies in order to strengthen the networking to strengthen the drive for development.

"I have seen the partnership between the government agency and center for technology of the blind to create media. This is a collaboration with the Ministry of Education, Center for Technology Support for the Blind, the Ministry of Digital Economy, and collaboration with the organization for the blind."

Winit Moonwicha, Deputy Director Special Affairs of CFBT

"There is a collaboration between government agencies, private enterprises, Ministry of Digital Technology, Ministry of Social Development, Blind People Association, and Youth Blind Community."

Darunphob Nanthareun, Teacher, School for the Blind

However, from the focus group, the researcher found that respondents gave more importance to people close to them to foster digital literacy. The respondents said that in addition to teachers/lecturers they also listened to family and friends (senior and juniors). The respondents said that digital literacy was the result of the experience of the visually impaired youth and the people around them.

"I don't think that digital literacy is a fixed theory. Some people might think that digital literacy must be like this but in the end it might be different. At the end of the day I think it is about the sense of the individual. It is the result of family upbringing and being taught in class."

Aim (Blind, High School Year 4)

"(Recommendation) I think that the best way to teach the children is to open Facebook let them learn from actual experience. Let them analyze the content as they navigate with someone sitting next to them to explain."

Bew (Low Vision, University Year 1)

"I will let my friends try first. If it is good I will do it too but if not I will not do it."

Jay (Blind, University Year 3)

In regards to the role and responsibility of the personnel and organizations promoting digital literacy, the researcher found that there are many organizations with the role on the matter. However, there is no evidence of a coherent project or person responsible for developing projects with emphasis on access for use.

"(Original) Typically the programs will emphasize the skills in using digital media."

Darunphob Nanthareun, Teacher, School for the Blind

"(Request funding for digital media development) There are many agencies requesting budgets for digital literacy in children and youth. However, I have not seen anyone doing anything for digital literacy among the handicapped."

Dr. Tri Bunchua, Director, Consumer Protection Division

5.4.3 Activities in promoting digital literacy in social media should be promoted online and offline as recommended by the experts in digital literacy on social media. In addition the activities need to fit with the lifestyle of the visually impaired.

"When digital literacy is online we need to take time to understand how it applies to the daily routine. It is important not just to create digital literacy content but it is important to educate them how to live their life and design the content based on the behavior."

Asst. Prof. Arada Karuchit, Expert on Media for Persons with Disabilities

As a consequence there are many formats in creating activities promoting digital literacy in social media. Consideration must be made about the communications process of the visually impaired and how much their senses can receive information. In addition it is important to tailor the content to suit those at different levels of access.

"When you design communications with the blind it is important to combine all the senses they have together. It is not just about hearing. They can still smell, touch, and hear."

Asst. Prof. Arada Karuchit, Expert on Media for Persons with Disabilities

"It is important to let children access the information in the way that suits their learning. It has to fun this might be include the reading sounds such as sound books or Braille books."

Dr. Nunthanuch Suwannawut, Education Specialist

In addition the activities promoting digital literacy could be included in the curriculum. Experts said that integrating digital literacy into the content of study about technology and creating academic activities would be beneficial in creating engagement.

"It is important to integrate the content. Now there are 8 courses so we need to include knowledge about technology in the content. There can be direct intervention in the form of activities to generate engagement from the students to invite them to create content."

Dr. Nunthanuch Suwannawut, Education Specialist

In terms of non-curricular activities many different formats can be used explained both the experts and the respondents from the focus groups. These activities may include role playing, video clips with explanations, songs, training, experience sharing, case studies, and scenarios. The main consideration is to make the activities interesting and in line with the way the visually impaired live their lives.

> *"It is important to create a variety of experiences such as creating video clips with explanations of the images. This is currently in the interest of teens who now can access digital media in many ways."*
>
> Darunphob Nanthareun, Teacher, School for the Blind

> *"We must design it the way they use it. We need to know their activities. The blind youth love singing so we need to think if we can communicate through songs."*
>
> Asst. Prof. Arada Karuchit, Expert on Media for Persons with Disabilities

> *"There should be training on how to create security and reduce possible risks."*
>
> Dech (Low Vision, High school Year 4)

"There are many videos that present the benefits and problems of using digital media. It is important to consider and analyze the information online. In fact it would be good if people can share their actual experiences."

Chai (Low Vision, High school Year 6)

> *"There should be cases to point out the positive and negative aspects."*
>
> Pan (Blind, High school year 5)

It can be surmised from the focus group that the respondents used social media for different purposes, which included communicating with family, friends, and teachers/lecturers primarily through Facebook. The means for communicating are in the format of short messages in the groups to which they belong such as the class group on Facebook. The respondents also used social media to keep up with the news because of the speed. Thus the respondents felt that they were always up to date with the latest events. In addition some of the respondents used social media to follow the content of their interests such as hobbies, music, and celebrities they liked. Also some viewed social media as a channel for making additional income since it is a space that is free and effective in reaching the target. Some of the respondents also used the social media space to showcase their talents such as music and writing. The respondents also reported that they used social media to follow the content rather than expressing their opinions. The usually showed their approval by clicking the "like" button.

The results indicated that there are both positive and negative results in using social media. In terms of the positive aspect the social media is fast keeping them up to date while keeping them connected with their loved ones. It is also a space where they can showcase their talents and open themselves to new opportunities. However,

the negative aspects of social media include sexual harassment, conflict, inappropriate time management, lack of confidence in expressing their views, and cyber bullying. The respondents recognize that social media has both positive and negative aspects. This is reflected in their careful behavior in accepting friends, sharing content, and privacy settings. In regards to their reaction to inappropriate behavior, the respondents chose to delete, block, ignore, or rather not have anything to do with matters that did not concern them. Once the visually impaired youths have a bad experience on social media they would consequently remain passive and choose not to express any opinions.

The experts explained that digital literacy had three parts. The first part is the various aspects of digital literacy that needs to be addressed including media use, analytical skills, the law, content creation, understanding, and engagement. Experts expressed concern that visually impaired youths are susceptible to sexual harassment, security, and legal issues. In terms of knowledge and understanding, experts believed that it is not enough but consideration has to be made with regards to the aspect of the visually impaired as producer and consumer. The second part is incorporating the relevant parties, which includes educational institutions, government agencies, social institutions, and organizations for the blind, who are responsible in creating knowledge, provide budgets, and creating network. And finally the third part is the creation of digital literacy as part of the curriculum and extra-curricular. The emphasis is on the remaining senses of the visually impaired and engaging them in a variety of activities.

CHAPTER 6

DISCUSSIONS CONCLUSIONS IMPLICATION AND RECOMMENDATION

The study titled “Digital Competence and Digital Literacy in Social Media Usage for the Visually Impaired Youths in Thailand” has the objective to study the behavior of the visually impaired on social media, their digital competence, and digital literacy. This is in done in order to assess the impact of social media usage behavior on the visually impaired youth. In addition the findings can be used to develop guidelines to create digital literacy in the visually impaired youth group. The conclusions, discussions, implications, and recommendations would be presented in this chapter.

6.1 Conclusion of Research Findings

6.1.1 Social Media Usage Behavior of the Visually Impaired Youths

It is found that the majority of the respondents have been using social media for 5 - 6 years the most. A majority of respondents (36.9%) reported spending on average about 1 – 3 hours a day on social media. The most used device for accessing social media is the smart phone (75.4%). The most reported objective for going online is to communicate (66.2%). On average the respondents reported using YouTube and Facebook the most at 4.26 and 4.22 respectively followed by Line at 3.47.

The usage is found to be of moderate level (2.91). When considering each dimension it is found that the use of chat on social media has a high level of usage at 4.06. This is followed by clicking “Like” button at 3.95. However, using the “Live” function is low at 1.98. In terms of socialization the level is moderate at 3.37 while the creation of groups is at low level of 2.42. When considering the use of social media to make purchase it is low level at 2.00. This is followed by selling products and reviewing products at 1.54 and 1.43 respectively. In terms of entertainment it is found that listening to music has the highest usage at 4.34 followed by watching video/clip/movie at 3.68 and playing games at 2.14.

From the focus group it is found that respondents use social media to communicate, follow the news and topics of interest, earn income, and create a space to demonstrate personal talent and potential. The respondents reported that they used social media to communicate with family, friends, and teachers/professors primarily through Facebook. The type of communications is short message and communication in the group chats where they have membership. This includes Line group of the class

or group in Facebook. In addition the respondents reported using social media to follow up on news and topics of interest such as craftwork, music, and following their favorite celebrity because of the speed of information on social media. Also the group believes that social media is a public space that can be used for commercial purposes without any costs and is effective in reaching the target group effectively. Respondents also report that they use social media to showcase their talents such as writing and music. The research found that most of the respondents preferred to follow and read the content. They usually communicated through the "Like" button more than expressing themselves in comments.

6.1.2 Digital Competence and Digital Literacy in the Visually Impaired Youths

The research findings indicate that the respondents have a high level of digital competence (3.93). Respondents report that they are able to use social media to search for information that they want the most. In terms of digital competence the respondents reported the ability to manage information technology as being the least. The ability to check and verify the accuracy of the content from social media is reported at 3.50.

In terms of problem solution the respondents reported high confidence at 3.64. The respondents reported having the ability to use social media to suit each of the differing objectives including chat and transferring files at a high level of 4.09. The respondents reported the lowest confidence in digital competence in terms of the problem of interpersonal relationships on social media. This includes the conflict that arises from communications on social media at a moderate level of 3.02.

Communications is reported at a moderate level of 3.31. The respondents are capable of using social media to communicate with their acquaintances at the high level of 4.37. In terms of the lowest score for digital competence in communications is the ability to use social media to earn income at the low level of 2.14.

Content creation is at a moderate level of 3.21. The respondents are capable of making changes to content that is presented in social media at a high level of 3.69. The digital competence in terms of content that has the lowest score is the use of "Live" video function at 2.70, which is moderate level.

6.1.3 Result of Social Media Usage of the Visually Impaired Youths

The result of social media usage of the visually impaired youths is at the moderate level of 3.21. When considering the positive result of using social media, it is found that the highest score is for using social media to communicate with others more easily at the high level (4.42). This is followed by having new experiences and keeping up to date, which are both at high levels with scores of 4.17 and 4.15 respectively. The lowest score for positive result of using social media is for feeling as part of the group, which is at moderate level (3.48). The findings indicate that social media enables the visually impaired youths to access information easily,

conveniently, and quickly keeping them up to date. Respondents also indicated that social media helped to maintain relationships by reducing the limitations of distance keeping them connected despite not being physically close to one another. In addition social media can be used to present the talents of the visually impaired youths in areas including writing, music, speaking, and computer skills. The impact of using social media is inline with the perspective of the experts that social media enables the user to become content creators. In addition the respondents believe that social media opens new experiences and worldviews that enrich their knowledge.

In terms of the negative result of social media use respondents reported less ability to manage time at moderate level (2.75). This is followed by having less ability to concentrate at moderate level (2.73) and problems in interpersonal relationships at low level (2.15). The lowest score for negative result of social media use is for easier risk of violating the law (1.81). Results from the focus group indicate that social media usage results in inappropriate use of time, risk of sexual harassment, engaging in actions that affect the feelings of others, creating a barrier to protect oneself, conflict, and risk in violating the law. Social media is especially risky to female visually impaired youths because they might be sexually harassed, subject to language that might cause harm or damage to reputation, and become target of irritating messenger calls. The researcher also found evidence of cyber bullying, which had an impact on the feeling and confidence of the victim.

6.1.4 Digital Literacy in Visually Impaired Youths

6.1.4.1 Digital Literacy in Visually Impaired Youths

Respondents have digital literacy score averaging 15.16, which is considered high. The majority of respondents have scores ranging from 13 -16 (43.4%). This is followed by those with a score of 17 – 20 (39.2%) and a score of 9 – 12 (11.5%).

The results of the digital literacy questions reveal that the majority of the respondents answered correctly that social media users use social media and gather online to create exchanges that could be either positive or negative (95.8%). This is followed by the statement “using social media would leave traces such as a search on YouTube, liking a page on Facebook, and chat conversations on Line” (91.9%). Also respondents answered correctly that posting false information that might create panic violates the Computer Act B.E. 2560 (91.5%).

The statement that respondents misunderstood the most were personal chat information would be kept private (47.7%), followed by it is alright to pose as another person online (47.3%), and Live videos are real time events that have not been prepared in advance (46.5%). Upon analyzing the dimensions of digital literacy it is found that respondents perform best on understanding dimension (81.6%), followed by analysis (74.2%), and the least is security (73.1%).

Results of the focus group reveal that the respondents know about digital literacy from news and educational institutions. They said that the characteristics of those who are digital literate need to be observant, rational, and analytical. The focus

group probed issues regarding digital literacy in detail. The first issue is accepting friends, which can be divided into two types –accept everyone or accept only the people they know. Identification of people they know would be done by considering mutual friends and knowing the person in real life.

The second topic is regarding the sharing of information. Respondents usually shared information of interest to them, which they believed did not cause any harm. They were cautious not to share information because of fear of violating the law. Prior to sharing any information on social media, the respondents would carefully consider the credibility of the information.

The third topic is privacy setting. It is found that respondents would set privacy in three ways. The first type is not setting privacy but open to public because they want to showcase their talent. The next type is sharing only to friends followed by setting the privacy on certain posts depending on the communications objective.

The fourth topic is reaction to indecent behavior on social media. The respondents would choose to delete, block, simply not react, or ignore if the issue does not involve them directly.

The fifth topic is about perception towards categorizing social media. The respondents explained that social media has both positive and negative aspects. It also helps to open new worldviews and promotes the self expression of the user.

6.1.5 Guidelines for the Development of Digital Literacy in Social Media Usage for Visually Impaired Youths

6.1.5.1 Issues Regarding Digital Literacy Dimensions

6.1.5.1(1) Social Media Usage

For visually impaired youth it is fundamentally important to have digital competence, which means the ability to use digital media and access to devices. This is a prerequisite to digital literacy. However, the use of social media needs consideration in terms of safety and security of the visually impaired youths. Risks on social media include sexual harassment and legal issues.

6.1.5.1(2) Critical

To use media effectively in the development of quality of life or potential requires the skill of analysis and evaluation of information. The proper analysis and evaluation would lead to the use of information in beneficial ways.

6.1.5.1(3) Legal Knowledge

The knowledge of law regarding the rights of the person and others needs to be taught by teachers, who are critical for providing knowledge.

6.1.5.1(4) Content Creation

The creation of content needs consideration of the issues of freedom of expression and responsibility.

6.1.5.1(5) Creating Understanding

It is important to understand the nature of communications of the visually impaired, which are a diverse group. It is important to create participation with the visually impaired in order to drive various issues. Disability is not a difference but it is diversity. The use of social media of the visually impaired group must be considered as one segment of consumers. Development must be made to facilitate their use through understanding their different needs in accessing the communications. The researcher identified two perspectives –view of the producer and view of the consumer.

- View of the Producer
  The reflection of the understanding of the diversity of the needs of the visually impaired would be in the production of means for greater access.
- View of the Consumer
  Experts explained that the visually impaired group should be developed to realize their full potential by society. They should not be limited only in their own space. Social media users should understand this diversity.

6.1.5.1(6) Creating Engagement

The creation of participation to drive change is more than just using social media for their own personal benefit. Digital literacy can be divided into differing levels and users can attain higher levels of digital literacy. Representatives from the organizations working with the visually impaired believe that social media is an impetus for change by making users more aware of public issues.

6.1.5.2 Relevant Organizations

Interview with experts revealed the relevant organizations included educational institutions, government agencies, social institutions, and organizations working with the visually impaired. These organizations have the role in creating knowledge, understanding, and providing recommendations for the use of social media. Those in the educational institutions should develop their digital competence in order to provide the necessary recommendations for using social media. This role would gain importance continuously. In terms of the roles of the experts and other relevant personnel, the most important issue would be the development of the structure of the organization to facilitate cooperation with the government agencies. The cooperation should be in the form of network to strengthen the drive to achieve its digital literacy goals. However, the researcher found that the structure of digital literacy is founded in the people close to the youths including family and friends. It is also found that digital literacy is based in the experience of the individual and their close acquaintances.

With regards to the organizations and personnel involved with digital literacy, the researcher found that there are many organizations working with the visually impaired. However, there is no organization that takes leadership or has clear initiatives in the development of digital literacy. It appears that most of the organizations focus on programs developing digital competence.

6.1.5.3 Activities in Developing Digital Literacy in Social Media

Activities that promote the development of digital literacy in social media has to be done both online and offline in parallel. In addition the activities need to be inline with the daily life of the visually impaired youth. It is important to consider the remaining senses that they can use. Thus, it is important to assess their level of usage of these senses to develop digital literacy activities that suit them. Also it is recommended to integrate the content into the curriculum. Extra-curricular activities can be done in a variety of formats. According to the experts' recommendations to the researcher, these include training, sharing of experiences, case studies, and role play.

6.1.6 Hypotheses Testing Results

The hypotheses testing results show that visually impaired youths with different levels of visual impairment do not have different digital competence levels at the significance level of 0.05. However, those who have different levels of education have different levels of digital competence at the significance level of 0.05.

Those who have different levels of visual impairment have different digital literacy levels at the significance level of 0.05. It is found that the blind have a higher level of digital literacy than the low vision group. In addition it is found that those who have different levels of education did not have different levels of digital literacy. However, it is found that the time spent per day and the length of time using social media resulted in different levels of digital literacy.

Digital competence has a moderate positive relationship with the use of social media in the visually impaired group at the significance level 0.01. Digital competence has a high positive relationship with positive impact of social media use. Digital competence has no relationship with negative impact of social media use.

The impact of digital competence on digital literacy has been examined. It is found that digital competence dimensions of information technology management and communications are the only ones that have an impact on digital literacy at the significance level of 0.01. The variance explained is 8.8%. The dimension that has the most impact is information technology management with (β .342). Thus, it is found that the more the user had digital competence in terms of information technology management the digital literacy would increase. However, if the digital competence in terms of communications increases the digital literacy would decrease.

6.2 Discussions

6.2.1 Behavior and Type of Communications of Visually Impaired Youths: Communicate and Follow Rather than Comment

The results of the research indicate that the visually impaired youths use social media with the objective to follow news, topics of interests, generate income, and create a space to show their talents. It can be observed that the behavior is based on their needs. They expect that social media would fulfill their needs. Each of the receivers would have different expectations and satisfaction derived from using

different types of media (Ketsomboon, 2012). The selection of social media by the visually impaired reveals the relationship between needs and expectation. This can be explained by the Uses and Gratifications Model proposed by Blumler and Katz (1974).

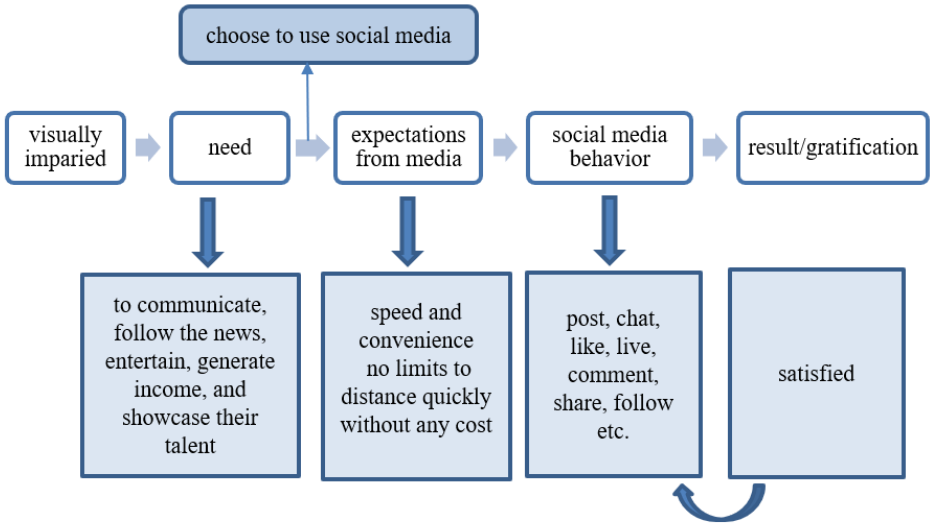


Figure 6.1 Visually Impaired Uses and Gratifications

Visually impaired youths have different needs and interests. There are those who want to communicate, follow the news, entertain, generate income, and showcase their talent. This variety in in needs results in expectations from selecting media use. The visually impaired youths choose to use social media as their main media in doing many activities such as communications with expectations of speed and convenience. In terms of income generation, they expect that social media can reach the target effectively. In terms of using social media to showcase their talent, they believe that can reach a lot of people with no limits to distance quickly without any cost. As a result of these varied needs the behavior of the visually impaired youths on social media also differ. It is found that visually impaired youths engage in chat, clicking "Like" button, and follow news at a high level. This might be due to the expectation that social media is a convenient, fast, up-to-date, and can express their feelings. When the user is satisfied with the performance of social media in fulfilling their needs they would return to use that form of behavior again. In addition the development of communications technology has enabled better access creating more satisfaction for the visually impaired youths. This is because social media helps to reduce the limitations in doing activities of the visually impaired youths. This is inline with the research of Jatupornpitak (2006) who conducted the study "Internet Usage Transformation of the Life of the Blind". The study found that the respondents expected that access to the Internet would help them to access news and entertainment. They would then be able to use that information to make their lives better and improve their work performance. However, there are still issues of inequality. There are insufficient facilities to enable access, career, restriction to access of the blind, and limitations of the technology thus the blind still need assistance. However, technology does not stand still. The results of this current study

show that the development of technology and communications does not limit access only to websites. Today access has become integrated in part of the daily life through smartphones and faster Internet connections. The ability of programs assisting the visually impaired is improved for better access. These developments are inline with the growth of the new media in serving the needs of the Generation Y of visually impaired youths, who seek for easy convenient access with words to explain images and voiceover commands (Rattanapop, 2011). Therefore, with less dependence on others for accessing the Internet, the visually impaired can set their own requirements of use. Their needs create their expectations of using social media reflected in their usage behavior in particular their communications.

When considering social media usage respondents use chat the most followed by clicking “Like”. This is in line with the study conducted by Qiu et al. (2015). It is found that the respondents tended to be the receiver of information rather than posting. This appears to be the format for communications of the visually impaired. In terms of socialization it is found that the respondents tended to join groups rather than form them. This is inline with Brady et al. (2013) who studied the visually impaired use of Facebook. The study found that the visually impaired tended to be lurking more than posting. In terms of participation and posing questions in social media, it is found that respondents don’t usually pose questions on social media. Although the visually impaired have a presence on social media, they do not have much participation in social issues. The visually impaired communications pattern found in this study and previous studies are in the same direction. It is found that the visually impaired youths have the role of “user”. Consequently, when communications have evolved to the digital era the new media presents users with a variety of choices. In addition it enables the user to have more participation in the communications process. This includes selective exposure, feedback, share, comment, and clicking like and emotional expression. As a result of this participation the user becomes the sender of messages to other people. This role is called “media user”, which is a communications pattern wherein the user can control the communications process (Kuljitjuerwong, 2017).

However, the relationship between the visually impaired youth and social media defined by the researcher as semi-engaged relationship. The visually impaired youths are not only the receivers of messages but are also creators of their own content and share messages created by others. Another characteristic is the control of the communications based on the needs of the user. This means controlling the creation, presentation, and participation of various issues by the individual. This semi-engaged relationship of the visually impaired youths is expressed through the use of symbols such as clicking the “Like” button rather than participating my writing comments expressing their thoughts. They usually participate only in the groups of which they have membership. This might be due to the social relationships that they have. They might consider the groups of which they have membership are their reference group, thus determining their communications behavior (Thaiyamart, 2009). In addition once the visually impaired youth have a bad experience about expressing their opinions, they would become less confident in expressing their opinions and sharing information. This leads to the behavior on social media of the visually

impaired in communicating symbolically rather than expressing their opinions or participating in social issues. The behavior of individuals is motivated by their level of self-efficacy and outcome expectations. When the results of communications do not fit their desired outcome, the user would lose confidence in expressing that communications behavior again.

6.2.2 Result of Social Media Use in Visually Impaired Youths: Digital Competency Has a Relationship with Positive Impact of Social Media Use - Creating New Experiences, Content Creation, and Showcasing Talent But There Are Risks of Sexual Harassment, Security, and Legal Violations

The impact of social media use has both positive and negative aspects. The impact on individuals may be in the form of cognition, which is related to knowledge, opinions, and feels. This leads to the formation of attitude and behavior (Siriyuvasak, 2007). The positive impact of social media use includes ease in communicating with others, keeping up-to-date, gaining more knowledge, and opening to new opportunities. It can be said that social media expands the human potential. The technology becomes a tool in expanding the human senses, which has an impact on three aspects –time, space, and human experiences (McLuhan & Lapham, 1994). Visually impaired youths use technology as a means in creating new opportunities that transcend the limitations of time, space, and their own physical condition. In addition the visually impaired youths use social media as a space to showcase their talents. They become creators of user-generated content (UGC). In the creation of interaction they are able to share and exchange information. The receiver thus becomes the sender at the same time (Treerayapiwat, 2011). Thus it can be surmised that the visually impaired youths have the ability to use the nature of social media to their advantage in showcasing their talents, which includes writing novels, short articles, and singing.

Also this research found that digital competence has a high positive relationship with positive aspects of social media use. This finding explains that the change in the impact of social media use is not only dependent on the technology. However, it is also dependent on the changes in the technology that enables access for the visually impaired. This allows the development of the necessary digital competence of the individual user. Although technology determinism theory posits that technology leads to changes to the individual as well as society (McLuhan & Lapham, 1994) this research presents another view. Digital competence of the visually impaired is created partly from the potential of individuals. Thus determining the method and pattern of use, which leads to the use of social media to create the desired outcome for the user. According to this study this has resulted in positive impact for the user. In addition it is found that visually impaired youths consistently improve their digital competence by learning new functions. Thus the changes in technology can only drive change when individuals improve their skills to make use of it.

The result of social media use in visually impaired youths is the result of three factors. These are the development of communications technology for the visually

impaired, the digital competence of the visually impaired, and the selection of benefits in using technology by the visually impaired youths. The most important aspect of new media that has an impact on transforming human experiences and creating social change is harmonization. It is the harmonizing of the people in society creating unity. This creates a feeling of belonging for the visual impaired as part of society both in the physical and online realm. There are three characteristics of social media that would lead to continuous changes in human experiences and society. The first in interactivity, which is the ability to create an option of real time response resulting in major changes in the perception of propriety in communications. The second is individualize/demassified, which is the use of technology enabling the user to select content based on their personal preference (demassified). This is the opposite of traditional mass media, which is massified. Third is the asynchronous nature of new media. This means that the communications does not have to come in one chunk due to the possibility of keeping large amounts of data and keeping parts of the content in various locations (Sansomedang, 2007).

The result of social media use in the visually impaired youths is inline with the study conducted by A. Karuchit (2017), which explained the important characteristics of using television for the visually impaired. There are five aspects namely accessibility, empowerment, independence, opportunity, and universality. The researcher believes that social media is also important to the visually impaired in the same way as television. When the visually impaired can access social media together with the development of technology enabling access, they become less dependent on others. Thus, they can choose to select, create, and share information freely based on their personal interest. It also provides an opportunity for seeking new knowledge, experiences, showcasing their talents, and income generation. Therefore, it can be said that social media helps to empower the visually impaired although it is not sufficient to drive changes. This empowerment creates a feeling of unity as a user representing a diverse group. Another important characteristic of social media use of the visually impaired that is not found in other media is connectivity. Social media connects people all over the world with no limits or boundary. It can connect diverse groups of people transcending physical limitations destroying all boundaries.

However, despite the positive impacts of social media use in the visually impaired youths, there are also negative aspects. The research identified three areas of risk – sexual harassment, security, and legal violations. The findings are inline with the negative impacts of social media use in visually impaired youths. It is found that social media poses risks in sexual harassment, cyber bullying, poor time management, violation of rights, and fear of expressing their opinions. This might be the result of addiction to social media, which is inline with the study by Kongrach (2011). The research found that Facebook obsession and addiction was the result of the satisfaction and enjoyment in using Facebook along with social pressure among teens. This led to increased usage resulting in addiction and obsession eventually. This feeling of obsession is the result of emotional reasons, physical reasons, environmental reasons, social reasons, and intellectual reasons. When visually impaired youths become obsessed with using social media their ability to analyze is reduced. As a result this leads to the negative impact of using social media. Thus, the

experts need to study the antecedents of the negative impact of using social media in order to develop appropriate guidelines for social media use. The negative impact of using social media in the visually impaired youths is inline with the study by W. Karuchit (2015), which studied the negative impact of digital media on children and youth in cases both from Thailand and abroad. The negative impacts of using digital media have been identified as fraud, inappropriate content, cyber bullying, feeling of dissatisfaction, misunderstanding, unsuitable and uncreative use of time, violation of the law, and eventually leading to inappropriate behavior. This study explores the ability of the visually impaired youths in using social media. It is found that they can conveniently access social media. However, it is important for them to have digital literacy to reduce the potential risks or problems that might occur. This is especially true with regards to safety, risks of sexual harassment in particular for female visually impaired youths, and legal violation in terms of laws regarding the rights of the user and others.

6.2.3 Digital Literacy and Digital Competence

6.2.3.1 The Blind Have Higher Digital Literacy than the Low Vision but No Difference in Digital Competence

The research found that the different level of visual impairment did not have different level of digital competence. This builds upon the previous research that the visually impaired use technology to enable their access. It is found that the visually impaired use accessories for accessing the Internet this includes programs like Ta Thip , Thai VoiceOver programs, or screen enlarging programs. The visually impaired choose the appropriate programs to facilitate their communications with others (Jitjakool, 2010). The visually impaired have awareness about information technology that can be used. They can access hardware including computers and smartphones. In terms of software and screen reading programs also contribute significantly to their access (Thongma-eng, 2015). The direction for research regarding information technology is similar. It is found that technology has been developed to support the blind and the low vision. However, it is recommended that the content that can be supported should be increased (Tongprakob & Limpiyakorn, 2014). The new media characteristics enable access and beneficial use. However, there are still limitations regarding the explanation of images despite the ability of current programs to serve the needs of the visually impaired. Thus, it is important for the visually impaired need to install screen-reading programs to serve their access needs (Rattanapop, 2011). This research was conducted during the era where communications technology has been developed to serve the needs of the visually impaired and reduce the limitations of access. There have been improvements in the screen reading programs and the use of Artificial Intelligence (AI) to assist the visually impaired to take photographs on Facebook. As a result the blind have adopted this new technology reduce the inequality gap and develop their potential in using social media. This is inline with the research findings that the visually impaired youths have a high level of digital competence. The visually impaired youths can use social media to search for information, up date the software and application on their own, and use social media to access desired content. In addition it is found that they are able to learn new

functions. Thus, it can be said that the digital competence of the visually impaired and development of technology has gone hand in hand on a continuous basis. The challenging issue is the fulfillment of the needs and behavior of the different levels of visual impairment (blind and low vision). The challenge for developers and users is catering to both groups. For the users they must be always ready to learn and open up to new experiences that are presented through technology. As a result this may have led to the finding that digital competence of the different levels of visual impairment is not different.

Although the research found that those with different levels of visual impairment do not have differences in digital competence, it is found that they have different levels of digital literacy. The research findings indicate that the blind have better levels of digital literacy than the low vision group. This might be due to the fact that they are more careful in terms of security. The visually impaired tended to affiliate themselves only with their own groups on social media. This does not mean only the visually impaired stay among themselves but it also extends to groups like family, classmates, friends in the institution, and teachers. Thus, it can be said that they have a small social network, which is inline with the work of Wu and Adamic (2014). The study indicated that the visually impaired network on social media is small for instance the group that access Facebook using VoiceOver programs is only a small portion of the visually impaired, who are online globally.

The visually impaired use their remaining senses to experience the world. Thus, the two groups, the blind and the low vision, use different senses in using social media. The low vision group use touch, listening, and vision (partially) to learn about the world around them. For the blind group the use of social media relies only on their sense of hearing (screen reading programs) and touch (accessories that respond to the screen reading programs). As a result the blind would synthesize the input together with their imagination, which is different from the low vision group. In addition the experiences in social interaction from childhood that might include rough relationships with normal children might contribute to their caution in joining activities (Khamphroah, 2013). Therefore, when social media opens new avenues for interaction, the past experiences play a role in determining the relationships online. Thus, the blind youths result to means to protect themselves, which coincides with aspects of digital literacy. This becomes the reason explaining the differences in digital literacy scores of the blind and low vision groups.

6.2.3.2 Visually Impaired Youths Studying at the High School or Equivalent Level Have Higher Digital Competence and Digital Literacy Than Those Studying at University Level

The results of the study indicate that visually impaired youths studying at the high school or equivalent level have higher digital competency than those studying at university level with average scores of 3.70 and 3.52 respectively. It is also found that the visually impaired youths studying at the high school or equivalent level have higher digital literacy score than those studying at the university level with scores of

15.30 and 15.01 respectively. The researcher attributes this to two reasons explained in the following section.

The first reason is explaining the higher score of digital competence among those studying at the high school or equivalent level than those studying at the university level might be due to the integration of content into the skill development, which is part of the learning objectives. It appears that integration of content into the skill development continuously until the student graduates secondary level education to the university level is useful in teaching the necessary application skills. This does not mean that digital competence simply is a result of higher education at the university level. Upon interviewing the experts, the researcher found that digital competence was developed through the various projects designed to teach digital skills and access to social media. These projects are initiated by organizations assisting the visually impaired and usually funded by the government. Moreover, these projects are aimed to develop the necessary skills thus providing flexible content dependent upon the needs. The trainings are usually opened to the visually impaired youths studying in the educational institutions for the visually impaired and the visually impaired, who are not enrolled in the institutions. Thus, the visually impaired youths studying at the high school or equivalent level tend to receive up-to-date training in terms of digital competence. However, the visually impaired youths studying at the university level tend to be spread out at different institutions. Therefore, their access to the training depends on their personal interest. This might account for the difference in scores of the two groups although the difference is not statistically significant.

There is also a second reason explaining the difference in digital literacy scores between the group studying at the high school or equivalent level and those studying at the university level. Although the difference in scores are not statistically significant, the visually impaired youths studying at the high school or equivalent level have higher digital literacy than those studying at the university level. Results from the focus group regarding digital literacy reveals that both groups report receiving information about digital literacy from news and the school. However, the visually impaired youths in high school or equivalent level receive more information from the school because the role of the teacher is important in disseminating information that social media has both positive and negative aspects. Their teachers tell them that the expression on social media is a choice made by the user that shows whether they can distinguish right from wrong. Such understanding of the nature of social media is an important aspect of digital literacy. This is different from those studying at the university level because they are more self-reliant. At the high school or equivalent level teachers play an important role in guiding students in their life and media choices. This might lead to the reason that the score for digital literacy is higher for those studying at the high school or equivalent level than those studying at the university level.

Another factor that might have an impact on the difference in digital literacy scores is the usage experience dependent on the time spent per day and duration of using social media. It is found that visually impaired youths with different duration of

using social media have different levels of digital literacy. This is related to the perception process of the visually impaired, which is related to their senses. Upon receiving sensory input the information is sent for analysis, stored, classified, and selected for use in future situations when suitable (Khuprayon et al., 1988). When analyzing the digital literacy of visually impaired youths based on the relationship between learning and social media use, it is found that they receive sensory input and rely on their digital competence and on people who have knowledge to assist them. Once the visually impaired youths start having their own experience through technology synthesizing the thinking process provided by the knowledgeable person, they learn through vicarious learning through the experience taught to them. Then they analyze the information collected developing digital literacy and understanding of the nature of the media, which affects how they analyze and create content on social media. Therefore, experience or duration of social media use results in different levels of digital literacy. The more frequency of use and more variety of experiences result in the stimulation to seek information, analyze, consider, and select the appropriate use of social media. This is inline with the process acquired by the visually impaired and is independent of level of education. In addition the difference in digital literacy scores might result from the systematic integration digital literacy content in both class and extra curricular activities continuously, although there is no fixed format teaching and no designated activities. However, there are many projects designed to develop digital literacy with different learning objectives. Therefore, it cannot be concluded that differences in level of education result in differences in the level of digital literacy.

6.2.3.3 Digital Competence in Information Technology Management Dimension Results in Higher Digital Literacy While Digital Competence in Communications Dimension Results in Lower Digital Literacy

The results of the research indicate that the two dimensions of digital competence that have a significant impact on digital literacy are information technology management and communications. However, these two dimensions have opposite effects on digital literacy. The higher the information technology management dimension results in higher digital literacy while the higher communications dimension results in lower digital literacy. This might result from the definition of the dimension information technology management by the researcher. The definition states that information technology management means the ability to set settings, set privacy, managing contacts on social media including deleting, forming groups, and blocking, managing priorities, checking the accuracy of content, and searching information through social media. This is inline with the study by Ferrari (2013), which states that information technology management includes the ability to search, retrieve, store, manage, analyze information technology, and determine information technology needs. In addition this also specified by the European Union (2006) as the necessary digital competence for citizens. The guideline indicates that knowledge and information technology skills include the search, screening, evaluation, and management of digital content. When considering information technology management, it is more of a technical aspect. However, its applications can be implied in digital literacy for social media use (Ng, 2012). There are three

dimensions namely technical, cognitive, and socio-emotional. This can be explained as the information technology and communication skills that are used in the various daily activities. The cognitive aspect can be explained as the analysis, search, evaluation of digital content, selecting the appropriate program for task at hand, knowledge about ethics, and digital laws. In terms of socio-emotional it means the use of the Internet to communicate in a suitable way with responsibility and good manners. Therefore, at the most basic level the digital competence of the visually impaired youths is the technical aspect. This leads to the digital literacy, which is related to the ability to select and evaluate information technology. In addition this leads to the ability to protect oneself such as managing friend groups and deleting or blocking undesired individuals. This is inline with the findings indicating that visually impaired youths choose to delete or block those who have not treated them well on social media.

However, the research findings show that the more digital competence in the dimension of communications the less level of digital literacy. The communications dimension is defined as the interaction with other individuals, groups, joining activities, and expressing their views on social media in various forms. Thus, it can be said that visually impaired youths can express their feelings with others in various aspects such as chat, expressing their views, and income generation. Such abilities need to be developed together with digital literacy. The aspects of digital literacy such as the use of devices, functions of applications, privacy settings, and managing friends are issues that can be incorporated into class content. However, communications is the expression of emotions and feelings. Consequently, the technical skills are not sufficient to product the user. As a result, it is important to develop digital literacy in terms of analysis, content creation, knowledge about laws, and participation in order for the user to learn to assess their own thoughts as well as those of others. This aspect of communications requires time, experience, and advice. Despite the fact that social media helps the visually impaired youths feel less isolated through fostering connections with both old and new friends, there are problems that may be obstacles to access. Previous research indicates that communications may become a problem if the visually impaired or low vision group do not have the appropriate training in using technology (Martiniello et al., 2012) because communication skills is beyond simple technical skills. It requires the knowledge of the correct and appropriate use of communications.

When analyzing from the perspective of Technology Determinism Theory posited by McQuail cited in Kaewthep and Hinviman (2008), the process of technology production in communications leading to changes in society. The process can be divided into three stages –invention, application, and control. The use of social media in the visually impaired youths can be classified in these three stages as explained in the following section.

- Invention - This is the period during which technology development has led to the creation of programs and applications that enable access to social media for the visually impaired.

- Application - This is the period where the user has developed their own ability in using social media in daily life in a variety of ways, especially communications.
- Control - When the visually impaired start using social media replacing other media use, there might be problems that lead to the necessity to have control.

The results of the research indicate that digital competence dimension of communications increases while digital literacy decreases. This is a sign that this is the period of control wherein it is important to educate the users about understanding, usage, and creation (Jutrakul, 2016). Use means the skill in using a variety of technology and devices. Understand means the ability to think, analyze, categorize, and evaluate content in various contexts. Create is the ability to generate content within the bounds of good morality and digital domain. It must be understood that control starts with the user. However, in the context of the visually impaired this might include environmental context such as teachers, family, and legal considerations. It is critical that the visually impaired develop these skills in conjunction with digital literacy.

6.2.4 Guidelines for the Development of Digital Literacy in Social Media Usage for Visually Impaired Youths

The guidelines for the development of digital literacy in social media usage for visually impaired youths is developed for expert opinion with the aim to promote creative and safe use of social media. In addition it is designed to reduce the inequality, which is more than just limitations of access and use of devices. However, it extends to the inequality of knowledge that is created through interaction, which leads to digital literacy that is suitable for the visually impaired. As a result of the guideline for developing digital literacy in visually impaired youths must start with the creation of awareness and understanding of social media in order to reach the target audience. The understanding has to incorporate the view of the producer and consumer. The perspective of the producer includes the production of devices, programs, and content that cater to the diverse needs of the consumers while considering the equality of the consumers. The production of content must cater to the diverse access and benefits of the consumers. In terms of the consumer, the visually impaired are a part of the social media network, thus they are considered as consumers. They are a diverse group that needs the members of the social media to understand their diversity.

With regards to the development of the knowledge content for digital literacy, the research has identified sensitive issues, risks involved, and social media usage behavior. In the development of digital literacy it is critical to integrate all the dimensions to create the knowledge content. Although the scores reported can be separated, the creation of digital literacy requires an integration of the various dimensions. The creation of digital literacy guidelines for the visually impaired includes analytical thinking, understanding of the law, creation of content with

responsibility, and monitoring. This is inline with Goodwill (2014), who stated that digital literacy is the integration of knowledge, skill, and attitude leading to the analysis, evaluation, and creation through the use of digital technology to achieve the goals set by the user. Thus, digital literacy for the visually impaired youths can result from personal experience and vicarious learning through the recommendation of others. Social media is an outlet for personal expression, however it also is critical at the social level. It is the avenue to monitor, criticize, and file complaints (Sueroj, 2013). It is found that visually impaired youths use social media to express personal issues but lack participation. They are not involved in monitoring society and driving for changes, which is a critical aspect of digital citizenship and creative use of social media. Thus, the knowledge content for digital literacy in visually impaired youths includes five factors.

(1) Social media usage means the ability to access and digital competence in various aspects including communications, search, accessing information technology, and usage with sufficient understanding of the nature of digital media.

(2) Critical means the ability to assess the credibility and accuracy of the content after which it can be used beneficially.

(3) Knowledge of the legal means being aware of one's rights and that of others based on legal and ethical standards.

(4) Content creation means the ability in creating content through digital media in a responsible manner. This means that there are no risks to the mental and physical well being of oneself and others.

(5) Creating Engagement means the ability to use digital media to create benefits for others in society. This includes monitoring and reporting inappropriate content and the awareness of social issues in digital media leading to changes in society.

The use of the five aspects of digital literacy at the implementation level needs consideration of the suitable activities for the visually impaired youths. The important aspect of the guidelines for the development of digital literacy for social media usage among visually impaired youths is the creation of media and activities that can make use of their remaining senses. In addition it must create engagement through the remaining senses including hearing, smelling, touching, and tasting (Sombutyanoochit, 2011). Those with low vision can learn in much the same way as normal students, however, the level of clarity is different. The development of training that involves the senses of hearing, touch, and seeing (in the case of low vision group) must incorporate the appropriate activities to promote learning. It must expand their experiences and develop their thinking and imagination in a systematic manner so that they would become more involved in society. The training needs to incorporate tangible experiences to link with new experiences for the creation of new knowledge. This is done most effectively through the sense of hearing Lowenfeld, 1973 cited by (Koomthanom, 2014). The learning aids for the visually impaired can be categorized in four types –audio aids, tactual aids, visual aids, and electric aids (Supsakorn, 1996). The audio aids include tape recorders and video materials. The tactual aids involve physical touch such as braille books and tactile graphics. Visual aids are for those with low vision. It includes magnifying glass and CCTV. Electric

aids include electronic devices. These learning aids are present in the curriculum for the visually impaired. The researcher found that the visually impaired are not particularly attached to any of the learning aid types. Thus, they can be integrated suitably in the development of digital literacy. The goal is to create learning experiences that create more stimulation and engagement for activities that are both part of the curriculum and extra-curricular activities. For instance, the use of the concept of SATI as a song, video with explanation, scenario, role-play, case study, training, sharing of experiences, and exhibition. The activities need to be done in parallel both online and off line.

In addition to the development of knowledge content dissemination through activities creating digital literacy in visually impaired youths, it is also important to identify the opinion leaders for this group. The research findings indicate that teachers, friends, and family are the most important influencers for this group. This is in line with the study conducted by Punong-Ong (2011), who studied the role of the teacher for visually impaired students. It is found that the teacher has the role in providing support, coordination, training, and provide advice. At the same time the integration of the responsibilities of the teacher in supporting the teaching and learning process requires that the teacher search for the appropriate learning aids. The teacher also has to provide advice about the environment to provide movement recommendations to the visually impaired students. In addition the teacher has to facilitate the use of information technology, assist and support students mentally and physically, and coordinate with stakeholders. In terms of social support the visually impaired usually receive support from their family. Parents usually provide advice to youths to do the appropriate thing and be reasonable, which assists them in handling various situations on their own. Friends provide the advice on whether the behavior is appropriate or not and provide warning in case of risk (Wannarat, 2009). The successful drive to develop digital literacy in visually impaired youths requires the drive from those closest to them and support from the relevant agencies.

The supporting factors from relevant agencies results from cooperation, which is inline with the guideline for developing digital literacy (Nupairoj, 2015). This includes the learner, teacher, and curriculum. At the same time society must drive this initiative together with the community, parents, and media. The relevant government agencies include the Ministry of Education, Ministry of Social Development and Human Security, Ministry of Digital Economy and Society, National Electronics and Computer Technology Center, National Broadcasting and Telecommunications Commission, Thai Media Fund, Child and Youth Media Institute, private enterprises including media, businesses, and social activists groups including the Thai Civil Society and Thai Netizen Network as well as organizations working with the visually impaired such as Thailand Association of the Blind, Foundation for the Blind in Thailand Under the Royal Patronage, Thailand Association of the Blind, Association for the Blind Youths of Thailand, and Association for the Physically handicapped of Thailand. This is also inclusive of the school that serve the special needs of the persons with disabilities, schools that open access to the visually impaired and universities cooperation of the various organizations in driving digital literacy in visually impaired youths requires initiatives that include policy development,

implementation plans, budget support, and cooperation within the network. It is critical to ensure equality respecting the diversity of the group creating an inclusive society.

As a result the guideline for developing digital literacy in visually impaired youths based on the recommendations from the experts with the aim to develop creative and safe access online can be implemented to those with other forms of disabilities. This is explained in Figure 6.2

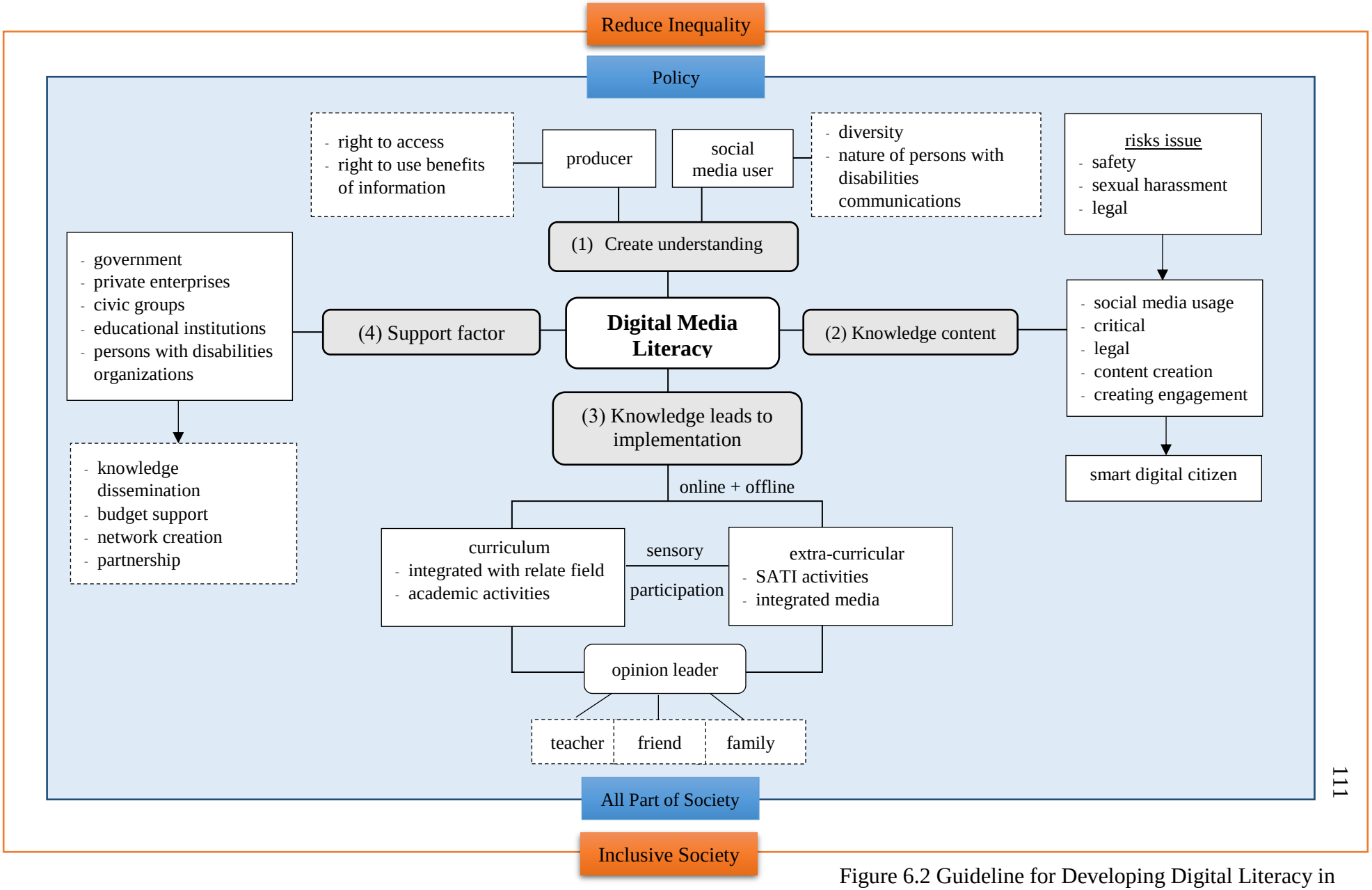


Figure 6.2 Guideline for Developing Digital Literacy in Social Media Usage for Persons with Disabilities

As presented in Figure 6.3 the guideline for developing digital literacy for the visually impaired youths which can apply for persons with disabilities follows four stages as explained in the following section.

(1) Create understanding as both producer and social media user together. This requires understanding of the nature of the communications of each type of impairment, right to access, and beneficial use of information technology and communications. This has to be done on the premise of understanding of the diversity of the group.
(2) The knowledge content needs to be developed to include social media usage, critical, content creation, legal knowledge, and creating engagement. The aim is to build smart digital citizens who can use social media in a creative and safe manner. However, digital literacy needs to consider the risks including sexual harassment, safety, and legal issues.
(3) Knowledge leads to implementation. The training can be integrated into the curriculum and extra-curricular activities that engage the senses of the user. For instance this might include video clips with audio description, while the deaf can use video with close caption or sign language. The SATI training (details in recommendation section) can be implemented using activities and media with emphasis on participation of the persons with disabilities. The most important people in the social media of the persons with disabilities are teachers, friends, and family. They are the opinion leaders and are close confidents of the person with disabilities. However, the presentation of knowledge content must lead to implementation therefore it should be presented in the context of the daily life of the persons with disabilities both online and offline.
(4) Support factor is necessary to develop digital literacy initiatives effectively. It is critical to have support from the government, private enterprises, civic groups, educational institutions, and the persons with disabilities organizations. This can be done through knowledge dissemination, budget support, network creation, and work together in the form of partnership.

Digital literacy development on social media for the persons with disabilities can be successful with clear policy driven in collaboration with all part of society. Policies need to be driven through cooperation of all relevant agencies in the promotion of knowledge and understanding. In addition it is important to recognize the diversity of the persons with disabilities. No one should be left behind due to the disabilities. The goal is to reduce inequality with allow all to access benefits of digital literacy knowledge. Therefore, digital literacy is important in creating an inclusive peaceful society both online and offline.

6.3 Recommendation

6.3.1 Recommendation on Research Application

6.3.1 (1) Policy Recommendations

The results of the research indicate that the visually impaired have digital competence in terms of information technology management, which leads to higher digital literacy. However, increased digital competence in terms of communications leads to lower digital literacy. This might result from the projects supporting the access of the visually impaired to digital technology and the use of smart phones. These activities enhance the digital competency in terms of information technology management. As s result the visually impaired can access social media to search for information, which is a technical skill. However, when it comes to more emotional aspects of digital literacy the increased digital competence in communications results to a lower outcome. Therefore, it is important that digital literacy must be developed in terms of improving access and benefits of usage. One relevant authority that should play a critical role in the initiating the policy to drive the implementation plans and to determine the responsible units should be the Ministry of Social Development and Human Security. The policy can be developed as part of the National Plan for the Quality of Life Improvement for the Persons with Disabilities .

The National Plan for the Quality of Life Improvement for the Persons with Disabilities (2017 – 2021) emphasizes on the development of the rights for the persons with disabilities to live freely in a society that recognizes their potential living in peace and harmony. One of the objectives is to enable the persons with disabilities to benefit from their physical surroundings. This means access to transport, public services, learning opportunities, news, innovation in information technology, technology enabling better convenience, and reasonable level of assistance. Strategy 4 of the plan promotes accessibility to their physical surroundings enabling beneficial usage. This leads to the promotion of universal design and technologies that provide improved convenience. In addition the strategy aims to promote reasonable assistance, provision of information, telecommunications, use of digital technology for commerce, and technology for accessing public services. With access to more information, there would be better equality for the visually impaired. There are many government agencies that need to be involved including the Ministry of Digital Economy and Society, Ministry of Science and Technology, National Broadcasting and Telecommunications Commission, supported by the Public Relations Department and the Ministry of Social Development and Human Security as well as media organizations (Empowerment of Persons with Disabilities Committee, 2017). The access and beneficial use has always been included in the plan since the second National Plan for the Quality of Life Improvement for the Persons with Disabilities. However, there are changes in the social context as well as in terms of technology as a result simple access and beneficial use for the persons with disabilities is insufficient to deal with the complexities of the situation. Communications technology for the persons with disabilities has more dimensions than just access and benefits of usage. There should be analysis, creativity, and security for all media. As a result the National Plan for the Quality of Life Improvement for the Persons with Disabilities should have the dimension of developing digital literacy. In addition the plan should

clearly indicate the main responsible unit, which is in line with this research that the government agencies should be the main driving force on the aforementioned issue.

6.3.1(2) Recommendations for Beneficial Use and Prevention

The research findings indicate that the social media use of the visually impaired youths have both positive and negative aspects. The positive aspects include keeping up to date with the news, maintaining relationships, showcasing talent, income generation, and creating new experiences. However, there are also negative aspects including sexual harassment risks, poor time management, cyber bullying, and violation of rights. As a result the relevant authorities should ensure that the visually impaired have the proper access and are protected from risks.

(1) Promotion of positive aspects

The school that serve the special needs of the persons with disabilities, schools that open access to the visually impaired and universities should encourage teachers, who are important to the visually impaired to use social media as part of the learning tools. The objective is to creating interesting new learning experiences through the use of video clips from YouTube and issues from Facebook. In addition the relevant organizations should use social media as the platform to showcase the talents of the visually impaired. This would enable better awareness and understanding creating a positive environment, which is an important mission of the National Plan for the Quality of Life Improvement for the Persons with Disabilities . Social media can be used in many ways. For instance there can be a dedicated channel on YouTube for the visually impaired, or broadcasting radio programs on Facebook, or creating a page/group (Blind Date) to disseminate information about the various aspects of daily life of the visually impaired. Currently, there are groups communicating about the visually impaired. However, the communications is very limited focusing primarily on the visually impaired group. As a consequence upgrading the social media use of the relevant organizations is a major challenge. Thus, it is necessary to incorporate the marketing and public relations perspective in the development. In the meantime, the Department of Empowerment of Persons with Disabilities, Ministry of Social Development and Human Security, should use social media as a potential channel for income generation, which would be beneficial in the improvement of the livelihood of the visually impaired. The department should provide trainings such as opening a store/page on Facebook, contacting customers via group, and using social media to open new career opportunities. This would empower the people with disabilities to live freely requiring less dependence.

(2) Prevention from harm

The educational institutions are the main driving force in reducing risks by developing digital literacy. There are two different types of educational institutions. The first type is related or relevant to the visually impaired. This type of institutions includes the school for the visually impaired, schools that open access to the visually impaired, and universities (which allow visually impaired access). The second type includes other institutions. The educational institutions related to the visually impaired depend on the teachers in promoting the learning experience. The teachers must understand, constantly observe, and provide the

necessary recommendations. The teacher must know how to use and update his or her own digital competence. They need to know the applications their students use so that can reach them with understanding. This includes observation of the social media usage behavior together with their off-line expression including academic performance and social relationships. Consequently, teachers can then provide the necessary recommendations in suitable social media usage behavior. Moreover, friends can generate conversations asking and discussing about social media while providing recommendations and warnings. As a result the educational institution should provide the key faculty members and youth leaders training in digital literacy for visually impaired youths. In addition other educational institutions related to the dissemination of digital literacy need to be aware and realize the importance of digital literacy for the visually impaired, who are normally overlooked because people assume they cannot access social media due to their physical limitations. The dissemination of knowledge can be done in many ways including research, academic service, and social activities such as mentor programs. The goal is prevention of risk by providing knowledge and creating experiences that enhance the learners' experience through the expertise development by experts.

The recommendation regarding risk prevention through digital literacy is in line with the initiatives driving digital literacy in children and youths abroad (W. Karuchit, 2018). The effective drive for digital literacy comprises of factors known as the 3Es. Education is the transfer of knowledge appropriate to the age or nature of learning the information. Experience is the application of knowledge into tangible projects that enhance understanding and retention. Expert is the use of experienced individuals as mentors providing advice. In addition there are 4 factors that strengthen success of the initiative known as the 4Is. Interconnectedness is the collaboration of the relevant agencies including the educational institution, media, civic groups, and government agencies in supporting the initiative. Information is the creation of the body of knowledge necessary for the initiative. Integration of the issues regarding digital literacy to the important national problems is necessary in ensuring the success of the initiative. In-trend is making sure that the activities featured in the media are up-to-date and interesting in order to create credibility and awareness.

As a result the initiative for the development of digital literacy in the visually impaired youths needs the factors to strengthen the initiative. In addition to the educational institution that should serve as the core driver it requires support from other organizations (Interconnectedness). These supporting organizations include government agencies such as the Ministry of Education, Ministry of Social Development and Human Security, Ministry of Digital Economy and Society, National Electronics and Computer Technology Center, National Broadcasting and Telecommunications Commission, Thai Media Fund, Child and Youth Media Institute, private enterprises including media, businesses, and social activists groups including the Thai Civil Society and Thai Netizen Network as well as organizations working with the visually impaired such as Thailand Association of the Blind, Foundation for the Blind in Thailand Under the Royal Patronage. The support should be in the form of budget for creating and disseminating information about digital literacy (Information). The content promoting digital literacy should be integrated into

the teaching and learning of the visually impaired (Integration). A network protecting the visually impaired should be done in the form of a page/group on various social media to provide a variety of learning outlets. The content on social media should include tips on using social media, updating news, keeping up with the advances in technology, and warnings about risks to the visually impaired on social media.

The model used to train the teachers and youth leaders can be based on the SATI or mindfulness model. The mindfulness in using social media should include considerations regarding usage, analysis, legal knowledge, content creation, and participation. Teachers have an important role in creating this mindfulness based on Figure 6.3

S	Social Media Literacy	Generating knowledge and understanding of the five dimensions of digital literacy namely usage, analysis, legal knowledge, content creation, and participation.
A	Advise	The role of teachers is providing social media usage advice to the visually impaired is crucial. Teachers and friends are like family members to these individuals.
T	Talk	Discussion and conversations are important in sharing experiences in using social media. The conversations can cover multiple topics including social issues and new applications. Conversations should take time and be done regularly to prevent visually impaired youths from being obsessed with the online world.
I	Integrate	Integration can be done in two ways. The first is making digital literacy part of the teaching and learning. The second is promoting access to the knowledge to the visually impaired youths through music, video clips with explanation, storytelling, and scenarios.

Figure 6.3 Digital Literacy by SATI Model

Implementation of the SATI model starts with the training of the leaders and application generating activities to promote digital literacy. The training should start with teachers in the schools for the visually impaired or schools that allow access of visually impaired youths. Then the training can be expanded to incorporate youth leaders among the visually impaired youths. In addition another group that should be trained are the students in the institutions creating support staff who care for those with physical disabilities because they play an important role in supporting the learning process at all levels of education. The SATI model can be used to design three types of activities – Set mindfulness, Evoke mindfulness, and Focus mindfulness. Set mindfulness adheres to the social media literacy principles. These would be applied to other activities including advise and talk to Evoke mindfulness. The integration of creating media and activities that can be used both as part of the

curriculum and extracurricular activities lead to the Focus mindfulness. The core of these activities lies in the involvement of the visually impaired youths in the learning process. The activities can be developed as explained in the following section.

SA (Social media literacy + Advice)

The activities that Evoke mindfulness include providing advice that can be integrated into the teaching and learning of various courses. This can be done as case studies and facilitate the learning experience by asking students to role-play, “What if it was me?”. After the students have shared their thoughts the teacher would provide the advice based on the digital literacy concepts. This activity can be adapted for teaching and learning at different educational levels. The teacher can select the appropriate media for promoting the learning experience based on the target audience. The objective of this activity is to introduce appropriate, creative, and safe use of social media.

ST (Social media literacy + Talk)

This Evoke mindfulness activity is less formal promoting casual conversation so that the target audience would share their own stories and experiences such as “Chat & Share” or “Beside & Believe”. These activities can be done both online and offline. The objectives of this activity are to share, strengthen, and to increase the confidence in using social media in a creative manner. The target for this activity are those in secondary school and university level students because they have experience in using various social media.

SI (Social media literacy + Integrate)

This Focus mindfulness activity is based on the creation of media to promote digital literacy. The media can be done in many different formats with the cooperation of the visually impaired youths. The media uses the storytelling technique in short film, music, game or role-playing activities. The objective is to promote participation in creating media. This activity is suitable for secondary school and university level students because they can apply the use of tools to create media content. Application of the SATI model is summarized in Figure 6.4

		Activity Format	Objective	Target Audience
S Social Media Literacy	**Advise**	Advice that can be integrated into various courses through Evoke mindfulness activity "What if it was me?" Use different types of case study to lead the discussion	The objective of this activity is to introduce appropriate, creative, and safe use of social media.	Primary school, secondary school, and university level depending on the case study or media selected by the teacher
	Talk	Apply discussion to Evoke mindfulness including "Chat & Share" and "Beside & Believe" activities both online and offline	The objectives of this activity are to share, strengthen, and to increase the confidence in using social media in a creative manner.	Secondary school and university level students, who have experience in using various social media.
	Integrate	Creation of storytelling through production of short film, music, game or role-playing activities.	The objective is to promote participation in creating media.	Secondary school and university level students

Figure 6.4 Application of the SATI Model

6.3.1(3) Recommendations for Media Use in Creating Digital Literacy for Visually Impaired Youths

1) Media Integration

The use of media to create digital literacy in using social media for visually impaired youths requires the integration of multiple media. Consideration must be made regarding their remaining senses and media that is part of their life or interest. These media might include singing, playing music, or writing. At the same time it is necessary to consider the target audiences' level of education. Examples of media integration used to promote digital literacy include the words of wisdom of His Majesty the King and music, series/short video clips/movies (with explanation), storytelling in the form of scenarios, and games (Appendix B).

2) Media Created for Collaboration with Visually Impaired Youths

The activities created should be in the interest of the visually impaired youths. The objective is to the visually impaired youths have participate in the creation of the media content. This can be in the form of short story contests, music contests, or theatrical plays contests. The opening of spaces for the visually impaired youths to showcase their talents can be an opportunity for collaboration with the various agencies charged with promoting digital literacy. For instance this might lead to the production of movies with explanation.

6.3.2 Future Research Directions

1) The scope of this research is limited to the visually impaired youths studying at the high school or equivalent level and university level. The future studies should study other groups for instance the visually impaired of different generations, the visually impaired who are educated in the school system and those who are not, and people with other disabilities.

2) The future research should use the qualitative research methods to explore the social media use behavior in detail. These techniques would include content analysis and in-depth interviews.

3) In this study the researcher focused on studying digital literacy in social media use of the visually impaired youths. Future studies might study the different media used in differing contexts as well as literacy in other media such as broadcast media and advertising.

4) In terms of using theories, future research can apply other theories to explain the media use of visually impaired youths in order to better understand the phenomenon. These theories might be from psychology or development communications.

5) The future studies should include other variables that might impact the social media use of the visually impaired youths such as cultural and psychological fact

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APPENDIX A

Questionnaire
Digital Competence and Digital Literacy of Social Media Usage for the Visually Impaired Youths in Thailand

Questionnaire
Digital Competence and Digital Literacy of Social Media Usage for the Visually Impaired Youths in Thailand

Explanation: This questionnaire is part of the requirement for the completion of the PhD. Degree in Communications and Innovation, NIDA. The researcher would like to request your cooperation to provide truthful information that would be beneficial to the academic community. In addition all of your information and responses would be kept confidential. The researcher would like to express sincere gratitude for your kind assistance in completing the questionnaire.

Part 1 Demographics

1) Gender
   [ ] 1.Female [ ] 2.Male
2) Age.....years
3) Type of visual impairment
   [ ] 1.Low vision [ ] 2.Blind
4) Education Level
   [ ] 1. High school level
   [ ] 1. High school year 4 [ ] 2. High school year 5 [ ] 3. High school year 6
   [ ] 2. Vocational school level
   [ ] 1. Vocational school year 1 [ ] 2. Vocational school year 2 [ ] 3. Vocational school year 3
   [ ] 3. Undergraduate
   [ ] 1. Year 1 [ ] 2. Year 2 [ ] 3. Year 3
   [ ] 4. Year 4 [ ] 5. Year 5
5) Monthly Income
   [ ] 1.Less than 2,000 baht [ ] 2. 2,001- 3,000 baht
   [ ] 3. 3,001- 4,000 baht [ ] 4. 4,001-5,000 baht
   [ ] 5. มากกว่า 5,000 baht

Part 2 Social Media Usage Behavior

6) How long have you been using online media?

   [ ] 1. Less than 1 year [ ] 2. 1-2 years

   [ ] 3. 3-4 years [ ] 4. 5-6 years

   [ ] 5. More than 6 years

7) How much time do you spend online in a day

   [ ] 1. 1-3 hours/ day [ ] 2. 4-6 hours/ day

[ ] 3. 7-9 hours/ day [ ] 4. More than 9 hours/ day

8) What is the main device you use to access social media? (Please choose only 1 answer.)

[ ] 1. Smartphone [ ] 2. Notebook

[ ] 3. Desktop [ ] 4. Tablet

[ ] 5. Others please indicate.....

9) What is your objective for going on social media? (You can answer more than 1 choice.)

[ ] 1. To communicate

[ ] 2. To search for information, news, and knowledge

[ ] 3. To use as a space to express my identity

[ ] 4. To search for entertainment/reduce loneliness

[ ] 5. To do business

[ ] 6. Others please indicate.....

10) What are the types of social media you use? Please indicate level of frequency.

No.	Type of Social Media	Highest	High	Medium	Low	Lowest
1	Facebook					
2	Twitter					
3	Instagram					
4	Youtube					
5	Line					
6	Zello					
7	Skype					
8	Others please indicate…… ……					

11) What do you do on social media? Please indicate level of frequency.

No.	Social Media Behavior	Highest	High	Medium	Low	Lowest
Communicate						
1	Post messages					
2	Post pictures					
3	Share posts					
4	Follow news					
5	Follow famous people					
6	Live broadcast					
7	Comment/express opinion					
8	Like posts					
9	Chat					
10	Send voice messages					
11	Phone calls					
12	VDO call					
Socialization						
13	Create groups					
14	Join groups of interest					
Business						
15	Buy products					
16	Sell products					
17	Review products					
Entertainment						
18	Play games					
19	Watch videos/clips/movies					
20	Listen to music					
21	Others please indicate…… ……..					

Part 3 Digital Competences of the Visually Impaired Youths

No.	Statement	Digital Competences				
		Highest	High	Medium	Low	Lowest
Digital Competence in managing information technology						
1	You can download the social media application of your choice.					
2	You can update the social media application that you					

No.	Statement	Digital Competences				
		Highest	High	Medium	Low	Lowest
	use.					
3	You can set the TalkBack/VoiceOver function or you know how to increase the size of the screen.					
4	You can create your own social media account.					
5	You can determine the privacy settings to your personal information.					
6	You can manage your friends on social media such as setting groups, adding friends, removing friends, and blocking people.					
7	You can use social media to search for the information you want.					
8	You can use social media to access the information you want.					
9	You can categorize and prioritize the level of importance for the information that you want.					
10	You can check the accuracy of the information that is presented in social media.					
11	You can download the information you want from social media.					
12	You can use the social media tools to serve your objectives such as searching information, chatting with friends, and sending digital files.					
Digital Competence in Communications						

No.	Statement	Digital Competences				
		Highest	High	Medium	Low	Lowest
13	You can use social media in communicating with your groups of friends.					
14	You can use social media in communicating with your groups of new friends you previously did not know.					
15	You can use social media to increase your income by selling products online.					
16	You can use social media to communicate your emotions to others such as feelings of happiness, sadness, loneliness, and love.					
17	You can use social media to express your opinions.					
18	You can use social media to show your potential such as your talent in music or speaking.					
Digital Competence in Digital Content Creation						
19	You can create content in the form of messages on social media expressing your feelings, your thoughts, words of wisdom, poetry, and promotional information.					
20	You can create content in the form of still images (post pictures).					
21	You can use the live function on social media.					
22	You can create video clips on social media (post video).					
23	You can edit content posted on social media.					

No.	Statement	Digital Competences				
		Highest	High	Medium	Low	Lowest
24	You can create content on social media that is beneficial to others and help solve the problem of others.					
Digital Competence in Problem Solving						
25	You can use each type of social media based on its objectives and you are capable of using a variety of functions such as chatting and sending digital files.					
26	You can solve problems on social media on your own such as setting the notifications and sending digital files.					
27	You can provide advice for others who have problems in using social media.					
28	You always develop your skills in using social media such as learning new functions.					
29	You can handle cyber bullying in social media.					
30	You can handle relationship issues arising from social media such as the conflict among friends that is caused by social media.					

Part 4. Results of Using Social Media on Visually Impaired Youths

No.	Statement	Results of Using Social Media				
		Highest	High	Medium	Low	Lowest
Using social media makes you……						
1	Up to date on events					
2	Express your potential					
3	Communicate with others more easily.					

No.	Statement	Results of Using Social Media				
		Highest	High	Medium	Low	Lowest
4	Feel valued.					
5	Can go through daily life conveniently.					
6	Have personal problems with others.					
7	Use feelings more than reason.					
8	Have more knowledge.					
9	Have new experiences.					
10	Can manage time less effectively.					
11	Can join activities with those who share the same interests.					
12	Can maintain the relationship with members in the group.					
13	Have less concentration.					
14	Feel like a part of the group.					
15	Have less interaction with friends in real life.					
16	Risk getting involved in illegal activities.					
17	Escape the reality in society.					

Part 5 Digital Literacy in Visually Impaired Youths

No.	Statement	Right	Wrong
Understanding			
1	You can present yourself as someone else in social media.		
2	Social media can create, maintain, and destroy interpersonal relationships.		
3	Social media use will leave digital footprints in the form of search records on YouTube, liking a page on Facebook, and chat logs in Line.		
4	People on social media are people who use social media to create changes in society both for the good and bad.		
5	All net idols can be good examples for a way to live.		
Critical			
6	All the news/information presented in social media are		

No.	Statement	Right	Wrong
	true.		
7	Live broadcasts are real time events that have not been prepared in advance.		
8	All product reviews by celebrities can be trusted because it is reviewed by real people.		
9	All the posts that have a large number of likes, comment, share means that it is very popular.		
10	All the posts that have a large number of likes, comment, share means that many people believe it.		
11	The popularity of the page is a guarantee of the trustworthiness of the content.		
12	It is necessary to check other sources of information to verify the source before sharing content on social media.		
13	The posts requesting donations on social media should have verification information such as the picture, video clip, or personal information.		
Cyber Safety			
14	Posting your Line ID on Facebook is a good way to make many friends.		
15	Using social media does not post any risk in terms of physical and mental security.		
16	Every new friend you make on social media is real person.		
17	Personal information on social media can be shared because it is public so there is no need to indicate the source.		
18	Checking in online increase your safety.		
19	Chat logs between individuals on social media is confidential.		
20	Posting false information that causes panic is a offence under the Computer Act (2017).		

Part 6 Recommendations about digital skills and digital literacy.

……
……
……
……

APPENDIX B

Recommendations for Promoting Digital Literacy in Social Media Usage for the Visually Impaired Youths in Thailand

Recommendations for Promoting Digital Literacy in Social Media Usage for the Visually Impaired Youths in Thailand

(1) His Majesty's Royal Wisdom and Music

The development of music potential of the visually impaired youths is evidenced in many of the school activities observed by the researcher during the fieldwork. Music is an important part of the lives of the visually impaired. They like music since it interests them because it is easy for them to access. In addition music has always been a career for many of the visually impaired. His Majesty King Bhumibol Adulyadej has always been supportive of the handicapped. His words of wisdom are always contemporary and can be used to develop digital literacy in social media usage for the visually impaired youths. Teachers can take the opportunity to present the royal wisdom in social media or in the course content through songs such as Siam/Humans/Consciousness. This song was created by taking the royal wisdom and is sung by Golf Fucking Hero, Chom Chumkasien, Twopee Southside, Jayrun, 1Flow, Nazesus, MC-King, Atom Chonakan, and Tuleedin. The lyrics are taken from the royal wisdom of His Majesty King Bhumibol Adulyadej. Some of the lyrics are presented in the following section.

> "…Thoughts are the blueprint for thought and behavior. This is because all that is done and every word that is said is the result of thought. Therefore, it is important to think before speaking. This would stop the individual from saying inappropriate things and taking inappropriate actions. As a result they would only embark on endeavors that are beneficial leading to prosperity."
>
> His Majesty King Bhumibol Adulyadej
> Graduation Ceremony, Chulalongkorn University July 10, 1997
>
> "…Self control starts with the feeling and knowledge of distinction or consciousness. Before one chooses to do, to speak, or to think consciousness would stop to consider what is right what is wrong. The benefits and risks need to be assessed in the long term."
>
> His Majesty King Bhumibol Adulyadej
> Graduation Ceremony, Ramkhamhaeng University, Amporn Gardens, July 8, 1977
>
> "…Freedom is a good thing. However, using freedom needs to be done with care with responsibility. There should be no violation of others who have the same equal rights also consideration needs to be made for peace and happiness of society."
>
> His Majesty King Bhumibol AdulyadejSpeech to Scout Chiefs, July 9, 1971

The royal words of wisdom can be applied to digital literacy such as thinking before speaking, which is more than just vocally sounding the words. It includes posting on social media, which is a space expressing words as well. Also important is

the respect for the rights and freedom of others. Care is indeed to prevent violation of the rights of others so that people can live happily together through tolerance. It is also important to be aware of one's own thoughts. All of these words of wisdom can be applied to digital literacy can translated into music making it more interesting and easy to remember.

In addition to the modern contemporary songs, the local folk songs are also of interest for the visually impaired. The researcher consulted with experts to develop content for digital literacy that is similar to the song by visually impaired artist Boy Paisal Pimpakhan from the S2S (From Street to Stars) project. He has written a song about social media use by the visually impaired that reflects consciousness, analysis, and legal considerations in the song (in Thai), "คิดก่อน...ออนไลน์"

สื่อทางออนไลน์ จะอันตรายหากใช้ไม่เป็น
ถึงเราจะมองไม่เห็น แต่ก็ใช้เป็นอย่างมีปัญญา
ไม่ยอมถูกหลอก จะไม่ช้ำชอกให้เสียน้ำตา
จะใช้สติปัญญา แก้ปัญหาที่มากับมัน
ก่อนกดถูกใจ ก่อนจะไลน์ให้คิดเสียก่อน
ตรึกตรองและพึงสังวร คิดเสียก่อนจะกดแชร์กัน
ก่อนโพสต์ควรคิด ถึงสิทธิ์ผู้ใช้ด้วยกัน
ว่าสิ่งที่เราโพสต์นั้น เดือดร้อนถึงการใช้งานของใครหรือเปล่า
จะผิดกฎหมาย ถ้าเราใช้งานไม่เป็น
ฉะนั้นควรใจเย็น ๆ เมื่อเราเห็นอย่าเพิ่งกดแชร์
คิดดูเสียก่อน นึกย้อนดูกันให้แน่
ก่อนท่านจะไลน์จะแชร์ คิดดูให้แน่แล้วจะดีเอง
สื่อทางออนไลน์ หญิงหรือชายต่างเคยใช้กัน
ถึงจะเป็นคนพิการ มันไม่ต่างกันหากท่านใช้เป็น
สังคมยุคใหม่ ต่างเปลี่ยนไปตามความจำเป็น
หากคุณจะใช้ให้เป็น ก็จงมองเห็น ถึงการรู้ทัน

(2) Drama series/Short Video Clip/Movies (With Narration) -The presentation of content can be in the form of drama series, short video clips or movies, which are of interest to the audience. This is due to many factors including the conversation, narrative, and music.

As a result the type of media content that can be used to present digital literacy to the visually impaired youths can utilize audio description. This will enable the visually impaired to be able to understand the content effectively. However, even some programs have this system today, it is still not sufficient to fulfill the needs of the visually impaired especially in terms of content with regards to digital literacy. The researcher would like to propose the use of three episodes from Thai drama series to illustrate the issues of using Live broadcasts, posting and check-in, and sexual harassment as follows:

(2.1) Cruel Freshy, Episode – Live Broadcast

(2.2) Short video clip from the National Broadcasting and Telecommunications Commission

(2.3) Season of Love, Episode –Hot

The storyline is about young girls who yearn for love due to family problems and influences of social media. The girls want ideal love but end up finding love in all the wrong places. They become promiscuous eventually getting pregnant at a young age because of unprotected sex.

(3) Storytelling Combined with Scenarios –The interview of teachers of visually impaired students revealed that the use of scenarios made it easier for youths to remember because it holds their attention. Therefore, the technique of using news, experience, and stories is effective because it allows questions and stimulates thinking. In today's world there are many news that could be used to communicate warnings in using social media. There are also academic works that teachers can use to relate to students for better understanding. The researcher has selected three cases as follows:

(3.1) Magic Skin review of celebrities case

(3.2) Misunderstanding regarding the visit of the Royal Crematorium of the Visually Impaired

(3.3) Cyber bullying case

(4) Games

The games for developing digital literacy in visually impaired youths emphasize the sense of touch and hearing. It is important to stimulate analytical thinking by taking them through the entire process starting from observation, explanation, listen, drawing relationships, critique, analytical activities, and drawing conclusions (Rodprapan, Thamrongsotthisakul, & Vibulrangson, 2016). The researcher presents two formats for developing games to promote digital literacy as follows:

(4.1) Game Touch –The steps in playing the game are explained as follows:

- Divide the students into groups of 3 – 5 people and have them take turns in touching objects
- Allow the members of the group to discuss the objects
- Select a group representative to present
- Everyone join the discussion and conclude the activity

This activity demonstrates what can happen in social media illustrating that everyone can be the sender and receiver of the communications. There might be discrepancies in communications and people may have differing views. As a result it is important to analyze and think before doing anything, or posting, or sharing online.

(4.2) Safe Zone Game, which is adapted from Goal Ball

This game is very popular among the visually impaired. The court is square shaped with a line equally dividing the left and right side. There is a goal at the end of each side. Players will roll a bell ball and each side must anticipate the movements of the

ball. The objective is to roll the ball into the goal thus the each side must defend their goal by blocking the ball. The researcher has adapted this game to communicate the concepts of digital literacy. The court is akin to social media, the goal is the social media owned by the individual, the ball represents the content. Each team can create five types of content (each team would be given 5 balls). The steps in playing the game are described as follows:

- Divide the students into two teams of three students each
- Each team determines the five content types (five balls)
- Each team takes turns in offence and defence
- Members of the team help in blocking undesirable content from entering the goal
- Members of the team discuss and explain why certain content is accepted while some are blocked
- Select a group representative to present
- Everyone join the discussion and conclude the activity

The conclusion of this game is that the use of social media has its benefits from creative usage as well as its risks. Social media is a public space, however, there is also room for personal privacy. As a result the user can choose to create a personal space that is creative and safe.

BIOGRAPHY

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