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THESIS

THAITELCENTRE MANAGEMENT MODEL FOR LIFELONG LEARNING OF MINISTRY OF INFORMATION AND COMMUNICATION TECHNOLOGY

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A Thesis Submitted in Partial Fulfillment of

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One of the guidelines for implementing lifelong learning is to provide a source of learning for everyone throughout their life span. In Thai society, the Thaitelecentre of the Ministry of Information and Communication Technology (MICT) is one kind of a lifelong learning source that is a place to provide a wide range of Information and communication Technology (ICT) services, computers, and internet. The centre emphasizes on an involvement of community members to participate in a variety of activities and to expand opportunities for them to learn continuously. Yet, a Thaitelecentre alone cannot be a source of learning without proper management and the support of people in their community. In this research a common concern regarding problems and components of Thaitelecentre management is the starting point of primary data to construct the Thaitelecentre management model. The building of such the management model by means of the principle of the Balanced Scorecard (BSC) would be a basic need for performance-related strategies to its operation.

The model was developed through investigation of major problems and components of management in three Thaitelecentres of the upper northeast provinces in UdonThani, Chaiyaphum, and Nongkhai provinces. Identification of major problems and key components was done by means of analyzes of related documents reviews, questionnaire responses by 252 respondents randomly selected, focus group discussion with 18 purposive sampling of users, and in-depth interview with three directors of the target Thaitelecentres. Additionally, a close-ended questionnaire was employed to set priorities for problems and components of Thaitelecentre management. The model was then verified by a group of experts.

Based on BSC, the research found that the Thaitelecentre management model consisted of 8 areas. Those areas were policy and regulation, facilities and ICT Infrastructure, location, strategic management, financial support and budget, human resource management, community participation and networking, and perception and needs. In the future, the extension of this research might study from a wealth of success experiences in any other community telecentre as best practice in order to collect key success factors of community telecenter comparison with MICT. Quantitative research might be used to gather key variables of Thaitelecentre management by using factor analysis. It would be beneficial for Thaitelecentre practice to make this kind of comparison.

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Student's signature   Thesis Advisor's signature

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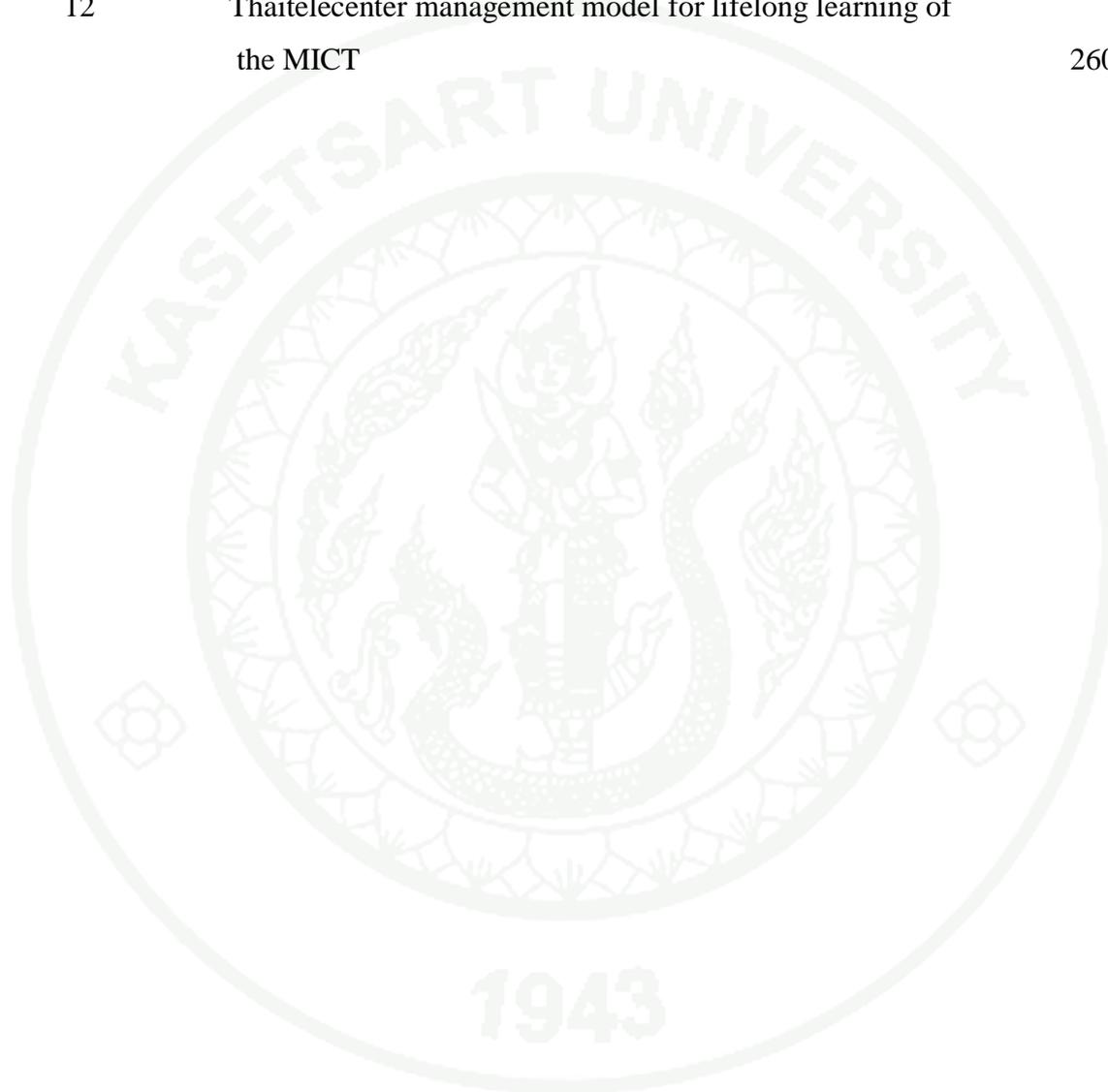
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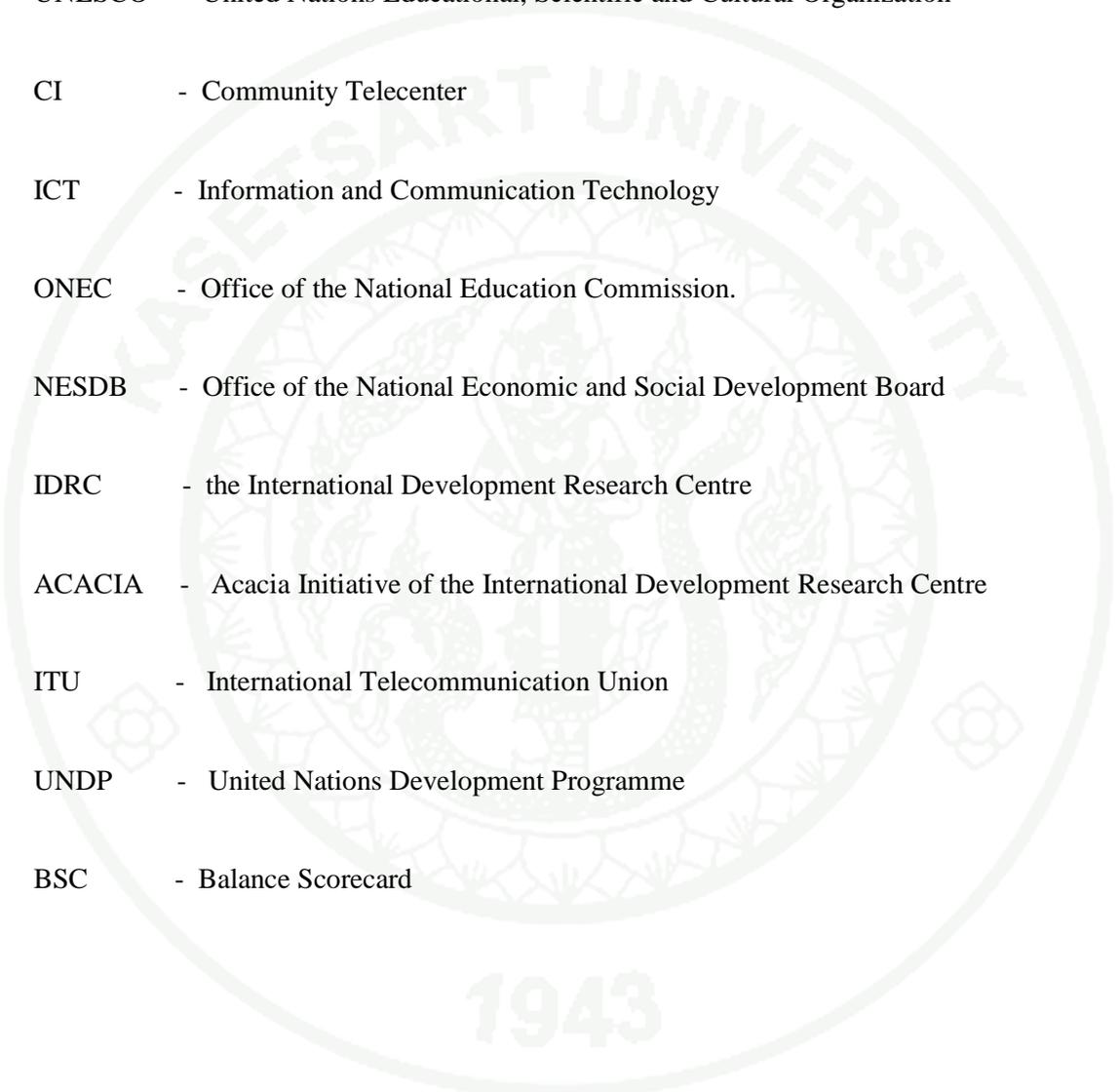
MICT - Ministry of Information and Communication Technology

UNESCO - United Nations Educational, Scientific and Cultural Organization

CI - Community Telecenter

ICT - Information and Communication Technology

ONEC - Office of the National Education Commission.

NESDB - Office of the National Economic and Social Development Board

IDRC - the International Development Research Centre

ACACIA - Acacia Initiative of the International Development Research Centre

ITU - International Telecommunication Union

UNDP - United Nations Development Programme

BSC - Balance Scorecard

GLOSSARY

Municipality - A municipality is an administrative division composed of a defined territory and population. A town municipality is typically governed by a mayor.

Tambon - A tambon is a local government unit in Thailand. Below district and province, they form the third administrative subdivision level. Tambon is usually translated as township or subdistrict in English.

Telecenter - A telecenter is a public place where people can access computers, the internet, and other digital technologies that enable them to gather information, create, learn, and communicate with others while they develop essential digital skills.

The distinction in usage between these two words, telecenter and telecentre, is clear. For telecenter, it is an American spelling, while telecentre is an English usage.

CHAPTER I

INTRODUCTION

Problem Statement

During the last two decades, literacy is a crucial foundation for lifelong learning and it is a tool for empowering individuals and their communities. Continuing education is expected to become even more urgent and important as it provides the main vehicle for learning to deal with rapid changes that are taking place in the new century. Continuing education must be seen as a productive investment resulting in positive returns, not only in terms of economic growth, but also in improvement of quality of life and the overall development of society. In 1972 United Nations Educational, Scientific and Cultural Organization (UNESCO) presented that lifelong learning was a major principle for educational planning which is aimed at human and social development to cope with the rapid changes of all countries around the world (UNESCO Bangkok, 2003) by using a mechanism of the principle for lifelong educational curriculum (Cropley, 1977), and creating the environments for lifelong learning such as teachers, textbooks, teaching methods, environments, families, and communities, etc (Medel–Anonuevo *et al.* : 2001).

Additionally, the concept of lifelong learning is viewed as educational management for all aspects (Knowles, 1980 cited in Pennee Nairod, 2001: 7). It covers formal, non-formal, and informal patterns of education (Galbraith, 2001; Medel–Anonuevo *et al.* 2001). One factor promoting lifelong learning is providing the right environment and sources of learning where learners can easily access the integration of formal, non-formal, and informal learning (Kriengsak Chareonwongsak, 1996; Frigo, 2001; Douglas Institute of TAFE, 2001).

Since the late 1990s, the Asia-Pacific Program of Education for All (UNESCO APPEAL) has been promoting the establishment of Community Telecenter (CT) for encouraging community-based approach to literacy and continuing education in Asia-

Pacific. The aim of CT is to bridge the educational divide and to empower individuals and promote community development through life-long education for all people in the community, including adults, youth and children of all ages. The initial pilot project of CT emerged in Nepal (UNESCO Bangkok, n.d.). Meanwhile, the International Development Research Centre (IDRC) and the International Institute for Communication and Development (IICD) have also supported the development of community telecenters in developing countries such as Uganda, Philippine, Mongolia, Bangladesh, Mexico, and Peru.

Similarly, for Thailand, it was apparent that they should emphasize on lifelong learning in accordance with the Constitution of the Kingdom of Thailand 2007 section 49 "The provision of education by professional organizations or the private sector, alternative education by the people, self-tuition and life-long learning shall be protected and promoted by the State as appropriate" and determined the provision of lifelong learning in National Education Act 1999 and Amendments (Second National Education Act) 2002 section 8, 15, 24, 29 and, 66 which were concluded that educational provision shall be based on lifelong education for all resulting from integration of formal, non-formal, and informal education. Educational institutions, families, communities, community organizations, local administration organizations, private persons, private organizations, religious institutions, and enterprises shall participate in education management and develop contents and learning processes continually. Learning can occur at all times and in all places. Learners shall have the right to develop their capabilities for utilization of technologies for education and for acquiring knowledge on a continual lifelong basis (Office of the National Education Commission, 2000).

Besides, the Tenth National economic and social development plan 2007-2011, focused on a philosophy of lifelong learning by determining strategies for development of human quality towards a knowledge based and learning society. One issue is to promote Thai people to learn continuously and to access sources of learning on both modern learning and local wisdom which led on the culture of learning. Promote learning in all kinds of education and adjust the environment for knowledge

based learning society for all ages in order to upgrade the quality of life and capability for living. Another issue on strategies to strengthen the community and society as a basis of national security is… to strengthen opportunities and environments within a community to facilitate lifelong learning on both formal and non-formal education continually by connecting with sources of learning in the community such as community telecenter, demonstration center of government bodies, folk museum, and so on. Facilitate community to access sources of learning constantly by preparing useful tools such as distance-learning, radio programs, internet, media, etc. (National Economic and Social Development Board, 2007)…

In accordance with Information Technology Policy Framework 2001-2010 (IT 2010) in a part of e-Education, they will focus on the development and information infrastructure for education thoroughly and equally, human resource development by training educational personnel with regard to IT knowledge and skills, applying technology for effective education including adjusting the paradigm shift of education to student-centered learning, create a learning network along with the development of local courses in connection with professional development, and quality of life and the environment, and support educational institutions in their transition to knowledge institutions supporting the community, industry and the society in moving towards a knowledge-based society (National Information Technology Committee Secretariat, 2001).

With respect to develop ICT learning outside the education system for lifelong learning, the Second Thailand Information and Communication Technology (ICT) Master Plan 2009-2013 emphasizes on setting up community ICT learning centers by building up from existing centers or public libraries, temples, and community information centers. Electronic media should be provided in suitable training. All parts of the information can be used in all areas. Moreover, the development of content, databases, and application programs that are useful for the livelihoods and daily life of the people such as databases concerning agriculture, health, and medical treatment should be promoted (Ministry of Information and Communication Technology, 2009).

From the intention of Constitution of the Kingdom of Thailand 2007, National Education Act 1999 and Amendments (Second National Education Act) 2002, The Tenth National economic and social development plan 2007-2011, including Information Technology Policy Framework 2001-2010, and the Second Thailand Information and Communication Technology (ICT Master Plan 2009-2013) which were stated above, they have been focused on the importance of continual lifelong learning of student orientation. These matched with the educational intention of Chonlatit Aiumsumang (1999) who stated "community telecenter is a non-formal educational innovation which enables learners to have freedom in order to learn by themselves in accord with their readiness of each person. Moreover, this center can be a learning resource center to promote training of learners and lifelong learning". Gurstein (1999) refers to a new field of study as "community informatics" (electronic commerce, community and civic networks, community technology centers, electronic democracy, cultural enhancement, and online participation) - an approach that links community development efforts with the opportunities that ICT's present.

The important above issue of lifelong learning conforms to the initiative implementation of the Development of Information Community Project (i-Community) which emerged by Ministry of Information and Communication Technology (MICT) in 2006. The aim of this project is to bridge the digital divide between rural and urban areas by setting up community telecenters in five communities of five provinces[1]. These telecenters offer a broad range of communication services, computers and internet, which is related to the needs of the community.

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[1] All of these 5 telecenters comprise tabo community NongKhai province, kumpawapi community UdonThani province, kosumpisai community Mahasarakham province, jutthurat community Chaiyaphum province, and Damnoen Saduak community Ratchaburi province.

Afterward in the year of 2007-2008 MICT has been implementing additional 60 telecenters nationwide under the name of "Thaitelecentre"[2]. The overall objectives of this center are as follows:

1. To set up Thaitelecentres in suitable location such as public sectors, religious institutions, and community organizations in order to support the creation of ICT knowledge, the utilization of computer, and the promotion of lifelong learning.

2. To recruit experts who have full knowledge of ICT skills within the community.

3. To accumulate local knowledge and wisdom that is useful for livelihood and professional development. Support the decision-making of individuals in the community, sufficient economy, and sustainable community development.

4. To be a channel for exchanging data between people in their community, and among other communities especially pertaining to local knowledge and wisdom, professional development, and experience.

5. To bridge the digital divide and create digital opportunities for citizens enabling them to access IT that inserts respected culture and appropriate morals for the youth as well as to be a channel of accessing e-Service.

In response to the establishment of community telecenters in Asia-Pacific Regions, even though a number of telecenters are set up in many countries around the world by the association of international organizations such as the World Bank, the International Telecommunications Union (ITU), UNESCO, and the United Nations Development Program (UNDP), lessons learned from UNESCO reported that many countries (e.g. Malaysia, Philippine, India, and Bangladesh) have been facing 2007 with impacts and limitations through the implementation of community telecenter.

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[2] From 2006 to present, 65 Thaitelecentres of MICT were established. By the end of 2010 in total 1200 centers will be set up in all regions.

These include a lack of advanced technology, a limitation of financial and materials resources, local resource mobilization, a lack of coordination with government and stakeholders, a limitation of community participation, leadership capacity and IT personnel, etc. (UNESCO Bangkok, 2003)

While the USA does not have a management system to monitor the performance of the telecenters (Khumalo, 2001), the assessment of community telecenter performance and impacts are important keys for implementation (Whyte, 2000). Additionally, in operating a telecenter, it should pay more attention in monitoring and evaluating the system to measure the success of telecenter implementation which can be used as a prototype for other effective telecenters in various conditions (Harris, 2007).

Besides, experiences from community telecenters in many countries all over the world such as Africa, India, Latin America, Europe, and so on. Unfortunately, many centers failed to operate and they were closed down. For instance, 34% of telecenters in England had to be closed (Oestmonn and Dymond, 2001) or 21 (32%) from 65 centers of South Africa ended (Benjamin, 2001: 1). In Australia predominantly on the east coast, of the 128 centers established with federal funding, only 28 remain today (short, 2001: 2). Currently, there is very little experience of the impact of such centers in the context of rural and remote areas in developing countries and there are many questions to be answered before embarking on ambitious and costly programs at a national level (Ernberg, 1998 cited in Roger Harris, 2001: 74).

In the case of Thailand, from the situational analysis of human and social development, it is found that opportunity for Thai citizens in lifelong learning is increasing, at the same time there is an imbalance between linkage and usage of knowledge adequately. Twenty two per cent of villages in all regions have community telecenters; ICT literacy is increasing. Number of computers per 1000 habitants is 57 compared with 763 of those in USA. Broadband penetration rate is 116.7 per 1000 habitants, six times lesser than that of Iceland, the highest broadband penetration rate of the world (National Economic and Social Development Board, 2007).

In addition, from the national survey conducted by the National Statistical Office, it was found that ICT usage for Thai people is still at a low level. Only 15.5 percent of the population can access and use internet. There is a huge gap between usage in urban and provincial areas. (National Science and Technology Development Agency, 2009)

However, the Ministry of Information and Communication Technology has pushed for more of an effort for implementation of Thaitelecentres in all regions in order to have a widespread of sources of learning which promote community in a sense of lifelong learning, but the incubation process of community telecenter needs to concentrate into two important issues that are "viability" and "sustainability". These lead to the study of principle challenges and problems of community telecenter development (Colle, 2000). Because of the above issue, the researcher is interested in studying the major problems and components of Thaitelecentre management for lifelong learning from the Ministry of Information and Communication Technology and the management model of Thaitelecentre should be in order to make this center become a self-learning center for our community on a continual lifelong basis.

Therefore, the problem of this research is

1. What are the major problems and components of Thaitelecentre management in the Ministry of Information and Communication Technology?

2. How should a management model of Thaitelecentre for the MICT be?

Objectives

The purposes of this research are

1. To study the major problems and components of Thaitelecentre management of MICT.

2. To construct and verify Thaitelecentre management model for lifelong learning of the MICT.

Research Contributions

The research finding can be contributed to

1. The MICT can perceive major problems and components of Thaitelecentre management.

2. The finding on Thaitelecentre management model of this research can be applied in the Thaitelecentre for the MICT in order to have efficient management and to promote this center to be a lifelong learning center.

Scope of the Study

Scope of study is specified into two aspects which are as follows:

Scope of Content

This research aims to study only on major problems and key components of Thaitelecentre management for the MICT. It does not include any other telecenters which are not under supervision of MICT. This research is a Mixed Methodology. The purpose of the researcher focuses only on Thaitelecentre in the project of i-Community which was a pilot project and has also been implemented since 2006. Primarily, the study takes place in 4 centers where have been located at the upper northeast of Thailand. The locations of these centers are Udon Thani, Mahasarakham, Chaiyaphum, and NongKhai provinces. However, in the future if it has a great chance, the researcher will study on Thaitelecentre management model for other regions.

Scope of Population

The population of this research is divided into four groups. The first three are used in the research phase I, and the last one is used in phase II.

Group I consists of 28,313 of four targeted Thaitelecentres, of which a sample of 378 is randomly selected for the study regarding major problems of Thaitelecentre management.

Group II consists of eighteen people who are representatives from three kinds of users. Six people are frequent users, the other six people are infrequent users, and the last six people are non-users.

Group III consists of two directors and one manager of Thaitelecentres who are samples for the study on key components of Thaitelecentre.

Group IV consists of ten representatives from six experts, two directors, and one manager of Thaitelecentres. They are respondents of a close-ended questionnaire, and attend in a focus group discussion.

Definition of Terms

Few terms need to be clarified for mutual understanding as follows:

A management model Refers to a model that described the rational of how an organization creates, delivers, and captures value by focusing on building a sustainable competitive advantage including the components and functions of the management.

Thaitelecentre management model Refers to a working description that includes the general details about the operations of a Thaitelecentre which will address all functions including such components as policy and regulation, facilities and ICT infrastructure, location, strategic management, financial support and budget, personnel and staffs, community participation and networking, and perception and needs**.**

Thaitelecentre Refers to be a community ICT learning center for the MICT which is located in rural communities in order to bridge the digital divide by providing a wide range of ICT services, computers and internet and is made accessible for all members in community.

Lifelong learning Refers to the learning process which emphasize on non-formal educations for individual to learn throughout his or her life leading to the continuous improvement in the quality of life.

CHAPTER II

LITERATURE REVIEW

Theoretical Concepts

In the research of Thaitelecentre management model for lifelong learning, the researcher has studied documents, ideas, theories, and other related research which consists of

    I.   The concept of Community Telecenter
    II. The concept of Network Management
    III. The concept of Community Participation
    IV. Lifelong Learning Theory
    V. The concept of Balance Scorecard
    VI. The relevant research work

The details of the above concepts will be carried out as follows:

I. The concept of Community Telecenter

Typically, the idea of a community telecenter, known as "Telecenter" or "Community Technology Center", was to bring communication and technology into each respective community. However, telecenter projects might be run by groups, agencies, business sectors, or international organizations. It is clear that all of these telecenters are based on the needs of communities in which people can get a variety of communication services. In the initial stage, the concept of community telecenter emerged from Sweden in 1965. It was called "Telecottage".

In the first 1990s a new breed of telecottages appeared all around the world, particularly in South Africa. The primary objectives of this was to provide a technological system under a new kind of communication that saves cost, links to remote rural areas, and that gives opportunities for users to contact outsiders through an internet network while they stay indoors. Another important purpose is emphasized on people within communities. Telecenters allow them to receive the right information comfortably and rapidly. They can also apply the knowledge which they received from telecenters to capitalize for their own benefit and others within their community.

A. Definition of Community Telecenter

Community Telecenters come with a variety of names such as community learning centers, telecottages, or information shops, and no single definition serves to satisfy all of them. However, there are so many researchers who give different definitions of community telecenters which are as follows:

Gomez *et al.* (1999) defined community telecenter as a physical space that provides public access to information and communication technologies, notably the internet, for educational, personal, social, and economic development. Besides, within telecenter, it offers a variety of services such as e-mail, internet, telephones, fax, and printer. Moreover, this center also provides other complicated service for example, Tele-medicine and Long Distance Learning.

Callanan (1999: 22) called community telecenter as a special class of telecenter. It emerged as a creative reaction to rising unemployment particularly within rural communities. Their initial orientation was on new skills development, with a focus on IT related skills.

Jensen and Esterhuysen (2001) stated that community telecenter is able to provide a variety of services to different user groups within a community. It is generally seen as structures that can encourage and support communities to manage their own development through access to appropriate facilities, resources, training and services.

Roger (2001) proposed that a common characteristic of community telecenter is a physical space that provides public community based access to ICTs for educational, personal, social and economic development. It is usually designed to provide a combination of ICT services, ranging from e-mail to full internet and World Wide Web connectivity.

Colle and Roman (2003: 2) mentioned that community telecenter offers a broad range of communication services related to the needs of the community, some of which are free or subsidized by external bodies such as governments or NGOs. Along with computer and Internet access, these services might include: desktop publishing, community newspapers, sales or rental of audio and video recordings, book lending, training, photocopying, faxing, and telephone services. Some – like the Hungarian telecottages and the Western Australia Telecenter Network telecenters – provide postal, banking and employment services.

Saga (2003: 1) defined community telecenter as "Telecenters" which are public facilities that offer shared access to ICT. They are public places where people can use computers, the Internet, and other media; get training; and often obtain a variety of other communication-related services. In reality, telecenters are full of variety. Establishment and sustainable operation of telecenters is becoming an important policy target to bridge the Digital Divide in rural and underserved/unserved areas of developing countries.

Zakota (2007: 2) said that community telecenter is a public place where people can access computers, the Internet, and other digital technologies that enable people to gather information, create, learn, and communicate with others.

From all that is mentioned above, it can be summarized that community telecenter is a source of learning which provides a broad range of information and communication technology (ICT) services. It is also a public place where people within a community can access ICT services. These services include computers, internet, printers, fax and telephone services, and training that is free of charge. Moreover, the main purpose of establishing this center is to bridge the digital divide in rural and underserved areas of developing countries.

B. Types of Community Telecenter

In general, there are different kinds of community telecenters. The size and scope of any telecenter depends on what equipment it has. Yet each telecenter must adapt to serve the needs of the local community. Although, they can operate as individual agencies or enterprises, part of a franchise, or a project of a national agency, all telecenters aim to stimulate and respond to the demand for information and communication services.

Bertin (1995 cited in Sivaporn Srisamai, 2004: 44) divided telecenters into 4 groups which are as follows:

1. The Rural Community Telecenter
2. The Commercial Telecenter
3. The Remote Rural Telecenter
4. The Neighborhood Telecenter

Benjamin (2001: 1) divided telecenter into two types which are

1. Mini -Telecenter: mini centers cost around R15,000 (US$1,500), which was half paid by an entrepreneur and was run as a private small business. The equipment consisted of one moveable cabinet with a Pentium computer and a 3-in-1 (printer, copier and scanner). Two Vodacom 'Zigi' phones provided telephony. The mini was placed in whatever building the owner preferred.

2. Full -Telecenter: The full Center was more substantial, costing between R150,000 – R250,000 (US$ 15 – 25,000). Most of these were owned by community organizations, such as women's groups, civics or community forums. It usually comprises: 3 - 5 telephone lines together with a management system to know the cost of a call; 2 – 4 new computers; printer, photocopier, fax machine; and usually a scanner, TV and video recorder.

Jensen and Esterhuysen (2001:3-4) stated that the size and scope of any telecenter depends on what equipment it has. Generally, there are four sizes of telecenter : Micro, Mini, Basic, and Full Service Telecenters.

1. Micro Telecenter is usually housed at a shop or other business. They provide pay phone(s) with a built-in web browser and possibly a smart card reader and a receipt printer. Some of these units are outdoor kiosks. Many are used in South Africa and Australia, and are becoming increasingly common in public places world-wide.

2. Mini Telecenter will usually offer a single phone line (possibly GSM cellular) with a three-in-one scanner/printer/copier, a fax machine and a PC with a printer, Internet access and a call meter.

3. Basic Telecenter offers a number of phone lines, a call management system, fax machine, photocopier, several PCs with a printer, Internet access and perhaps a scanner.

4. Full Service Telecenter will offer many phone lines, multi-media PCs with Internet access, a high-volume black and white and color printer, a scanner, a digital camera, a video camera, a TV, an overhead projector, a photocopier, a laminator, meeting rooms, and a telediagnostic & video conferencing room.

Zakota (2007: 4) divided Types of Telecenter into 2 models.

1. Scandinavian model: the telecottages must provide information and communication technologies for the population of small and/or isolated settlements in the long run, thus supporting the development of rural societies

2. Anglo-Saxon model: commercial/business telecenter initiatives that provide long-term access to the ICT devices primarily aiming at profit production.

Although, these refer to a wide range of telecenter models, the primary focus starts out with basic services which offer a number of phone lines, fax machines, several PCs with a printer, scanner, and internet access. To success the aim of a telecenter it needs to be managed well and provide services for which there is a demand and adds to them as demand grows.

C. Examples and Experiences of Community Telecenters

Europe

In Germany almost all community telecenters were set up with the provision of state subsidies. In by far the most cases they were quickly closed down again at the end of this subsidized phase because they could not survive on their own. Meanwhile, different to Germany and probably unique world-wide, British telecottages have developed slowly but consistently. The British Telecottage Association which was founded in the 80s now represents almost 200 Telecottages. The original aim of telecottages was to familiarize the population especially in rural areas with the potential of new information and communication technologies, to make it accessible and to achieve employment for its users. On average a telecottage has around 40 users. About 25% are situated in rural areas. Voluntary work is very important. Without the great willingness to undertake voluntary work several telecottages could not exist anymore. Almost no telecottage makes a profit; few can

be described as successful. About half of them break even; at most 15% can show a small profit. (Korte, 1999)

It is noticeable that by far the most community telecenters are established in rural areas. This is certainly related to the fact that public funding was and still is available for development in these areas. Ultimately when marketing a telecenter and its services location should play no role at all, special emphasis should be put on its services instead. At the same time culture of each community will play an important role in implementing a telecenter to be successful.

Asia-Pacific

In Bangladesh, a kind of telecenter which serves only women is called "Phone Ladies". While telecenters in India were aimed to improve a quality of life and to bridge the digital divide for education which is named as "Tele-Learning Centers".

Roger (2001: 93-94) mentioned about community telecenters for the Philippines which were called "Multipurpose Community Telecenters (MCTS)". This project is being run in four farming and fishing villages in northern Mindanao, southern Philippines. The purpose is to develop and test pilot information and communication system encompassing people, organization, infrastructure and processes that will support rural communities in achieving sustainable development project aims to develop and harness people's capability to use ICTs to create and use information for rural development. Implementation is by the Philippine Council for Health Research and Development of the Department of Science and Technology. UNESCO and the IDRC provide support. The villages provide space for the MCT, staff, utilities and other supplies. Partner information providers from government and other institutions deliver information to the MCTs. Each MCT is staffed by at least 10 volunteers, trained in computing, the internet and web development. MCT services include word-processing, printing, training and coaching, and information referral services. Each MCT is expected to serve a cluster of five or more other villages.

In Mongolia, they call community telecenters as Internet Information Centers or Public Internet Centers (PICs). The purpose of this project is to deliver Internet access to rural areas in Mongolia. The PICs provide facilities and services to their members and customers: internet room with 6 PCs, modems and related equipment, dial-up access with 6 ports, internet access, e-mail, fax service, web hosting and design including local telephone service. This project has achieved reliable and well-managed telecenter implementations that have alerted their communities to the potential of the internet.

In addition, Roger (2007: 3) also mentioned the establishment of telecenters in Malaysia. One of these initiatives is The Pusat Internet Desa (PID) project which has the following objectives:

1. To improve info-communications access in the rural communities,

2. To provide Internet access terminals where rural residents can afford good access and to provide Internet access free-of-charge,

3. To develop and update local homepages to provide useful and interesting information for the rural residents,

4. To run ICT beginners' courses to raise the ICT literacy and skill level of the rural residents,

5. To transfer homepage updating skills to the local PID committee,

6. To stimulate social and economic activities in the community.

One of the examples that was successful in management of community telecenters in India is the "Kannivadi Telecenter" which is located in a rural distinct of Tamil. Most of its members are small and marginal farmers and landless laborers; therefore, it deeply focuses on developing the content in a style that involves its local needs. In the first initiative, they selected two male and two female animators who are in charge of operating the computers, managing internet, composing documents on MS-Word, and so on. In addition, they were also trained in participatory techniques to constantly update the content to meet the needs of different social and

economic sectors of the community. Knowledge Management is the key theme of this telecenter. This project has identified 4 broad themes.

1. Creation of knowledge repositories by developing a database on indigenous knowledge on issues such as livestock management, integrated pest management, etc. They also developed a database on the practices of the farmers in cultivating 42 crops focusing on pest and disease management. This information is kept in HTML format with lots of visuals such as digital photographs and drawings. This database would provide the information regarding the objectives of the programs, eligibility for participation.

2. Improving knowledge access by using its spread spectrum technology, they have identified web sites that would be useful to the men and women of this region.

3. Enhancing the knowledge environment by conducting training programs for villagers on specific issues. The multi-media play a major role in the training programs. These training programs are focused on interactive-learning and they help to build the contents in the telecenter. Specific efforts have been made to represent the information through the local cultural symbols. Everyday, important information is printed and pasted in various notice boards in the villages. In various meetings and the temple festivals, the village animators have been requested to orally pass on the important messages.

4. Management of knowledge is an asset by studying the impact of the project. The telecenter believes that the understanding of the impact, feedback from villagers, and internalizing learning are crucial for the self-sustainability of the centers. The feedback from the farmers revealed that supply of information would strengthen the farmers' capacity to understand the supply chain and market dynamics in perishable goods such as vegetables, and to make correct decisions when approaching the market. It would also improve the farmers' capacity for the selection of suitable crops for the season, which would fetch a very good market value

Africa

However, many successful telecenters could be run sustainably and could be one part of communities. In each center, it has a distinctive characteristic on its own such as size, management model, facility, user group, a type of data, objective as well as the potential of development which depends on different cultures and backgrounds. The outstanding center in developing countries such as Africa was established in April 1996 by ACACIA. This project aims to enable people in Africa know to about news in a modern age that might be useful for learners. Mostly, funding for the telecenter comes from UNESCO, ITU, IDRC, and NGOs.

Due to a lack of a standardized government administration in Africa, some politicians possess the monopoly power of an administration. Thus, it is apparent that ACACIA's project will move farther than any other centers. Experience showed that this project started out with its own communication technology network which served about 50 locations in 4 countries. These comprise of 40 places in South Africa, 14 sites in Senegal, 2 areas in Mozambique, and 3 places in Uganda.

Although there have been various limitations of each center, the primary purpose of ACACIA's project is how to effectively make it work by itself. In the next step, it tries to make a strategic development in that any project can be run in the same direction.

Colle and Roman (2003: 19) concluded lessons learned: from community telecenter experiences worldwide:

1. Community Telecenters should concentrate on being demand-driven. This means that you should systematically promote the value of information and keep in close contact with all groups in the community whose needs you must understand so that you know what their information and communication needs and wants are.

2.   Community Telecenters should think of their product as information and communication services, rather than information and communication technology. One of your important services is "adding value" to network information and databases (such as the www) that will make the information available and relevant to the users.

3.   Community Telecenters should facilitate the use of their services as two-way communication channels for members of the community, making it possible for people to share their ideas with others in addition to gathering information from others.

4.   Community Telecenters need to become part of the fabric of the community, in part by building partnerships and fostering participation and cooperation with other agencies. Building a community communication system with other media is an example of this cooperation.

5.   A telecenter can reach many people who can benefit from information – but who are not able, or who are afraid to use a telecenter – by working with intermediaries in the community. You can involve staff, health workers, teachers and others who may have good links to those elusive or reluctant people.

6.   Training is a vital part of the early life of a telecenter and it should continue as a regular part of the telecenter's priorities. Volunteers who help run the telecenter – a core of dedicated, enthusiastic and visible supporters in the community, those attracted to the benefits of the telecenter, and staff of local agencies – all need to be on the priority list for training. While technical training is important, knowing how to link the telecenter to community development efforts is also important.

7.   While community telecenters will be important places to work, they should make a serious effort to make the telecenter a nice place to be in.

D. Barriers to Community Telecenters

Every Telecenter is established with the main objective of providing community members with access to computer and telecommunications technology. Thus, it is not easy to make a telecenter viable and to make sure you have the sustainability of the telecenter in your community without any obstacles. It would be appropriate to look into some of the major hindrances to be aware of when setting up a community telecenter for success.

Callanan (1999: 23) said that significant barriers to a community telecenter exist within the following areas:

1. Attitude and Awareness: Attitude is a significant barrier to the mainstreaming of teleworking as a widely practiced and accepted method of working a telecenter. While most people, working or unemployed, are unaware of the real implications and benefits of a telecenter.

2. Technology – requirements, limitations and cost
3. Telecommunications infrastructure
4. Lack of training and/or career prospects
5. Social isolation: Telecenter opens up new working opportunities for underprivileged people or regions that are at a disadvantage by allowing people to earn and live at or near their home. However, for people who are already socially isolated, there is a danger that a telecenter, especially a home telecenter, could provide a solution to one problem (fiscal) but exacerbate another (social).

6. Operational Uncertainties - planning, fiscal and Health & Safety.

Colle (2000: 7-18) called in the question of telecenter effectiveness merging with issues of sustainability and viability. This leads us now to ten of the principal challenges that development-oriented telecenters face in this decade.

1. Concerted efforts to make telecenter content relevant to local needs. One of the biggest challenges telecenters face is providing appropriate information and services for community members. To survive, telecenters must be substantially demand-driven and this translates into the need to provide people in the host communities with access to relevant and useful content.

2. A commitment by policy-makers, and their support of that commitment with funding and organizational resources for multi-year programs. Policy makers can be an important force in the life or death of telecenters. One dimension of this relates to telecommunications and hardware issues: numbers of landlines, regulation of equipment and related tariff considerations, and ICT research and development support.

3. Partnerships for translating national policy into action through governmental and non-governmental bodies at the regional and local levels.

4. Local "champions" (innovators) who can mobilize others (early adopters, opinion leaders) to accept the vision of an ICT telecenter program.

5. The significant value of community participation in operating telecenters. It comes in various forms including participants as telecenter users, participants as telecenter staff volunteers, and participants as telecenter advisory groups. In most communities, participant volunteers offer a variety of benefits to multi-purpose telecenters. They contribute to the day-in, day-out supervision of the facilities - a potential personnel expense that many telecenters could not afford. But the volunteer has deeper significance: the variety of volunteers in a system provides telecenter clientele with personal models with whom they can identify and feel comfortable. This phenomenon occurs throughout the world, where one can find high school and college students, retired business people, active and retired school teachers, senior citizens, and others providing one-on-one and group training and assistance to others like themselves. In many parts of the world, women do not feel welcome in a telecenter because of the "maleness" of the environment and the

accompanying intimidation. The presence of self-confident women volunteers helps overcome some of these obstacles.

6. Clustering or have a network of telecenters to develop and share resources.

7. A systematic, persistent effort towards increasing community awareness about information and ICT as a valuable resource. It is important to emphasize that an effective endeavor to create locally relevant content is strongly connected to creating awareness about the information services (and potential opportunities) a telecenter may provide.

8. Research as a community telecenter management tool. Research for needs assessment and project evaluation is an important component of telecenter operations because a research program provides the tools for assessing community needs, fostering participation, and monitoring the financial viability of the telecenter.

9. Long term sustainability and business plans that fit the culture of the community. One of the most frequently suggested areas of training for telecenter managers was in the area of business planning aimed at making telecenters self-sufficient and sustainable.

Share (2001) concluded the crucial hindrances of a community telecenter are:

1. Unaware of the benefits of utilizing ICT.
2. Fearfulness and unfamiliarity with ICT.
3. Inadequate experience in using ICT.
4. Inadequate training in using ICT and proper information and education.
5. No supporting factors for rural development such as information experts.

6. Doubts on security and confidentiality of data.

Khumalo (2001: 3) summarized the main problems of community telecenters. There is no proper financial system at most of these telecentres. There is no clear understanding of the responsibilities and obligations. Security is another major concern. When a theft occurred at one telecenter, it was not clear whether or not the equipment was ensured.

Lessons from Solomon Island UNDP (cited in Kenji Saga, 2003) found that it has evidence to believe that the failures of a community telecenter comes from most prevalent obstacles which are

1. Lack of finances for scaling up
2. Lack of national ICT strategy
3. Need for more ICT coordination
4. High cost of IT
5. Lack of IT capacity, patent rights awareness
6. Lack of credit for rural enterprises
7. Uncertain legal situation for the Internet

Heeks and Kanashiro (2009) identified three main issues that hindered the use of the telecenter or access to it: lack of awareness, lack of motivation, and lack of information skills; that is, the ability to find relevant information using ICT. Moreover, Heeks and Kanashiro also pointed out that people in telecenters need to be trained in how information can contribute to development. We have found telecenter managers who know a lot about computers but do not know how to link potential benefits of a telecenter to health clinics, schools, agricultural extension, or the local government.

Rega (2010) defined seven major obstacles that influence people's opportunities to use the telecenter

1. Literacy: without literacy people cannot access ICT even if there is connectivity.

2. Relevance: telecenter need to be locally relevant to their community groups. Content should be relevant in terms of themes, language and reliability.

3. The culture of information: creating awareness or the importance of access to information in improving living conditions.

4. The cost of information: telecommunication services in the developing world still cost too much compared to per capita income, especially in rural areas.

5. Technophobia: there will be some members of any population in rural areas who are reluctant to use ICT technology. They may be afraid or suspicious of the new technology and this technophobia raises a barrier to broader use of ICT.

6. Complexity of ICT protocols: the psychological stress of wading through less than user-friendly internet and computer procedures can be intimidating and hinders access.

7. Power: firstly, there is a problem of electrical power and telephone lines, a connectivity-related issue. Secondly, there is also the problem of community power and who controls the ICT.

E. Key Success Factors of a Community Telecenter

To understand the challenge of making a telecenter in a developing country sustainable, it is helpful to look at some factors relating to the performance of a community telecenter (Jauernig, 2003:4). The starting point is that for telecenters to be a long-term solution, they must be sustainable (Khumalo, 2001:2) Factors that are crucial for a successful telecenter are more long-term.

Benjamin (2001: 3-4) concluded factors for a successful telecenter are as follows:

1. Good Management

The single greatest factor seems to be energetic, responsible and trusted managers. A local 'champion' of the project who will do whatever they can to make the project work, someone who is known and accepted in the community, and who will bring people in to use the centre. This is not the same as the most educated person. Computer and other skills can be taught – drive and respect cannot.

2. Develop new services

The better centers were able to develop new services. Most of the more successful telecenters were able to learn what services were needed in their community and adapt the centre to provide this.

3. External linkages

Another clear characteristic of the more successful centers was that they had links to external organizations. These linkages tended to greatly increase the chances of 'success' in the centre.

4. Networking

The better telecenters tended to be the ones that linked with other telecenters to share experiences, ideas and solutions.

Additionally, Benjamin also described that the project in South Africa has had very mixed results: a few extremely strong projects where local organizations could use the technologies to meet local needs; and many others where a combination of technical, financial and managerial problems or lack of capacity limited the effectiveness of the telecenters. One problem was that the focus of the projects was on the technology more than the development services or seeing how they will be applied.

Campbell (2001) saw that key issues for the success of a telecenter resemble the main concept of small businesses, for instance, clear objectives, proper infrastructure, and cooperation from outside.

Khumalo (2001: 2) mentioned that the important variables for a community telecenter comprise

1. The quality of services that meet the local needs.

2. The facility must be available for the community at all reasonable times.

3. Community telecenters must be sustainable. At least, the operator must generate revenue to cover the costs and make a reasonable surplus. There has to be a long-term solution.

Roger (2001: 85-88) proposed model of a successful community telecenter incorporates the following independent variables:

1. Community Telecenter Characteristics

a) A founder of Telecenter: a government agency, a research institution, or NGOs.

b) The level and quality of services and the product mix that is offered by the telecentre is likely to influence its adoption by the host community. Just as with the IC, service and product delivery should be sensitive to community requirements.

c) Software Tools must match the needs of the community associated with the use of each suitable language. The closer the software tools match the local needs, the more likely they will be used.

d) Financial Budget: Telecenter financing is critical to viability and sustainability.

e) The quality and responsiveness of management planning for maintaining suitable levels of service is important.

f) Community telecenter is able to effectively network with other centers in order to share experiences, cross-train ideas and promote joint learning.

g) Staff: staff provides training and assistance to community users. In addition, the role of the infomediary has been identified as an individual working in a telecenter and drawn from the community that the telecenter serves, who is computer literate and is capable of using internet technology in order to respond to requests from members of the community for information or for help in solving some problems that might yield to an internet enquiry.

2. Community Characteristics

a) Community Aspirations

Experience suggests that technology cannot function successfully in the absence of some form of community ambition for a better life. Moreover, aspirations often need to be ignited, sometimes by an outside influence, and they need to be kindled and re-kindled over time. The source of inspiration that sets off aspirations often changes during the adoption of the technology, sometimes to unexpected sources e.g. school children.

b) Learning

The communities are all capable of learning new things, skills, ideas, and roles. They blend new information with pre-existing knowledge and build it into something of lasting and growing value to themselves. Learning seems to take place at all levels of the community. The learning that then occurs is usually deeper and more focused on real needs than the learning that is introduced from outside.

c) Capacities

Learning often leads to expanded capacity, but this is of little value without the aspiration to take advantage of the extra capacity. The challenge is to be able to recognize the right time to engage with community capacities, i.e. when to trigger aspirations, or when to conduct training.

d) Community Organization

Community organization in this context relates to the role of coordinating the dynamics of many social processes that occur simultaneously towards a desirable result. Telecenter activities impact all sections of a community and they participate in many of the social processes that define its identity. Organization then, is a function of harnessing the social dynamics of a community towards its own betterment with, in our case, the introduction of new information. This usually requires some locus of community influence, but when new technologies are introduced this is often not the one occupied by the traditional leadership.

e) Unity

Some of the stories derived from research experience depict a sense of unity of purpose within the community that transcends the many differences that usually exist within any body of people.

f) Participation

Participation refers not only to the researcher-community relationships and the adoption of equality between them, but also to the inclusion of all sections of the community.

g) Relationships

Good relationships breed aspirations and accomplishment, which in turn generate further good relationships

h) Personalities

Opinion leaders, local champions and local leaders play an important role in stimulating telecenter adoption in community.

3. Information Characteristics

a) Information should be localized such as dialect, website, and database.

b) Information should be useful and useable

c) Information should be relevant and responsive to the local needs.

d) Information can be used and fulfill the needs of main commercial activities of the community.

4. Structural Conditions

a) Government policies

b) Political leadership

c) The participation of the major international donor and aid agencies such as the United Nations Development Program (UNDP) or the Canadian Government's International research Development Centre (IDRC) can heavily influence telecenter pilot projects and hence nation-wide roll-out programs.

5. Individual Characteristics

a) Personality

b) Demographics

    c) Computer anxiety

    d) Involvement with application development

    e) Expectations

    f) Training

    g) Education

6. IT Implementation Stages

    a) Initiation: realize the essential of IT Application and utilize it to solve problems in organization.

    b) Adoption: apply IT Application to organizations.

    c) Adaptation: IT Application needs to be developed, installed, and maintained.

    d) Acceptance: acknowledgement by members and convince them to adapt IT Application in their daily life.

    e) Routine: adapt IT Application in their daily lives.

    f) Infusion: optimize IT Application to produce the highest capacity of organization.

In the case of Thailand, monitoring a pilot project of a telecenter has the recommendation and guidance of community telecenter developer. (Parichard Siwaruk, 2002)

1. Selecting an area that is suitable for each pattern of a communication information center. Experiences have found that despite clear objectives and operations for select criteria, it has appeared that many pilot projects did not meet certain criteria. Thus it showed that they will face problems and obstacles about how to select the appropriate locations. On the other hand, it might be implied that the criteria did not reach the standards and cannot be possible in practice.

2. People, Community, and Strong Community Organization.

Lessons learned from a pilot project describe the essentials of supporting an organization in the sense of "Strong Community". In some cases, even though it can be seen as a picture of strong community, not any community organization is able to have strong financial management and be responsible to operate. On the other hand, if they pay more attention in selecting a strong organization and make that organization have more freedom to manage the center. This caused the relationship between organization and community to be at a "low point".

3. Self-managing and two-way consulting.

In starting community telecenters, it might be the best solution to have communities think and manage telecenters by themselves. An example of such a telecenter is the "three-leg house". However, this situation has not quite happened and also it is not guaranteed that other communities can imitate and manage the center successfully like the "three-leg house example". Practically, external organizations must be responsible for promoting and supporting the telecenter in terms of "funding". It is necessary in finding a balance between self-managing and two way consulting.

O'Neil (2002: 79-82) indicated that theories about the potential impacts of community telecenter fall into 5 key areas:

1. Strong democracy: Includes theories of democratic participation with a meaningful association of citizens within a civic community.

2. Social capital: Includes features of social organizations such as social networks and norms, and trusts that it will facilitate coordination and cooperation for mutual benefit.

3. Individual empowerment: Includes discussions of information literacy and ICT access for disadvantaged communities so that everyone has the opportunity for meaningful participation in an increasingly digitalized society.

4. Sense of community: Includes discussions of increasing community involvement and commitment to geographic communities.

5. Economic development opportunities. Include theories about the use of ICTs to encourage economic activity.

Saga (2003: 3) identifies key issues for the successful implementation of a community telecenter.

1. Powerful leadership with careful management
2. Participation from people in a rural area from the initial stage
3. Collection of sufficient information at a specific site
4. Identification of needs from the initial stage and design step by step development of service provision.
5. Small investment and low operational cost at the initial stage for commercial operations, and have an expandable system designed to meet increasing needs
6. Development of human resources and participation of rural people in operation (establish partnership with NGOs)

Lessons learn from Solomo Islands by UNDP (Saga, 2003: 4) studied success factors for rural telecenters.

1. Participation of communities
2. Holistic approach (training and capacity building)
3. Small but many (many sites with basic access initially)
4. Popular applications (opportunities school push-outs: location in community schools)

5. Support and development from the community

The manual 10 steps of sustainable implementation of Multipurpose Communication Telecenter: MCT was published by THAILAND-UNESCO (2003, cited in Kamonrat *et al*., 2003: 19-20)

Step 1: Starting from creating an understanding in the concept of telecenter. Participation refers not only to the involvement between center and community, but also the co-operation with the appointment of a Committee operation.

Step 2: Holding an Open Community Meeting and also surveying the needs and problems of community.

Step 3: Management by determining a clear major role of each Committee in each level such as Steering Committee, Management Committee and the Meeting Agenda.

Step 4: Staff Appointment such as job description and contract.

Step 5: Services and programs by enhancing the existing services and seeking for cohesion.

Step 6: Building and Equipment. The vital part of the requirement evaluation is needed such as building, furniture, equipment, hardware, and software.

Step 7: The planning process. It is started from situation analysis, mission and action plan, respectively.

Step 8: Financial Management such as fiscal budgeting and Grant application.

Step 9: Operating Procedures must be defined clearly.

Step 10: Customer Service and Issues such as Service Improvement, Continual Promotion, and Customer Specification.

Wuppertal Institute (2004) offered the following factors for the success of information centers drawn from experience of existing centers:

1. Adaptation to local circumstances

The content and level of information and assistance given to the target group should be determined by the knowledge, available infrastructure and equipment in the area where the center is set up. The needs and interests of local information users need to be thoroughly analyzed before the center's establishment as well as during its operation.

2. Provision of customized services

The information provided by the center should be customized to the customer's specific problems and should offer appropriate solutions instead of ready-made advice, which in many cases might not prove to be very helpful.

3. Quality management

Clients expect good service without exaggerations or empty promises. The service has to fulfill the clients' expectations and requirements. Hence, the services should be provided promptly and without delay. Furthermore, the information should be reliable, comprehensive and take into account the specific challenges of the client. To ensure that information centers fulfill these requirements an efficient quality management is necessary.

4. Profile development

To maximize its influence and provide high quality and suitable services, the center should aim to obtain a high and formal recognition from the government and industry for example by joining an established international network.

5. Educational capacity and R&D

In order for the center to induce resource efficiency improvements, a good number of high quality experts are needed. Through cooperation and interaction with educational institutions, industrial R&D departments and consultants, the center can reach and train more experts and direct public R&D in a more practice oriented way.

6. Continuous development

Becoming self-sustainable is critical for many centers since initial funding will normally run out after some years. They need to keep evolving to sustain income-generating activities by responding to demands from (potential) clients, while becoming more adept at obtaining donor funding for less profitable activities.

7. External financing and technical assistance

Countries with few financial resources and expertise can utilize opportunities from donor countries to establish a center and obtain informational materials and technical assistance. However it is advisable to set up a business plan so that they may become independent from international contributions.

From a review of community telecenter sustainability criteria from Jauernig (2003); the community telecenter cookbook for Africa (Jensen and Esterhuysen, 2001); It can be concluded Key Success Factors for telecenter which are as follows:

1. Telecommunication Technology Infrastructure.

a) Location and access

In general, it is common sense that a telecenter should be located in an appropriate place where local people and users can reach comfortably and access easily such as a community service organization, religious institution, school or foundation, and so on.

b) Information and Communication Technology System. It consists of the entire ICT infrastructure provided by a wide range of services. This may include computers, printers, scanners, fax machines, video conference, internet, broadband wireless network, and tele-education, etc. All ICT Infrastructure should be available and reliable.

c) Connectivity which means local people in the community can search for an abundance of information and can communicate with a high speed of internet without interruption.

d) Operational Stability. Permanent operational stability of telecenter services are key qualities that contribute to customer satisfaction. Especially in rural areas, infrastructure is often insufficient and unstable. So a telecenter should provide cooling equipment, power and an electrical-supply system, and an air-conditioned facility as well as uninterrupted - transmission system. These facilities can prepare for a serious emergency or damage which may occur unexpectedly.

e) Security. Burglary and theft are the most frequent reasons for telecenter failure. Especially in less densely populated areas, telecenters need to pay attention on how to secure their property. A series of actions to be considered in order to secure telecenter equipment and cash are

(1) Constant vigilance

(2) Marking the equipment with special identification marks

(3) Create an inventory of serial numbers in order to be able to identify stolen items.

(4) Securing equipment to desks and benches

(5) Install strong locks, window bars and alarm systems

(6) If the telecenter is free-standing, it may be required to have security fencing or even to employ guards during day and night time.

Additionally, security can be extended from physical to data security. It will have to be guarded against unauthorized access from inside or outside the facility as well as against loss caused by damage to equipment (fire, water, etc.)

f) Infrastructure Maintenance. Infrastructure and equipment need careful and proper maintenance in order to benefit the telecenter as long as possible. Telecenter management should pay tribute to the fact that many of its customers are inexperienced in handling ICT equipment by establishing rules that help to maintain it in a good state. For instance, the window should be closed at all times in order to prevent dust from entering the rooms. Also, users should be allowed to enter the rooms of the telecenter only with shoes that are free from sand or dust, as both can harm technical equipment.

2. Community Networking

a) Create community networking between the telecenter and community. Like every organization, community telecenters should organize themselves and network in order to share resources and experiences among participants. This focuses on facilitating the interaction and mutual support of each telecenter. The idea of community networking should be extended to include links among government sectors, local leaders, community organization, local organization, etc.

b) Information System Management. To share resources and experiences between community networks, each telecenter should be functioned as a house of communication and information system in order to know updating activities of community network.

c) Transparency and accountability. The performance of the network has to be transparent and accountable. Every member in the community can not only scrutinize, but can also be a part of this network.

d) Reinforcement and leadership development. The reinforcement and development for leaders are vital for telecenter success. The qualified leader must have full knowledge, ability, and skills as well as a readiness for community networking.

e) Setting up the group responsible for the community telecenter. On a long-term basis, for ensuring its continued success and development, a management committee is set up in order to take care of the start-up and day-to-day running of the telecenter. This committee is normally comprised of some staff members, local people, community leaders, local organization representatives, etc.

3. Community Participation

a) Community Participation means opportunities for people in the community to participate in identifying their needs and requirements, planning for an action plan, and getting involved in any activities in order to meet their own needs.

b) Community Volunteers. All members in the community who have knowledge, abilities, and skills in ICT usage can volunteer to operate the telecenter. Also, a competent manager who is a visionary and able to make ICT concepts understandable for the community is one of the most important ingredients for community telecenter sustainability.

c) Building a learning process. In a community telecenter, the results of actively participating, no matter in an informal or formal way produces a culture of learning and creates a learning process among people in the community.

4. Strategic Management

a) Ownership. It explains to public-private partnership in running a community telecenter. While the private sector would be responsible for providing the investment, the public sector and government would be required to create an enabling environment. This would include infrastructure development and public subsidies intended to reduce operational cost and encourage the private sector to invest and to have the center produce more development value.

b) Business Planning. A telecenter needs a plan of operation, so does every sector. It should act as a business sector by identifying its scope such as vision, mission and objectives. Furthermore, the process of planning a community telecenter includes

(1) Analyzing the scope of needs and user trend

(2) Competitor's analysis and current distribution of market shares.

(3) Management and staff structure (profiles of qualification, responsibilities, and payment schemes)

(4) Operational strategy (selection of physical location, facility, infrastructure, equipment and software)

(5) Financial strategy

c) Strategic Plan. From 4.2 above, business planning should be translated into documentation which is often called a "Strategic Plan". The content of this plan comprises of services, business processes, users or customers, human resources, and financial management.

5. Service Relevance. To realize sustainability of telecenter services and service relevance by means of a marketing strategy providing well designed, affordable and promoted services that respond to local needs and are offered in a supportive learning environment.

a) Service Needs Assessment. As the services are functions of the infrastructure. However, infrastructure will not create beneficial services by itself. In order to be successful, services need to be intelligently modeled to fit the users' needs. Prior to the service design of a telecenter, a thorough service needs assessment, should identify the needs for communication, information, and training-related services that are present among the target customers. Depending on the local situation, a needs assessment can include different approaches, conduct interviews, surveys, and focus group sessions.

b) Local Context and Local Language. It is provided in a language that is easily understood by and has local context that is relevant to current and potential telecenter customers who are able to understand the service.

c) Promotional Activities. A framework of promotional activities before and after community telecenter implementation should address individual services and the value of ICT for development in general. This helps to create a local image of the information and communication technology. Local people can realize the use of ICT and can access the services of telecenter.

d) Educational Workshops.

The more complex a service is or seems to be, the more important it is to guide customers into its use in order to remove inner barriers and make them experience and really understand and appropriate what the service can do. An educational workshop will belong to the marketing activities, not the training activities of the telecenter. It should be comprehensive enough to convey a "feeling"

and understanding of the service. Educational workshops might answer questions of the following nature:

        (1) What is the internet?

        (2) Why is information important?

        (3) How could I benefit from information obtained via the internet?

        (4) Why not continue to live without ICTs?

    f) User Training and Assistance.

The range of user training services offered in the telecenter should follow the needs identified in the course of service needs assessments. Training service is catered to local people to know how to use computers and how to deal with the problems that may occur during the use of these services.

    6. Human Resources.

    a) Qualification of staff. Knowledge and skills in the use of ICT are major criteria for hiring staff. Especially in rural areas, community telecenter staff with very high profile qualification is difficult to find particularly in the countryside. So, at least a telecenter should employ people who are interested to learn new skills, have good community skills, and like to work with others.

    b) Payment and Incentives.

Employees and staff should be paid an appropriate salary. However, a certain salary level and incentive schemes should be maintained to limit frequent fluctuation of employees and shortage. Employing volunteers is another possibility to cope with shortage of financial means. To deal with the obstacle of small funds is to engage volunteers from the community that work for the telecenter without payment. Additionally, volunteers can lead to various problems in retaining and motivating them in the long run. However, a community telecenter may find other

incentives for them such as training, free use of services and equipment, or college credits in the local university instead.

c) A number of staff.

Generally, it is important that a community telecenter should have enough employees and staff who are capable of working. While competent community telecenter staff as such is an essential factor, the role of the leader is of utmost importance. It is vital to have a "local champion", an innovator who is able to mobilize others to accept the vision of an ICT telecenter program. He or she should be a visionary and have the potential to make ICT concepts understandable for the community.

d) Training of community telecenter Staff.

Staff should be familiar with the mission and goals of the telecenter as well as with procedures and best practices. High-quality ongoing training is crucial to ensure that staff members are familiar with these technical resources, aware of their strengths and weaknesses, and capable of using their strengths to the maximum.

e) Training of community telecenter leader. Besides training staff, the leader of a telecenter needs to be trained in financial planning, controlling, and marketing techniques, staff management as well as ICT skills and computer literacy.

f) Evaluation and recommendation. Staff and leader evaluation and recommendation should be developed in order to use them as a tool to measure their performances and to recognize their flaws that have been improved immediately.

g) Roles of Leadership. A leader who is an innovator will enable people to accept new technologies and benefits of using a telecenter. Even though computer and ICT skills can be taught, it is not easy to force local people to see the essentials of ICT which cannot be taught elsewhere.

7. Financial Support and Budget.

 a) Financial Plan. It is a key factor for community telecenter sustainability. A Telecenter should establish a concrete financial plan which contains the status of all expenditures, earnings and cash flows. Moreover, it should also include the cost of furniture and equipment purchase, telephone installment, facility expenses, salaries, and training, etc.

 b) Financial Support and measurement. Community telecenter should mobilize funding that will be the operating budget in the center.

 c) Financial controlling mechanism. In addition to financial planning, a community telecenter should have a financial controlling mechanism by reviewing their actual expenditures every 3 months.

8. User behaviors

 a) Comfortability and accessibility for usage
 b) Frequency of visits
 c) Length of telecenter visit
 d) Purposes or use of services
 e) Benefits of using services

9. Policy of Community Telecenter.

 a) A framework of setting up a community telecenter. It is suitable for telecenter success to have a clear set of regulations in setting up a community telecenter on both local and international levels.

b) Regulations for establishing community telecenter. It can be used as a tool to meet the standards of implementation. For example, a location that provides facilities such as water and an electricity supply as well as ICT infrastructures. Also, so that people can easily access the services of their community telecenter.

II. The concept of Network Management

The idea of Network Management has emerged since individuals desired to communicate in order to make friends with others, groups, and other networks. The main purpose of his or her communication is to develop his/her potential by expecting to have a certain strategy of network in order to solve his/her problems and create a learning process development. By means of network management, this primary concept is based on an individual who is involved in many kinds of situations and needs to resolve these situations with his/her group of power and network. This concept focuses on the process of self-managing a network. (Phramahasutid Arpaglo, 2004)

Parichart Sathapitanon and Chaiwat Thirepanh (2003: 13) described major issues of strategic-oriented network management in six features named as "star alliances" which are:

1. Mutual objective: In order to run network management effectively, all parties can be able to identify the shared objectives with their agreement and requirement.

2. Individual: It is necessary for a network management that each individual should have a conscience, should have the necessary expertise in his/her field, and should participate in the working process. This is the advantage for being a member of a network.

3. Linkage: Another issue that is a crucial part of network management lies in the strategy of linkage in terms of connecting between activities. The Coordination Center will operate this link with its existing technology.

4. Creating shared sensibility: After joining in a network, all members should have a feeling of shared sensibility in the working process of a network in order to drive the target to reach its destination.

5. Transparency and Accountability System Development: It is automatically implied that a function of network must be developed to be a transparent and accountable system in which all members can examine. It will lead to the establishment of a mutual good feeling among each other and will also persuade everyone who desires to be a part of the network to join in.

6. Information System Management: Due to the sharing of information and the updating of network activities, ICT system will play a role in a continual network development.

A. **Network Management**

Considering network management, there are many various methods to deal with. It depends on each individual, group, or organization. Yet under effective network management, all members and stakeholders should understand the concept of network management clearly and have to accept the results from the consequences of network development in the long run.

Phramahasutid Arpaglo (2004: 129-134) mentioned a method of network management. These details are:

1. Set an objective and agreement. It deals with the agreements of activities and future benefits including the assignment of missions to each individual or working group such as providing an information group, coordination group, and

budgeting group, etc. The necessity of an agreement is expected to make the working process of a network work properly and effectively which leads to future benefits in a network.

2.   Identify role, responsibility, and network plan. It describes the detail of determining roles and responsibilities of stakeholders who want to join into a network, especially a head of a network and various groups. While the determination of rules and regulations acts as a mechanism of setting its missions and implementation which follow through the setting plan, a network plan is to assign each individual or any group to be a host in supporting the working process of a network more effectively.

3.   Strengthen and develop a head of network. Under the rubric of "network management" the reinforcement and development of a head of network are extremely needed. It can be seen that a leader is able to change the alteration into success which results in meeting the objectives. On the other hand, if a qualified leader who has a lot of knowledge, capabilities, and skills is ready for applying such knowledge in network management, the ongoing process of network will be improved.

4.   Manage Communication System. On a regular basis, communication between individuals and groups as well as network is a vital part for members of a network to share "knowledge" and to maintain good working relationships among another. This process should be two-way communication which can reflect the voice of all members in cooperation.

5.   Promote a continual learning process. In order to attain the objective of a network management, all members and stakeholders in that particular network should be prompted to participate in the working process. The learning process is not only to educate the perception of learning, but also to practice in their real life. There are many steps of a learning process. First, it starts from analyzing the community and network. Secondly, the supporting process may occur in order to create social power.

The consequences of other steps are the mobilization of resources, leadership management, network management, operational research, and participatory monitoring and evaluation, respectively.

Therefore, a learning process will happen continuously, if a coordinating leader and all members realize the essentials of learning which can begin from lessons learned and assessed continually. Subsequently, this will create a stabile network in many aspects such as knowledge, techniques, experiences, and so on.

6. Have Participatory monitoring and evaluation. Monitoring and evaluating the network is often carried out by all parties. It is apparently clear that the benefit of this will help all parties see both their potential and limitations by themselves and try to find the best solution to resolve their problems at the same time. No matter who you are, everyone in a network has responsibilities in reaching the learning process and also implementing any kinds of activities that lead to the set goals and objectives effectively.

In participatory monitoring and evaluation, all members should examine the working process from the beginning until the end at all levels in a transparent way. In other words, there are many definitions of participatory monitoring and evaluation. In this case, it may be defined as the Advancement Project Report. The purpose of such a report led us to the basic questions of how to manage the activities and performance of a network and how to deal with problems and obstacles in an operation process, and how to improve them correctly.

7. Maintain and promote good relations. As the objectives, goals, missions, and tasks have already been identified by all members, the particular process in making the network run continuously is to have a stabile communication network system and to organize activities continually such as newsletters every 3 months, conduct a performance report over the last 6 months and hold an annual meeting together with fieldwork for monitoring and evaluation. All these things

provide a summarizing description of the promotion and maintenance in a good working relationship in a network.

Moreover, all members will also know about progression of activities. In addition, the relationship of maintenance and promotion may refer to maintain the relationship level between a leader and colleagues in terms of "equality". Furthermore, it should provide a guideline for new generations to perform their duties well in order to strengthen the network management more firmly.

B. Community Network Management

Similar to network management, an interesting point of community network management is to consider the capability and size of the community in both activity and area. At best, one way to manage a community network is to hold the developing problems which occur in every community to be a principle strategy of community relationship reinforcement. Principles of Community Network Management are comprised of

1. Management based on the learning process of people in a community.
2. Management conforming to the way of living and the culture of community.
3. Management suited to the context and situations of community level.

The Scope of consideration for procedures and methods in community network management should clearly detail:

1. Studying community and community environment. The importance of studying community circumstances is to know the guidelines for systematic analysis in a community which results in promoting effective network management. Also, it is oriented on studying participating communities for those who are involved within the community. In studying community, community information in different kinds of

aspects should be analyzed in context and situations that occur within the community such as economy, society, and culture.

2.   Searching for a group leader. The search method of a group leader is necessary to strengthen an aggregation of network on a community level. In the case of Thai society, the reverence of a leader in a community, for instance, priests and the elderly will play an important role in the implementation of network activities. In some cases, the evolution of some networks stem from a leader who has the capacity to persuade villagers to join together. For this reason, searching for a significant leader in the community is one of the techniques for network management.

3.   Reinforcing the awareness of aggregation and network. This is a certain method to create the attention on aggregation and the involvement of community activities which occur in a community. In other words, it can make a community aware and see the essential benefits of aggregation in order to solve the existing problems and situations within the community together with presenting alternative information to manage such problems. In the process of realizing aggregation and network, it must be done carefully by focusing on the participation of people in all sectors.

4.   Organizing activities and relationship levels of community. The necessity of organizing activities is necessary to upgrade the relations of people in a community. The effects will lead to network management and a revision of existing problems within the community. Additionally, these activities must be in line with various ways of life in a community and approach social development as a whole. There are many characteristics of activity development that strengthen relations in a community. First, it should be simple. Second, it can be accessed by rites, beliefs, and actions which can bring about happiness and prosperity for villagers in their respective community.

5. Developing an information system. There has been wide discussion on which system to manage within a community. For network management, it is important to develop an information system within the community and network in order to acknowledge in existing activities together. Meanwhile, this system can support a communication system between members in their community and network in order to be a stage of sharing knowledge among others in a particular network. In the development of information system, it should be done by choosing uncomplicated methods, for example, community database, distributing-news station, list of community resources, and so on.

6. Promoting a learning process of a network. It is necessary for the community and network to promote a learning process. According to a network developer, people in a community should focus on learning which involves with ways of life and situations in a community along with the management of new things.

7. Summarizing lessons and enlarging the network process. In the long-run, to summarize lessons learned is a vital part of community and network development. It can help people in their community to learn and develop new knowledge. It is obvious that the more it is applicable in real situations, the greater the lesson learnt will be important. Eventually, it will become an enlargement of the network process and a wider community development.

Somphan Techa-a-tik (1994: 97) pointed out that the outstanding feature for the strength of a network in a community level can be divided into 2 groups, which are:

1. Internal community network. It should be considered as 3 issues that are the participation of villagers, the results of activities, and the strength of the leader.

2. External community network such as linkage of local works and a learning process for outsiders.

Eberherd (1994 cited in Narumol Nirathorn, 1999) stated that the necessity for success in networking consists of the strong obligation between people in a community, the continual development, the adherence of a long term commitment, and the empowerment of network organizations to show their capabilities and leading roles.

Pan Kimpee (1997: 30-31) described that the successful procedures for a learning network management should be specified in 2 aspects. These include:

1. Promote a learning process. Particularly in strengthening activities for those who are in community to share systematic learning which emphasizes on analyzing the situation of problems, acquiring the alternatives for resolving such problems including coordinating with other groups in the community that promote a learning process.

2. Establish a learning network. This example is to coordinate the linkage between other organizations in a community and organizations outside the community. As a coordinator of the learning process, people in the community should accumulate their resources for continuous operation in areas of knowledge, guest speaking, construction capacity, etc.

Meanwhile, key success factors of a learning network are as follows:

1. Internal factors. Similar to the important components of network management, the essential internal factors for a learning network depends on the awareness and capability of the leader in establishing a group learning process, the implementation of continual activities, and the ability of linking in an organizational network by focusing on a self-learning process.

2. External factors. These factors usually deal with the dissemination on new ideas about community development, the concentration on government policies continuously, and the encouragement from outside.

C. A learning Process of Community

The definition of the learning process in a community is process of translation knowledge that is the key to develop a sustainable community. In terms of a learning process in the community, it should have:

1. Resources for learning and exploit them as knowledge assets. In this case there are various sources of available knowledge whether individual or in a place that is a treasury of collective knowledge in a variety of fields within rural communities such as village doctors, retired governors, specific experts, information centers, and schools.

2. Pass on knowledge into villages in various forms. For example, documentation, public relations, disseminating-news station, translation of knowledge, local knowledge and wisdom, shared experiences, seminars and training campaigns.

D. Accomplishments of network

Consequences of being a particular network will cause the learning process and community to develop continuously. The details are as follows:

1. A learning process. It is clear that no matter what individuals or stockholders who are in charge of implementing a network, one of the advantages in a learning process is that people can gain more knowledge, abilities, and experience. After sharing their knowledge and working together, individuals and organizations can be able to adjust themselves in acquiring new knowledge, creating advanced methods, and be united on all fronts. Thus, all of these can be attributed to the effective working process of a network in all aspects.

2.   Opportunity for resolving problems. A number of network groups try to force their own group to resolve their problems. Due to complicated problems, it is not easy for some groups to achieve in finding the best solution to solve their problems. As a result of this, it is a great opportunity for network groups to encourage others to participate in brainstorming on resolving problems together. On the other hand, if it does not have the aggregation of a network, the opportunity to resolve problems cannot occur within the rural community.

3.   Self sufficiency. In a strong working process of a community network, all members in the network can survive without requiring any outside aid which will become sustainable and be able to live in their own communities. In this case, the term of "self sufficiency" is usually applied in capital, resources, knowledge, and management in which it leads to the social development and the potential development of a continuous network. For instance, agriculturists who work with alternative agriculture and organisms-agriculture cooperate in producing and distributing products that are clear of chemical substance to customers.

Besides, these agriculturists who develop their groups to be groups of alternative agriculture network in terms of self sufficiency on both social and economical aspects.

4.   Resource Management in the local community. In Thai society, most of the community networks are area-oriented in which people help to form them by focusing on the revision of deficiencies in a local level, particularly in resource management such as soil, water, forest, and river basin. If no one joined together in a community network, the process of resources management may not be generated at all. Finally, any weaknesses that have existed are harder to cure. Therefore, to be a network, the aggregation is a crucial part for success in developing resource management throughout a local community.

5. The process of driving policy. Recently, a number of issues on policy problem could be resolved by the power of network and policy management. Some problems are associated with many parties. Sometimes, such problems could not be collected by using the authority of a network and local community. Consequently, the linking together of a network and the association of others can make community networks have more bargaining powers. The more analysis of information and the presentation of accurate facts, the higher the process on the revision of policy problems will be.

6. Power or Authority. Hidden power is derived from the consolidation of organizational groups and networks. It is clear that this power cannot arise, if no groups join together. The authority of gathering, sometimes, may not affect directly, but it influences indirectly for others to look up with great respect and to gain more bargaining power in economical, social, and political aspects.

From above, accomplishments of a network are just only one part of the successfulness of networks. However, the most important part in being a network more than achieving a network directly is the harmony and unity with all members and people in society. Regardless of its objectives and goals, one thing that all networks should implement considerably is the establishment of friendship and interdependence within a community. Therefore, both friendship and interdependence are actually key componets to carry out tasks and missions in a network to reach the expected target.

III. The Concept of Community Participation

Community participation is one of the key ingredients of an empowered community. Participation is the heart that pumps the community's life blood. The most obvious principle of participation is that many people are involved. Participating communities engage many people in their work. Participating communities operate openly and with an open mind. They are not controlled by any single organization, group, or philosophy, and their leadership is used to facilitate discussion of diverse

viewpoints, rather than to push its own agenda. Leaders are not ego-driven but are focused on operating a high-quality, open decision-making process. Communities seeking to empower themselves can build active citizen participation by welcoming it, creating valuable roles for each person to play, actively reaching out to build inclusive participation, and creating and supporting meaningful volunteer opportunities

A. The importance of participation

Participation is part of any social group and fundamental to developing and strengthening a well-functioning community. The dynamics of a particular participatory structure are determined by the culture(s) of the group, and their beliefs, norms, values and power relationships. Participation creates opportunities for people to solve their own problems and can lead to growing self-esteem and help them overcome trauma.

Sujin Doaverakhun (1992) emphasized on the necessity of people's participation. The details are as follows:

1. People's participation is a legal right for everyone who must accept and esteem. This means to get people to participate in expressing adjusting to different ways of life.

2. It cannot be refused that the work development must involve many people and also it is necessary for those people to have rights to vote.

3. In the past, there were many strategies to develop participation but would not affect specific groups who are disadvantaged or living in poverty. On the other hand, these strategies would directly increase more opportunities to people who are advantaged instead. For this reason, it needed to adjust new strategies for development by encouraging all people to participate in the process of planning more or less.

4. Experience found that most of the projects were succeeded by means of people's participation in the form of gathering and setting up an organization. However, there were many examples of failed projects due to a lack in people's participation.

5. People's participation is an issue of group operation or group action which results from the commitment of each member in order to protect his or her benefits. Additionally, this participation will provide common interests at the same time.

6. People's participation is an indicator of community development. The more people participate, the higher people gain benefits from development.

7. People know what they need, what problems there are, and how they can handle certain problems, if they receive opportunities for participation in activity development. This can help any projects to serve the needs of people in a community.

8. Active participation can help people's actions to flow peacefully which result in a pattern of change that will be orderly, systematic, and acceptable.

9. Recently, there was a government policy to have all people participate in all projects pertaining to the local community following the philosophy of development.

In a participating community, no distinctions are drawn among various groups and types of personalities who offer themselves to community involvement. All people are actively welcomed into useful roles, regardless of their color, age, race, prior community involvement, educational background, occupation, personal reputation, handicap, language, appearance, religion, or any other factor. Participating communities know and recognize that, truly, we are all made equal, that we have an equal right to share in the work and benefits of community enhancement, as well as in

its costs. So, participation is important because it builds dignity and self-esteem and helps to ensure that interventions are appropriate and effective.

B. A definition of Participation

There are many people who have their definition of participation which are:

In 1990, Somyoth Naweekarn described that the participation is based on all activities. For example, the term of participation in administration is to open the scope of administration widely and to give all people freedom of participation in administration which is a way of penetration and spans control from top-down to a bottom-up level in an organization.

Yougyoth Burasith (1991: 66-68) gave a definition of participation in 3 dimensions which are:

1. Participate in decision-making regarding what to do and how to do it.
2. Sacrifice in achieving the results of that decision-making.
3. Participate in allocating the benefits of implementation.

Sermsuk Wisalaporn (1994) defined this participation as a person or a group of people who come to join, help and support in all matters and activities. Additionally, it refers to participation in the process of decision-making or administration.

Prayoon Sriprasart *et al.* (1994) pointed out that in terms of management and educational administration, people's participation is to give an opportunity for people to be a committee within an agency. To take part in operating activities or to express their opinions for the implementation of an agency which is responsibility in management at different levels involving ministry, department, province, district, and academy.

Eakachai Kheesukkapun (1995: 237) stated that the efficiency of an organization depends on the gathering of the individual who is involved with organizing and operating his or her tasks to achieve certain goals. One approach in brainstorming ideas and intelligence falls into a word of "participation". This method will give opportunities for an individual to participate in the involvement of an operation and be able to implement anything. Consequently, this individual will have strong commitments to the organization that is shown in figure 1:

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┌─────────────────────┐
│    Participation     │
└─────────────────────┘
           │
           ▼
┌─────────────────────┐
│     Involvement      │
└─────────────────────┘
           │
           ▼
┌─────────────────────┐
│     Commitment       │
└─────────────────────┘
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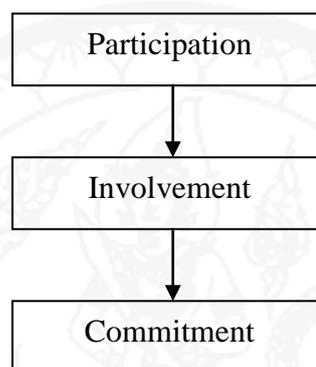
Figure 1 The result of participating in an organization
Source: Chanya Apipalakul (2002: 20)

Meth Methkarrhunjitha (1998: 17) stated that giving an opportunity for people no matter directly or indirectly should be acted on the characteristic of co-awareness, co-thinking, and co-operation that affects them and their communities.

In conclusion, participation means to give an opportunity to a person or a group of people to take part in implementing tasks and making decisions in an organization. Eventually, this individual will be involved and committed to all members and the organization which will bring about the benefits for him/her and the organization as a whole.

C. A definition of community participation

According to the concept of participation, the notion of popular participation and that of community participation are interlinked. The former is concerned with broad issues of social development and the creation of opportunities for the involvement of people in the political, economical and society of a nation, the latter connotes the direct involvement of ordinary people in local affairs. Other meanings of community participation are as follows:

In 1986, Pakorn Priyakorn advised that people's participation on behalf of society's membership is in the contexts of social development, economy, politics, and culture can justify the cognition of development and indigenous knowledge of self-confidence in controlling and distributing the existing resources to sustainable living in social and economic benefits toward the worth of their dignity.

Sinetip Sukatipun (1991) stated that the participation is a mechanism of changing development from public sectors to people sectors. Thus, community participation means the empowerment of people to participate at least in an initiating plan, implementing any kinds of activities that are related to the well-being and overall future of people in their community.

In 1997, Sanay Jamarik gave a meaning of community participation that it is to get people to be a generator of problems and a leader in all aspects. However, it is not the determination of an outsider that encourages people to join in, but it has to be the creativity of people inside the community. Those people must be representatives of all people in decision-making for setting social goals, allocating resources in achieving those goals, and following up an action plan for other projects.

Kunnikar Chomdee (1997) stated that the development is often interrelated to community participation in the sense of getting people to make decisions, to identify problems and the needs of other people by themselves. This will generate the empowerment of people, groups, and community organizations in order

to mobilize their capabilities on resource management, decision-making, and supervision on any activities within their community.

Meanwhile, not everyone will be as defensive; on the contrary, they have the abilities to live their own lives and can be able to upgrade their quality of living. Moreover, the advantages of people's participation can develop the potential of people and community in the fields of indigenous knowledge, skills, abilities, and management. Also, at least people can see through the changing of the world wisely.

D. The process of participation

Sanay Jamarik (1997) divided participation into 5 steps which are:

1. Participation in searching for and prioritizing problems.
2. Participation in analyzing causes and sources of problems.
3. Participation in selecting methods and planning in the revision of problems.
4. Participation in following up an action plan.
5. Participation in evaluating, analyzing problems, obstacles, and key success factors.

Parichart Varilesathein *et al.* (2003) mentioned about the characteristics of participation in 2 groups which are:

1. Participation is a process of development by getting people to participate in all development processes from the beginning to the end of a project such as searching for problems, planning for decision-making, mobilizing local technology and resources, managing and evaluating, including getting benefits of projects. Anyhow, for any kinds of project developments, it should be associated with ways of life and culture of community as well.

2. Political participation. This can be classified into 2 categories which are:

a) Promotion of rights and powers of a citizen. In order to develop capabilities in maintaining common interests, people and the community should control the using and distributing of community resources. These will lead to the occurrence of processes and structures that people in a community can exhibit their own abilities and gain more benefits from community development.

b) The changing mechanism of development from government to people is a decentralization of power in planning from central to a regional sector so that it can be independent in management and has political and administrative powers. This also includes negotiating power in managing resources to be the same standard so that people can be able to scrutinize all processes at all times. It might be said that this mechanism represents a reversion of power in development to people in a community in order to participate in determining their own future.

Colle and Roman (2002: 2) addressed some basic questions about participation in the telecenter. The details are as follows:

1. Why is participation important to this project? Because it conveys a sense of community ownership; it provides indigenous wisdom; it helps reflect community values and will help us identify information needs; it provides important resources, such as volunteers or technical expertise, at a favorable cost; and some people need the telecenter's services.

2. Who should participate? The answers may flow out of the first question, but they should be made explicit; it is not enough to say "the community." What groups of people should receive specific attention because of the possibility they will be marginalized — like women, poor people, minorities, and the elderly.

3. How might people participate? The easy answer is to say that all can participate through their use of the ICT facilities. But there are other potential facets of community participation in a telecenter: volunteers who oversee daily operations, tutors who give lessons, advisory groups for different aspects of the operations, people who provide links to other community organizations, and people who manage particular data bases and add value to information resources.

4. How much participation should be sought? Is maximum participation the goal, or should there be a target called optimal participation? Some would advocate a kind of participation where the community is fully responsible for the telecenter, from policies and management to raising money and caretaking. Local culture and people resources may dictate a more limited role for the general community. It is not hard to imagine situations where there can be too much participation. Agreement needs to be reached on the "how much" issue.

5. When should participation take place? This depends on what kind of participation (the how) is being considered. By putting participation into the planning stage and being specific about the timing avoids the "we know it's important but haven't got to that yet" defense.

6. What incentives can be offered to those who volunteer to participate? Benefits from the information services may satisfy many. Money and public recognition are important, but so too are special privileges regarding the use of telecenter facilities or, for telecenter volunteers, discounts from shops in the community (which is a way that merchants can participate).

Besides, Colle and Roman looked at some of the obstacles that need to be addressed in getting widespread participation in telecenter initiatives.

1. Economic obstacles to participation. Can the community pay for the services? Acknowledging that you must have a business plan for the telecenter's sustainability, you will need to consider what services can people afford, and who might be excluded if there are charges for various services. Research and planning

will reveal what services are feasible and affordable. We can also ask another question: even if community members are able to afford the services, is the community willing to pay? The approach we take may determine whether those who use the telecenter are participants or just clientele.

2. Physical obstacles to participation. Do community members have problems in accessing the center? We have to ask ourselves: where is the telecenter located? It is clear that if the telecenter is away from the usual community meeting points, it might hinder participation. So it is the community that decides where it should be placed, in fact, participating in an important decision related to the telecenter's operation.

3. Social obstacles to participation. Are there any social (including gender and age) or ethnic reasons that impede the participation of some community members in telecenter activities? It may be difficult to engage some members of the community in a participatory process because they are marginalized, geographically distant, or very busy. Telecenters should be flexible, adaptive, and most importantly creative in encouraging these community members to participate.

4. Political obstacles to participation. Some groups within the community may be unfriendly or even hostile to each other which can make effective collaboration among them difficult. The telecenter manager may not be able to eliminate these tensions; however, the manager may still be able to gather input from these conflicting groups by meeting with each of them separately. Are there political reasons that restrain the participation of some people? If a telecenter is politicized, it can create power struggles. The telecenter cannot be politically driven, because it is for the community." Associating a telecenter with a partisan organization such as a political party or religious group runs the risk of excluding non-members of those groups. There are also more subtle aspects of political power. For example, those people in power may discourage or obstruct the community's use of information technology because of potential challenge to their authority. In Mexico, we asked a school girl in a telecenter if her teacher encouraged her to use a computer for her

school work. "No," said the girl, "the teacher is afraid of the computer because we might learn something she doesn't know."

5. Public awareness. Does the community know about the telecenter? The obstacle to participation here has two parts: awareness that the telecenter exists and awareness of what benefits there are from the telecenter. The second of these is the more challenging. The question of benefits is closely related to how people in the community think about the telecenter's relevance to them.

In India, the Swaminathan Foundation is making a big effort in this direction: trying to make the telecenter relevant to the surrounding communities. As part of their telecenter project, they have established a valuable additional telecenter. This center collects and repackages information (thus making the information locally relevant) on a daily basis, and makes it available to a network of telecenters through a wireless communication system.

6. Technophobia is one of the obstacles that prevent the community from getting involved in the activities of telecenters, either as users of the services or in other aspects of a telecenter's program. Continuous efforts to familiarize key people in the community with the process are an important tactic. Young people, who tend to learn and value technology quickly, can be used as a path to getting parents involved. Training programs for community health workers not only gets them involved, but also may lead them to influencing their clients to use the telecenter services. Similar approaches can be made with teachers and extension agents

In 2003, Colle and Roman stated that participation can lead to partnerships and to be an indicator of sustainability. It is a fundamental *component* of most community-based sustainable projects, and it is also a *measurement* of the success of the telecenter in meeting community needs. However, developing and using participation takes time and requires a high investment of energy, particularly in the beginning stages. These are the keys to telecenter success and sustainability.

1. Involving a variety of stakeholders.

The key component to a successful participatory process is the involvement of the stakeholders who will use the telecenter, directly or indirectly. In most cases, this will include representatives of the *entire* community. Special attention and energy should be given to attracting typically under-represented or marginalized groups (for example, poor people, women, minorities, the elderly) to the telecenter.

A participatory process that only includes community members from the dominant class or favored sectors will not adequately bring attention to the multiple interests and needs of the entire community, which the telecenter should try to serve. Some stakeholders may not agree with including representatives from *all* community sectors; however, a successful participatory process involves not only *including* these under-represented groups, but also making them feel comfortable with the process and incorporating them as partners in your operations.

2. Evaluating community needs through continuous feedback.

Participation is an on-going process. A community is a dynamic body that constantly responds to new social and environmental conditions and often changes in the process. As such, the needs and desires of a community are also continually changing. To operate telecenters in the most effective way, telecenter managers must continually assess the needs of the community to ensure that the telecenter is up-to-date in meeting those needs. One of the best ways to ensure that the emerging needs are met is to *ask* the community. Can this be done by making participation a part of the management policy of a telecenter?

Participation should not only be promoted, it should also be measured. By conducting regular analysis studies, telecenter personnel will be able to measure progress and identify areas in which to consider providing information services. A needs analysis in a community serves the double purpose of collecting assessments

from outside the telecenter as well as spurring participation. Through sharing their opinions in the studies, individuals will, indirectly, be participating in the development of the telecenter. In other modules, we provide specific guidelines on doing simple but useful studies of a community's information and communication needs.

3. Creating significant integration of the telecenter into community institutions.

One of the best ways to enhance the potential for telecenter sustainability is to combine efforts with already existing organizations in the community. This has several advantages. First, it integrates the telecenter into a pre-established social and organizational network, thus increasing the chances that the telecenter will become established as an important part of the community. Second, it works to ensure that the activities of the telecenter will complement – and not compete with – existing community projects. Third, the telecenter can provide services to the established organizations to aid them in their work and enhance their efforts.

However, integration with these community institutions requires that the telecenter invite them to participate in the life of the telecenter. It is not by good luck that this happens, but rather by good design.

4. Raising awareness about the telecenter to the community.

Simply establishing a telecenter is not enough; supporters must actively "market" the idea that information is valuable and that the telecenter is the key to the benefits of good information and communication. Although seemingly obvious, it is important to note that community members must first become aware of the telecenter and its services before they will get involved in it. Telecenter managers must persuade their communities of the benefits to be gained through information technologies Focusing on the information, not the hardware, is the key to reaching

much of the community that has a natural resistance to technology. Diffusion, using (as in training), and sharing of information is the goal; technology is merely the medium. Advertising in the local paper, on the local radio or television station, distributing pamphlets, and organizing fundraising activities. It is good to remember that a satisfied customer is the best advertisement there is.

Richardson (2003 cited in Colle and Roman, 2003: 33-36) wrote about rural telecommunications system by giving guidelines for translating the ideas of participation into the reality of a telecenter. These lessons include:

Lesson 1: Start working with community organization leaders who instantly see the benefits of rural telecommunication services. Work with organizational leaders who are pre-disposed to collaborative, open and participatory communication approaches to community development. Do not expend too much time and energy attempting to convince organizational leaders who are pre-disposed to "turf wars," "empire building," and who demonstrate little regard for public participation processes. Their participation will follow, in due time, as rural telecommunication services gain popularity.

Lesson 2: Real, risk-taking community leadership and advocacy for rural telecommunication systems is not necessarily found within elected bodies, telecommunication operator management and local government bureaucracies where one might normally expect to start looking. We should expect rural telecommunication champions to come from unexpected sectors of local, national and operator leadership.

Lesson 3: Provide many opportunities for women and young people to actively participate and volunteer their time and energy for practical and identifiable tasks that support rural telecommunication systems. Recognize and reward their efforts at every opportunity, and provide mechanisms to ensure that they can participate in key management or advisory roles.

Lesson 4: Provide human resource development support for rural telecommunication project management in the areas of project planning, evaluation, monitoring, facilitation of stakeholder participation, and leadership skills.

Lesson 5: Continuously remind all involved that, at its core, a rural telecommunication service has the dual goals of sustaining itself through revenue generation and supporting rural development.

Lesson 6: Rural telecommunication systems are unique and should be planned and implemented in unique ways, in consultation with rural stakeholders who best understand local contexts. Large, government initiated, top-down telecommunication systems that provide rural telecommunication services as an afterthought have a high failure rate, are generally unsustainable and can cost large amounts of money.

Lesson 7: Build an energetic steering committee to assist in infrastructure deployment and stakeholder engagement. Rural telecommunication systems are ultimately about people, not technology. Build a team of enthusiastic proponents who come from diverse backgrounds. Do not stack a steering committee with "techies," or "urban elites." Actively seek people who know more about rural communities than telecommunication systems.

Lesson 8: Always try to work with people who work with community-minded organizations or community development agencies. Their experience and contacts in the community will help ensure that you will find the resources and support you need. Good organizations with which to begin working include: service clubs, health clinics, churches, educational institutions involved with outreach and continuing education initiatives, libraries and non-governmental organizations involved in economic development. When linked together through improved communication systems, the power of such grassroots organizations can be multiplied by a hundred. At the same time they can use their telecommunication connections to enhance inter-agency collaboration, joint service offerings and joint planning.

Lesson 9: Use local technical and human resource development expertise wherever possible, and provide necessary training and capacity building where the expertise does not currently exist. The ability to access local technical expertise and local training services will significantly enhance sustainability.

Lesson 10: Take sustainability seriously rural telecommunication service must find creative ways to generate revenue. Advertising, value-added services, and reselling of network services to government bodies and large organizations are some ways to create the revenue needed to keep the network running. It is also important to recognize that it may be more important to address the sustainability of the improved relationships that rural telecommunication systems help establish, as opposed to enhancing only the sustainability of the service itself. By encouraging stakeholders to use rural telecommunication systems to enhance relationships, those relationships will provide the foundations for the sustainability of the system.

Lesson 11: Community ownership, management and involvement are important. Centralized telecommunication operators would be wise to decentralize rural service and enable the resale or franchise of service areas to local operators, cooperatives or municipal organizations. The more local the operator the more likely the system will be responsive to user needs and facilitate sustainable revenues.

Lesson 12: Participatory community management will help a network thrive. Community members need mechanisms for influencing network management, system design, and the development of creative and beneficial applications. Local advisory councils can provide a great deal of support and advice to enable local operators to provide beneficial and profitable services.

Lesson 13: Provide opportunities for students and young people to learn about the technology and the community development potential of rural telecommunication systems. This too will enhance sustainability and the ability of the rural service to grow to meet needs, while creating new employment opportunities for young people, especially young people living in rural areas.

Lesson 14: Strategic marketing brings higher revenues, better service and helps reach rural development objectives. Operators that make an effort to understand specific clients and market services that meet their needs will be rewarded with profits.

Lesson 15: Train volunteers to train new users. Those of us who are used to using telephones may think that using a telephone requires no training. On the contrary, rural people who have had few chances to use a telephone, or a more sophisticated telecommunication device, will very likely require an orientation period to become comfortable with the tool. Community volunteers can assist in training and orientating those who are least comfortable with the tools.

Lesson 16: Share resources, ideas and lessons learned with other rural telecommunication operators, advocates and supporters. Sharing lessons learned will help other rural telecommunication initiatives to find their feet faster.

Lesson 17: Enlist the support of "respectable wired elders." Within many nations, regions and organizations, there often are telecommunication enthusiasts with influence or decision-making authority who, by virtue of age, wisdom and established credibility can lend significant support to specific development initiatives. These are the "respectable wired elders," because, unlike many of their younger peers, their voices and vision can capture the imaginations of "unwired" politicians, funding agency bureaucrats and private sector benefactors. They are often an untapped resource, but their support can add a fantastic boost to a project.

Lesson 18: Enlist the support of organizations with existing outreach networks and presence in rural communities. These organizations might include agricultural extension services, rural health services, rural and agricultural cooperatives and credit banks, farmers' organizations rural library systems, and rural women's organizations and rural youth organizations.

Lesson 19: Collaborate with radio, newspapers, and television services, both locally and nationally in order to build momentum and support for rural telecommunication initiatives and rural stakeholder awareness and engagement.

Lesson 20: Recognize that telecommunication policies seldom contain the componets that actively and effectively enable the creative conditions, ownership models, interconnection agreements, and pricing arrangements that foster rural telecommunication services. Stakeholder engagement is one strategy to help change this if stakeholders can assume policy advocacy roles.

In 2006, Chuthchawan Thudsiwat mentioned about people's participation in rural community development, the full participation of stakeholders in all processes can be classified into 6 steps. These include:

Step 1: This process is to study on community, to search for causes of problems, and to prioritize the needs of community. All of these can stimulate people to learn in various aspects such as community circumstances, ways of life, social, resources, and environment which will be used as the primary information of working.

Step 2: This is a planning process. After receiving the primary information from the first step, the community will express their opinions in order to identify objectives and policies of projects, the guidance of implementation as well as sources of resources

Step 3: Another step is a follow up action plan. This is a crucial step for people's participation. People will play an important role in establishing the benefits to community by supporting funds, devices and instruments, and workforces including participating in management and coordinating with outsiders.

Step 4: Exploit benefits from activity development. In this process, people within a community will take part in exploiting the benefits of activities which highly increase the potential of self sufficiency of people and its community organization.

Step 5: According to exploiting benefits of activities, the next step is people's participation in contributing benefits from activity development to community on the basis of "equality" and "equity".

Step 6: Monitoring and evaluation process. This is related to examine all of the processes from step 1 to step 5. For instance, do the processes meet the objectives? Do they have any problems and limitations? Or how can they find the best solution to solve these problems immediately, and how do they bring the lesson learned to improve in the next operation?

VI. Lifelong Learning Theory

A. Definition of Lifelong Learning

Experiences from many documents found that the word of "Lifelong Learning" is closely related to "Lifelong Education". Educationists use the word of lifelong learning and lifelong education as the same meaning. There are a lot of definitions of lifelong learning which are:

Peterson (1975 cited in Sumalee Sungsri, 2001: 20-22) stated that lifelong education means the process of learning opportunities in order to support lifelong learning of an individual and to upgrade the quality of each life in various forms such as personal, social, and vocational developments. The characteristics of lifelong learning should be:

1. It should continuously exist throughout life.

2. It enables individuals to retain knowledge, skills, and attitudes that are necessities for the inevitable changing in his/her life; consequently, individuals have full self-development.

3. It originates from motivational learners who want to learn by themselves.

4. It covers the patterns of education such as formal, non-formal, and informal education.

Additionally, in 1978, Cropley and Dave suggest that lifelong education has two dimensions: vertical integration and horizontal integration which are:

1. Vertical integration stresses the notion that schooling and education are not synonymous processes and that learning itself is a continuous process throughout life (birth to death). This dimension does not reject the concept of formal schooling but it does affirm that most "rapidly and enduring changes during the process of personal development take place prior to the commencement of formal schooling [and that] the longest period of life by far is the one that commences after schooling ends". Therefore, education is a major component of life and the strongest educational influences come from outside the formal school setting through the media, relationships with peers and family, the community, workplaces, and so on." Education is for all age levels and the ability to learn and grow is cumulative over a lifetime through the integration of various processes.

2. The horizontal dimension stresses the notion that education and life are linked. It views education as life-wide whereby school learning is coordinated with other components in our society in which learning occurs. The horizontal dimension suggests that a very wide range of members in our society should be involved in education and that knowledge itself should be seen as a broad integrated network. Education must be viewed as continuous throughout the life span and on a continuum that accepts the integration of school and life and the various educational components that influence life. For this result, lifelong learning is an advanced-concept and is another new alternative that takes the place of front-end educational philosophy.

Knapper and Cropley (1985 cited in Nittaya Sumretphol, 2004: 12) interpreted that the term of lifelong learning emphasized on the process of participation in all kinds of learning activities, formal or informal, which are continuously active in all stages of life. The learning of learners initiates from intention which aims to update and upgrade their knowledge, skill, and ability to have a better quality of life. For those who want to learn, at least they should be able to have the capability, skills, attitude, and motivation. Moreover, in a learning environment, they should have a feeling of happiness in searching for new things and creating innovation in their lifetime.

UNESCO (1986 cited in Nittaya Sumretphol, 2004: 20) recently defined that lifelong learning is a series on studies in lifelong education which covers "formal, non- formal and informal education throughout the life cycle of an individual. This will lead to a response to the educational needs of each individual in a fully potential development in various aspects such as individually, socially, and career. Learning continuously throughout life occurs from childhood to adulthood.

Cropley (1997) summed up that lifelong education is a financial, organizational, administrative, and didactical process which results in lifelong learning. It also seems that lifelong learning is not a natural way of learning in daily life, but is more deliberate. Therefore, lifelong learning is a tool for learners to have the freedom to learn and also creates a wide variety of support not only during the learning process, but throughout life even due to the fact that lifelong learning mostly occurs in a span at an adult age more than a young age.

Vichai Tunsiri (1996) and Sumalee Sungsri (2001) concluded the relation between lifelong education and lifelong learning is that it is a goal and ideology in execution of educational structures and systems in which every individual can be in a position to keep learning throughout his life. The idea of lifelong education is the keystone of an educational infrastructure system, while the lifelong learning concept covers all aspects of lifelong education. It refers to the fact that lifelong learning will

encompass all stages and forms of education for an individual to learn throughout his/her life leading to the continuous improvement of the quality of his/her life.

Christos (2002) added more that according to the ideology of lifelong learning, the most important part is the training of learning processes for an individual in a wide range of skills such as communication, information, social, and cultural management. Lifelong learning is seen as a way to build learners to have strong potential and motivation in aligning their own life and learning by themselves.

Suksri Panakul (2006) gave a definition of lifelong learning that it is a wide range of education such as formal, non-formal, and informal education in which an individual can gain knowledge and experience in each lifetime from conception to death. Lifelong learning can fulfill the adaptive and creative functions of individuals leading to the continuous improvement of a way of life and the suitable adaptation to changes in social situations and environments in each lifespan.

B. The principle and concept of lifelong learning

In order to achieve the concept of lifelong learning in practicality, three main directions of lifelong learning should be emphasized in guidelines, principles, and strategies which will make an individual, who will become a lifelong learner and can join in the continual learning. Eventually, it also becomes a knowledge-based society. In Thailand, there are numerous ideas about principles, guidelines, and strategies of lifelong learning. (Office of the National Education Commission (ONEC), 2000: 8-18) The details are as follows:

1. The principle of lifelong learning which is specified into the National Education Act can be concluded in the ten cores of lifelong learning as follows:

a) Building Thai society to be a knowledge-based society and to have a culture of learning.

b) Lifelong learning must be continuous learning in the whole lifespan of learners.

c) Each and every community member has a right and equity in lifelong learning.

d) Learners and learning are crucial and relate to ways of happiness.

e) Lifelong learning is a wide range of education which provides opportunities and alternatives for learners to learn. All of these kinds of learning will match with the needs of learners.

f) Learning can occur in all suitable situations.

g) Everywhere in society there is a source of lifelong learning.

h) All parties in society have responsibilities in educational management and facilitate in lifelong learning for people.

i) Lifelong learning is an integration of formal, non-formal, and informal education.

j) The quality of learning depends on the satisfaction of learners and stakeholders.

2. From ten key principles of lifelong learning, lifelong learning must have a strategic framework in order to generate a possibility of originating a culture of learning in Thai society. This means that every individual must be fond of learning throughout life. There are 9 strategies in lifelong learning, which are:

Strategy 1: Create a clear vision of lifelong learning which covers all 10 key principles.

Strategy 2: Build a reading habit and a culture of self-learning.

Strategy 3: Establish a community network to connect with sources of learning and related information from all sectors in society.

Strategy 4: Emphasize and create a relationship from all kinds of learning sources such as individuals, parents, communities, legendary quotes, religious institutions, and enterprises.

Strategy 5: Distribute sources of learning thoroughly and cover all points of society extensively.

Strategy 6: Develop patterns and processes of learning with a variety of methods.

Strategy 7: Develop information and communication technology (ICT) for learning.

Strategy 8: Develop the quality assurance of patterns, processes, and activities of learning.

Strategy 9: Allocate funding and mobilize community resources for promoting and supporting lifelong learning.

3. Guidelines for implementation.

a) The establishment of understanding the related contents comprises of a reading habit, self-learning, network creation, and participation of all parties. In addition, there should be an emphasis on a relationship between individuals, parents, communities, local wisdoms, religious institution, and enterprises.

b) The distribution of learning sources.
c) The development of various patterns and processes of learning.
d) The development of technology of learning.

e) The quality assurance of activities of learning.

f) The allocation of funding and mobilization on resources for lifelong learning.

Guidelines of implementation for lifelong learning in order to make learners to have the characteristics of lifelong learners can be summarized as follows:

1. Identify the goal of the new educational system to be in line with the needs of lifelong learning. Education that is fundamental in lifelong learning must be focused on creating the attention and motivation of individuals to learn continuously throughout his/her life.

2. Determine strategies and tools in different kinds of resources such as funds, individuals, facilities, and a mechanism of supportive lifelong learning policy.

3. Set the learning environment for learners by stimulating and challenging them to learn and acquire more knowledge wisely. Besides, this environment should provide a full option of contents and opportunities for learners. There are key components of the learning environment which are; teachers, other personnel who have a lot of knowledge and abilities, patterns of the learning process, new modern devices, and collaboration from all parties, etc.

4. Provide opportunities for lifelong learning such as opportunity for higher education, opportunity for recurrent education, opportunity for training in skill development. All of these opportunities must be in line with the needs of learners who will have flexibility and equity for learning.

5. Provide sources of lifelong learning which are formal, non-formal, and informal sources. It is important that all kinds of sources should be adequate, easy to access, facilitate in learning, and serve available information as well as advice for learners continually.

Spaulding (1974 cited in Pennee Naireroth, 2001: 7) believed that the educational process can help learners to catch up with the rapidly changing environment and technology. Another issue that should be presented in a procedure called as a "learning Society" which refers to the word of learning in two aspects, the first is learning without schools and the latter is learning by using technology. In both ways, eventually it will lead to lifelong learning.

In addition, Spaulding also stated that lifelong education covers society in widthwise and leads to alternatives of educational development in various forms at different contexts of economy, social, and culture of each country. The scope of lifelong learning will cover all activities that are related to a learning process and experiences which an individual gains and has valued-added from childhood to adulthood. The focal point of lifelong learning is every individual can have an opportunity for developing his own interest, taste, and ability in all his/her lifespan as much as he/she needs.

Knowles (1980 cited in Pennee Narot, 2001; 7) gave a viewpoint of lifelong learning that it might be as a guidance or a main idea in all forms of education management. As a result of a rapid world changing, the learning will indeed become the process of lifelong learning as well. The learning throughout life must provide a fundamental basic skill for learners such as skill in inquiring knowledge. When learners become adults, sources of learning should be provided to support lifelong learning and self-directed inquirers.

Furthermore, Knowles also stated that the translation of learning or the service of new patterns of education, which promote each individual to learn throughout his/her life comfortably in both time-consuming and everywhere, are a new system that are not the same as the learning within schools such as learning from an academic center of a learning network. Recently, educational institutions and schools are not a monopolized power in the acquisition of knowledge any more; on the other hand, every individual can learn from other sources depending on his/her

convenience. Because of the effort of linkage between learners and sources, these sources of learning must be reliable and should not have limitations of all ages.

Chaiyoth Eimsuwan (2001) stated that a source of lifelong learning is viewed as a source of learning beyond formal schooling for an individual who can learn with his/her own attention, potential, ability, and opportunity. It has been available for every individual throughout society depending on how to learn and take part in. The objective of a source of learning can be divided into 2 categories which are 1) a source of learning is actively provided for a learning purpose such as libraries, museums, botanical gardens, science and technology parks, and so on 2) A source of learning is actively provided for other purposes such as art galleries, sports and recreational centers, zoos, and national parks, etc.

Besides, Chaiyoth Eimsuwan also concluded significant goals and concepts of lifelong learning which are:

1. Lifelong learning can serve as a mechanism for self-fulfillment of capabilities of each individual who can be a good member in his/her own communities.

2. Lifelong learning must be conceptualized as a permanent process which starts at birth and continues throughout life.

3. Every individual has the freedom to learn from a wide variety of educational forms which should be suitable and in line with his/her own needs.

4. Individuals of all ages can cope with the changing world in a sense of co-existing in society peacefully.

5. Lifelong learning must be provided for all people from youth to adulthood.

6. Lifelong learning means an educational management which covers to serve all people thoroughly in all stages of life.

7. Lifelong learning involves organizing educational activities continuously that conform exactly to real life.

8. There should be organized educational activities for those who can apply knowledge to enhance quality of their life and adjust themselves to the changing world.

In 2001, Sumalee Sungsri presented provision of lifelong learning for Thai society.

1. Laws and Policies in a lifelong learning philosophy.
2. It must have responsible organizations.
3. Decentralization on administration at a regional level or local arena in determining the appropriate guidance for lifelong learning.

4. Build an understanding on lifelong learning to all people and stakeholders in order to adjust their attitudes in a lifelong learning issue.

5. Establish technological infrastructure such as a telecommunication network nationwide, and create media centers for all people to easily access. Because most nations realize that media and technology are clearly two important factors to create lifelong learning.

6. Provide a wide variety of education and community network for lifelong learning in order to develop community or city to become a city of learning and to have a culture of learning inside the community at the same time.

7. Emphasize on participation of all parties (it is an essential factor for lifelong education management in all countries) by developing community-based lifelong learning communities which force the vast majority of people within a community e.g. educational institutions, religious institutions, government sectors, private sectors, local organizations, enterprises, businesses, and citizen, etc. to collaborate in lifelong education.

8. Rely on family as the first source of lifelong learning which can urge learning throughout life.

9. Stress on enterprises as crucial resources to provide educational opportunities for workforces in various aspects such as self-operating educational management, collaborating with educational institutions, supporting funds and promoting taking time to study for workforces.

10. Provide a wide range of measures to campaign every member within its community, particularly with disadvantaged people to have more chances to learn. These measures include providing local sources of learning which is close to everyone who can easily access adapting relevant regulations of educational institutions to be flexible for the individual who desires to come in, and managing a wide variety of education in terms of content, methods of learning, studying time, and so on.

In addition, another measure for learning is the guidance of effective information which is seemed as a lifelong guidance network for those who want to access it anytime and anywhere. In order to create a sense of learning for every community member, the integration of various measures should occur. For example, supporting a diversity of scholarships, renowned announcement for academy, and providing other sources of learning which accumulate more individuals to come in. Besides, formal, non-formal, and informal learning opportunities should be made available which can provide credit accumulation and transfer of system to community members throughout his/her life.

11. Manage budgeting and funding systems in order to support a wide variety of lifelong education such as open an account for learning for each individual, provide learning coupons, decrease taxes, materials and devices, media, and technology for education. Moreover, the tax reduction on educational expenses for people and workforce enterprises is viewed as a supportive mechanism of lifelong learning as well.

Sumalee Sungsri also suggested strategies of lifelong learning for Thailand. The details are as follows.

1. Identify a clear policy of lifelong learning or enact a lifelong learning law. Especially in Thailand, lifelong learning should be determined as a major education management provision for the nation which covers principles, visions, and regulations of lifelong learning.

2. Determine a responsible organization to act as a coordinator and a promoter for all stakeholders in education management. This should be a function of a central organization in all levels from the national to local level. In each level, it should have a board of advisors whose administration is focused on decentralization.

3. A campaign to build an understanding about lifelong learning by adapting to the belief of lifelong learning for all stakeholders all over the country in both educational providers and service receivers, particular in a target group. The goal of this campaign is to stimulate and create motivation of learning, to provide useful information, and to continuously advise different kinds of services. In response to a philosophy of lifelong learning, this campaign should drive the attention of people to learn continually and make a decision on appropriate ways of study.

4. A common concern on lifelong learning is the revision of all kinds of education which associate in lifelong education. In various forms of education, it should be flexible and transparent for all to learn such reforms as educational

management through the entire system in curriculum, learning processes, and evaluation aspects.

Basically, the roles of education management in the field of lifelong learning is harmony in a way of life for all people to easily access, and learn anytime, anywhere. Moreover, the happiness of studying must be one part of their daily life. In the case of formal education, it should have flexibility in rules and regulations and open broadly to all people. While in the case of non-formal process it should be diversified to cover all target groups and to respond to the needs of an individual who can use it in practice. On the other hand, informal education is most related to an individual's life, thus it should have a wide range of activities which spread widely to all people.

5. For connecting all kinds of education, the providers of learning should define rules and regulations on a credit accumulation and transfer system in order to motivate every individual to learn throughout his/her life. For the purpose of transfer system, everyone can transfer any credits to the same kind of education and between international education, particularly in knowledge and experiences which are gained from informal learning. In case of informal education, it should provide principles for credit transfer and credit accumulation throughout life.

6. Develop sources of learning and establish a lifelong learning network within a community such as religious places, community learning centers, parks, local wisdom, enterprises, and so on. These sources should be standardized and be accepted in terms of providing knowledge and education.

7. A campaign to build collaboration from all parties among the private, public, and people sectors. The campaign must be to push all stakeholders to have a sense of responsibilities by starting from each community itself or each local community to plan, to mobilize community resources, and to manage a lifelong of learning which respond to the needs of people within a community. Sometimes, local staff will play an active role as a coordinator for a lifelong learning process such as

village committees, volunteer teachers for non-formal education, and staff of sub-district administration organizations.

8. Information and communication technology (ICT) system provides opportunities for all people to learn thoroughly, continuously, and comfortably anytime and anywhere. There are many examples of this system such as information network center in all levels from the national to local level, and skill training in using ICT for both educational providers and service receivers.

9. There has to be a stronger emphasis in developing staff who are involved with lifelong learning with insight into principles of lifelong learning. During the lifelong process, this kind of people should fully know their roles and can play their roles in promoting lifelong learning to every community member. A majority of these people are teachers, instructors, educators, other personnel of learning sources, local wisdom, and parents, etc.

10. It is necessary to find measurements for providing, mobilizing, and allocating funds by means of supporting lifelong learning for both educational providers and service receivers, particularly with disadvantaged people.

In 2001, Galbraith suggested a framework for connecting lifelong education and community. It begins with the assumption that lifelong education exists and that it is available across the life span, from birth to death. Lifelong educational opportunities exist in each community in three distinct educational forms: formal, non-formal, and informal. Each process is a valid means of assisting lifelong learners in acquiring and meeting their educational needs. It suggests that lifelong learners can make choices in fulfilling their educational concerns and desires in a multitude of ways.

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Formal Education	Non-formal Education	Informal Education
Community Colleges	Business and Industry	Conversation with friends
Componentary and Secondary Schools	Community Based Agencies	Family
External Degree Agencies	Farmer Institutes	Listening to Audio Tapes
Public Adult Education Schools	Health Related Organizations	Mass Media
Proprietary Schools	Human Service Organizations	Reading Publications
State and Regional Universities	Labor Unions	Recreational Activities
Vocational and Technical Institutes	Libraries	Self-directed learning Projects
	Museums	Viewing Video Cassettes
	Social and fraternal Organizations	
	Religious Institutions	

Figure 2 A framework for connecting lifelong education and community

Source: Galbraith (2001: 10)

1. Formal Community-Based Education.

This category consists of for-profit and nonprofit bureaucratic organizations within the community who have as their primary function the delivery of formal education in which youth and adult learners may participate. The goal of the organization is to provide some type of credentials such as a diploma, certificate or degree. Because of the nature of the settings, instructors or teachers are professional educators who hold expertise in the area of specialization. Learners in formal community-based education settings have little control over what is taught and how it is taught. Educators make value and prescriptive judgments of what is appropriate for learners to acquire within their educational pursuits.

2. Non-formal Community-Based Education

A number of organizations and agencies can be viewed as non-formal community-based education providers, although education is a secondary or allied function to their primary mission or purpose. The YMCA or YWCA, cooperative extension, religious institutions, health institutions, service clubs, voluntary organizations, business and industry human resource development programs, correctional institutions, libraries, museums, senior citizen organizations, and a plethora of other community-based agencies are examples of such non-formal community-based educational providers. In these settings learners are more likely to participate voluntarily and are not seeking any type of credential or degrees but may receive in some cases a certificate of completion. Learners retain some control over what they want to learn as well as when, how, and where the learning takes place. The non-formal settings range from non-structured to structure. The instructors may or may not be professionally trained but overall seem to be quite successful in helping learners reach their educational goals.

3. Informal Community-Based Education

This category encompasses the vast majority of education that takes place for adult learners within community structures. Informal community-based education is independent of institutional and organizational provider ship. The community itself is the instrument of education and learners are guided by their own desires and learning processes. Learning within this context may be deliberate or fortuitous, but is always personally meaningful to the learner. Informal community-based education is characterized by interaction between human and material resources. The learner is in complete control over how, what, and where the learning will occur. Although the learner may consult with others concerning their inquiry, in most cases a professionally trained educator is absent. The community serves as the educator as well as the learning resource and laboratory.

In 2004, Nittaya Sumretphol identified roles of education management in promoting a lifelong of learning into 3 dimensions which are 1) Lifelong learners' development dimension 2) Lifelong learning opportunity provider dimension and 3) The establishment of a lifelong learning model dimension.

The eleven principles of lifelong learning were presented at the Academic Workshop of Stakeholders for Health in Europe that was held on April 24th in London, England. The details are as follows: (Lifelong Learning in Europe, 2001)

1. Focus on both real practice and result-based performance.
2. Learner-centric.
3. Rely on real truths and evidences.
4. Respond to the needs of individuals, organization, and nation.
5. Concern on ethics of individuals, organizations, and nation.
6. Regard to the context of practice in any particular situations and environments.
7. Equity: by giving every chance to all people equally.
8. Be responsible for individuals and organizations to achieve a lifelong learning.
9. Upgrade a sense of hope and involvement.
10. Disseminate a widespread of available knowledge and information about lifelong learning to all people.
11. Lifelong learning is a mechanism for supporting the accomplishment of learning entirely.

Suksri Panakul (2006: 94) pointed out that directions of non-formal education for serving a target group widely in lifelong learning are as follows:

1. Build the understanding of people to be aware of the importance of lifelong learning.

2. Find approaches to enlarge activities of non-formal education which thoroughly cover a target group in all areas especially in a disadvantaged group.

3. Promote the cooperation of people to participate in organizing any kinds of activities of non-formal education so that they can take care of such activities continuously by themselves, after a host agency has departed from a certain area.

4. Utilizing the benefits of local wisdom and/or local organization in managing activities of non-formal education within the community continually.

5. In organizing each kind of activity of non-formal education, this should provide skill sets for acquiring knowledge for a target group in order so that they can be able to seek for more available knowledge on their own.

6. In such activities, it should be focused on the training of thinking, analyzing, problem-solving, and practicing in a real situation.

7. It is an essential for non-formal education to be flexible enough to accommodate individual options and social differences which can serve all people in all areas without limitations such as age, fundamental education, and vocation; however it should not stick to rules and regulations and does not totally bring a pattern of formal education to apply in the context of non-formal education.

Additionally, in order to enable all people to learn widely and thoroughly in informal education which eventually will become lifelong learning, thus the related organization should implement:

1. To provide sources of learning which closely targets a group as much as possible such as a source that is located in a community in which local people can use comfortably and immediately.

2. To provide a wide range of sources of learning in order to respond to the needs of people who can select to learn anything they want and pay attention to.

3. To prepare and develop sources of learning sufficiently. Not particular normal or natural environments, related organizations should have a plan that what kind of a source of learning that community should have. In case there's nothing, a source of learning may be provided or built, in the opposite; in case of existing ones, this source should be improved in order to be ready to serve and to have a variety of activities for people within its community.

4. To build people's motivation to see the importance of lifelong learning and also be aware of self-learning from any kinds of sources of learning which is one approach toward lifelong learning.

5. To advise on sources of learning to a target group such as are there any places of learning, are there any services, and what topic we should learn in order to acquire knowledge effectively?

6. To promote people, local organization, and local wisdom. In response to informal education for people in community, every individual should participate in the organizing activity of learning, brainstorming, disseminating art and culture, and establishing a variety of sources.

7. To operate in informal education management within a community. There should be a board within the community which consists of a community leader, representatives of people in the community, members of local organization, and delegates of other related agencies.

C. Factors affecting lifelong learning

According to a study of lifelong learning, Kriengsak Chareonwongsak (1996); Frigo (2001); Douglas Institute of TAFE (2001); Medel-Anonuevo *et al.* (2001) gave consent that lifelong learning of each individual has been influenced from 2 major factors which are intrinsic factors of a learner and extrinsic factors of a learner.

1. Intrinsic factors of a learner include

a) Attitude: As a primary trend of lifelong learning, the willingness to learn from each individual must be formed from his/her past experiences of learning which result from various factors. These factors may consist of a quality of teaching and media, contents for teaching, and correspondence with learners' attention. The challenge for the willingness to learn comes from motivation when an individual understands, is aware, and values a lifelong of learning.

b) Capability for learning: It is necessary for learners to have basic skills and knowledge to personally learn throughout their life such as reading and writing skills to study more, particularly in the English language, telecommunication skills, information management skills, and so on.

c) Behaviors and Personality: in the context of lifelong learning at least learners should have some behaviors such as a desire for learning, motivation, confidence, belief in their own competency, target-oriented, and a self-image of learning.

2. Extrinsic factors of a learner include

a) Sources of learning where learners can easily access formal, non-formal, and informal learning.

b) Opportunities for learners to learn in a wide variety of education which is flexible enough to encourage all learners to join in any activities of learning adequately and comfortably.

c) Good environment which support and promote learners to learn continually such as family, workplace, community, and society.

Pennee Narot (2001: 10) stated that lifelong learning emerged in society must be relied on three main components which are:

1. Belief in lifelong learning of other institutions and organizations have resulted in the cooperation of serving varying kinds of education to all people.

2. Belief in lifelong learning of all people who are able to adjust themselves in studying and acquiring useful knowledge for their own development continually, after schooling ends.

3. Belief in lifelong learning of educational institutions which provide a series of formal education for youth and teenagers. In schooling, a training skill on learning is viewed as a key component for the preparation of learners to learn after they finish from school classes.

D. Quality Indicators of Lifelong Learning

Enhancing the quality of education, training and ultimately lifelong learning is one of the main priorities of the European Union action programs, which is concerned with education and vocational training respectively. The Council and the European Parliament have given further emphasis to this issue by adopting, on the basis of proposals from the Commission, recommendations for the promotion of quality evaluations of school and higher education respectively. The quality objective has therefore been increasingly brought to the fore in all aspects of co-operation in the field of education and training. (EUROPEAN COMMISSION, 2002)

On the basis of this the Ministers of Education, at their meeting in Prague in June 1998, invited the Commission to establish a group of experts, nominated by Ministers, with the objective of identifying a limited number of key indicators "to assist national evaluation of systems in the area of school standards". Finally, the working group identified the fifteen quality indicators of lifelong learning with four areas (A-D). The details are as follows:

Area A: Skills, Competencies and Attitudes

Indicator 1: *Literacy*

Indicator 2: *Numeracy*

Indicator 3: *New skills for the learning society* such as Science literacy, ICT skills, foreign language skills, etc.

Indicator 4: *Learning-to-Learn Skills* are the ability to learn curiosity and interest in new development and skills. The importance of learning-to-learn in all aspects of societal participation throughout life is well established. Learning how to learn, adapt to change and make sense of vast information flows are now generic skills that everyone should possess.

Indicator 5: *Active Citizenship, Cultural and Social Skills.* The promotion of active citizenship is part of the learning process. In active citizenship the focus is on whether and how people participate in all spheres of social and economic life, the opportunities and risks they face in trying to do so, and the extent to which they therefore feel that they belong to and have a fair say in the society in which they live.

Area B: Access and Participation

Access and participation relate to the opportunities and chances, obstacles and barriers that confront individuals along their lifelong learning pathway. While access is concerned mainly with structural and logistical questions, participation

encompasses motivational issues, as well as financial and cultural ones, which must also be considered when assessing the success of a system or of a process.

Indicator 6: *Access to Lifelong Learning*. Lifelong learning requires a dual approach: making what is already on offer more visible, flexible, integrated and effective on the one hand, while also developing new learning processes, products and environments on the other.

Indicator 7: *Participation in Lifelong Learning*. When measuring participation it becomes apparent that participation in the various forms of learning is a complex issue that can only be partially explained by some existing indicators referring to time invested in learning and early school leaving rates. In this context, the examination of attitudes and patterns of participation are of paramount importance. Participation in formal education can be directly influenced by either public or private institutions. Companies may also control participation in continuous training to a large extent. However, participation in non-formal education and informal learning activities could be encouraged by direct or indirect incentives.

Area C: Resources for Lifelong Learning

Indicator 8: *Investment in Lifelong Learning*. Investment in lifelong learning is a particularly complex issue. It is important to differentiate between different types of investment. At least three different types should be taken into account: 1) Public investment 2) Companies' investment 3) Private investment

Indicator 9: *Educators and Learning*. Most people agree that an "educator" in a lifelong learning context undertakes a more diverse array of tasks than a schoolteacher. These tasks differ depending on the type and context of learning, the age of the learner, the type and complexity of the learning task and numerous other factors. Not only do new teaching and learning methods challenge the traditional roles and responsibilities of teachers, trainers and other learning facilitators but there is also a strong need to develop their training to ensure that they are ready and motivated to

face the new challenges, and to promote tolerance and democratic values. It is appropriate to begin with an indicator related to the initial training of educators. Availability of data limits this effort to the percentage of teachers and teaching associates having received training.

Indicator 10: *ICT in learning.* In the context of lifelong learning ICT will play more an important role in educational system and training. We focus on ICT as a resource. Computers as a tool both for learning activities (e.g. courseware) and for learning assistance (word processors, spreadsheets) have a well-established place in today's education and training systems. In the context of lifelong learning another aspect becomes increasingly important. As an ever-increasing amount of information is provided through the Internet it is becoming the primary mode of delivery for learning material. Together with the ambition to bring "learning closer to the home, to provide lifelong learning opportunities as close to learners as possible, in their own communities and supported through ICT-based facilities wherever appropriate", one can imagine numerous indicators describing ICT as a resource for lifelong learning: percentage of households with at least one computer, percentage of households with at least one phone line, percentage of households with Internet access, percentage of households with potential to broadband Internet access, and percentage of school classrooms with certain ICT equipment.

Area D: Strategies and System Development

This final section is concerned with the areas of lifelong learning where political decisions (strategies) seek ways to turn the components of lifelong learning into an integrated and coherent "system" (coherence of supply). Within this framework it should be possible to assess the outcomes (quality assurance) while the individual should draw a maximum benefit from his/her learning which would be accredited and certified, and by receiving appropriate counseling and guidance.

Indicator 11: *Strategies for Lifelong Learning.* There exists a considerable consensus around the recognition that political strategies at local, regional and national level, aimed at ensuring the effectiveness of lifelong learning will be a key determinant of sustainable success in the field of lifelong learning. Strategies must aim to develop not only a lifelong learning system as such, but also address issues of equality of opportunity in order to ensure that lifelong learning opportunities are genuinely available to all, especially to those at particular risk of exclusion such as people on low income, disabled people, ethnic minorities, immigrants etc.

Indicator 12: *Coherence of Supply.* When considering strategies for lifelong learning the coherence of supply becomes a central issue. By supply we mean the availability of lifelong- (formal/non-formal/informal) learning opportunities in a given area or country. At least three different aspects of coherence should be considered: a) coherence of supply in relation to the strategic goals b) coherence of supply in relation to (national, regional, local) providers and c) coherence of supply in relation to the demand.

Indicator 13: *Counseling and Guidance.* Implementing a successful lifelong learning process requires substantial counseling and guidance for citizens of all ages. Potential learners have to be informed of both the "what" and the "how", i.e. counseling and guidance has to cover at least the provision and the modes of delivery. Beyond this, a support and coaching structure for active learners could be an invaluable instrument for speeding up the learning process. Guidance and counseling would therefore, when fully developed in a lifelong learning perspective, support people in order to   access learning opportunities, motivate people to learn, develop individual pathways and, make successful transitions between the education, training and employment systems.

Indicator 14: *Accreditation and Certification*. One of the most significant structural aspects of lifelong learning is the issue of certification and accreditation. Ensuring that learning is visible and appropriately recognized is an integral component of the quality of the services provided by education and training systems and a core component of a successful lifelong learning process. Beyond the obvious implications for a learner's motivation, effective and transparent accreditation and certification systems are of crucial importance for anyone.

Indicator 15: *Quality Assurance*. Quality assurance is an essential part of an effective education and training system. The techniques that enable quality to be measured are available, though not all countries have the same experience of their use in education and training. The introduction of quality assurance mechanisms requires an investment in the training of those concerned and their application leads to an increase in the quality, not only of the administration involved in delivering education and training, but also in the quality of the learning experience provided. Quality relates to values or standards that have been elaborated and agreed upon by partners who have a shared concern in the quality of lifelong learning.

V. The Concept of Balance Scorecard

Due to the stock market crisis in the USA in 1987, Professor Robert Kaplan from Harvard University and management consultant Dr. David Norton studied and found that many organizations were usually fond of using financial measures as the sole indicator of the company's performance but it should recognize about other issues such as customer relations, core competencies and organizational capabilities at the same time. For this reason they developed the new approach for the performance measurement adapted from the previous one in which they recognized some of the weaknesses, the balance scorecard. It is one kind of a performance measurement framework that added strategic non-financial performance measures to traditional financial metrics to give managers and executives a more 'balanced' view of organizational performance. (jarin Asasongtum, 2010)

A. Balance Scorecard Basics

The balanced scorecard (BSC) is a framework that is used to help in the implementation of strategic performance management tools within an organization. It enables organizations to clarify their vision and strategy and translate them into action. In addition, it provides a framework that not only provides performance measurements, but also helps planners identify what should be done and measured (Balance Scorecard Institute, 2010).

Recently, companies are using BSC in order to clarify and update strategy, communicate strategy throughout the company, align unit and individual goals with the strategy, link strategic objectives to long term targets and annual budgets, identify and align strategic initiatives, and conduct periodic performance reviews to learn about and improve strategy (Kaplan and Norton, 1996).
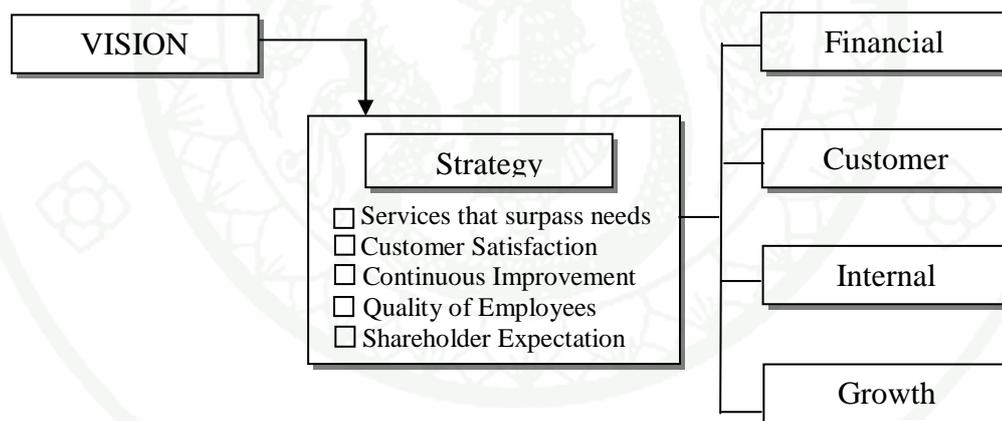
Figure 3 The chart of translating strategic objectives into tangible goals
Source: Harvard Business Review (1993:135)

Kaplan and Norton also descried that BSC enables a company to align its management processes and focuses the entire organization on implementing long term strategy. It provides a framework for managing the implementation of strategy with response to changes in the company's competitive, market, and technological environments.

The concept of BSC is divided into four different perspectives: financial, customer, internal process, and learning and growth. These four basic perspectives are traditionally used to encompass an organization's activities. The organization's business model which includes mission, vision, and strategy determine the appropriate perspectives. Each of these perspectives is as follow:

```
                    ┌─────────────┐
                    │  Financial  │
                    │ Perspective │
                    └─────────────┘
                           ↑
┌─────────────┐     ┌─────────────┐     ┌──────────────────┐
│  Customer   │ ←── │   Vision    │ ──→ │ Internal Process │
│ Perspective │     │     and     │     │   Perspective    │
└─────────────┘     │  Strategy   │     └──────────────────┘
                    └─────────────┘
                           ↓
                    ┌─────────────┐
                    │ Learning and│
                    │   Growth    │
                    │ Perspective │
                    └─────────────┘
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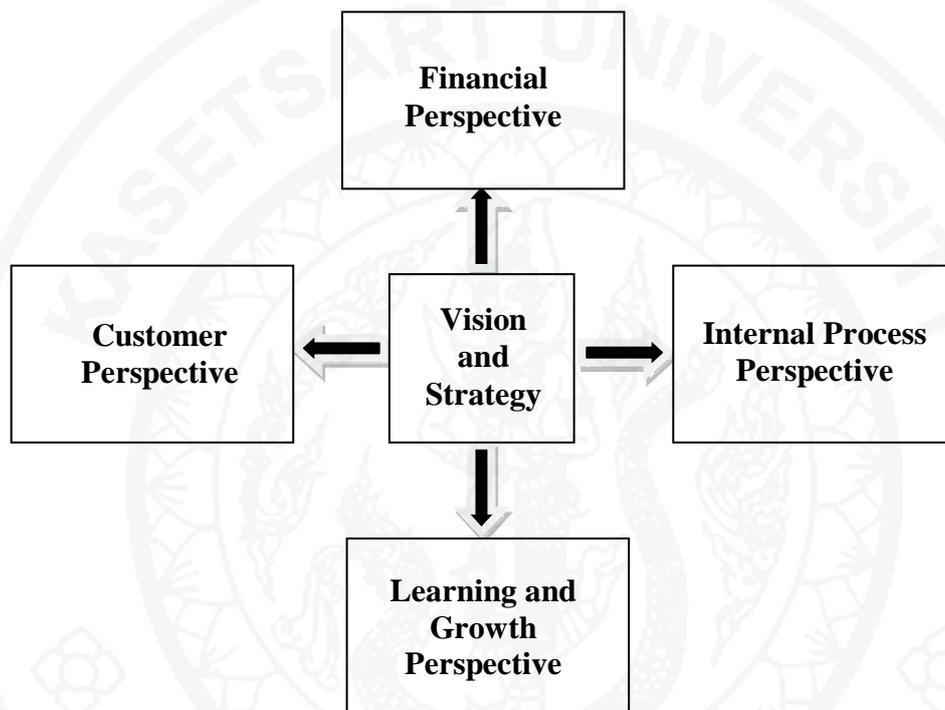
Figure 4 Four perspectives of Balanced Scorecard

Source: Harvard Business Review (1996)

    1. Financial perspective: Return on investment and economic value-added

    2. Customer perspective: Satisfaction, retention, market, and account share

    3. Internal process perspective: Quality, response time, cost, and new product introductions

    4. Learning and Growth perspective: Employee satisfaction and information system availability

B. Implementing Balance Scorecard into action

One of the big challenges faced in the implementing of Balanced Scorecard is deciding what activities and outcomes to monitor. The creation of the strategy map for an organization is the key first step in the balanced scorecard methodology. The general strategy map evolved from the simple four perspective models of the balanced scorecard. This map adds a second layer of details that illustrated the time-based dynamics of a strategy. Each perspective contains one or more objectives that are associated with one or more performance measures and target values (Kaplan and Norton, 1996).

When doing the strategy map, the analysis of the balanced scorecard must be covered with the important aspect which consists of

1. Objective: it defines the organization's intent to achieve.

2. Measures or Key Performance Indicators (KPIs): it is a tool to measure that organization can reach its objective or not.

3. Targets: the target that organization uses in performance measures in each perspective.

4. Initiatives: any plans or activities of each perspective that will not be as the real action plan
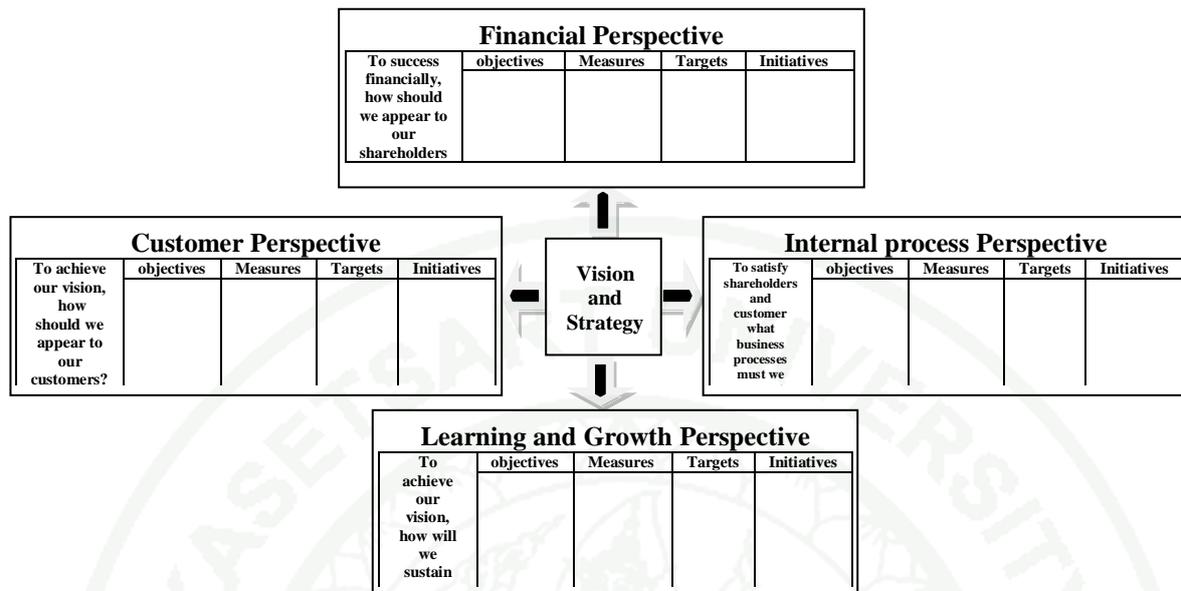
Figure 5 Translating Vision and Strategy: Four perspectives

Source: Harvard Business Review (1996)

However, all four perspectives must be linked among another. They show a logical, step-by-step connection between objectives in the form of a cause-and-effect chain. Generally, improving performance in the objectives found in the Learning and Growth perspective which enables the organization to improve its Internal Process perspective Objectives, which in turn enables the organization to create desirable results in the Customer and Financial perspectives (Balance Scorecard Institute, 2010).

C. The concept of the Balanced Scorecard (Not for profit organization) applying to a telecentre management model

Like most good ideas, the concept of the Balanced Scorecard (BSC) is very simple. It is a strategic performance management framework that allows organizations to manage and measure the delivery of their strategies. About half of major companies in the US, Europe and Asia are using BSC approaches. The Gartner Group suggests that over 50% of large US firms have adopted the BSC. A study by

Bain & Co finds that about 44% of organizations in North America use the BSC and a study in Germany, Switzerland, and Austria finds that 26% of firms use BSCs. The widest use of the BSC approach can be found in the US, the UK, Northern Europe and Japan (Balanced Scorecard Institute, 2010). Kaplan and Norton (1992) identified four generic perspectives that cover the main strategic focus areas of a company which consists of financial, customer, internal process, and the learning and growth perspectives.

- **The Financial Perspective** covers the financial objectives of an organization and allows managers to track financial success and shareholder value.
- **The Customer Perspective** covers the customer objectives such as customer satisfaction, market share goals as well as product and service attributes.
- **The Internal Process Perspective** covers internal operational goals and outlines the key processes necessary to deliver the customer objectives.
- **The Learning and Growth Perspective** covers the intangible drivers of future success such as human capital, organizational capital and information capital including skills, training, organizational culture, leadership, systems and databases.

Basically, four perspectives have been superseded by a Strategic Map which is the heart of the BSC. A Strategic Map places the four perspectives in relation to each other to represent the strategies of the organization (Advanced Performance Institute, 2010). While the BSC was initially designed for commercial companies, the framework has found wide-spread use in the public and not-for-profit sector the same as Thaitelecentres. This idea was to construct the Thaitelecentre management model as a template for strategic aligning in each of the following perspectives.

However, it is important to make a few changes to the strategy map template in order to make it suitable to government, public sector and not-for-profit organizations. Here, Thaitelecentre is a not-for-profit organization. The main objective of this is not to make money; instead, it is to provide ICT services to groups of people in their community to access. Hence, the financial perspective should be put at the bottom on the strategy map template. Money and infrastructure are seen as

important resources that have to be managed as effectively and efficiently as possible to enable the delivery the strategic output and ultimate outcome (see example in figure 6).
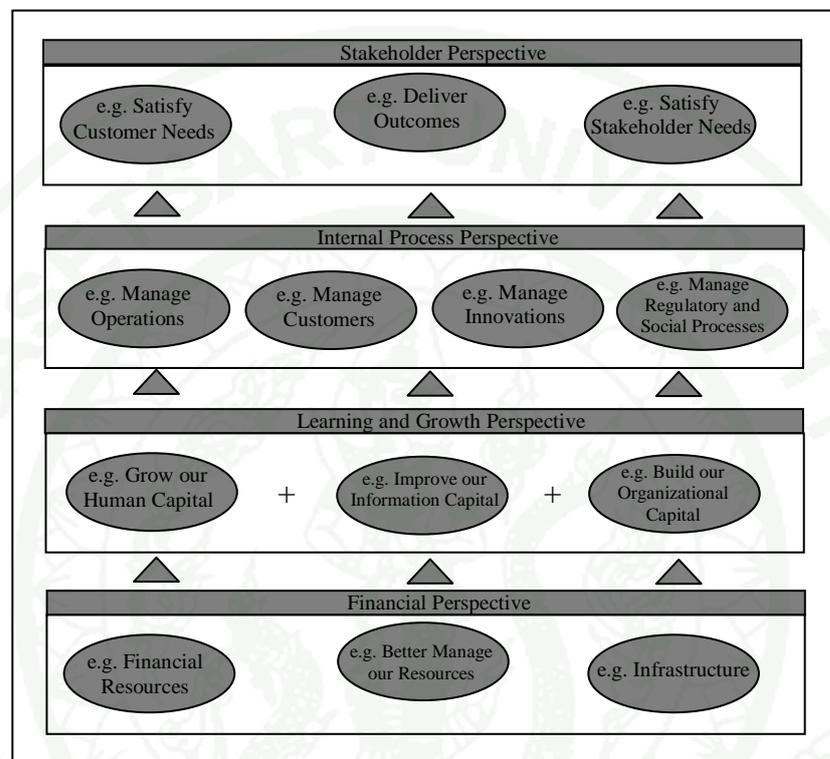
Figure 6 Strategy Map (Government, Public and Not-for-profit organization)
Source: Advanced Performance Institute (2010)

Clarification of the strategy is an essential prerequisite for successful management. There are a number of areas in which Thaitelecentre management are currently based on data analysis. In particular, this will be focused on better alignment of the strategic framework with the setting of priorities for key components of Thaitelecentre management. This approach will support implementation of the Thaitelecentre's recent strategic decision to delegate operational responsibility and authority for services to community members.

VI. The related research works

A review of the related research works with the creation of the Thaitelecentre management model in Thailand found that there was not any research work that involved with developing a new management model of a community telecenter. However, in this research, other related documents in both local and international research works will be used as a framework in identifying a management model for a community telecenter.

A. Local research works

From inquiring the relevant research works, most of the researches are related to the study of problems and perception of community telecenter.

Somchai Varanukulrak (2002) studied a system development of the learning organization in the workplace which concluded that the organization system of such a learning center comprises that the learning center needs assessment, knowledge resources management, curriculum design, instructional media development, learning coordination and service, learning facilitation, and learning outcome evaluation.

In addition, factors affecting the learning center consisted of the management supporting, self-motivation of the employees, managers' roles, basic facilitation, learning center officers' competency, and learning resource networking.

Saranthorn Sasithanakornkaew (2004) studied the perception and adoption of a telecenter in Thai rural areas. This indicated that most of the users were students and college students who came to the telecenter for their study-related tasks. The non-users were primarily employees with low income and low education and, thus, information technology was not a necessity for them. Both users and non users differed significantly in terms of computer self-efficacy, perceived usefulness, and perceived ease of use, compatibility, and behavioral intention.

In addition, computer self-efficacy, behavioral intention, and perceived usefulness had positive direct effect toward using behavior. Accordingly, apart from direct usage there was indirect usage through the community radio, facilitator, non-formal education and other community activities.

Wilaiporn Phadungat (2006) indicated that Motivation and Morale Boosting Factors of Teachers of the " Maefaluang" Hill-Tribe Learning Center in Omkoi District Chiangmai Province mostly concerned with career welfare factors, sustainable welfare and financial incentives, for instance; overtime benefits and providing other funds should be contributed to be the teachers' motivation and morale boost in their occupation. To satisfy and encourage teachers, school administrators should offer an opportunity to work in their right professions including providing career consistency and promotion should be based on morally suitable ways. Career advancement opportunities should be equal for normal teachers, to achieve the success of the organization; they should be organized according to the guidelines suggested.

Sooksmarn (2008) indicated that factors that obstructed the use of ICT in livelihood and learning improvement for people in rural community derived from 3 main componets: pattern of rural community, people at both an individual and group level, and the policies and implementation by government and local administration. Furthermore, Sooksmarn (2008) also pointed out that people in the rural community should respond to the use of ICT for livelihood and learning development by opening their minds and attitudes about ICT, realizing the importance and involvement of ICT in daily life, and participating in ICT training courses.

B. International research works

Roman and Blattman (2002) conducted a field research for telecenter development: obstacles and opportunities which found that research for needs assessment and project evaluation is an important component of telecenter projects, because a research program suggests the tools to meet community needs, foster

participation, and monitor the financial viability of the telecenter. Needs assessment and evaluation should not be an exclusive task of externally supported research projects; rather they should be ongoing practices of any community telecenter initiative.

Gould and Gomez (2009) assessed how infomediaries and community engagement help support the social mission of venues that offer public access to information and communication technology which show that while infomediaries and community engagement are critical to facilitate access to information for underserved communities, cybercafés are thriving as public access venues without very strong infomediaries or community engagement, and yet they are perceived as being well staffed and serving community needs. Telecenters face a particular challenge to fulfill their social mission in the face of the proliferation of cybercafés: they must provide access to ICT, train their staff to be digitally literate and able to support the ICT needs of their communities, and ensure that their community engagement activities include ICT as part of their tools and services.

Ibrahim (2010) proved that financial support is critical in operating and maintaining the telecenters. The costs incurred in running telecenters involve the cost for promotion, staff, utilities, premise renting, and training. More than 75 percent of the telecenters are operating under a tight budget.

Conceptual Framework

The conceptual framework of this research is to construct a new management model on Thaitelecentre for lifelong learning. This framework derived from a study of relevant documents and research works which concern about obstacles and problems including key componets in managing Thaitelecentre. The concepts of network management, community participation and lifelong learning have also been reviewed; finally, a management model will be depicted in figure 7 as follows:
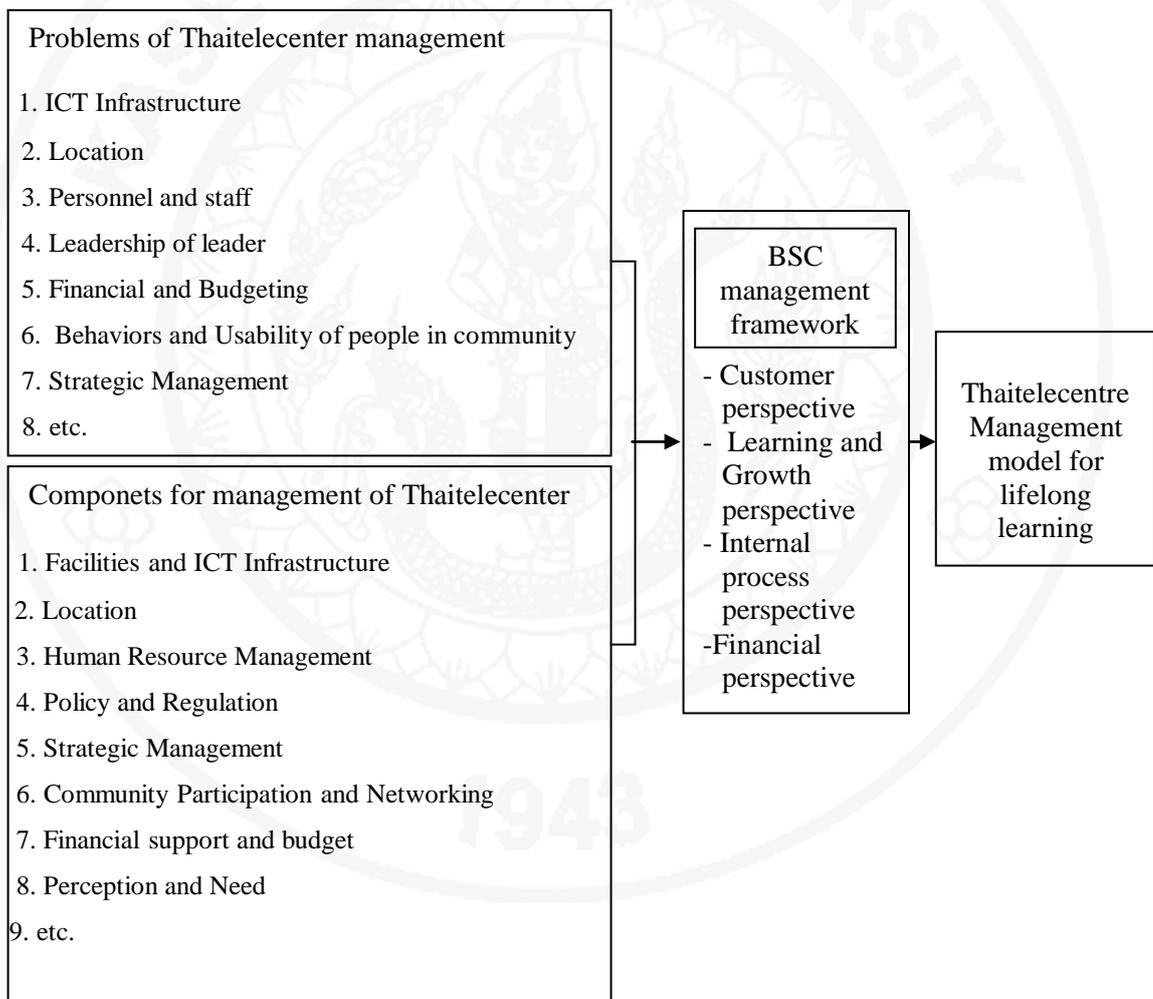
Figure 7 the conceptual framework of Thaitelecentre Management model for lifelong learning of the MICT

CHAPTER III

METHODOLOGY

This research is a study of Thaitelecentre management model for lifelong learning for the MICT. This research is a Mixed Methodology by employing both qualitative and quantitative methods to examine for multiple case studies. The purpose of the researcher focused only on Thaitelecentre in the project of i-Community which was a pilot project and has also been implemented since 2006. Primarily, because of the similarity and characteristics of subsistence or living condition, the researcher selected four centers which are located at the upper northeast region of Thailand as a targeted group. The locations of these targeted centers are Udon Thani, Mahasarakham, Chaiyaphum, and NongKhai provinces. However, the description of research procedure, population and samples, research methodology, data collection, and data analysis are presented in this chapter. In doing this research, the research procedures are divided into two phases which are as follows:

Phase I Study on major problems and key components of Thaitelecentre management of the MICT.

Phase II Construct and verify the Thaitelecentre Management Model for lifelong learning of the MICT.

Phase I

Study on major problems and key components of Thaitelecentre management of the MICT.

The details of this phase covered the following key issues.

A. Population and Samples

B. Data collection Technique

C. Data Collection

D. Data Analysis

A. Population and Samples

1. Population

Population of this phase consists of three groups which are described as follows:

Group I The population in service areas of four targeted Thaitelecentres are 28,313 people who are

(1) 4,301 people in Kumpawapi community UdonThani province.

(2) 12,775 people in Jutthurat community Chaiyaphum province.

(3) 2,827 people in Tabo community NongKhai province.

(4) 8,430 people in Kosumpisai community Mahasarakham province.

Group II Representatives from frequent users, non-frequent users and non-users.

Group III Representatives from directors of Thaitelecentres

2. Samples

The samples of this research in phase I are divided into three groups

Sample group I 378 people who are in service areas of Thaitelecentres (shown in table I).

Sample group II eighteen people who are in the targeted areas of Thaitelecentres in three provinces are a purposive sampling from three kinds of users. Six are frequent users, another six are infrequent users, and the last six are non-users. The criteria for classifying people whether who are frequent or non-frequent users is how often people come to the center per week. For instance, if he or she comes to the center more than 2 times, it can define that he or she is a frequent user.

Sample group III Two directors and one manager of targeted Thaitelecentres.

a) **Sample Size**

Due to the definitive population, the researcher used a table from Krejcie and Morgan (1970) to determine the sample size for studying on major problems of Thaitelecentre management in four targeted provinces. Because of a variety of user behaviors and differences in management of each center the researcher used stratified random sampling in order to set the sample size by choosing a behavior of usage as a stratum which is divided into frequent, infrequent, and non -usage. The sampling units will be consisted of three groups who are frequent users, infrequent users, and non-users that are shown in table I.

Table 1 Sample Size of group I

Lists of Thaitelecentres	Number of Population[3]	Sample Size			
		Frequent users	Non-frequent users	Non-users	Total
Kumpawapi Thaitelecentre	4,301	18	18	18	54
Jutthurat Thaitelecentre	12,755	54	54	54	162
Tabo Thaitelecentre	2,827	12	12	12	36
Kosumpisai Thaitelecentre	8,430	42	42	42	126
Total	**28,313**	**126**	**126**	**126**	**378**

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[3] Number of population came from Department of Local Administration in the year of 2009

B. Data Collection Technique

The following various methods used for this research on phase I consist of:

1. Observation: this method can be used to receive any data collected in the research field.

2. Case studies: At first in order to get a clear understanding of the basic data and overall picture of Thaitelecentres, the researcher used observations to make case studies of four targeted centers. The study sites are four Thaitelecentres in four provinces in the northeast part of Thailand. All of which are Tabo community NongKhaiprovince,Kumpawapi community UdonThaniprovince, Kosumpisai community Mahasarakham province, and Jutthurat community Chaiyaphum province.

3. Questionnaire: The researcher used this questionnaire with 378 people who are a sample of group I to inquire about major problems of Thaitelecentre management.

4. Focus Group Discussion: The researcher used a focus group with a sample of group II to encourage them to express their opinions and feelings as well as share their views and experiences about using and not using the services of centers. Additionally, by using a focus group, the researcher could gain various perspectives and see the interactions on the issue from various respondents at the same time. This tool enabled the researcher to gain more deep details about major problems and other useful ideas that are related to management of community telecenter. All of these members are purposive sampling from three kinds of users. Two are frequent users, another two are infrequent users, and the last two are non-users.

5. **In-depth Interview:** Focused on key informants who could provide an insider's perspective with insightful information on management of a telecenter which was drawn for their own experiences. For this in-depth interview, two directors and one manager of targeted Thaitelecentres were selected as the key informants of the study.

The following steps of the construction of research instruments are:

a) Studied from documents, textbooks, research works, thesis and other related works that are relevant to the topics and issues: the concept of community telecenter, community participation, community telecenter management and lifelong learning etc.

b) Designed the questionnaire that follows a scope of the study by applying the conceptual framework of this research as a guideline. This questionnaire comprises of 2 parts which are (a) background information and (b) opinions of respondents for problems of Thaitelecentre management of MICT.

c) Developed outlines and headlines for a focus group discussion by using collected data from the questionnaire and the conceptual framework of this research as guidelines.

d) Created the majority of questions for an in-depth interview by using certain issues about key components for management of community telecenter in a conceptual framework. The following issues are:

(1) Facilities and ICT Infrastructure
(2) Location
(3) Human Resource Management
(4) Policy and Regulation
(5) Strategic Management
(6) Community Participation and Networking

(7) Financial support and Budget

(8) Perception and Need

(9) etc.

e) Accessed the validity of research instruments by a panel of experts. The experts will be able to review the items and construct on whether the content of the test matches a content domain and also adequately represents what is intended by theoretical account of the construct being measured.

f) Applied the questionnaire, focus group guidelines, and interview questions to gather the data collection from each group of samples.

C. Data Collection

Before the research instruments applied into the data collection process, the researcher tested research tools by measuring content validity in order to make sure that research instruments can be measured. The researcher demonstrated the research tools to experts who had experience in community telecenters to investigate the content of the test, expression, language and the degree to which the test items matched the test objectives or specifications and content domain.

The name lists of experts are as follows:

a) Deputy Permanent Secretary of the MICT Thaneerat Siripachana

b) Associate Professor Dr.Bordin Rassameethes

c) Associate Professor Dr.Suttanu Srisai

d) Associate Professor Dr.Supot Boonwises

e) Dr.Suparerk Sooksmarn

The process of data collection contained the following activity.

a) The researcher took the letter of approval from Kasetsart University to directors and managers of four targeted centers to ask for collaboration in data collection.

b) The researcher asked for cooperation from an assistant researcher who helped the researcher gather all data in the data collection process

c) The researcher went into the field to collect data by observing, recording and note-taking which will occur during the data collection process

D. Data Analysis

In a qualitative inquiry, the researcher is the instrument of both data collection and data interpretation. Because the researcher is directly involved in the setting and interacting with participants in the study field. It is necessary to deal with large volumes of data. Consequently, content analysis can be a powerful tool for analysis and using data reduction as a technique by compressing many words of text into fewer content categories.

1. Content analysis

For studying the content and messages of qualitative material, the researcher used content analysis to analyze recorded transcripts of focus group discussions and in-depth interviews. The creation of coding and categorizing data that derived from data collection was established.

2. Data explanation from a case study will be fully described in a historic background and operation of a Thaitelecentre which can be more meaningful for further steps to data analysis. While data collected from questionnaires was analyzed by using the percentage and frequency statistic.
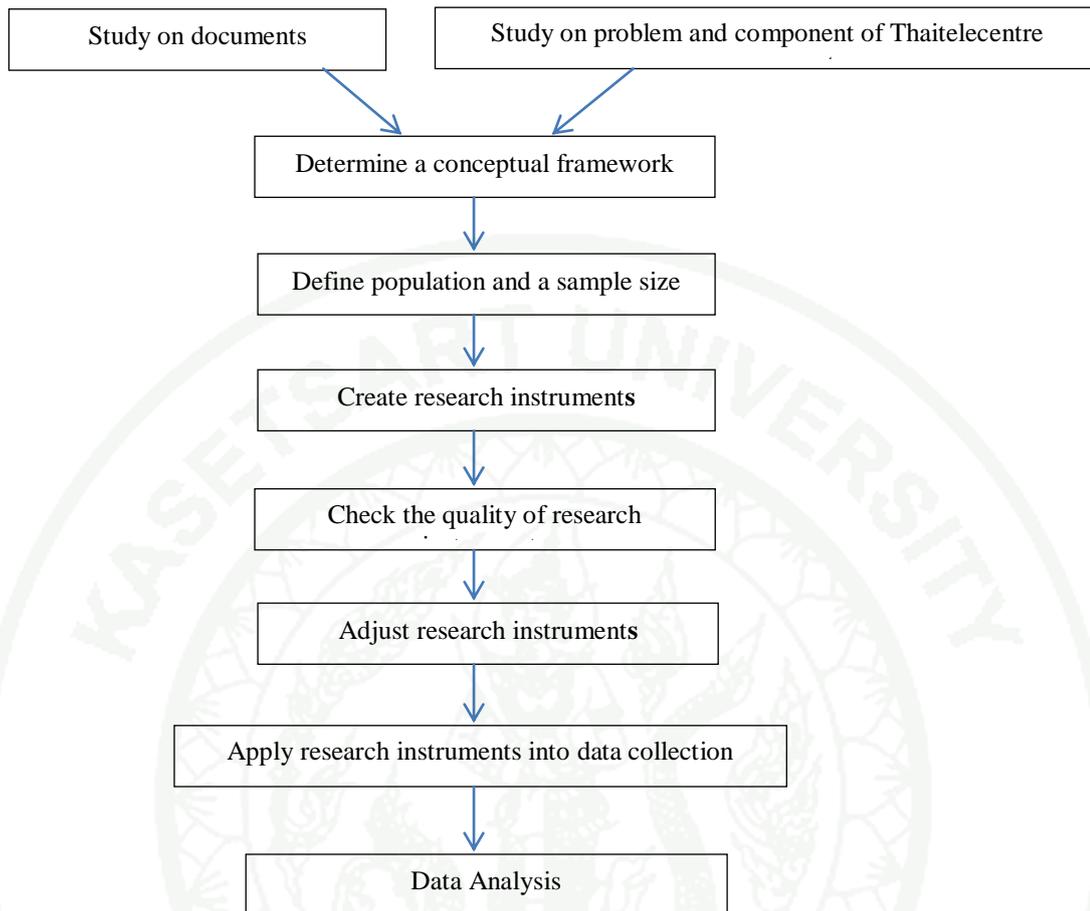
Figure 8 Summary of research procedure in phase I

Phase II

Construct and verify Thaitelecentre Management Model for lifelong learning of the MICT.

The details of this phase are as follows:

A. Samples

The researcher identified ten representatives consisting of 6 experts with substantial experiences in the field of ICT, community management and telecenter operation, 5 of them from the famous universities of Thailand and one from the MICT

who is an expert of the Thaitelecentre project. Another is two directors and two managers of three targeted Thaitelecentres.

B. Research Instrument

The following research tools used for this phase are:

1. **Close-ended questionnaire**: After getting the results from data analysis in phase I, the researcher used the close-ended questionnaire in order to prioritize the setting of problems and key components of Thaitelecentre management from a group of samples. Such questions are designed to ask about frequency which is divided into 5 rating scales: the most important, very important, moderate, less important, and the least important. The results from this close-ended questionnaire allow the researcher to sort through all kinds of the problems and components into a strategy map in order to construct a Thaitelecentre management model. Finally, this tool was used to bring further information to focus group discussion.

2. **Focus group discussion**: Regarding the investigation of Thaitelecentre management model in the final stage of the study, the researcher used a focus group to gauge the range of opinions and interact on the overall issues from various perspectives based on a list of key components of the Thaitelecentre management model. Additionally, a group discussion tended to provide checks and balances in each perspective which helped reduce distorted data.

C. Data Collection

The process of data collection consists of the following:

1. The researcher took official documentation from Kasetsart University to a sample group to ask for collaboration in responding to the close-ended questionnaire.

2. The researcher set a focus group discussion to verify the Thaitelecentre management model.

D. Data Analysis

1. Descriptive Statistics: Mean ($\bar{x}$) and Standard Deviation (S.D.) were used in calculating the rating scale data from the priority setting of problems and components of Thaitelecentre management in close-ended questionnaire.

The criteria measures of analysis and interpretation are as follows:

1.00-1.49	refers to	data is the least important
1.50-2.49	refers to	data is less important
2.50-3.49	refers to	data is moderate
3.50-4.49	refers to	data is very important
4.50-5.00	refers to	data is the most important

2. For analyzing data, the research brought the results from a close-ended questionnaire to construct a Thaitelecentre management model by means of the principle Balance Scorecard. In doing such, the assortment of key components of Thaitelecentre management would be established as a strategy map.

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┌────────────────────────────────────────────────────────────┐
│  Bring the results from phase I to create close-ended questionnaire  │
└────────────────────────────────────────────────────────────┘
                            │
                            ▼
        ┌──────────────────────────────────────┐
        │        Identify a group of samples        │
        └──────────────────────────────────────┘
                            │
                            ▼
        ┌──────────────────────────────────────┐
        │  Collect data from close-ended questionnaire  │
        └──────────────────────────────────────┘
                            │
                            ▼
      ┌──────────────────────────────────────────┐
      │  Construct (draft) Thaitelecentre management model  │
      └──────────────────────────────────────────┘
                            │
                            ▼
  ┌──────────────────────────────────────────────────────┐
  │  Verify (draft) Thaitelecentre management model by a focus group discussion  │
  └──────────────────────────────────────────────────────┘
                            │
                            ▼
      ┌──────────────────────────────────────────┐
      │  Adjust (draft) Thaitelecentre management model  │
      └──────────────────────────────────────────┘
                            │
                            ▼
      ┌──────────────────────────────────────────┐
      │     Final Thaitelecentre management model     │
      └──────────────────────────────────────────┘
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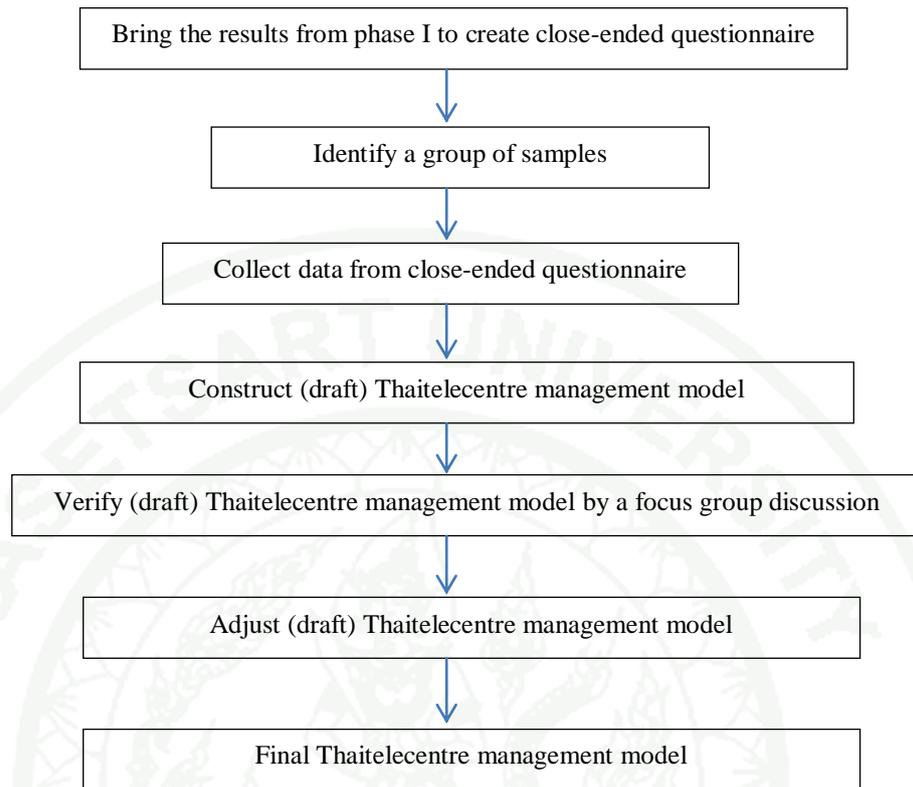
Figure 9 Summary of research procedure in phase II

E. The quality of research

Basically, in this research, the researcher applied the triangulation method in order to ensure the creditability of the collected data.

1. Data Triangulation: For data collection in phase I, the researcher used this type of triangulation for the convergence of data from other sources by applying a questionnaire with 45 respondents in Ban Fang Thaitelecentre in Kong Kaen province to inquire about problems of Thaitelecenter management. As in-depth interview, the researcher interviewed a manager of the Ban Fang Thaitelecentre to gather useful data about key components of a Thaitelecenter.

2. Dependability: In addressing the issue of reliability, the idea of dependability emphasized the need for the researcher to get around the incomplete data collection. Essentially, it is necessary to be concerned with some missing parts of the existing situation that have occurred in the real work field. Therefore, the researcher would ask for cooperation from assistants to observe and gather all useful data in the stage of data collection process.

3. Transferability: It refers to the degree to which the results of qualitative research can be generalized or transferred to other contexts. From Thaitelecentre management model, the researcher can enhance transferability by using close-ended questionnaires with a sample group who are experts, scholars, directors and managers of Thaitelecenters and a manager of Ban Fang Thaitelecentre to re-ask about the priority setting of problems and key components of Thaitelecentre management.

4. Confirmability: The concept of confirmability is to reduce the effect of researcher bias. It ensured that the research's findings are the results of the experiences and ideas of the informants rather than the characteristic of the researcher. Hence, the researcher would recheck the Thaitelecentre management model by conducting a focus group discussion with experts and scholars to examine such a model, and make judgment about the potential for bias and distortion.

Table 2 Summary of research procedure in Phase I and II

Study Issue	Source of data	Research Instrument	Data Analysis
Problems of Thaitelecentre management	Sample group I-III	- case study - questionnaire - focus group discussion - in-depth interview	- data explanation - descriptive statistics (percentage and frequency) - content analysis
Components of Thaitelecentre management	Sample group III	In-depth interview (observing, recording, and notetaking)	- content analysis (coding and categorizing)
Thaitelecentre management model	a group of sample in phase II	- close-ended questionnaire - focus group discussion	- Descriptive statistics (Mean and Standard deviation)

CHAPTER IV

RESULTS AND DISCUSSION

Results

This chapter described the results of the study on the major problems and components of Thaitelecentre management, the construction and investigation of Thaitelecentre management model for lifelong learning of the MICT which were relative to the research objectives. The results of Thaitelecentre Management Model for Lifelong Learning were separated into two phases:

Phase I The analysis of major problems and key components of Thaitelecentre management for lifelong learning of the MICT.

In this phase, the results were presented as follows:

A. The detailed overview of a case study on the background and operation of four Thaitelecentres in I-Community Project. These centers include:

1. Jutthurat Thaitelecentre, Lahan sub-district, Chaiyaphum province.
2. Kumpawapi Thaitelecentre, Kumpawapi sub-district, Udon Thani province.
3. Tabo Thaitelecentre, Tabo sub-district, Nong Khai province.
4. Kosumpisai Thaitelecentre, Kosumpisai sub-district, Mahasarakham province.

B. The findings of major problems of Thaitelecentre management. 252 respondents of 378 sample size were collected because Kosumpisai Thaitelecentre was not operative.

C.   The analysis results from focus group discussion about major problems of Thaitelecentre management.

D.   The details of key components of Thaitelecentre management from in-depth interviews.

E.   The analysis results of A-D which led to the construction of Thaitelecentre management model for lifelong learning of the MICT.

Phase II The construction and verification of Thaitelecentre management model for lifelong learning of the MICT.

F.   The constructive result of the drafted Thaitelecentre management model for lifelong learning of the MICT.

G.   The verifiable finding of Thaitelecentre management model for lifelong learning of the MICT.

Phase I   The analysis of major problems and key components of Thaitelecentre management for lifelong learning of Ministry of Information and Communication Technology.

A. The detailed overview of case study on the background and operation of four Thaitelecentres in I-Community Project.

1. Jutthurat Thaitelecentre

a) Historical Background

Jutthurat Thaitelecentre was selected to be one of the four targeted areas in establishing a community telecenter at the upper northeast of Thailand. This is a part of I-community project of Ministry of Information and Communication Technology in 2006. Due to its readiness and potential in development, this center passed the specification criterion of the Ministry of Information and Communication Technology. These criterions include unquestionable public utility and infrastructure such as telephone connection and electricity, professionals such as community and religious leaders, skillful teachers in ICT and community development and existence of local educational institutions as a community center. In addition, a suitable location for establishing a Thaitelecentre where all people in the community can access it easily and community participation in the operation of Thaitelecentre are required to meet the criterions.

The major objective of setting up a Thaitelecentre is to serve every community member all kinds of telecommunication services such as computer and internet. People within the community will have rapid and quick access to information through internet network. In the center, ICT training programs for the entire people in the local community are provided. The knowledge gained from training will give skills to community members for searching useful data and information from all sources. In addition, the creation of a database gives information to the community

which supports the decision-making of local people and makes them adjust their livelihood with the rapid social environment.

The opening of Jutthurat Thaitelecentre was officially held on 25 August, 2006. The operation included:

(1) Installation of six computers, one server, a printer, a scanner, and broadband internet (ADSL system)

(2) Setting up of Open eNRICH program in managing data of community. 1,004 people in community were trained to use the program.

(3) Selecting Community CIO who will act as the manager of the Thaitelecentre. The CIO is also responsible to educate computer and internet users; he will also function as a trainer to pass on ICT knowledge to community members, and build and develop a community database continuously.

b) Location

Jutthurat Thaitelecentre is located in Lahan sub-district administrative organization area where local people in rural community can access it easily. This site is the only place in Lahan sub-district that had a leased telephone line exchange.

c) Management System

The mayor of Lahan sub-district administrative organization was the director of Jutthurat Thaitelecentre and the sub-district administrative officer was trained to be the Community CIO who acted as manager of the Thaitelecentre. After the completion of I-Community project, the operational authorization of the center was transferred from the Ministry of Information and Communication Technology to sub-district administration organization. In terms of Thaitelecentre sustainability,

Lahan sub-district administration organization was responsible for the operational budget.

d) Physical Condition

(1) Geography

Jutthurat Thaitelecentre is under the control of Lahan sub-district administrative organization, Chaiyaphum province. This center is located in the north of Jutthurat district. The geographical area is mostly plain land stretching from north to south. Its border is connected to:

North connected to Bankhai sub-district,
South connected to Nongbuayai sub-district
East connected to Kahad and Nongchim sub-district
West connected to Nongbuaban and Bangkok sub-district

(2) Transportation and Infrastructure

Starting from Bangkok to Lahan sub-district, highway no.201 must be used (Chaiyaphum-Sekew road). In Lahan sub-district, 18 public telephones were provided. 155 telephone numbers on both telephone lines and wireless telephones were also provided. 45 per cent of the total population in the community had mobile phones. 97 per cent of all households had electricity. Also, 80 per cent of all households had water utilities.

(3) Demography

In 2010 there are a total of 3,616 households and 12,755 inhabitants. 6,300 are male and 6,475 are female. 95.4 per cent of people's occupation is agriculture and rice farming, 2.1 per cent is trading, 1.4 per cent is manufacturing, and

0.6 per cent works as employees. The average income is 36,361 baht per person per year.

e) Present Condition

Recently, the power of Jutthurat Thaitelecentre operation was under the mayor of Lahan sub-district administration organization who had been the director of Jutthurat Thaitelecentre since 2006. It only had one sub-district administrative officer who acted as the manager and responsible for managing the center, but did not have much knowledge of ICT and lacked computer skills. Moreover, this officer had to do other responsibility in disaster prevention and mitigation task at the same time. Though he earned his salary directly from sub-district administrative organization, he did not receive fringe benefit at all.

From the researcher's observation Jutthurat Thaitelecentre is open for a minimum of 8 hours per day, 5 days a week, but closed on weekends. The services are free of charge. It is clear that there is no nameplate of a Thaitelecentre which should be displayed in front of its center. The same air-condition unit is provided but not used regularly due to an exorbitant power bill, whereas the number of computers had not increased. Existing computers looked quite old and were obsolete. The numbers of computers were not adequate for users when needed. "A lot of children liked to come over to the center after school but we only have six computers so it was not enough for them to use." (Ravin Kreutanavit, 2009)

Moreover, one sub-district administrative officer also said that:

…the one advantage of the services was the setting up of a leased line network in which the speed of internet system was stable when the demand of usage was higher. On the other hand, the one disadvantage was an unavailable printer and a scanner to serve all users...

The center did not have a registration desk and only a statistic note was provided. The average users per day was about 3-4 people who mostly were school students. It was obvious that the purpose of computer and internet users were for research, homework and assignment support, and playing games. Most people in the community used motorcycles to visit the center. From the inquiry of one sub-district administrative officer, the main reason that local people in the community did not come to use the services in the center was almost all of the households have their own computers and internet. Also, there are internet providers whose IT network reached the community. Moreover, the project of leasing out 10-20 computers per year to community members who could not afford to buy one was provided by Lahan sub-district administration organization and repair service is included when some of these computers were broken and inoperative.

Since Jutthurat Thaitelecentre started its operation in 2006, only one training program was provided to the local people in the community. No action plan and promotional activities were provided that would educate community members of the benefits of the center. A basic training program was not provided at all. "Luckily, a wireless transmitter was used to advertise the existence of the Thaitelecentre at least once a month." (Ravin Kreutanavit, 2009)

Furthermore, creating a community database which consists of useful local products and vocational information that would generate income for people in the community was not initiated. In terms of operational budgeting, Thaitelecentre project encompassed the internet Tumbon project of Lahan sub-district administration organization, its expenditure mostly dealt with equipment maintenance more than the purchase of advanced equipment and training activities.

f) Situation Evaluation

The situation analysis of Jutthurat Thaitelecentre was described in Table 3

Table 3 The situation analysis of Jutthurat Thaitelecentre

SWOT Analysis	
Strengths	**Weaknesses**
1. Located in Lahan sub-district administration organization where people in community can go easily. 2. The director is a visionary leader.	1. Computers were obsolete. Also, the number of computers was not adequate for users. 2. No other equipment such as a printer, a scanner, and a projector was provided. 3. Inadequate budget for operation of Thaitelecentre sustainability. 4. Lack of competent staff that have ICT knowledge and skills 5. Lack of continual action plan.
Opportunities	**Threats**
1. An explicit policy and regulation of setting up Thaitelecentre. 2. The contribution in financial support from government such as Ministry of Information and Communication Technology. 3. Strong participation of community leaders and pillars to encourage community members to come and use the services of Thaitelecentre. 4. The linkage between using the services of the center and generating income of people in the community.	1. People in rural areas do not realize and unaware of the importance of benefits of Thaitelecentre. 2. Majority of the households have their own computers and internet, hence unnecessary for them to come in to the center. 3. Most of the people are agriculturists who are unlikely to involve with ICT and prioritize earning than technology

2. Kumpawapi Thaitelecentre

a) Historical Background

Kumpawapi Thaitelecentre was selected to be one of the four targeted areas in establishing a community telecenter at the upper northeast of Thailand. This is a part of I-community project of Ministry of Information and Communication Technology in 2006. Because of its readiness and potential in development, this center was qualified following the criterion of Ministry of Information and Communication Technology. These criterions include unquestionable public utility

and infrastructure such as telephone connection and electricity, professionals such as community and religious leaders, skillful teachers in ICT and community development, and existence of local educational institutions as a community center. In addition, both appropriate locations for setting up a Thaitelecentre where all people in community can access easily and community participation in operation of Thaitelecentre are another evaluation principle.

The main purpose of establishing a Thaitelecentre is to serve every community member all kinds of telecommunication services such as computer and internet. People within their community will have rapid and quick access to information through the internet network. In the center, ICT training programs for the entire people in a local community were provided. The knowledge gained from training will give skills to community members for searching useful data and information from any sources. In addition, the creation of a database gives information to the community which supports the decision-making of local people and makes them adjust their livelihood with the rapid social environment.

The inauguration of Kumpawapi Thaitelecentre was officially held on 4 October, 2006. The following implementation include

(1) Installation of six computers, one server, a printer, a scanner, and broadband internet (ADSL system)

(2) Setting up Open eNRICH program in managing data of community. 1,000 people in community were trained in using this program.

(3) Selecting Community CIO who will act as a manager of Thaitelecentre. The CIO is also responsible to educate computer and internet users, he will also function as a trainer to pass on ICT knowledge to community members, also build and develop a community database continuously.

b) Location

Kumpawapi Thaitelecentre was located in Kumpawapi Municipality area where it was used to be an election administrative office. This area covered almost all households which are in the municipal area. Most of the people in the community can come to use the telecentre.

c) Management System

Mayor of Kumpawapi Municipality was the director of Kumpawapi Thaitelecentre and the municipal officer was trained to be the Community CIO and acted as the manager of Thaitelecentre. After I-Community project of Ministry of Information and Communication Technology was completed, the operational authority of this center has been transferred to the municipality. In terms of Thaitelecentre sustainability, the operational budgeting was handled by Kumpawapi Municipality.

d) Physical Condition

(1) Geography

Kumpawapi is one of thirteen sub-districts under the governing of Kumpawapi district, Udon Thani province. General geographical area of Kumpawapi sub-district is mostly plain land which is sinuous and incline boundary from easterly to westerly. Its border is connected to

North connected to Lumnampao, Kumpawapi sub-district
South connected to Toomtai sub-district
East   connected to Lumnampao Viengkhum sub-district
West connected to Pundon sub-district

(2) Transportation and Infrastructure

Starting from Bangkok to Kumpawapi sub-district, highway no.2 and no.2023 must be used. The distance of Kumpawapi sub-district is approximately 8 kilometers from highway no.2 and 43 kilometers from Udon Thani province. In Kumpawapi sub-district, it has one post and telegraph office and public telephones to serve all local people.

(3) Demography

In 2010 there are a total of 1,178 households and 4,301 inhabitants. 2,182 are male and 2,119 are female. The major occupation of the people is in agriculture, sugar-cane farming, manufacturing, and working as an employee respectively.

e) Present Condition

At present, the operation of Kumpawapi Thaitelecentre is still authorized by the Mayor of Kumpawapi Municipality who has been the head of Kumpawapi Thaitelecentre since 2006 and another three municipal officers are responsible for the center operations. It is clear that this center does not have active and effective managers. These officers are only doing this job without taking part in any other jobs and all of them have not much knowledge of ICT and computer skills. In addition to that, they get their salaries from the municipality.

Kumpawapi Thaitelecentre is open regularly, during office hours from 8 a.m. to 5 p.m. on weekdays and close on weekends. There is no charge for the services. From the researcher's observation, a nameplate of Thaitelecentre is displayed in front of its center and that people in the community can see it easily. The same air-condition unit is provided but not use regularly due to an exorbitant power bill, whereas the number of computers had not increased. Existing computers looked quite old and were obsolete. The numbers of computers were not adequate for users

when needed. Also, this center set up ADSL system from 1 Mpbs to 2 Mpbs which had more speed than the old one but the center did not have a printer. One scanner served all users when needed.. The registration desk was placed in front of the entrance. The average user per day is about 9-10 people who mostly are school students. The objectives are different in various users. For school students, they accessed computers and internet for searching information and supporting their homework and assignment. Also, local government officers use the services of Thaitelecentre for faster and efficient data processing.

A director of Kumpawapi Thaitelecentre pointed out that "From recent statistics, it showed that the center has become a data entry center. Many local government officers often come to use the service of the center for data entry."

People in the community ride motorcycles as a vehicle to reach the center conveniently. In addition, the reason that few people in the community use the services at the center was majority of all households have their own computers and internet. Moreover, there were internet providers whose IT networks were not available to the community.

Since Kumpawapi Thaitelecentre has been opened in 2006, only one training program was provided to local people in the community. Neither an action plan nor other promotional activities that would give awareness to the community members were provided. Even though, the center did not provide training programs continuously, local radio was used to publicize the existence of Thaitelecentre at least once a month. Nevertheless, building a community database which contains various products and vocational information that promote jobs and generates income for local people weren't started. Also, they do not upload Kumpawapi Municipality data into its website that would stimulate local people to search about the center. Like a director of Kumpawapi Thaitelecentre said

…The problem here was almost all the people in the rural area didn't recognize the benefits of ICT. What I would like to do is to gather all existing local advice into the website and create them as a real time database for all people within the community to search for a wealth of information. Yet, the same problem still happened. My staff wasn't able to take these actions at all. Because we both didn't have competent staff and money so everything now is stagnant…

In operational budgeting, it does not have a budget proposal to request for the operation of Thaitelecentre exclusively and systematically. It can be seen from the opinion of the mayor of Kumpawapi Municipality.

…If we don't have money, everything will be obstructed. Nothing you can do, if you have no budget. As I said, due to the limitation of budget, we have to measure that which one is the most important thing that we should invest first. In rural community, public utility infrastructure such as road constructions, water and electricity supply system for people are more crucial than Thaitelecenter aspect…

Obviously, its expenditures came from equipment maintenance and electricity costs rather than the purchase of advanced equipment and training activities. The importance of public utility infrastructure such as road constructions, water and electricity systems for people in rural areas is urgent. For this reason, the budget of Thaitelecentre operation and ICT preparation for community becomes a minor aspect and of less importance.

f) Situation Analysis

It can be illustrated in Table 4.

Table 4 The situation analysis of Kumpawapi Thaitelecentre

SWOT Analysis	
Strengths	**Weaknesses**
1. Located in municipality area where people in community can go easily. 2. High speed internet. 3. The director is a visionary leader.	1. Computers were obsolete. Also, the number of computers were not adequate for users. 2. No other equipment such as a printer, a scanner, and a projector was provided. 3. Inadequate budget for operation of Thaitelecentre sustainability. 4. Lack of competent staff that have ICT knowledge and skills 5. Lack of continual action plan.
Opportunities	**Threats**
1. A clear policy and regulation of setting up Thaitelecentre. 2. The contribution of financial support from government such as Ministry of Information and Communication Technology. 3. Strong participation of community leaders and pillars to encourage community members to come and use the services of Thaitelecentre. 4. Strong community of Kumpawapi. 5. The linkage between using the services of the center and generating income of people in community.	1. People in rural area do not realize and unaware of the importance of benefits of Thaitelecentre 2. Majority of the households have their own computers and internet, hence unnecessary for them to come in to the center.

3. Tabo Thaitelecentre

a) Historical Background

Tabo Thaitelecentre was selected to be one of the four targeted places in setting up a community telecenter at the upper northeast of Thailand. This is a part of I-community project of Ministry of Information and Communication Technology in 2006. Because of its readiness and capability in development, this center passed the specification criterion of Ministry of Information and Communication Technology.

These criterions include unquestionable public utility and infrastructure such as telephone connection and electricity, professionals such as community leader and religious leaders, skillful teachers in ICT and community development, and existence local educational institutions as community center. In addition, not only a suitable location, but also community participation in operation of a Thaitelecentre are both criterions.

The main objective of setting up a Thaitelecentre is to serve every community member all kinds of telecommunication services such as computer and internet. People within the community have rapid and quick access to information through internet network. In the center, ICT training programs for the entire people in local community were provided. The knowledge that was gained from training will give skills to community members for searching useful data and information from any sources. In addition, the creation of a database gives information to the community which supports the decision-making of local people and makes them adjust their livelihood to the rapid social environment.

The opening ceremony of Tabo Thaitelecentre was officially opened on 5 October, 2006. The details of operation are as follows:

(1) Installation of six computers, one server, a printer, a scanner, and broadband internet (ADSL system)

(2) Open eNRICH program in managing data of community was set-up. 1,004 people in community were trained in using this program.

(3) Selecting Community CIO who will act as a manager of Thaitelecentre. The CIO is also responsible to educate computer and internet users, he will also function as a trainer to pass on ICT knowledge to community members, also build and develop a community database continuously.

b) Location

Tabo Thaitelecentre is in Tabo Municipality area which is close to the disaster and prevention mitigation center where local people in rural community can go comfortably and easily.

c) Management System

The mayor of Tabo Municipality was the director of Thaitelecentre and the municipal officer was trained to be the Community CIO acted as the manager of Thaitelecentre. After I-Community project was completed, the operational authorization of this center has been transferred to Municipality. The operational budgeting was handled by Tabo Municipality.

d) Physical Condition

(1) Geography

Tabo Thaitelecentre is under the control of Tabo municipality, Nong Khai province. Most areas are plain land, while some are in the high land in which Mekong River flows through. Its border was connected to

North   connected to nummoong sub-district,
South   connected to Banphue sub-district
East   connected to Mekong River
West   connected to Khokkhon sub-district

(2) Transportation and Infrastructure

Starting from Bangkok to Tabo sub-district, highway no.2 must be used which passed through Saraburi, Nakhonratchasima, Khonkaen, and Udon Thani provinces. Before arriving Tabo sub-district, it is about 12 kilometers from highway

no.2 and then turn into highway no.211. From highway no.211, it is approximately 28 kilometers to reach Tabo Thaitelecentre. For public utility, all of the households had electricity, whereas 80 per cent of households have telephones in home and mobile phones.

(3) Demography

In 2010 there are totally 585 households and 2,827 inhabitants. 1,317 are male and 1,510 are female. 60 per cent of all local people are agriculturists and rice farmer, 20 per cent is manufacturer, and 10 per cent is employee. The average income is 12,000 baht per person per year.

e) Present Condition

Currently, the authorization of Tabo Thaitelecentre operation was under the Mayor of Tabo municipality who has been a director of Thaitelecentre since 2006. There was only one municipal officer who acted as a manager and in charge of operating the center, one hireling of municipality is employee of the center and another is a student apprentice who will get credits from his university after finishing the training. For a manager, she did not have much knowledge of ICT and computer skills and had to do other responsibility in educational division simultaneously, while a hireling is responsible for equipment maintaining in both center and educational division. For this reason, sometimes, the center could not open in all office hours and had to be closed temporarily. However, all of the employees directly earned their salaries from Tabo municipality, but they did not get any incidental payment at all.

From the inquiry of a municipal officer, Tabo Thaitelecentre is opened for a minimum of 8 hours per day from 8.00 a.m. to 16.00 p.m., 5 days a week, but closed on weekends. The services are free of charge. Despite a clear display of a nameplate of Thaitelecentre in front of its center, local people in community dare not to come to use the services of Thaitelecentre. Because they thought that the center

was one part of the municipal office. "I ride through the center everyday but I didn't ever know that this is a Thaitelecentre." (Kumjun Dangsong, 2009)

From the researcher's observation, the air-condition unit was still provided. As of now, the number of computers were 25 units which came from the contribution of municipal schools. All of the computers looked quite old and were out of date. Moreover, a printer and a scanner were not provided to serve users in the center. A municipal officer explained that "The advantage of this center was broadband internet. Its speed was 4 Mpbs which all users could search any information very quickly."

Even though a statistic note was provided, it did not systematically have a registration desk in the center. The average user per day was about 5-6 people who mostly were school students. The main purpose of usage of computers and internet was playing games. Most of all the people in community used motorcycles and walked to the center. Regardless of the speed of internet in the center, community members did not come to use its services. Almost all of the households already have their own computers and internet. Also, there were internet providers whose IT network reached to the community. Moreover, local people in community were agriculturists who were not necessary to use the services of Thaitelecentre and did not have much time to come to the center. As mentioned by a municipal officer who used to take care of Tabo Thaitelecentre for 3 years.

…Most of the people in the community didn't come to use the service of the center. Its center became a place where children come to play games. Anyway, we didn't agree with that. In addition, many people in Tabo community already have their own personnel computers in their house so it is not necessary for them to come to use its services. Another group of people such as agriculturists don't dare to come in, whereas some groups like to go to the internet café instead…

Since Tabo Thaitelecentre has been managed in 2006, only one training program was provided to local people in their community. No action plan and promotional activities were provided which could encourage awareness amongst community members' awareness of the benefits of the center. A basic training program is not also provided at all. In addition, there is no advertisement on the existence of a Thaitelecentre which can create the acknowledgement of local people. Furthermore, the initiation of building a community database has not occurred in which it consists of useful local products and vocational information in order to generate income of people in community.

When the researcher asked the municipal officer about how we can stimulate the local community to use the center? The evidence was shown that

…As a matter of fact, the main objective of setting up Thaitelecenter is to be a source of lifelong learning. Perhaps we gather all useful data in a rural community to be as a community database which is relevant to people's life; it will be a wealth of source of learning among people in community…

For example, housewives and working groups can search for useful information involving their jobs and generating their income as well. Nevertheless, the center should provide training programs from basic needs to advanced programs by cooperating with a non-formal educational institution. Each training session consists of 20-25 people. Because the harvest season ended, the duration of its course should start from the beginning of November to the end of March and run at least 2 weeks. This course is free of charge."

From now on, a budget proposal for an operational Thaitelecentre does not exist. It is likely that the operational budgeting of the center extracted from municipal budget. Mostly, its expenditures is derived from equipment maintenance and electricity cost rather than the purchase of new equipment and training programs.

f) Situation Evaluation

The following situation analysis of Tabo Thaitelecentre was given below.

Table 5 The situation analysis of Tabo Thaitelecentre

SWOT Analysis	
Strengths	**Weaknesses**
1. Located in Tabo municipality where people in community can go easily.	1.Computers were obsolete. Also, the number of computers were not sufficient for users.
2. High speed broadband internet was provided.	2. No other equipment such as a printer, a scanner, and a projector was provided.
3. The number of computers were adequate for users	3. Inadequate budget for operation of Thaitelecentre sustainability.
	4. Lack of competent staff that have ICT knowledge and skills
	5. Lack of continual action plan.
	6. Lack of visionary leader.
Opportunities	**Threats**
1. A clear policy and regulation of establishing Thaitelecentre.	1. People in community do not aware of the benefits of Thaitelecentre.
2. The contribution in financial support from government such as Ministry of Information and Communication Technology.	2. Almost all of the households have already had their own computers and internet, hence unnecessary for them to come in to the center.
3. Strong participation of community leader and community pillar to encourage community members to come to use the services of Thaitelecentre.	3. Most of the people are agriculturists who are unlikely to involve with ICT and have to earn their living to support themselves.
4. The linkage between using the services of the center and generating income of people in the community.	

4. Kosumpisai Thaitelecentre

a) Historical Background

Kosumpisai Thaitelecentre was selected to be one of the four targeted areas in establishing community telecenter at the upper northeast of Thailand. This is a part of I-community project of Ministry of Information and Communication Technology in 2006. Due to its readiness and potential in development, this center was capable of the specification criterion of Ministry of Information and Communication Technology. These criterions include unquestionable public utility and infrastructure such as telephone connection and electricity, professionals such as community and religious leaders, skillful teachers in ICT and community development and existence of local educational institutions as community center. In addition, both suitable location for establishing Thaitelecentre where all people in community can go easily and community participation in the operation of Thaitelecentre are required to meet the criterions.

The major objective of setting up a Thaitelecentre is to serve every community member all kinds of telecommunication services such as computer and internet. People within the community have rapid and quick access to information through an internet network. In the center, ICT training programs for the entire population in a local community was provided. The knowledge that was gained from training will give skills to community members for searching useful data and information from any sources. In addition, the creation of database gives information to the community which supports the decision-making of local people and make them adjust their livelihood with the rapid social environment.

The opening of Kosumpisai Thaitelecentre was officially held on 25 August, 2006. The operation included:

(1) Installation of six computers, one server, a printer, a scanner, and broadband internet (ADSL system)

(2) Setting up of Open eNRICH program in managing data of community. 1,004 people in community were trained in using this program.

(3) Selecting Community CIO who will act as a manager of Thaitelecentre. The CIO is also responsible to educate computer and internet users, he will also function as a trainer to pass on ICT knowledge to community members, and also build and develop a community database continuously.

b) Location

Thaitelecentre was located in Kosumpisai Municipality area which used to be the disaster and prevention mitigation center where people in community can go comfortably and easily.

c) Management System

Mayor of Kosumpisai Municipality was the director of the Thaitelecentre and the municipal officer was trained to be the Community CIO and acted as manager of the Thaitelecentre. After I-Community project was completed, the operational authorization of this center has been transferred to the Municipality. The budget of operation was administered by Kosumpisai Municipality.

d) Physical Condition

(1) Geography

Kosumpisai Thaitelecentre is one of the seventeen sub-district of Kosumpisai district. It is under the control of Kosumpisai municipality, Mahasarakham province. Most areas are highland with low steep. In the east side, the area is a plain land and prone to flood. Its border was connected to

North   connected to Yongnoi sub-district and Tajang sub-district

South   connected to Kaengkae sub-district

East   connected to Loengtai sub-district and Yongnoi sub-district

West   connected to Lao sub-district and Nongbon sub-district

(2) Transportation and Infrastructure

Starting from Bangkok to Kosumpisai sub-district, Mahasarakham-Khonkaen road must be used. It is approximately 30 kilometers away from Mahasarakham province. For public utility, all of the households have electricity, whereas 19.64 per cent of households had telephone in both home phone and mobile phone.

(3) Demography

In 2010 there are a total of 2,170 households and 8,430 inhabitants. 4,165 are male and 4,265 are female. 40 per cent of all occupation is in agriculture and rice farming, 20 per cent is manufacturing and hiring, and 10 per cent is unemployed. The average income is 20,000 baht per year per head.

e) Present Condition

At present, Kosumpisai Thaitelecentre was not operating anymore, because the space became the educational division instead and its computers were used by the municipal officers on their missions.

f) Situation Evaluation

The details of Kosumpisai Thaitelecentre's situation analysis were as follows:

Table 6 The situation analysis of Kosumpisai Thaitelecentre

SWOT Analysis	
Strengths	**Weaknesses**
1. Located in Kosumpisai municipality where people in community can go easily.	1. Lack of a visionary leader.
	2. Inefficient management of Thaitelecentre location.
	3. Lack of competent staff that have ICT knowledge and skills
	4. Inadequate budget for operation.
	5. Deficiency in advertising
Opportunities	**Threats**
1. A clear policy and regulation of establishing Thaitelecentre.	1. People in community do not aware of the benefits of Thaitelecentre.
2. The contribution in financial support from government such as Ministry of Information and Communication Technology.	2. Most of the people are agriculturists who are unlikely to involve with ICT and have to earn their living to support themselves.
3. Strong participation of community leader and community pillar to encourage community members to come to use the services of Thaitelecentre.	
4. The linkage between using the services of the center and generating income of people	

Table 7 The comparison of 4 Thaitelecentres management

	Kumpawapi Thaitelecentre	Jutthurat Thaitelecentre	Tabo Thaitelecentre	Kosumpisai Thaitelecentre
Management System	Mayor of Kumpawapi Municipality was a director of Thaitelecentre	Mayor of Lahan sub-district administrative organization was a director of Thaitelecentre	Mayor of Tabo Municipality was a director of Thaitelecentre	Mayor of Kosumpisai Municipality was a director of Thaitelecentre
Type of operation	Under the control of Kumpawapi Municipality	Under the control of Lahan sub-district administrative organization	Under the control of Tabo Municipality	Under the control of Kosumpisai Municipality
Present Condition	Available	Available	available	Not available
Personnel and staff	Three municipal officers are responsible for the center operation. It does not have a manager. These officers have only this responsibility and they have not much knowledge of ICT and computer skills. In addition, they directly get their salaries from Municipality.	A sub-district administrative officer who acted as a manager was responsible for managing the center and had to do other responsibility in disaster prevention and mitigation task at the same time. He did not have much knowledge of ICT. He directly earned his salary from sub-district administration	A municipal officer who acted as a manager was in charge of operating the center, one hireling of the municipality and another is a student apprentice For a manager, she did not have much knowledge of ICT skills and had to do other responsibility in educational division simultaneously,	No staff

Table 7 (Continued)

	Kumpawapi Thaitelecentre	Jutthurat Thaitelecentre	Tabo Thaitelecentre	Kosumpisai Thaitelecentre
		but did not receive fringe benefit at all.	while a hireling is responsible for equipment maintenance in both center and educational division. However, all of the employees directly earned their salaries from Tabo municipality, but they did not get any incidental payment at all.	
Rule for operation	be regularly opened in office hours from 8 a.m. to 5 p.m. on weekdays and closed on weekends	be regularly opened in office hours from 8 a.m. to 5 p.m. and closed on weekends	Be opened for minimum of 8 hours per day from 8.00 a.m. to 16.00 p.m., 5 days a week, but closed on weekends	-
The operational budgeting	Do not have a budget proposal to request for the operation of Thaitelecentre systematically. Its expenditures came from equipment maintenance and electricity cost	Thaitelecentre project was encompassed with the Internet tumbon project of Lahan sub-district administration organization. The expenditure mostly deals with	A budget proposal for operational Thaitelecentre does not exist. The operational budgeting of the center extracted from municipal budget. Mostly,	

Table 7 (Continued)

	Kumpawapi Thaitelecentre	Jutthurat Thaitelecentre	Tabo Thaitelecentre	Kosumpisai Thaitelecentre
	rather than the purchase of advanced equipment and training activities.	equipment maintenance more than the purchase of advanced equipment and training activities.	its expenditures derived from equipment maintenance and electricity cost rather than the purchase of new equipment and training programs.	
Users and usage	The average user per day is about 9-10 people who mostly are componentary students. The objectives of usage are for searching information and supporting their homework and assignment. Local government officers came to use the services of Thaitelecentre for data entry.	The average user per day is about 3-4 people who mostly are school students. The purpose of computer and internet users are for searching information, supporting their homework and assignment, and playing games.	The average user per day is about 5-6 people who mostly are school students. The main purpose of usage is playing games.	

Summary

From the overall consideration of the four Thaitelecentre operations it is concluded that during the previous 4 years, the implementation of Thaitelecentre did not reach the objective which is to be a source of lifelong learning for all the people within the community. According to the case study, the problems of the four Thaitelecentres are classified into 4 aspects which are facilities and ICT infrastructure, strategic management, financial support and budget, and personnel and staff problems. From all the mentioned above, it was learned that Thaitelecentre sustainability is non-existent. In facilities and infrastructure aspect, it could be seen that there were various points that Thaitelecentre must be concerned with. First, computers are obsolete and the numbers of computers are not enough to meet user demands. Moreover, other equipment is not provided such as a printer, a scanner and a fax machine. Some centers do not provide air conditioner. For the entire Thaitelecentre operations, there are no systematic action plan and no community database of useful information for local people. In addition, the advertisement to publicize the benefits of Thaitelecentre to community members was not dealt with. Training programs has not been mentioned as the first requirement in the context of Thaitelecentre sustainability. Moreover, it lacks of community participation from both leaders and community members. In operational budgeting aspect, no clear framework for the budget. Recently, there was no adequate budget to purchase new computers and advanced equipment. Lacking of competent personnel and staff that have ICT knowledge and management skills is a crucial part in Thaitelecentre operation. In case of users, most of the people in the community are agriculturists who are unlikely to involve with ICT and have to earn their living to support themselves. Furthermore, almost all of the households have their own computers and internet; therefore it is unnecessary for them to come into the center.

B. The findings of the major problems of Thaitelecentre management.

Only 252 of 378 respondents from three Thaitelecentres were collected. The remaining 126 respondents were omitted from the sample because Kosumpisai Thaitelecentre was not operating anymore. As mentioned on this case study, this might be because the center was taken over by the educational division of municipality. Finally, a total of 252 questionnaires were used for analysis. The respondents profile was summarized in Table 8 to 19.

Table 8 Amounts of users in gender

Gender	Jutthurat Thaitelecentre			Khumpavapi Thaitelecentre			Tabo Thaitelecentre		
	Frequent user	Non-frequent user	Non-user	Frequent user	Non-frequent user	Non-user	Frequent user	Non-frequent user	Non-user
Male	14 (25.9%)	11 (20.4%)	20 (37.0%)	7 (38.9%)	5 (27.8%)	6 (33.3%)	5 (41.7%)	9 (75.0%)	7 (58.3%)
Female	40 (74.1%)	43 (79.6%)	34 (63.0%)	11 (61.1%)	13 (72.2%)	12 (66.7%)	7 (58.3%)	3 (25.0%)	5 (41.7%)
Total	54 (100%)	54 (100%)	54 (100%)	18 (100%)	18 (100%)	18 (100%)	12 (100%)	12 (100%)	12 (100%)

From Table 8, in Jutthurat Thaitelecentre, 74.1% of frequent users were female. Male users comprised 25.9% of total frequent users. For non-frequent users, male and female users consisted of 20.4% and 79.6%, respectively. Surprisingly, it was found out that 63.0% of non-users were still female. The remaining 37.0% of non-users were male.

For Kumpawapi Thaitelecentre, it is shown that the gender proportion of frequent users seemed to be almost the same number, where females outnumbered the males and accounted for 61.1% of the total frequent users. The non-frequent users' proportion was dominated by females (72.2%), while male proportion was 27.8%. The study results disclosed that 66.7% of the non-users were female, meanwhile the rest was male (33.3%). In Tabo Thaitelecentre, most of the frequent users belonged to female (58.3%) and 41.7% were male. The majority of non-frequent users were male

(75.0%) and the rest was female (25%). For non-users, male and female users comprised 58.3% and 41.7%, respectively.

Table 9 Age of users

Age (years)	Jutthurat Thaitelecentre			Khumpavapi Thaitelecentre			Tabo Thaitelecentre		
	Frequent user	Non-frequent user	Non-user	Frequent user	Non-frequent user	Non-user	Frequent user	Non-frequent user	Non-user
Under 10	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	1 (8.3%)	0 (0%)	0 (0%)
10-20	44 (81.4%)	46 (85.2%)	8 (14.8%)	3 (16.7%)	5 (27.8%)	2 (11.1%)	5 (41.7%)	3 (25.0%)	1 (8.3%)
21-30	5 (9.3%)	6 (11.1%)	9 (16.7%)	5 (27.7%)	5 (27.8%)	5 (27.8%)	1 (8.3%)	5 (41.7%)	3 (25.0%)
31-40	5 (9.3%)	2 (3.7%)	32 (59.2%)	7 (38.9%)	5 (27.8%)	6 (33.4%)	4 (33.4%)	3 (25.0%)	4 (33.4%)
41-50	0 (100%)	0 (100%)	5 (9.3%)	3 (16.7%)	3 (16.6%)	3 (16.7%)	1 (8.3%)	1 (8.3%)	3 (25.0%)
Over 50	0 (100%)	0 (100%)	0 (100%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	1 (8.3%)
Total	54 (100%)	54 (100%)	54 (100%)	18 (100%)	18 (100%)	18 (100%)	12 (100%)	12 (100%)	12 (100%)

From Table 9, in Jutthurat Thaitelecentre, it revealed that the frequent users were dominated by an age group of 10-20 years (81.4%), meanwhile most of the non-frequent users were also 10-20 year of age (85.2%). The age of 31-40 years (59.2%) were non-users.

For Kumpawapi Thaitelecentre, most of the frequent users were aged between 31 and 40 years (38.9%). Most of the non-frequent users were in a range of 10-20, 21-30, and   31-40 years of age where 27.8% of each. The age of 31-40 years (33.4%) were non-users.

In Tabo Thaitelecentre, 41.7% of frequent users were the age of 10-20 years, whereas 41.7% of non-frequent users were the age of 21-30 years. Most of the non-users were 31-40 years of age (33.4%).

Table 10 Education of respondents

Education	Jutthurat Thaitelecentre			Khumpavapi Thaitelecentre			Tabo Thaitelecentre		
	Frequent user	Non-frequent user	Non-user	Frequent user	Non-frequent user	Non-user	Frequent user	Non-frequent user	Non-user
Componentary School	0 (0%)	0 (0%)	6 (11.1%)	3 (16.7%)	0 (0%)	2 (11.1%)	2 (16.7%)	0 (0%)	3 (25.0%)
Secondary School	44 (81.4%)	46 (85.1%)	40 (74.1%)	1 (5.6%)	3 (16.7%)	4 (22.3%)	4 (33.3%)	2 (16.7%)	4 (33.4%)
Vocational Education	5 (9.3%)	3 (5.6%)	2 (3.7%)	6 (33.3%)	6 (33.3%)	6 (33.3%)	3 (25.0%)	6 (50.0%)	3 (250%)
Bachelor Degree	5 (9.3%)	5 (9.3%)	1 (1.9%)	5 (27.8%)	6 (33.3%)	6 (33.3%)	2 (16.7%)	3 (25.0%)	1 (8.3%)
Above Bachelor Degree	0 (100%)	0 (100%)	5 (9.2%)	1 (5.6%)	3 (16.7%)	0 (0%)	1 (8.3%)	1 (8.3%)	1 (8.3%)
Other	0 (100%)	0 (100%)	0 (100%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)
Total	54 (100%)	54 (100%)	54 (100%)	18 (100%)	18 (100%)	18 (100%)	12 (100%)	12 (100%)	12 (100%)

From Table 10, for Jutthurat Thaitelecentre, the majority of both frequent users and non-frequent users' education level were secondary which consisted of 81.4% and 85.1%, respectively. Most of the non-users had also secondary school education level (74.1%).

In Kumpawapi Thaitelecentre, Both of frequent users (33.3%) and non-frequent users (33.3%) had vocational education level. For non-users, it can be seen that most of the users who had vocational education (33.3%) and Bachelor degree (33.3%) seemed to be the same number.

For Tabo Thaitelecentre, most of the frequent users had secondary school education level (33.3%). 50.0% of the non-frequent users had vocational education level and 33.4% of the non-users had secondary school level education.

Table 11 Occupation of respondents

Occupation	Jutthurat Thaitelecentre			Khumpavapi Thaitelecentre			Tabo Thaitelecentre		
	Frequent user	Non-frequent user	Non-user	Frequent user	Non-frequent user	Non-user	Frequent user	Non-frequent user	Non-user
Student	44 (81.5%)	46 (85.2%)	26 (48.1%)	3 (16.7%)	7 (38.8%)	3 (16.7%)	7 (58.4%)	2 (16.7%)	0 (0%)
Merchant/ Entrepreneur	0 (0%)	0 (0%)	0 (0%)	0 (0%)	1 (5.6%)	2 (11.1%)	1 (8.3%)	0 (0%)	1 (8.3%)
Agriculturist	0 (0%)	0 (0%)	11 (20.4%)	0 (%)	0 (0%)	2 (11.1%)	0 (0%)	0 (0%)	1 (8.3%)
Hireling/ Employee	3 (5.6%)	3 (5.6%)	9 (16.7%)	5 (27.8%)	5 (27.8%)	5 (27.8%)	1 (8.3%)	2 (16.7%)	5 (41.7%)
Government Officer/State enterprise	5 (9.2%)	5 (9.2%)	6 (11.1%)	9 (50.0%)	4 (22.2%)	4 (22.2%)	3 (25.0%)	8 (66.6%)	5 (41.7%)
Other	2 (3.7%)	0 (0%)	2 (3.7%)	1 (5.5%)	1 (5.6%)	2 (11.1%)	0 (0%)	0 (0%)	0 (0%)
Total	54 (100%)	54 (100%)	54 (100%)	18 (100%)	18 (100%)	18 (100%)	12 (100%)	12 (100%)	12 (100%)

From Table 11, in terms of occupation, the majority of frequent users in the Jutthurat Thaitelecentre were students (81.5%), while students comprised of 85.2% of the total non-frequent users. Most of the non-users were also students which accounted for 48.1% of the total.

In Kumpawapi Thaitelecentre, the results showed that most of the frequent users were government and state enterprise officers (50.0%), whereas the majority of the non-frequent users were students (38.8%). Hireling/employees comprised of 27.8% of total non-users.

The study results revealed that the majority of frequent users in the Tabo Thaitelecentre were students (58.4%), while most of the non-frequent users were government and state enterprise officers (66.6%). For non-users, the proportion of hireling/employees and government/state enterprise officers seemed to be balance, each of which was 41.7%.

Table 12 The frequency of knowing Thaitelecentre for non-users

Gender	Jutthurat Thaitelecentre		Khumpavapi Thaitelecentre		Tabo Thaitelecentre	
	Non-User		Non-User		Non-User	
	Know	Don't know	Know	Don't know	Know	Don't know
Male	4 (7.4%)	16 (29.6%)	3 (16.7%)	2 (11.1%)	5 (41.7%)	2 (16.65%)
Female	13 (24.1%)	21 (38.9%)	9 (50.0%)	4 (22.2%)	3 (25.0%)	2 (16.65%)
Total	17 (31.5%)	37 (68.5%)	12 (66.7%)	6 (33.3%)	8 (66.7)	4 (33.3%)
Subtotal	54 (100%)		18 (100%)		12 (100%)	

Based on table 12, in Jutthurat Thaitelecentre, less than half of the non-users which accounted for 17 (31.5%) of 54 total had the knowledge about the center. Female comprised 24.1% of total non-users, outnumbering male non-users (7.4%). In opposite, more than half of the non-users which accounted for 37 (68.5%) of total did not know the center. 38.9% of non-users who didn't know were female compared to male (29.6%).

In Kumpawapi Thaitelecentre, 12 (66.7%) of the 18 non-users knew the center. Most of them were female (50.0%) and the other were male (16.7%). In case of non-users who didn't know the center, it showed that 6 of the 18 non-users consisted of female (22.2%) and male (11.1%), respectively.

For Tabo Thaitelecentre, it can be seen that the amount of the non-users that knew the center (66.7%) was more than the number of non-users that didn't know the center (33.3%). For non-users who knew the center, it comprised of male (41.7%) and female (25.0%), while for non-users who didn't know the center, both male and female had the same amounts (2 of the 4 total) which accounted for 16.65% of each.

Table 13 The frequency of reasons for knowing Thaitelecentre

Reason	Jutthurat Thaitelecentre			Khumpavapi Thaitelecentre			Tabo Thaitelecentre		
	Frequent user	Non-frequent user	Non User	Frequent user	Non-frequent user	Non User	Frequent user	Non-frequent user	Non User
From my acquaintance	24	23	10	3	3	0	6	6	4
Close to my house	18	12	5	7	10	5	6	4	3
By media	12	6	0	3	3	3	0	1	1
By community Radio	3	13	1	6	1	3	0	2	0
Other	0	2	2	5	1	1	0	1	0

According to table 13, for Jutthurat Thaitelecentre, it can be described that most of the frequent users, non-frequent users and non-users knew the center from acquaintance which comprised of 24, 23 and 10, respectively. The other reasons included were proximity to their house, also by community radio and media.

In Kumpawapi Thaitelecentre, most of the frequent users, non-frequent users and non-users knew the center because it is close to their house. The second reason was by community radio, either from their acquaintance or by media.

For Tabo Thaitelecentre, most of the frequent users knew the center from acquaintance and because it is close to their house, while most of the non-frequent users and non-users knew the center from acquaintance.

Table 14 The frequency of reasons for inaccessibility

Reason	Non-User / Know / Haven't ever been used		
	Jutthurat Thaitelecentre	Khumpavapi Thaitelecentre	Tabo Thaitelecentre
Unaware of usefulness	3	1	1
Inconvenient to commute	11	2	0
Do not have time to come	11	5	3
Unfamiliar with using computer and internet	0	0	2
Have my own computer and internet in my house	11	6	6
Activities and services do not match the requirement	1	0	0
Other	0	0	0

From Table 14, in Jutthurat Thaitelecentre, the study results disclosed that even though most of the non-users knew the center, they haven't used it because most of them were uncomfortable to commute to the center, didn't have time to come and also majority had their own computer and internet in their houses.

For Kumpawapi Thaitelecentre, the finding revealed that most of the reasons why non-users didn't use the services of Thaitelecentre were they had their own computer and internet in their houses and didn't have time to come to the center and also uncomfortable to commute to the center, respectively.

In Tabo Thaitelecentre, the main reason why non-users who knew the center haven't use its service was most of them have their own computer and internet in their houses. In addition, other reasons were uncomfortable to commute to the center and were unfamiliar with computers and internet.

Table 15 The frequency of objectives for usage

Purpose	Jutthurat Thaitelecentre		Khumpavapi Thaitelecentre		Tabo Thaitelecentre	
	Frequent user	Non-frequent user	Frequent user	Non-frequent user	Frequent user	Non-frequent user
Playing game	27	18	2	1	5	2
Doing homework/ assignment	29	25	7	12	9	6
Searching information	28	24	17	15	12	9
Chatting and sending e-mail	12	4	4	1	7	3
Training	2	3	1	0	4	1
Other	0	0	0	0	1	0

Based on table 15, in Jutthurat Thaitelecentre, for frequent users and non-frequent users, most of the usage objectives were related to doing their homework/assignment including searching information and playing games, respectively. In addition, other usage objectives were chatting and sending e-mail and training.

For frequent users and non-frequent users, most of the usage objectives of Kumpawapi Thaitelecentre were searching information. The second was doing their homework/assignment. Other were chatting and sending e-mail and playing as well as training, respectively.

In Tabo Thaitelecentre, for frequent users and non-frequent users, most of the usage objectives were searching information. The second was doing their homework/assignment including searching information and playing games, respectively. In addition, other usage objectives were chatting and sending e-mail, playing games and training.

Table 16 Satisfaction of using the services

Satisfaction	Jutthurat Thaitelecentre		Khumpavapi Thaitelecentre		Tabo Thaitelecentre	
	Frequent user	Non-frequent user	Frequent user	Non-frequent user	Frequent user	Non-frequent user
Satisfy	8 (14.8%)	3 (5.6%)	6 (33.3%)	8 (44.4%)	0 (0%)	5 (41.7%)
Dissatisfy	46 (85.2%)	51 (94.4%)	12 (66.7%)	10 (55.6%)	12 (100%)	7 (58.3%)
Total	54 (100%)	54 (100%)	18 (100%)	18 (100%)	12 (100%)	12 (100%)

Based on actual responses, in Jutthurat Thaitelecentre, it can be concluded that most of the frequent users (85.2%) were quite unsatisfied with the services of the center, while almost all of the non-frequent users (94.4%)) were dissatisfied with the services of the center.

For Kumpawapi Thaitelecentre, 12 of the 18 frequent users were dissatisfied with the services of the center and accounted for 66.7%. In addition, 10 of the 18 non-frequent users dissatisfied with the services of the center and accounted for 55.6%.

In Tabo Thaitelecentre, 100% of frequent users were dissatisfied with the services, whereas 58.3% of non-frequent users were dissatisfied with the services of the center.

Table 17 The frequency of problems in Thaitelecentre for users

Problems	Jutthurat Thaitelecentre		Khumpavapi Thaitelecentre		Tabo Thaitelecentre	
	Frequent user	Non-frequent user	Frequent user	Non-frequent user	Frequent user	Non-frequent user
Inadequate number of computers	34 (35.0%)	20 (25.9%)	7 (19.4%)	4 (18.2%)	7 (31.8%)	4 (21.1%)
Obsolete computers and devices	24 (24.7%)	22 (28.5%)	6 (16.7%)	5 (22.7%)	0 (0%)	3 (15.8%)
Unavailable equipment such as telephones, a fax machine, and a printer	18 (18.6%)	9 (11.7%)	7 (19.4%)	2 (9.0%)	11 (50%)	5 (26.3%)
Inconvenient to commute	0 (0%)	6 (7.8%)	0 (0%)	0 (0%)	0 (0%)	1 (5.3%)
Narrow space	7 (7.2%)	4 (5.2%)	2 (5.6%)	0 (0%)	0 (0%)	0 (0%)
No electronic content that does not match the requirement	3 (3.1%)	8 (10.3%)	1 (2.8%)	1 (4.6%)	1 (4.6%)	0 (0%)
Unequipped with useful training programs	6 (6.2%)	7 (9.1%)	7 (19.4%)	5 (22.7%)	2 (9.0%)	4 (21.1%)
Shortage of competent staff to explain how to use a computer and to train about ICT program	5 (5.2%)	1 (0%)	6 (16.7%)	4 (18.2%)	1 (4.6%)	2 (10.5%)
Other	0 (0%)	0 (0%)	0 (0%)	1 (4.6%)	0 (0%)	0 (0%)
Total	97 (100%)	77 (100%)	36 (100%)	22 (100%)	22 (100%)	19 (100%)

From table 17, the finding revealed that the major problem of frequent users of Jutthurat Thaitelecentre when using the services was inadequate number of computers which accounted for 35.0%. Obsolete computers and devices (24.7%) was the second problem. Other were unavailability of equipment such as telephones, a fax machine, and a printer (18.6%); narrow space (7.2%); unequipped with useful training programs (6.2%); incompetent staff to explain how to use computers and lack of training about ICT program (5.2%) including no electronic content that does not

match the requirement (3.1%), respectively. For non-frequent users, obsolete computers and devices (28.5%) were the biggest problem, inadequate computers which accounted for 25.9% was the second one. Others included unavailability of equipment and no electronic content which consisted of 11.7% and 10.3%, respectively.

In Kumpawapi Thaitelecentre, the main problems for frequent users were inadequate number of computers, unavailability of equipment as well as unequipped with useful training programs which accounted for 19.4% of each. Obsolete computers, devices and inefficient competent staff comprised of 16.7% of each. For non-frequent users, obsolete computers and devices and unequipped with useful training programs were the biggest problem which accounted for 22.7% of each. Other problems were inadequate number of computers and deficient competent staffs which consisted of 18.2% of each.

The major problem of Tabo Thaitelecentre for frequent users was unavailable equipment which accounted for 50.0%. The next was inadequate number of computers which accounted for 31.8%. For non-frequent users, unavailability of equipment (26.3%) was the biggest problem. Other problems were inadequate number of computers and unequipped with useful training programs which consisted of 21.1% of each.

Table 18 The frequency of comments of frequent users

Comments for Improvement of Thaitelecentres	Frequency	Percent
Would like to have more computers	18	60.0
Could still be open after office hours on weekdays and should be also available on weekends	3	10.0
Should provide more space	2	6.7
Should provide ICT training programs for people by setting on summer	2	6.7
Should provide competent staff to explain how to use a computer for users	2	6.7
Should provide a printer	1	3.3
Improve the service of staff	1	3.3
Focus on advertising in order to invite people to use	1	3.3
Total	30	100

Based on actual responses, 60% of frequent users' recommendation from three Thaitelecentre would like to have more computers. In addition, most of them recommended that the center should be open after office hours on weekdays and should also be available on weekends (10.0%). For other comments for improvement of a Thaitelecentre, the center should provide more space, ICT training programs and competent staff to explain how to use computers for users which consisted of 6.7% of each. Moreover, 3.3% of frequent user commented that providing a printer, improving the service of staff, and focusing on advertising in order to invite people to use were important for improvement of Thaitelecentre.

Table 19 The frequency of comments of non-frequent users

Comments for Improvement of Thaitelecentres	Frequency	Percent
Would like to have more computers	9	45.0
Should provide competent staff that have service mind and can explain how to use a computer for users	3	15.0
Should provide a printer and A4 papers	2	10.0
Provide more space	1	5.0
Renovate the center to be modern	1	5.0
Could be still opened after office hours on weekdays and should be also available on weekends	1	5.0
Should provide ICT training programs for people continuously	1	5.0
Focus on advertising in order to stimulate local people to use	1	5.0
Manage queue cards when people are crowded	1	5.0
Total	20	100

Based on actual responses, 45% of non-frequent users' recommendation from three Thaitelecentre would like to have more computers. In addition, most of them recommended that the center should provide competent staff that have service mind and can explain how to use computers for users (15%). For other comments, the center should provide a printer and A4 papers (10%). 5.0% of non-frequent user commented that providing more space, renovating the center to be modern, providing ICT training programs for people continuously, focusing on advertising in order to stimulate local people to use, and managing queue cards when people are crowded were important for improvement of Thaitelecentre.

Table 20 Summary on the results of questionnaires

	Jutthurat Thaitelecentre	Khumpavapi Thaitelecentre	Tabo Thaitelecentre
Amount of users in gender	Most of the frequent users, non-frequent users, and non-users were female.	Most of the frequent users, non-frequent users, and non-users were female.	Most of the frequent users belonged to female. The majority of both non-frequent users and non-users were male.
Age of users	The frequent users and non-frequents users were dominated by an age group of 10-20 years, while the age of 31-40 years were non-users.	Most of the frequent user ages were between 31-40 years. The range of non-frequent user age was 10-20, 21-30, and 31-40 years. The age of 31-40 years was non-users.	Frequent users were the age of 10-20 years, whereas non-frequent users were the age of 21-30 years. Most of the non-users were 31-40 years of age.
Education of respondents	The majority educational level of frequent users, non-frequent users, and non-users were secondary school level.	Both of the frequent users and non-frequent users had vocational education level. For non-users, most of them had vocational education and Bachelor degree.	Most of the frequent users had secondary school education level. For non-frequent users, most of them had vocational education, while most of the non-users had secondary school level.
Occupation of respondents	All of the three groups of users were students.	Most of the frequent users were government/state enterprise officers, whereas the majority of the non-frequent users were students. For non-users, most of them were hireling/employees.	The majority of frequent users were students, while most of the non-frequent users were government/state enterprise officers. For non-users. Most of them were hireling/employees and government/ state enterprise officers.

Table 20 (Continued)

	Jutthurat Thaitelecentre	Khumpavapi Thaitelecentre	Tabo Thaitelecentre
Reasons for knowing Thaitelecentre	Most of the frequent users, non-frequent users, and non-users knew the center from their acquaintance.	Most of the frequent users, non-frequent users, and non-users knew the center because it closed to their houses	Most of the frequent users, knew the center from their acquaintance and because it is closed to their houses. While most of the non-frequent users, and non-users knew the center from their acquaintance.
Reasons for inaccessibility for non-users who haven't ever been used the services of the center.	Because most of the non-users were uncomfortable to commute to the center. They didn't have time to come and had their own computers and internet in their houses.	They have their own computers and internet in their houses and didn't have time to come to the center including uncomfortable to commute to the center, respectively.	Most of them have their own computers and internet in their houses.
Objectives for usage	Doing their homework/assignment	Searching information	Searching information
Satisfaction of using the services	Unsatisfied	Unsatisfied	Unsatisfied
Problems in Thaitelecentre	For frequent users, the major problem was inadequate number of computers, while the problem of non-frequent users were obsolete computers and devices.	The main problems for frequent users were inadequate number of computers, unavailable equipment as well as unequipped with useful training program. For non-frequent users, obsolete computer and devices and unequipped with useful training program were the biggest problem.	Major problem of both frequent users and non-frequent users was unavailable equipment such as telephones, a fax machine, and a printer.

Table 20 (Continued)

	Jutthurat Thaitelecentre	Khumpavapi Thaitelecentre	Tabo Thaitelecentre
Comments of frequent users	They recommended having more computers. In addition, most of them suggested that the center should be open after office hours on weekdays and be available on weekends. The center should provide more space, ICT training programs and competent staff to explain about how to use computer for users. Moreover, providing a printer, improving the service of staff, and focusing on advertising in order to invite people to use the service of the center were important for improvement of Thaitelecentre.		
Comments of non-frequent users	Most of them recommended having more computers. In addition, they suggested that the center should provide competent staff that have service mind and can explain about how to use a computer for users. The center should provide a printer and A4 papers. Moreover, providing more space, renovating the center to be modern, providing ICT training programs for people continuously, focusing on advertising in order to stimulate local people to use, and managing queue cards when people are crowded were important for improvement of Thaitelecentre.		

C. The analysis results from focus group discussion about the major problems of Thaitelecentre management.

Except for Kosumpisai Thaitelecentre, in focus group discussion, the 18 participants from three different kinds of users were purposive sampling. The focus group discussion was conducted in three main sessions from three Thaitelecentres. In each session, it comprised of six people who were two frequent users, another two were non-frequent users and the last two were non-users. The participants profile was summarized in Appendix B. From the Appendix, it can be concluded that major problems of Thaitelecentre management for lifelong learning of Ministry of Information and Communication Technology are as follows:

1. A focus group discussion of Jutthurat Thaitelecentre

a) ICT Infrastructure

For frequent users and non-frequent users groups, most of them suggested that the Thaitelecentre could be a good source of learning for children, youth, and people in the community if the center provides sufficient computers and internet for users and all of the equipment is up-to-date. Unfortunately, the big problem is the numbers of computers are less than the demand of users and the existing computers are obsolete and look quite old. In addition, they also recommended that the center should provide an adequate number of computers which would meet the needs of users because they do not want children and students to use the services of internet café. Moreover, government organizations such as Ministry of Information and communication Technology should play an important role to support and provide sufficient modern computers and other devices, simultaneously, and send technicians for computers and equipment maintenance quarterly.

b) Strategic management

From the participants of frequent users and non-frequent users, it can be seen that apart from the provision of computers and internet, the center should provide basic training programs to all the people in the community. Experts and lecturers should be provided to people who are interested in computer and ICT. At present, a group of housewives and occupational classes showed interest in computer and ICT. In addition, most of the frequent users and non-frequent users deemed that there was no advertising for stimulating community members to come to use the services of a Thaitelecentre and also suggested that in order to attract local people to see the importance of using computers and internet, the center should ask for cooperation from community leaders and members of sub-district administrative organization to publicize the center to community members by using circular letters and leaflets.

c) Perceptions and needs

For a group of non-users, they do not come to use the services of the center because they have their own computers and internet in their houses. Also, they said that most of the people in the community are involved in agriculture. Thus, it is necessary for them to make their living and they do not have time for using computers and internet. On the contrary, both frequent users and non-frequent users suggested that if the center fosters and trains adolescents and people in realizing the benefits of using computers and internet, this will make the center to be a source of learning more or less. Therefore, it is essential for a Thaitelecentre to educate people in the community on how to use computers.

2. A focus group discussion of Kumpawapi Thaitelecentre

a) ICT Infrastructure

For frequent users and non-frequent user groups, most of them stated that the number of existing computers is less than the demand of users. Particularly, during school holiday, there are a lot of people who come to use computers in the center which led to inadequate computers and had a long waiting queue. Moreover, the more usage demand was higher; the lower the internet speed. Hence, they suggested that the center should set up a broadband internet system which has more speed than its previous one including providing a printer to users who want to print interesting data from the internet.

b) Personnel and staff

For a group of frequent users and non-frequent users, most of them noticed that a big problem here is the personnel and staff of the center who lacked any ICT knowledge to teach users on how to use a computer and internet correctly. In consequence, they suggested that the center should hire competent staff members that have ICT knowledge and skills to pass on their knowledge to all users.

c) Strategic management

Most of the frequent users and non-frequent users saw that aside from the provision of computers and internet, the center should provide supplementary activities continuously such as basic training programs to students. Furthermore, if the center builds a community database and creates e-content for students in different kinds of subjects, it will be a more useful source of learning and can support lifelong learning for school students. It can be used as another way to attract students to come and search for additional information and knowledge. For a group of non-users, they said that in the future if the center has a community database which is related in community occupations, they will come to use its service. Because this database

might be useful for making their livelihood, but now they didn't have time to visit the center and did not know how to use a computer as well as did not see the benefits. Therefore, they suggested that if the center provides training on introduction of using a computer, they may join in.

d) Perception and needs

For a group of non-users, both of them gave the reason that they did not come to use the service of the center because they have jobs and did not know how to use computers as well as did not know the benefits of it. Moreover, they did not know that how it will get involved with their life. Whereas, most of the frequent users and non-frequent users recommended that if the center builds a community database that is useful for them and provides a lot of new computers including a printer, a scanner, telephones and a fax machine in the near future they will come to use the services of the center continuously.

3. **A focus group discussion of Tabo Thaitelecentre**

a) Strategic management

For a group of non- users, they did not have the knowledge about the center, even though they drive through it every day. Despite that they knew the existence of the center they did not notice that it was a Tabo Thaitelecentre. Because a nameplate of Thaitelecentre was not displayed clearly and they thought that the center was a part of the municipal offices so they did not dare to come in. While most of frequent users and non-frequent users stated that the center's atmosphere did not attract people to come in. In addition, the center has a murky blue curtain so that it made users feel uncomfortable while in the center. Thus, most of them suggested that in order to invite people to come to use the services of the center. First, the nameplate should be shown in the outstanding point. Second, the adornment in front of the center should look bright and airy which may attract passersby to visit the center. Inside the center, the registration desk should be clearly provided or the enrollment of a library

system might be applied in the center. Furthermore, it should have an advertisement to community members to know about the existence of the center and it should be open on weekends and extended over office hours. Moreover, they also recommended that the center should provide basic training programs to all people in the community continuously and build a community database which contains occupational information such as the trading of local crop information in order to promote a group of agriculturists to attend. This can be another way to generate their income.

b) Perceptions and needs

For non-user groups, all of them totally didn't know the center, those who knew, they were unable to use a computer. As agriculturists, they didn't know how computers would be beneficial for them. On the other hand, the reason why non-frequent users didn't use the services of the center is that the location was too far from their home so that they decided not go in there. In addition, they have their own computers. For a group of frequent users, they stated that ability to access computers and internet has become increasingly important to local community, commonly referred to as the digital divide. This divide can result in ICI problem. In the rural community, those who are unable to use computers are agriculturists. It can be noted that the gap between houses that have computers and houses that do not is still apparent. Those who have computers are not necessarily going to come and use the services at the center, whereas those who don't didn't know how to use it. However, computer itself doesn't solve the problem. So in order to attract local people to use it, advertisements should be launched. Also basic programs on how to use computers to an advanced program should be highlighted. These can play a role in encouraging people within a community to understand the benefits of using computers involving their daily life.

c) Community Participation

In frequent and non-frequent user groups, most of them suggested that the center should hire participating volunteers who are stakeholders and beneficial for community such as computer and ICT equipment merchants. Those people can act as an advisor to teach all users how to use computers and internet properly; meanwhile, they can also repair the equipment in the center and sell their products as a channel of distribution at the same time. Furthermore, volunteers like students in universities can participate in operating the center. This participation can promote them to practice and develop their knowledge such as computer skills, software and applications, and equipment maintenance that enable them to share their experiences with all users in the center.

Table 21 Summary of focus group discussions

	Jutthurat Thaitelecentre	Kumpawapi Thaitelecentre	Tabo Thaitelecentre
ICT Infrastructure	**Problem** - The number of existing computers is less than the demand of usage and the existing computer were obsolete and looked quite old. **Comment** - provide sufficient computers and internet for users. **-** Ministry of Information and communication Technology should play an important role to support in providing sufficient modern computers and other devices and sending a technician for computers and equipment maintenance quarterly.	**Problem** - The number of existing computers is less than the demand of usage. - Slow internet speed when the demand of usage is high. **Comment** - Should set up broadband internet system - Provide a printer to users who want to print interesting data from the internet.	-

Table 21 (Continued)

	Jutthurat Thaitelecentre	Kumpawapi Thaitelecentre	Tabo Thaitelecentre
Strategic Management	**Problem** - No advertisements to stimulate community members to come to use the services of Thaitelecentre **Comment** - should provide basic training programs to all people in the community. - Experts and lecturers should be catered to people who are interested in computer and ICT in several times per year. - should ask for cooperation from community leaders and members of sub-district administrative organization to publicize the center to community members by using circular letters and leaflets.	**Comment** - Should provide any supplement activities continuously such as basic training programs to students. - Build a community database and create e-content for schooling in different kinds of subjects	**Problem** -The nameplate of Thaitelecentre was not displayed clearly - A group of non-users dare not to come in. - The center's atmosphere do not attract people to come in. **Comment** - The nameplate should be shown in the outstanding point. -The adornment in front of the center should look bright and airy which may attract passersby to visit the center. - The registration desk should be clearly provided or the enrollment of library system might be applied in the center. - should have advertisements to community members to know the center. - should be open on weekends and are extended over office hours.

Table 21 (Continued)

	Jutthurat Thaitelecentre	Kumpawapi Thaitelecentre	Tabo Thaitelecentre
			- provide basic training programs to all people in the community continuously. - build a community database which provides occupational information such as the trading of local crop information in order to promote a group of agriculturists to attend.
Personnel and staff	**Problem** - Personnel and staff lacked of ICT knowledge to teach users on how to use computer and internet correctly. **Comment** - Should hire competent staff that has ICT knowledge and skills to pass on their knowledge to all users.	**Problem** - Personnel and staff lacked of ICT knowledge to advice users on how to use computer and internet correctly. **Comment** - Should hire competent staff that have ICT knowledge and skills to pass on their knowledge to all users.	-
Community Participation	-	-	**Comment** - should hire participant volunteers who are stakeholders and beneficial for community such as computer and ICT equipment merchants.

Table 21 (Continued)

	Jutthurat Thaitelecentre	Kumpawapi Thaitelecentre	Tabo Thaitelecentre
Perception and need	**Problem** - A group of non-users had their own computers and internet in their houses. **Comment** - Foster and train adolescents and people in realizing the benefits that can be gain from using computers and internet.	**Problem** - A group of non-users had to make their jobs and did not know how to use computers as well as did not know the benefits of computers. **Comment** - build a community database that is useful for them and provides a lot of new computers including a printer, a scanner, telephones and a fax machine, in the near future they will come to use the services of the center continuously.	**Problem** - Non-user groups totally didn't know the center, also they were unable to use computer. -As agriculturists, they didn't know how computers will benefit them. **Comment** - Advertisements should be launched. -Basic training programs on how to open a computer to an advanced program should be highlighted.

The results in a focus group discussion about major problems of Thaitelecentre management were comprised of 5 aspects which are:

1. Facility and ICT Infrastructure. A number of existing computers are less than the demands of using and the existing computers were delicate and looked quite old. Low speed internet during high demand was another problem.

2. Strategic management. No advertising for stimulating community members to come to use the services of a Thaitelecentre. Asking for cooperation from community leaders and members of a sub-district administrative organization by using circular letters and leaflets is another way to promote the center to community members. A nameplate of the Thaitelecentre was not displayed clearly so it should be shown in an outstanding area and displayed in front of the center. It should also look bright in order to attract people in the community to come in. The center should be opened on weekends and extended throughout office hours. The center didn't provide a basic training program to all people in the community continuously. Experts and lecturers should cater to people who are interested in computers and ICT several times per year. In addition, the center should build a community database and create e-content for schooling in different kinds of subjects. Moreover, in building a community database it should contain occupational information such as the trading of local crop information in order to promote a group of agriculturists to attend.

3. Personnel and staff. They lack in ICT knowledge to advise users on how to use a computer and internet correctly.

4. Community participation. The center should hire participant volunteers who are stakeholders and beneficial for the community such as computer and ICT equipment merchants.

5. Perception and needs. For non-users, they totally didn't know about the center, even if they knew they were unable to use a computer. In addition, they had to complete their jobs and did not know how to use computers as well as they did not

know the benefits in using a computer. While some of the non-users had their own computers and internet in their houses. Another problem of users is they didn't use the services of the center because its location was too far from their house so they decided to not go there. As agriculturists, they didn't know how computers benefit them. That's why the center should foster and train adolescents and people in realizing the benefits that are gained from using computers and internet.

D. The details of key components of Thaitelecentre management from in-depth interviews.

The participants for this study included both directors and a manager at the Kumpawapi, Jutthurat, and Tabo Thaitelecentre. It is important to understand that what was done during this study was to conduct in-depth interviews in order to determine key components of Thaitelecentre management. The content of in-depth interviews focused on the conceptual framework which comprised the main operational components of a Thaitelecentre. In content analysis, coding was used to categorize the data obtained through interviews as inputs toward refining the key components of Thaitelecentre (see Appendix C). Thus, it can be noted that key components of Thaitelecentre management could be classified into 8 areas.

1. Policy and Regulation
2. Facilities and ICT Infrastructure
3. Location
4. Strategic Management
5. Financial support and Budget
6. Personnel and staffs
7. Community Participation and networking
8. Perception and need

The details of key components in Thaitelecentre Management were listed in Table 22 according to the in-depth interviews.

Table 22   The details of key components of Thaitelecentre management from in-depth interviews

Interviewing date	Interviewers	Key components of Thaitelecentre Management
Oct, 27 2009	A director of Kumpawapi Thaitelecentre	**Policy and Regulation** "I think that the policy and regulation must be improved and renewed immediately" "In this case I mean the MICT should have clear guidelines of operation and development" "No one takes care of this seriously. The most important thing is you must understand the content of the local community first" "It should focus on quality-oriented development rather than quantity-driven. The concept of establishing a Thaitelecentre is not necessarily to cover the whole country, in turn, it should emphasize on quality issues. Therefore, you should look at which community is ready to do it and select it to be a pilot community center. I think it's better than to distribute the budget over the entire country" **Facilities and ICT Infrastructure** "It is necessary for the center to have up-to-date computers" "A number of computers must be adequate for all users" "It must have broadband internet" **Location** "The center must be situated near the community. People can get to comfortably"

Table 22 (Continued)

Interviewing date	Interviewers	Key components of Thaitelecentre Management
		"In this center, it looks wider than before because of rearrangement. The new space allows users to feel comfortable when using and has a good impression that makes users want to come again and again"

Strategic Management

"It must be used as an approach strategy rather than a defensive one by focusing on "localization" and holding onto the human resource development principle which relies on building competent personnel and staff"

"You had better not forget the concept of setting up the center which emphasizes on community. The important thing is the center has to be tangible, have a constant direction and action plan"

"I would like to provide a basic training program for computers to all people and interesting groups continuously"

Financial Support and Budget

"If we would like the center to run further, a systematic budget plan must be done"

Personnel and Staff

"In the real situation it was so sad. Regardless of doing other things, all my staff members just had this job, but they didn't want to do it"

"We have to build teamwork and find someone who has ICT knowledge, computer skills, and technical skills to do this job"

Table 22 (Continued)

Interviewing date	Interviewers	Key components of Thaitelecentre Management
		"For me, I have worked here for 3 years, but my destination has not changed at all. I hope to develop the center to be a source of lifelong learning. Unfortunately, we lack in competent staff members. Hence, the selection and recruitment of qualified staff who are enthusiastic people must be done as soon as possible"
		"We have to ask for cooperation from the Ministry of Information and Communication Technology (MICT) to provide a source of training where I can send my staff to train and develop their knowledge continually"
		Community Participation and Networking
		"It is necessary to build community participation among local people in the community by offering any activities to attract them to take part in"
		"Community participation must come from a strong community. It should force the community committee to see the importance of a Thaitelecentre. The awareness of the community must originate from a strong community, if community members realize that the center can be a channel for creating jobs, they will come in.
		Perception and need
		"If people in a community do not try to get inside, its operation will be the same"

Table 22 (Continued)

Interviewing date	Interviewers	Key components of Thaitelecentre Management
		"It must find a way to offer this center into their hands. The idea is to bring IT mobile cars into the community as a bookmobile which contains computers and wireless technology inside"
		In Kumpawapi, there are a lot of community products which can be publicized. If we combine a community product center to be one part of the Thaitelecentre, it will move on"
		"What I would like to do is to gather all existing local wisdom into the website and create them as a real time database for all people within a community to search for a wealth of information"
Oct, 28 2009	A director of Jutthurat Thaitelecentre	**Policy and Regulation** "You should focus on policy and regulation which should have a clear framework" "Due to inconsistency of the policy from an administrator, the operation of the center is stagnant" **Strategic Management** "The management of the center needs to require an integrated action plan. **Financial Support and Budget** "Nowadays, the budget for development is not enough" "Most of its budget appears as facility infrastructure which is directly involved with villagers rather than as ICT Infrastructure which is

Table 22 (Continued)

Interviewing date	Interviewers	Key components of Thaitelecentre Management
		still far away from their living. In my opinion, the budget allocation should include salaries of staff members, training expenses, the purchase of equipment, maintenance cost, and advertising costs"
		Personnel and Staff
		"The development of a Thaitelecentre cannot occur if we lack competent staff members"
		"There is a need to find a competent leader who acts as a visionary person and actually knows what benefits of a Thaitelecentre are and how it will be useful for all people in the rural community. If the leader sees the importance of the center, the opportunity to drive the policy and regulation of a Thaitelecentre into practice will be viable"
		Community Participation and Networking
		"If we want all people in the community to see the importance of the center, I think it should start from an interesting group in the community on a leader level"
		"It may be difficult to motivate local people to visit the center, on the other hand, if we coordinate with a community pillar as a medium of communication to their community about such benefits which promotes the positive usage of technology, the outcome for the center will be used to the maximum of its technology"

Table 22 (Continued)

Interviewing date	Interviewers	Key components of Thaitelecentre Management
		Perception and need
		"The problem now is people in a community don't have much ICT knowledge. They think that it is far from their life"
		"The main point is to give ICT knowledge to targeted group by letting them be knowledgeable of the importance of computers and internet"
		"Using wireless transmitter into all 18 villages so that the villagers can know about the existence of a Thaitelecentre"
		"The meeting of a local leader can be a channel of communication which passes along the central issue to all community members"
		"The production of e-content, CD-Rom, or brochures which come from searching and collecting useful community data will attract community members to come and use the services of the center"
Oct, 29 2009	A manager of Tabo Thaitelecentre	**Policy and Regulation**
		"The policy itself must have a clear framework"
		"Both policy and action plan must be reviewed annually"
		Facilities and ICT Infrastructure
		"It should provide advanced computers and broadband internet system to all kinds of users"

Table 22 (Continued)

Interviewing date	Interviewers	Key components of Thaitelecentre Management
		Location
		"Location is also important. The site of this center was located in front of a municipality office and next to the disaster and prevention mitigation center where people who are living in community can get to easily and feel safe"
		Strategic Management
		"Providing a statistic note of using in order to know an accurate record of people who come to use the service of the center for daily and monthly use. This can be as backup information for monitoring"
		"The action plan should be made every year"
		"The center may provide experts or lecturers who have ICT knowledge to teach community members in the introduction of computers and internet"
		"If the community needs to be trained in the basics of using a computer, they can inform their requirement to us. In response to their purpose, we will arrange certain training courses for them"
		"The center should provide training programs from basic needs to an advanced program by cooperating with a non-formal educational institution"
		"Each training session should consist of 20-25 people. Because of the harvest season, the duration of its course should start from the beginning of November to the end of March and run at least 2 weeks"

Table 22 (Continued)

Interviewing date	Interviewers	Key components of Thaitelecentre Management
		Financial Support and Budget
		"In terms of budgeting, it should be allocated systematically which covers all kinds of expenditures such as the purchase of new equipment, salaries and overtime pay for staff members and participant volunteers, equipment maintenance, training costs, and so on"
		Personnel and Staff
		"The more the leader doesn't have a clear vision and mission, the more the followers cannot know how to do it"
		"For staff qualifications, it is essential for them to have a wide variety of ICT knowledge and skills such as repairing its equipment and building a community database"
		"In the sense of responsibility, all staff members should have a service mind"
		"It should provide appropriate salaries to staff members and let them do their task as a full-time job without doing any other jobs at the same time"
		"MICT should give out a favor in providing training courses to all staff members. All staff members can gain more knowledge and can pass on their knowledge to villagers in their community"

Table 22 (Continued)

Interviewing date	Interviewers	Key components of Thaitelecentre Management
		Community Participation and Networking
		"Provide a wide range of activities to encourage community members to take part in, particularly to housewives and vocational groups by teaching them to search for vocational data. In doing such, it might be the way to create the awareness of people to come and use its services more or less"
		"We must arrange an exhibition as an academic activity to attract all people who are living in the community to get involved with that"
		"Community volunteer is likely to be another way to encourage community members to participate. Those who might be participant volunteers include municipal teachers or university students"
		"Actually, we can work with them. Those people may include local leaders, community pillars, a village headman, and village leader. The meeting with these people should be held every week by attaching the Thaitelecentre issue in the meeting agenda."
		Perception and need
		"Its center became a place where children come to play games. Anyway, we didn't agree with that"
		"Many people in Tabo community have already had their personnel computers in their house. So it is not necessary for them to come to use its services"

Table 22 (Continued)

Interviewing date	Interviewers	Key components of Thaitelecentre Management
		"Another group of people such as agriculturists didn't dare to come in, whereas some groups liked to go to the internet café instead"
		"Promote every community member to take out a permanent subscription of the Thaitelecentre without paying anything"
		"Look at this point! The advertisement can attract local people to come in by using local radio, the meeting of community committee, brochures, and activities. All kinds of this media should be launched continuously"
		"Perhaps we gather all useful data in a rural community to be as a community database which is relevant to people's life, it will be a wealth of source of learning among people in their community"

From the above (see Table 22), major key components of Thaitelecentre management for lifelong learning should include the following:

1. Policy and Regulation

a) Improve and renew the policies and regulations which can have particularly guidance for development and is relevant to the context of the local community.

b) Focus on quality-oriented development rather than quantity-driven. The concept of establishing a Thaitelecentre is to not necessarily cover the whole country, in turn, it should emphasize on quality issues in each Thaitelecentre as well.

c) Have a clear framework and be consistent.

2. Facilities and ICT Infrastructure

a) Have advanced telecommunication technology services by providing an updated computer.

b) Provide sufficient computers and equipment for all kinds of users.

c) Set up a broadband internet system.

3. Location

a) Be located in a community site where all people in the community can get to comfortably and is easily accessible.

b) Have a wide space in order to allow users to feel comfortable when using.

c) Arrange the Thaitelecentre to be a nice place to visit in order to make users have a good impression and want to visit again and again.

4. Strategic Management

a) Use an approach strategy by focusing on "Localization" that follows a human resource development principle which relies on building competent staff.

b) Stress on the establishment of a Thaitelecentre concept which gives precedence to the community.

c) Create an action plan and strategic plan for every year which conforms to the Thaitelecentre's sustainability.

d) Provide a training program continuously on basic skills of using a computer for everyone and any interested group.

e) Provide a statistic note of using in order to know an accurate record of how many people come to use services of the Thaitelecentre daily and monthly which will be used as backup information for monitoring and an evaluation plan.

5. Financial support and Budget

a) Have a continual financial plan.

b) Allocate the budget sufficiently to operate and develop the Thaitelecentre in human resources, training, and operating expenses such as equipment maintenance and replacement, salaries, volunteer's overtime, and marketing costs.

c) Come up with a budgeting proposal for a Thaitelecentre operation in municipal law.

6. Personnel and Staff

a) Create teamwork and select qualified staff members that have ICT knowledge, computer skills, and technical skills to maintain services and equipment in a Thaitelecentre.

b) Provide training programs to staff members when necessary and continuously in order to develop and improve their knowledge and skills.

c) Provide a reasonable salary to Thaitelecentre staff members which will stimulate their motivation in a working environment.

d) Select staff members who are enthusiastic people are responsible, dedicated and pay more attention to their own jobs as well as having a service mind.

e) Train staff members to be able to teach and advise on how to use computers and the internet to all users.

f) Let all staff do their task as a full-time job without doing any other jobs at the same time.

g) Have a powerful leader who acts as an IT leader, visionary, and a careful manager.

h) Have a competent leader who actually knows what benefits of a Thaitelecentre are and how it will be useful for all people on a community level.

i) Select a good leader who can drive the policies and regulations of a Thaitelecentre into practice which is a key issue for the Thaitelecentre sustainability.

7. Community Participation and Networking

a) Encourage every community member to participate in a Thaitelecentre by providing a wide variety of services and activities to them.

b) Drive the community committee to be aware of the importance of a Thaitelecentre. This group can be the mouthpiece or spokespeople for community members. The meeting of this committee should be held every week. The main purposes are both for reviewing the existing problems and for finding solutions together. The Thaitelecentre issue should be also included in the meeting agenda.

c) Create a "strong community" as a preceding process to support the community participation by working with a number of groups in their community, building links between them and the center, and establishing forums to share a lot of ideas for their community. In case of community involvement in a Thaitelecentre, local product data of each group of community can be transferred into the database. This database will provide useful information and knowledge that is relevant to their livelihood which will motivate the community to come and use it.

d) Implement a pilot project by providing training to the targeted leaders.

e) Try to work with the community pillar who can act as a medium of communication to magnify knowledge which is gained from a Thaitelecentre to community members and to make it possible to join in the Thaitelecentre.

f) Give opportunities to all people within their community to identify their needs. For instance, in each community, they are organized in a particular community group to request and attend a training program which will satisfy the needs of the community.

g) Coordinate with other related organizations such as a non-formal education institution. It will be associated with creating a certain curriculum for ICT training in a Thaitelecentre

h) Encourage community members to be participant volunteers at the Thaitelecentre. These kinds of people may include teachers, representatives from the community people with technological expertise, other professionals in ICT skills and so on.

8. Perception and Needs

a) Publicize the Thaitelecentre to every member in the community continuously.

b) Use outdoor publicizing by providing IT mobile cars into community which contain computers and wireless technology inside. These play an important role in making local people who are not available come to use the services of Thaitelecentre aware of the important of ICT. On the other hand, these benefits can stimulate them to realize the usefulness of computers and internet more or less.

c) Create a database for an intellectual community such as local products and vocational information of the community. The value of this database is useful for creating jobs and generating income for people in the community.

d) Create a real time database when searching for a wealth of information.

e) Motivate all people in the community to use the services of the Thaitelecentre continually by using mass media such as local radio and wireless transmitters together with leaflets and brochures to attract people's attention and increase the usage level.

f) Make products which are gained from a data search in a Thaitelecentre to be an electronic content (e-content).

g) Promote every community member to take out a permanent subscription of the telecenter for free.

h) Rebuild the Thaitelecentre image in order to encourage local people to have an understanding of computers and internet.

Table 23 Summary on the data analysis of major problems and key components of Thaitelecentre management

Methodology	Problems and components	Jutthurat Thaitelecentre	Khumpavapi Thaitelecentre	Tabo Thaitelecentre
Case Study	Facilities and ICT Infrastructure	- Computers were out of date - A number of computers were not enough to meet the demand of using. - No air-conditioner - No other equipment was provided such as a printer, a scanner, a fax machine and so on.	- Computers were out of date - A number of computers were not enough to meet the demand of using. - No other equipment was provided such as a printer, a scanner, a fax machine and so on.	- Computers were out of date. - No other equipment was provided such as a printer, a scanner, a fax machine and so on.
	Strategic Management	- No systematic action plan for operation. - No advertising to publicize people in the community to be aware of the benefits of a Thaitelecentre. - No community database that consists of useful information. - The operation was managed without ambition.	- No systematic action plan for operation. - No public relations in order to promote local people to be aware of using Thaitelecentre's services. - No community database which comprises of useful local community product, educational and professional information to all people in a community to acquire. - The operation was run in a useless direction.	- No systematic action plan for operation. - No publicizing which stimulates people in community to be aware of the benefits of Thaitelecentre services. - The operation was managed without a purpose.
	Financial support and budget	- Insufficient budget of sub-district administrative organization.	- Inadequate budget of municipality. - There was no budget proposal and financial plan in operating of Thaitelecentre.	- Inadequate budget of municipality. - There was no budget of Thaitelecent operation.
	Personnel and staffs	- Lacking in competent staff members that have ICT knowledge and skills to operate. - A lack of staff motivation in doing his job because of having another job to work at the same time.	- All staff members were not fond of their jobs. - All of them had not much knowledge of ICT and computer skills. - All staffs lack of motivation and incentives.	- A deficiency in competent staff that have ICT knowledge and skills to operate a Thaitelecentre to be effective. - All existing staff members didn't have much motivation and attention in doing their job.

Table 23 (Continued)

Methodology	Problems and components	Jutthurat Thaitelecentre	Khumpavapi Thaitelecentre	Tabo Thaitelecentre
Questionnaire	ICT Infrastructure			
	- Inadequate computers	✓	✓	✓
	- Obsolete computers and internet	✓	✓	✓
	- Unavailable of other equipment such as a printer and a scanner.	✓	✓	✓
	Location			
	- Uncomfortable to commute	✓	-	✓
	- Narrow space	✓	✓	-
	Strategic Management			
	- No electric content that doesn't match the requirement	✓	✓	✓
	- Unequipped with useful training programs	✓	✓	✓
	Personnel and staffs			
	- Deficient competent staffs to explain how to use a computer and to train on ICT programs	✓	✓	✓
	Perception and needs			
	- Unaware of usefulness	✓	✓	✓
	- Unfamiliar with using of computer and internet	-	-	✓
	- Have their own computer and internet in their house	✓	✓	✓
	- Do not have time to come to use the service	✓	✓	✓

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Table 23 (Continued)

Methodology	Problems and components	Jutthurat Thaitelecentre	Khumpavapi Thaitelecentre	Tabo Thaitelecentre
Focus Group Discussion	Facilities and ICT Infrastructure	- A number of existing computers is less than the demands of the users and the existing computers were delicate and looked quite old.	- A number of existing computers is less than the demands of the user. - Low internet speeds when the demand in use was higher.	-
	Strategic Management	- No advertising for stimulating community members to come to use the services of a Thaitelecentre - The center should provide a basic training program to all people in the community.	- The center should provide any supplement activities continuously such as a basic training program to students. - The center should build a community database and create e-content for schooling in different kinds of subjects.	- A nameplate of Thaitelecentre was not displayed clearly. - A group of non-users didn't dare to come in. - The center's atmosphere did not attract people to come in. - The center should have advertising to community members to know the center. - The center should be opened on weekends and extended over office hours. - The center should provide basic training programs to all people in community continuously. - The center should build a community database which contains occupational information such as the trading of local crop information in order to promote a group of agriculturists to attend.
	Personnel and staffs	- Personnel and staffs lack in ICT knowledge to advise users on how to use computers and internet.	- Personnel and staffs lack of ICT knowledge to advise users on how to use computers and internet correctly.	-

Table 23 (Continued)

Methodology	Problems and components	Jutthurat Thaitelecentre	Khumpavapi Thaitelecentre	Tabo Thaitelecentre
Focus Group Discussion	Community Participation	-	-	- should hire participant volunteers who are stakeholders and beneficial for community such as computer and ICT equipment merchants.
	Perception and Need	- A group of non-users had their own computers and internet in their houses. - The center should foster and train adolescents and people in realizing the benefits that are gained from using computers and internet.	- A group of non-users had to make their jobs and did not know how to use computers as well as did not know the benefits of using it. - The center should build a community database that is useful for them and provides a lot of new computers including a printer, a scanner, telephones and a fax machine; in the near future they will come to use the services of the center continuously.	- Non-user groups totally didn't know the center, even knew, they were unable to use computer. -As agriculturists, they didn't know how computers can benefit them. - For non-frequent users, they didn't use the services of the center because its location is too far from their home so that they decided to not go there.
In-depth interview	Policy and Regulation	- Have a clear framework and be consistency.	- Improve and renew policies and regulations which have particular guidance for development and is relevant to the context of the local community. - Focus on quality-oriented development rather than quantity-driven. The concept of establishing a Thaitelecentre is not necessary to cover the whole country, in turn, it should emphasize on quality issues in each Thaitelecentre as well.	- Have a clear policy framework from the central government.

Table 23 (Continued)

Methodology	Problems and components	Jutthurat Thaitelecentre	Khumpavapi Thaitelecentre	Tabo Thaitelecentre
In-depth interview	Facilities and ICT Infrastructure	- Provide sufficient computers and equipment for all kinds of users.	- Have advanced telecommunication technology services by providing up-to-date computers in a sufficient way. - Set up a broadband internet system.	- Provide sufficient computers and equipment for all kinds of users. - Have a broadband internet system.
	Location	- Be located in a community site where all people in the community can get to comfortably and is easily accessible.	- Be located in a community site where all people in the community can get to comfortably and is easily accessible. - Have a wide space in order to allow users to feel comfortable when using it. - Arrange Thaitelecentre to be a nice place to come in order to make users have good impression and want to visit again and again.	- Situated in the community where all people in the community can get to easily.
	Strategic Management	- Require an integrated action plan	- Use an approach strategy by focusing on "Localization" which upholds a human resource development principle which relies on building competent staff. - Stress on the establishment of Thaitelecentre concept which gives precedence to community. - Make an action plan and strategic plan every year which conforms to the Thaitelecentre's sustainability.	- Make an action plan and strategic plan every year which conforms to the Thaitelecentre's sustainability. - Provide training programs continuously on basic skills in using computers to all people and any interested group. - Provide a statistic note of using in order to know an accurate record on how many people come to use a Thaitelecentre for daily and monthly use which will be supporting information to monitor.

Table 23 (Continued)

Methodology	Problems and components	Jutthurat Thaitelecentre	Khumpavapi Thaitelecentre	Tabo Thaitelecentre
In-depth interview	Financial Support and Budget	- Allocate the budget sufficiently to operate and develop a Thaitelecentre in human resources, training, and operating expenses such as equipment maintenance and replacement, salaries, volunteer's overtime, and marketing costs.	- Provide training programs continuously on basic skills in using computers to all people. - Have a financial plan continually.	- Allocate the budget sufficiently to operate and develop a Thaitelecentre in human resources, training, and operating expenses such as equipment maintenance and replacement, salaries, volunteer's overtime, and marketing costs. - Propose budgeting of Thaitelecentre operation in municipal law.
	Personnel and staffs	- Select staff members who have competency, dedication, and pay more attention to their own jobs. -Have a competent leader who acts as an IT leader and actually knows what benefits of a Thaitelecentre are and how it will be useful for all people in a community level.	- Create teamwork and select qualified staff members that have ICT knowledge, computer skills, and technical skills to maintain services and equipment in Thaitelecentre. - Select staff members who have full responsibility and pay more attention to their own jobs as well as have a service mind. - Provide training programs to staff members when necessary and continuously in order to develop and improve their knowledge and skills. - Provide reasonable pay to Thaitelecentre staffs which stimulate their motivation in an working environment.	- Hire erudite staffs that have ICT skills, create a community database as well as repair equipment at the same time. - Select all staff members that have a service mind. - Provide training programs to staff members continuously. - Provide appropriate salaries to staff members which stimulate their motivation in an working environment. - Let all staff do their task as a full-time job without doing other jobs at the same time.

Table 23 (Continued)

Methodology	Problems and components	Jutthurat Thaitelecentre	Khumpavapi Thaitelecentre	Tabo Thaitelecentre
			- Train staff members to be able to teach and advise on how to use computers and internet to all users. - Have a powerful leader who acts as IT leader, visionary person, and careful manager. - Have a competent leader who actually knows what benefits of aThaitelecentre are and how it will be useful for all people in community level	- Select a good leader who can drive the policy and regulation of Thaitelecentre into practice which is a key issue for the Thaitelecentre's sustainable.
Indedth-interview	Community Participation and Networking	- Implement a pilot project by providing training to the targeted leaders. - Try to work with the community pillar who can act as a medium of communication to magnify knowledge which is gained from the Thaitelecentre to community members to become possible to use and join in a Thaitelecentre. Drive the community committee to be aware of the importance of a Thaitelecentre. This group can be a mouthpiece or spokesperson for community members. The meeting of this committee should be held every week.	- Encourage all community members to participate in the Thaitelecentre by providing a wide variety of services and activities to them. - Drive community committee to see the importance of a Thaitelecentre by holding a meeting every week in order to encourage them to be spokespeople who can communicate the center's benefits to their community members -Create "strong community" as a preceding process to support community participation by working with a number of groups in their community, building links between them and the center, and establishing forums to share a lot of ideas for their community.	- Encourage every community member to participate in the Thaitelecentre by providing a wide variety of services and activities to them. - Drive community committee to be aware of the importance of a Thaitelecentre. This group can be a mouthpiece or spokesperson for community members. The meeting of this committee should be held every week. The main purposes are both for reviewing the existing problems and for finding solutions together. The Thaitelecentre issue should be also included in the meeting agenda.

Table 23 (Continued)

Methodology	Problems and components	Jutthurat Thaitelecentre	Khumpavapi Thaitelecentre	Tabo Thaitelecentre
In-depth-interview			In case of community involvement in a Thaitelecentre, local product data of each group of community can be transferred into the database. This database will provide useful information and knowledge that is relevant to their livelihood which can stimulate the community to come and use it.	- Give opportunities to all people within the community to identify their needs. For instance, in each community, they are assembled to form a particular group to request to attend in a training program which will satisfy the needs of the community. - Coordinate with other related organizations such as non-formal education institution. It will associate with creating a certain curriculum of ICT training for Thaitelecentre. - Encourage community members to be participant volunteers at the Thaitelecentre. These kinds of people may include teachers, community members ,people with technology expertise, and other professionals in ICT skills and so on.
	Perception and Needs	- Stimulate all people in the community to use the services of a Thaitelecentre continually by using mass media such as local radio and wireless transmitters together with leaflets and brochures to attract people's attention and	- Publicize a Thaitelecentre to every member in the community continuously. - Use outdoor publicizing by providing IT mobile cars into the community which contain computers and wireless technology inside.	- Publicize the Thaitelecentre to every member in the community continuously. - Promote every community member to take out a permanent subscription of the Thaitelecentre without charging.

Table 23 (Continued)

Methodology	Problems and components	Jutthurat Thaitelecentre	Khumpavapi Thaitelecentre	Tabo Thaitelecentre
		increase the usage level. - Make products which are gained from searching data in Thaitelecentre to be an electronic content (e-content).	On the other hand, these benefits can stimulate them to realize the usefulness of computers and internet more or less. - Create a database of intellectual community such as community and local products and vocational information of community. A valuable database is useful for creating jobs and generating income for people in their community. - Create a real time database for searching for a wealth of information.	- Rebuild the Thaitelecentre image in order to encourage local people to be aware of the utility of computers and internet.

E. The analysis results from A-D which leads to the construction of Thaitelecentre management model Thaitelecentre for lifelong learning of Ministry of Information and Communication Technology.

Problems of Thaitelecentre Management

From the research results, it analyzed that major problems of a Thaitelecentre were classified into 5 aspects which comprised 1) facilities and ICT infrastructure 2) location 3) strategic management 4) personnel and staff and 5) perception and need. In facilities and ICT infrastructure aspect, existing computers were out of date and a number of computers were not enough to meet the demand of users. As mentioned by a group of frequent users in a focus group discussion "Particularly, during school holidays, there were a lot of people who would come to use computers in the center which led to the inadequate number of computers and a long queue". Besides, from the recommendation of respondents of questionnaires, most of them would like a Thaitelecentre to have more computers.

Moreover, in all Thaitelecentres they lack a budget to provide devices for users such as a printer, a scanner, and a fax machine. Like one student's opinion "It is likely that the center had better provide a printer which helps me print out some useful information when it's needed" (Buthrasrising, 2009)

In case of the air-conditioning system, it can protect computers and other devices not overheating within a hot environment so that all devices can operate as long as possible. Even though all of the Thaitelecentres were provided with an air-conditioner, in Jutthurat Thaitelecentre, it did not open the air-conditioner every day because of an unavailable budget in paying the electric bills. This is one of the operational problems of Thaitelecentre management.

In the location aspect, from the research study there is not much to be concerned about this problem, but it should not be looked over. The site of a Thaitelecentre should not be located far from the community. As one of the directors

of a Thaitelecentre said that, "location is another important factor. The center must be a site near the community so that people can go comfortably."

Nevertheless, the center's atmosphere should attract people to come in. Some users suggested that "the center was closed by a murky blue curtain so that it made users feel uncomfortable and unsafe while they were using the services".

Another problem of a Thaitelecentre is strategic management. These problems fell into several kinds of topics that were proposed to be 1) no systematic action plan for operation. It is likely that the operation of this center was run without any direction not following the primary objectives of establishing a Thaitelecentre which aims the center to be a source of learning for lifelong learning. 2) No advertising to publicize people in a community to be aware of the benefits of a Thaitelecentre. 3) No public relations in order to promote local people to be aware of using its services. In fact not every member in the community can access a computer and internet. In the rural community, the majority of people are agriculturists. Most of them don't know how to use computers and what benefits they could gain from them. Moreover it can be seen that local people don't use the services of the center because they have to work hard and don't know how it can be involved with their daily life. 4) There is no community database that comprises useful local community products, vocational and educational information to all people in a community to acquire 5) unequipped with useful ICT training program. Providing training programs in ICT knowledge and computer skills to local people is an important step to remove their barriers of technophobia and make them really understand what benefits they will gain from a Thaitelecentre and 6) The center opened at office hours on weekdays but closed on weekends. Some users who are undergraduate students requested that "if possible, the center should be opened on weekends and should extend beyond office hours so we can come to use computers after school".

In the personnel and staff aspect, a lack of competent staffs that have ICT knowledge was a severe problem in all Thaitelecentres. Most users complained that "…it looks like all staff did not have much ICT skills. Those people cannot teach or even advise on the basics in using a computer. "Every time when I came in, all staff members always sit behind their counter and seem to do nothing except to listen to the radio…" (Triyothee, 2009).

In addition, staff members lacked the passion to do his or her job and did not have the motivation and incentives in doing their jobs due to having another job to work on at the same time. These issues could be supported by a director of Kumpawapi Thaitelecenter's comment:

…in the real situation it was so sad. Regardless of doing other things, all my staff just had only this job, but they did not want to do it. One thing that I have to do first is to find new staff members that are enthusiastic people to do this job. However, MICT should pay tribute and allocate a budget in the part of salary and payment to all staff members in order to stimulate them to have motivation in working…

Considering perception and needs aspect, there are many various issues of concern. The main problems here are 1) people in community did not see the importance of Thaitelecentre 2) people did not come to use the service of the center 3) people in community had their own computers and internet in their houses and 4) people did not have time to use the service of the center because they have to work.. It is noticeable that most of the people in rural areas are agriculturists. They have to do their jobs and don't necessarily have to use computers and the internet. As one of the non-users said that "I am a farmer, I do not know that what kind of benefits I can get from using a computer". Similarly, a director of Kumpawapi Thaitelecenter mentioned that:

…In the case of Thai people, most of them don't have much ICT knowledge. Even if technology reaches their home, some households don't know how to use a computer and internet. For Kumpawapi community, there are both middle and lower classes. Those concerned much about making their jobs which are involved with their living…

Moreover, from the conclusion of a focus group discussion, a group of non-users did not know the center at all and also gave their reasons why they did not come to use the service because they had to do their jobs and did not know how to use computers as well as did not know the benefits of using it. Besides, some households had computers in their house so it was not necessary to come to the center.

Components of Thaitelecentre Management

According to the research results, key components of Thaitelecentre management could be classified into 8 areas which were 1) Policy and Regulation 2) Facilities and ICT Infrastructure 3) Location 4) Strategic Management 5) Financial support and Budget 6) Human resource management 7) Community Participation and networking and 8) Perception and need.

For policy and regulation, in practice, a framework of establishing a Thaitelecentre must have a clear set of regulations. From the opinion of Kumpawapi Thaitelecentre director he stated that:

…the policy and regulation must be improved and renewed immediately. The policy maker in this case, MICT, should have clear guidance of operation and development. Nowadays, the center's operation became as a mistletoe task of municipality. No one can take care of this seriously…

A director of Jutthurat Thaitelecentre also pointed out that "due to inconsistency of the policy from an administrator, the operation of the center is stagnant".

Therefore, policy and regulation should be improved and renewed continuously and it should be relied on for particular guidance for development and that is relative to the context of the local community. The direction of policy should focus on quality-oriented development rather than quantity-driven. It is not necessary to cover the whole country, but it should emphasize on quality issues in each Thaitelecentre.

In facilities and ICT infrastructure area, from the problem above, there were various points that Thaitelecentre must be concerned with, for example, computers were out of date neither were there enough to use. Moreover, basic devices were not provided such as a printer, a fax machine, and a scanner. For this reason, the installation of these devices should be provided if needed. Furthermore, in order to conform to the National Broadband Policy in terms of developing broadband service, the government and private sectors should provide broadband service with a minimum speed of 100 Mbps by 2020. Hence, in a Thaitelecentre at least a leased line and wireless technology which offer high bandwidth should be set up. The speed of internet should be at least 2 Mbps. Minimum standard of connectivity, speed, and stability have to be fulfilled. Besides, computer and devices, it is important that the Thaitelecentre must provide users with software applications with which the users are familiar with or will need to use in their daily life. Thaitelecentre should offer a choice of applications that users can be able to access such as Internet application, word processing, desktop publishing, and educational and training software.

In the area of location, generally, it is common sense that a Thaitelecentre should be located in the appropriate place where local people and users can get to comfortably and access easily. It is clear that if a Thaitelecentre is away from the local community, it might hinder participation. In addition, the site of a Thaitelecentre should be in a central location, close to the main road and the main group of villages. If a Thaitelecentre is far away in a side street it will have to work very hard to make itself known to the community. However, it doesn't matter how a Thaitelecentre is, there should be enough space for all equipment provided.

As mentioned by the director of Kumpawapi Thaitelecentre:

…The center must be sited near the community. People can get to comfortably. Besides, in this center, it looks wider than before because of rearrangement. The new space allows users to feel comfortable when using and has a good impression that makes people want to visit again and again…

Another important component of Thaitelecentre management is strategic management. The results from in-depth interviews showed that a business plan or action plan needs to be required. Likewise, a director of Jutthurat Thaitelecentre cited that "the management of the center needs an integrated action plan". Similar to any other businesses, the action plan is a guidance to start the operation. It should be made every year. Examples of strategies for doing an action plan should include a list of rules for staff and users, rules for operation, the daily and monthly reports which describe the activities, its equipment, and problems such as complaints and frequent faults, and a statistic note of using which will be supporting information to monitor and evaluate the plan. As a manager of Tabo Thaitelecentre said, "Providing a statistic note of using in order to know an accurate record of people who come to use the service s of the center for daily and monthly use. This can be as backup information for monitoring".

Another part of strategic management is service. Thaitelecentre must provide at least a broad range of services that are relevant to the community needs. Moreover, it should be kept in mind that all services in a Thaitelecentre should be free of charge because local people in a community cannot afford to pay for it.

Moreover, the result study has shown that a Thaitelecenter should provide training as a regular part of the telecenter's priorities from basic skills of using a computer to designing web pages. It is essential for a Thaitelecenter to make sure that training programs will attract local people to attend and reach their expectations and needs, for example

…The center may provide experts or lecturers who have ICT knowledge to teach community members on the introduction of computer and internet. On the other hand, if the community needs to be trained in the basics of using a computer, they can inform their requirements to us. In response to their purpose, we will arrange certain training courses for them… (Saisunee, 2009)

In terms of financial support and Budget aspects, it is remarkable that the limitation of budget is a huge impediment for Thaitelecentre operations. From the results of in-depth interviews it could be seen that the operational budget of the center was allocated just a little proportion in the Municipal budget when compared to facility infrastructure which is directly involved with villagers rather than ICT infrastructure which is still far away from people's living. Consequently, the systematic budget plan must be done. This plan should cover all kinds of expenses such as staff salaries, training expenses, the purchase of equipment, maintenance cost, and advertising expenses.

However, it is necessary for a Thaitelecentre to be subsidized and granted by the government and external organizations in which they can support funding in normal kinds of budget. It resembles the idea of a director of Jutthurat Thaitelecentre. He suggested that "MICT should play an important role to support in some kinds of expenditures such as payment and incentives for staff members".

It is always best to have not only financial aspects, but also human resource management to be key components of Thaitelecentre management. One of the main problems of personnel and staff in a Thaitelecentre is the shortage of competent staff that have ICT knowledge and skills to take care of the center's operation. Moreover, staffs lack of motivation on doing their jobs is another problem. From the research results, although Thaitelecentres have sufficient budget allocation, the development of a Thaitelecentre cannot occur if they lack in competent staff. The staff's capacity is a crucial part of Thaitelecentre sustainability. Staff members should be enthusiastic who pay more attention to their own jobs as well as having a service mind. For staff qualifications, it is essential for them to have a wide variety of ICT knowledge and

skills. Thus, the Thaitelecentre must find qualified staff members that have full responsibility for managing day-to-day operations, undertaking training, planning to purchase new devices, advising users, creating community databases, and so on. To increase staff's motivation, Thaitelecentre has to provide appropriate salaries and incentives to staff members. Training programs for staff members should be conducted when necessary and continuously in order to develop and improve their knowledge and skills. Moreover, staff can also be motivated through participation when they introduce their own new ideas and take part in converting those ideas into newly developed services. On the other hand, incompetent managers and staff members have been a major reason for Thaitelecentre failure. The word "Local Champion" can occur. It is likely that a local champion should have the potential to make the community understand the concepts of ICT. If a manager is a local person, he or she will be better accepted by the community and have the creditability to introduce the center to the community. This will help him or her to convince people to come and use Thaitelecentre services.

However, not only personnel and staff, but also the Thaitelecentre leader will play a crucial part in the development of the Thaitelecentre. As mentioned by a director of Jutthurat Thaitelecentre:

…There is a need to find a competent leader who acts as a visionary person and actually know what benefits of a Thaitelecenter is and how it will be useful for all people in the rural community. If the leader sees the importance of the center, the opportunity to drive the policy and regulation of Thaitelecenter into practice will be viable…

In addition, a manager of Tabo Thaitelecentre also supported this idea that:

…The most important thing here is the mayor of the municipality as a Thaitelecenter leader. He must have long term vision in both ICT and management aspects. The more the leader doesn't have a clear vision of the mission, the more the followers cannot know how to do it…

Therefore, a Thaitelecentre should have a competent leader who can drive the policy and regulation of the Thaitelecentre into practice or at least this leader should actually know what benefits of a Thaitelecentre are and how it will be useful for all people in a community level.

Apart from key components inside, community participation influences the achievement of a Thaitelecentre. The obstacle to participation of people in a community here is awareness of the potential and benefits of a Thaitelecentre. Thus, the important task of the manager and staff members is to encourage all people within their community to become involved in Thaitelecentre service. From a matter of fact in a Thaitelecentre it can be reviewed that community members didn't want to access the center. One idea of a director of Kumpawapi Thaitelecentre suggested that:

…Most of them thought that it is useless to come to the center, meanwhile it is waste of time as it doesn't affect their jobs or generate more income. Thus, it is necessary to build community participation among local people in their community by offering any activities to attract them to take part in. Besides, it should force the community committee to see the importance of a Thaitelecentre. The awareness of a community must originate from a strong community, if community members realize that the center can be as a channel of making their jobs, finally, they will come in…

He also mentioned that community participation must come from a strong community. It was imitated from community parliament. The meeting of all stakeholders such as a local leader and village headman should be held every week in order to encourage them to be spokespeople who can communicate the center's benefits to their community members.

From the analysis results of in-depth interviews, it can summarized that the way to stimulate community participation is providing a wide range of activities to encourage community members to take part in, particularly in housewives and vocational groups by teaching them to search for vocational data and arranging an

exhibition like an academic activity to attract all people who are living in the community to get involved with. Those people may include a local leader, community pillar, village headman, and village leader. In addition, community volunteers are likely to be another way to encourage community members to participate. Those who might be participant volunteers include municipal teachers or university's students. One example from user's opinion in a focus group discussion is:

…The center should hire participant volunteers who are stakeholders and beneficial to the community such as computer and ICT equipment merchants. Those people can act as an advisor to teach all users how to use computers and internet properly; meanwhile, they can also repair the equipment in the center and sell their products as a channel of distribution at the same time. Furthermore, volunteers like students in universities can participate in operating the center. This participation can promote them to practice and develop their knowledge such as computer skills, software and applications, and equipment maintenance that enable them to share their experiences with all users in the center…

From the above, it is obvious that the big problem of a Thaitelecentre is participation. One of the reasons came from the unawareness of ICT. People in the community do not have much ICT knowledge and also think that it is far from their life. The obstacle here has two parts 1) awareness that a Thaitelecentre exists and awareness of what benefits there are from a Thaitelecentre. So it is a difficult task to communicate the benefits of the Thaitelecentre to its community. In the sense of perception and needs, local people did not come to use the service of the center. Therefore, to stimulate the usage and create the awareness, community members must become aware of a Thaitelecentre and its services before they will get involved in it. Thus, Thaitelecentre manager and staff must persuade their communities to know the benefits which are gained from a Thaitelecentre. The question of benefits is closely related to how people in the community think about the Thaitelecentre's relevance to them. Trying to make the center relevant to the community environment, a Thaitelecenter should deal with marketing and awareness building. For example:

… Look at this point! The advertisement can attract local people to come in by using local radio, a meeting of community committee, brochures, and activities. All kinds of these media should be launched continuously. Brochures and leaflets should be used as a complement tool in advertising which can attract people's attention and increase the usage level… (Homejutthurat, 2009).

Based on the study it found that, there is no better marketing tool than providing services that match the community needs. It is related to "demand-driven services" that show the community how services can be useful to their life with ICT. For an excellent way of demand driven, Thaitelecentre manager and staff should build their own websites and databases which are relevant to local users. Data and information that is contained in websites and databases should be related to the context of that particular community such as local market prices for grains and crops, pest management plans for local products, data on infestations and animal diseases, weather information, health and environment issues, educational practices and training, and so on. Nevertheless, it is not necessary to try to provide information on everything; it should focus on issues that are the most relevant for the community. Although there is no fixed answer to how much media will be chosen, a Thaitelecenter has to choose the media that reaches the greatest number of target users instead.

Phase II The construction and verification of Thaitelecentre management model Thaitelecentre for lifelong learning of Ministry of Information and Communication Technology.

F. The construction result on a draft management model of Thaitelecentre for lifelong learning of Ministry of Information and Communication Technology.

Based on the data analysis from phase I, the researcher developed the close-ended questionnaire (see Appendix D) with a rating scale of 5 which is designed to prioritize problems and components of Thaitelecentre management. This tool was used to get commitments from a group sample who are 6 experts, 2 directors and 1 manager of 3 Thaitelecentres. The results from closed format questions was interpreted by using descriptive statistics: Mean ($\bar{x}$) and Standard deviation (S.D.). Rating Scales to defining the interpretation are as follows:

5.00-4.50	refers to	data is the most important
4.49-3.50	refers to	data is very important
3.49-2.50	refers to	data is moderate
2.49-1.50	refers to	data is less important
1.49-1.00	refers to	data is the least important

The finding of this questionnaire was shown in table 24 and 25

Table 24 The result of priority setting of problems of Thaitelecentre management

Problems of Thaitelecentre management			Data Analysis			
			$\bar{x}$	S.D.	Interpretation	Rank
1	Facilities and ICT Infrastructure					
	1.1	Inadequate computer	3.9	1.100	Very important	10
	1.2	Obsolete computer	3.7	1.059	Very important	12
	1.3	Low speed of internet	3.6	1.173	Very important	13
	1.4	Lacking of other devices such as a printer and a scanner	3.5	0.707	Very important	14
	1.5	No air condition	2.5	1.269	Moderate	22
2	Location					
	2.1	Uncomfortable to commute	3.4	1.173	Moderate	17
	2.2	Narrow space	2.9	0.875	Moderate	21
	2.3	The center's atmosphere doesn't attract people to come in	3.5	0.849	Very important	14
3	Strategic Management					
	3.1	No systematic action plan for operation	4.2	0.918	Very important	3
	3.2	No advertising to publicize people in community to know about the existing of Thaitelecentre	4.0	0.942	Very important	8
	3.3	No public relations in order to promote local people to use the services of Thaitelcenter	4.3	0.948	Very important	1
	3.4	No useful community database that responded to the needs of community	3.9	0.994	Very important	10
	3.5	Unequipped with useful ICT training program	4.2	0.788	Very important	3
	3.6	Opened at office hours on weekdays but closed on weekends	4.0	1.154	Very important	8

Table 24 (Continued)

Problems of Thaitelecentre management			Data Analysis			
			$\bar{x}$	S.D.	Interpretation	Rank
4	Personnel and Staff					
	4.1	No competent staff that have ICT knowledge and skills to operate	4.1	0.737	Very important	6
	4.2	Staff lacking in passion to do their job	3.5	0.849	Very important	14
	4.3	Staff lacking in motivation and incentives in doing their job due to having another job to work simultaneously	4.2	0.632	Very important	3
	4.4	No competent leader who sees the importance of Thaitelecentre	4.3	0.948	Very important	1
5	Perception and need					
	5.1	People didn't see the importance and benefits of Thaitelecentre	4.1	0.737	Very important	6
	5.2	People didn't dare to come and use the services of a Thaitelecenter	3.4	0.699	Moderate	17
	5.3	People had their own computers and internet in their houses	2.5	0.707	Moderate	22
	5.4	People didn't know how to use a computer and internet	3.4	1.173	Moderate	17
	5.5	People had no time to come because they have to work	3.4	0.966	Moderate	17

As indicated in Table 24, based on a group of experts' opinions, all of the problems of Thaitelecentre management were between 2.5 and 4.3 on average which mean there were problems in a range of moderate to a very important level. For facilities and ICT Infrastructure, data was ranged from 2.5 to 3.9 on average. Most of the problems that were very important fell into inadequate computer, obsolete

computer, low speed of internet, and lacking of other devices such as a printer and a scanner, whereas no air condition was in the moderate level. For a location point, there was not much concern about this problem, most of the location problems were at a moderate level, but it also showed that the center's atmosphere doesn't attract people to come in was a very important issue. Additionally, strategic management problem was ranged from 3.9-4.3 on average. All of them were at a very important level. No available public relations service to promote local people to use the services of Thaitelecentre was of the highest importance of strategic management problem. Some important issues that were mentioned in the area of strategic management were no systematic action plans for operation, unequipped with useful ICT training program, opened at office hours on weekdays but closed on weekends, no advertising to let people know about the existence of a Thaitelecentre, and no useful community database that responded to the needs of community, respectively.

As the data shown in personnel and staff problem, the range of data was between 3.5 and 4.3 on average. All of these issues were at a very important level. No competent leader who sees the importance of a Thaitelecentre was the most important problem, while staff lacking in motivation and incentive in doing their job due to having another job simultaneously, no competent staff that have ICT knowledge and skills to operate, and staff members lack of passion to do their job were other problems that were very important. In perception and needs aspect, people didn't see the importance and benefits of a Thaitelecentre was the most important problem. The remaining issues of this perception and needs problem were moderate levels which ranged from 2.5 to 3.4 on average. These issues were people had their own computers and internet in their houses, they didn't dare come to use the services of a Thaitelecentre, they didn't know how to use a computer and internet, and they had no time to come because they had to work, respectively.

Table 25 The result of priority setting of components of Thaitelecentre management

Components of Thaitelecentre management	Data Analysis			
	$\bar{x}$	S.D.	Interpretation	Rank
1 Policy and Regulation				
1.1 A clear set of policies and regulations in establishing a Thaitelecentre	4.2	0.632	Very important	12
1.2 The details of Thaitelecentre's policy comprised of the main objectives of a Thaitelecentre, members of the steering committee, and major responsibilities and staff member tasks	4.1	0.737	Very important	18
1.3 Reviewing of policy and regulation persistently that are relative to the context of the local community	4.0	0.942	Very important	23
1.4 The direction of policy focuses on quality-oriented development rather than quantity drive.	3.8	0.788	Very important	33
2 Facilities and ICT Infrastructure				
Power and Electricity				
2.1 Power and electricity supply in cases of an emergency problem	3.6	0.843	Very important	44
2.2 The setting up of an air conditioner in order to reduce the operating temperature of the equipment and prevent computer and other devices to be out of order or overheating	3.5	0.971	Very important	47
Hardware and Software Devices				
2.3 Standard internet connectivity, speed, and stability of equipment	4.2	0.788	Very important	12
2.4 The setting up of a leased line and wireless technology with high bandwidth at least 2 Mbps	3.9	0.737	Very important	27

Table 25 (Continued)

Components of Thaitelecentre management		Data Analysis			
		$\bar{x}$	S.D.	Interpretation	Rank
2.5	The acquisition of basic devices such as telephone, fax machine, printers, scanners when needed.	3.9	0.567	Very important	27
2.6	The installation of all devices matched the need of users	3.8	0.788	Very important	33
2.7	The procurement of software and applications such as Internet/web application, word processing, educational and training software	3.7	0.483	Very important	37
3 Location					
3.1	Located in the community site where local people can go comfortably and is easily accessible	3.8	1.229	Very important	33
3.2	Sited in a central location which is close to the main road and the main group of villages	3.6	0.843	Very important	44
3.3	Located in the place with the availability of water, electricity, and telephone connection	3.9	1.197	Very important	27
3.4	Located in a safe place and be in a good environment	4.2	0.632	Very important	12
3.5	Have enough space for all equipment that made users feel comfortable when using it.	4.0	0.677	Very important	18
4 Strategic Management					
Business plan/Action plan					
4.1	The formation of a steering committee in order to make an action plan for the Thaitelecentre	4.3	0.674	Very important	8

Table 25 (Continued)

Components of Thaitelecentre management		Data Analysis			
		$\bar{x}$	S.D.	Interpretation	Rank
4.2	The development of an action plan which included objectives, strategies for achieving, progression of operation such as a list of rules for staff and users, rules for operation, and reviewing this plan every year which conforms to the context of local community	4.2	0.632	Very important	12
4.3	The arrangement of a steering committee meeting at least once a month	3.7	0.823	Very important	37
4.4	A wide range of services that are relevant to the community needs such as informational service, transactional services, and e-Government services that are free of charge	4.0	0.942	Very important	23
4.5	The content of service that served the specific needs of local people in community	3.7	0.823	Very important	37
4.6	The arrangement of training programs from basic skills in using computers to designing web pages in specific content in a Thai version for local people to learn easily.	4.3	0.674	Very important	8
4.7	Training programs that attract local people to attend and reach their expectation and needs.	4.1	0.737	Very important	18

Table 25 (Continued)

Components of Thaitelecentre management	$\bar{x}$	S.D.	Interpretation	Rank
		Data Analysis		
5 Financial support and Budget				
5.1 Making a financial plan which contains all expenditures such as capital expenses and operational expenses	3.9	0.737	Very important	27
5.2 Reporting the actual expenditures every 3 months	3.7	0.948	Very important	37
5.3 The allocation of a sufficient budget from government or external organizations in all kinds of aspects which are human resources, training, and operational expenses such as equipment maintenance and replacement, staff salaries, volunteer's overtime, and marketing costs	4.3	0.823	Very important	8
6 Human Resource Management				
Managers and staff				
6.1 The selection of a good manager who has the potential for working on a Thaitelecentre to reach its goal	4.6	0.516	The most important	1
6.2 The selection of qualified and visionary staff that have full responsibility and pay more attention to their own jobs as well as have knowledge and ICT skills	4.4	0.516	Very important	6
6.3 The recruitment of a manager and staff that do their tasks as a full time job without doing any other jobs at the same time	4.1	0.875	Very important	18

Table 25 (Continued)

Components of Thaitelecentre management	Data Analysis			
	$\bar{x}$	S.D.	Interpretation	Rank
6.4 The procurement of appropriate salaries which are paid	4.5	0.707	The most important	3
6.5 The procurement of incentives for managers and staff such as ICT training programs, marketing techniques, and financial operational management in order to develop and improve their knowledge and skills	3.8	0.918	Very important	33
6.6 The motivation of managers and staff by getting them to participate in introducing new ideas and suggestions	3.6	0.966	Very important	44
Local Champion and a Thaitelecentre leader				
6.7 The selection of a local champion who played a key role in communication with community members to persuade them to come to use the services of Thaitelecentre	4.2	0.788	Very important	12
6.8 The selection of a competent leader who can drive the policy and regulation of Thaitelecentre into practice.	4.5	0.527	The most important	3
6.9 The selection of a powerful leader who acts as an IT leader, visionary, and careful manager who actually knows what benefits of a Thaitelecentre are and how it will be useful for all people on a community level	4.1	0.737	Very important	18

Table 25 (Continued)

Components of Thaitelecentre management		$\bar{x}$	S.D.	Interpretation	Rank
				Data Analysis	
7	Community Participation and Networking				
	Stakeholder Involvement				
7.1	The encouragement of community members to participate in a Thaitelecentre in various forms such as users, staff volunteers, and advisory group	4.6	0.516	The most important	1
7.2	The assessment of community needs before providing a wide variety of services and activities	4.4	0.516	Very important	6
7.3	The collaboration with community leaders for strengthening participation	4.5	0.527	The most important	3
7.4	The implementation of a pilot project of ICT training programs to community committees and community pillars to be aware of the importance of the existing Thaitelecentre	3.9	0.737	Very important	27
7.5	The formulation of a "strong community" by establishing forums to share a lot of ideas and bring local product information of each group in the community into a Thaitelecentre database.	4.2	0.632	Very important	12
7.6	The supplement of community organization and other related agencies as Thaitelecentre's partners	4.0	0.471	Very important	23
	Thaitelecentre Volunteer				
7.7	The encouragement of community members to be participant volunteers in a Thaitelecentre	3.9	0.737	Very important	27

Table 25 (Continued)

Components of Thaitelecentre management		Data Analysis			
		$\bar{x}$	S.D.	Interpretation	Rank
7.8	Rewards and incentives to participant volunteers such as earning and overtime pay, training courses, free usage of services and equipment, college credits, etc.	3.7	0.674	Very important	37
8	Perception and need				
8.1	The creation of community members' awareness to know the benefits of a Thaitelecentre by using marketing tools	4.3	0.823	Very important	8
8.2	The selection of appropriate media to reach the target users. Mass media such as local radio, wireless transmitter, leaflets, and brochures are highly effective for creating general awareness, whereas interpersonal media are more effective for promoting users to come to use the service and increasing the usage level	4.0	0.816	Very important	23
8.3	The development of long term marketing programs	3.7	0.483	Very important	37
8.4	The construction of a website and database for the Thaitelecentre containing local product information, weather, health, and educational and vocational information which are relevant to the community needs	3.7	0.823	Very important	37

The results in Table 25 showed that the average of components of Thaitelecentre management ranged from 3.5 to 4.6 which mean all components are highly important. First of all, the selection of a good manager who has the potential for working to reach the Thaitelecentre's goal in human resource management dimension and the encouragement of community members to participate in a Thaitelecentre in various forms of community participation and networking aspects are the highest important level rating score (4.6) as first rank above all components. While, the results revealed that the second importance of components have an obvious bearing still on both human resource management and community participation and networking aspects. The procurement of appropriate salaries paid to managers and staff, the selection of a competent leader who can drive the policy and regulation of a Thaitelecentre into practice, and the collaboration with a community leader for strengthening participation are highly illustrative which are rated at 4.5. Furthermore, the selection of qualified and visionary staff members that have full responsibility, pay more attention to their own jobs, and have knowledge and ICT skills toward staff qualification and responsibility is rated at 4.4, which falls into a "very important" level rating scale. Similarly, the assessment of community needs before providing a wide variety of services and activities in community participation and networking also falls in to the same score (4.4). Whereas, the formation of a steering committee, the arrangement of a training program, the allocation of a sufficient budget, and the creation of community members' awareness to know the benefits of a Thaitelecentre by using marketing tools are in the same rank at 4.3 score which also means a "very important" level rating scale.

In the rank 12, it is remarkable that in the policy and regulation aspect, a clear set of policies and regulations in establishing a Thaitelecentre even falls in to a very important level by scale 4.2, likewise standards of internet connectivity, speed, and stability of equipment in facilities and ICT infrastructure area. Besides, for both location and strategic management aspects, the setting up of aThaitelecentre in a safe place and in a good environment and the development of an action plan has also been ranked at 12. In human resource management dimension, the selection of a local champion who plays a key role in communication with community members to

persuade them to come and use the services of a Thaitelecentre is also at a high important level at score 4.2 which mean the same score as the formulation of "strong community" in community participation and networking aspect.

For the rank 18, the priority of components at the average scale of 4.1 comprised the details of Thaitelecentre's policy, enough space for all equipment that made users feel comfortable when using, training programs that attract local people to attend and reach their expectation and needs, the recruitment of managers and staff that do their tasks as a full time job, and the selection of a powerful leader as well.

Moreover, reviewing of policy and regulation persistently is being the seventh rank at the 4.0 score, while a wide range of services are relevant to the community needs that are free of charge and the supplement of community organizations and other related agencies as Thaitelecentre's partners fall in to a "very important" level by the same scale of 4.0. The selection of appropriate media to reach the target uses also resembles the same score at rank 23.

In terms of facilities and ICT Infrastructure dimension, the setting up of a leased line and wireless technology with high bandwidth of at least 2 Mbps and the acquisition of basic devices such as a telephone, fax machine, printer, and scanner when it's needed are rated at 3.9 which fall in to rank 27. For location aspects, a Thaitelecentre located in a place with the availability of water, electricity, and a telephone connection is also rated at a rating scale of 3.9. Nevertheless, making a financial plan which contains all expenditures resembles its same rank 27. Similarly, both of the implementation of a pilot project of ICT training programs to the community committee and community pillars and the encouragement of community members to be participant volunteers in Thaitelecentre scores fall at 3.9 as well.

The result for rank 33, for policy and regulation dimension, the direction of policy focused on quality-oriented, also similar to the installation of all devices matched the needs of users in facilities and ICT infrastructure aspect at the rating scale of 3.8. In terms of location, only a Thaitelecentre located in the community site

where local people go comfortably and easily has been rated at 3.8 which means a "very important" level in the rating scale, while the procurement of incentives for mangers and staff is also in the same level at 3.8.

For facilities and ICT infrastructure aspects, the procurement of software and applications score falls at 3.7, while in the strategic management dimension the arrangement of a steering committee at least once a month score at the same "very important" rating scale level of (3.7). Furthermore, the content of service served the specific needs of local people in a community has similar priority as well as reporting the actual expenditure every three months in financial support and budget aspects in the rank of 37. As rewards and incentives to participants, the development of a long term marketing program and the construction of a website and database for the Thaitelecentre are also rated as the tenth priority.

Meanwhile, a Thaitelecentre that is sited in a central location which is close to the main road and the main group of villages and the motivation of managers and staff by getting them to participate in introducing new ideas and suggestions are ranked 44 at the rating scale of 3.6. Lastly, for Facilities and ICT infrastructure in power and electricity issues, the twelfth priority is the setting up of an air condition at the rating scale of 3.5.

For the whole picture, as a result of the closed end questionnaire in Table 24 and Table 25, it is remarkable that the average of all problems of Thaitelecentre management was rated at 2.5-4.3 in the rating scale which means these problems were in a range of moderate to very important level, while all components of Thaitelecentre management which are averagely in 3.5-4.6 of rating scale are at highly important levels. Consequently, the researcher set the priority of problems and components that were illustrated in Table 26 and Table 27

Table 26 The priority setting of problems of Thaitelecentre management

	Problems of Thaitelecentre Management	Priority
1	Facilities and ICT Infrastructure	
	-Inadequate computer	10
	-Obsolete computer	12
	-Low speed of internet	13
	-Lacking of other devices such as a printer and a scanner	14
	-No air conditioner	22
2	Location	
	-The center's atmosphere doesn't attract people to come in	14
	-Inconvenient to commute	17
	-Narrow space	21
3	Strategic Management	
	-No public relations in order to promote local people to use the services of Thaitelecentre	1
	-No systematic action plan for operation and unequipped with useful ICT training program	3
	-Unequipped with useful ICT training program	3
	-No advertising to publicize to people in their community to know about the existence of Thaitelecentre	8
	-Be opened at office hours on weekdays but closed on weekends	8
	-No useful community database that responded to the needs of a community	10
4	Personnel and staff	
	-No competent leader who sees the importance of a Thaitelecentre	1
	-Staff members lack of motivation and incentive in doing their job due to having another part time job	3
	-No competent staff that have ICT knowledge and skills to operate	6
	-Staff members lack of passion to do their job	14
5	Perception and needs	
	-People didn't see the importance and benefits of a Thaitelecentre	6
	-People don't dare to come and use the services of a Thaitelecentre	17
	-people didn't know how to use computers and internet	17
	-people had no time to come because they have to work	17
	-People had their own computers and internet in their house	22

Table 27 The priority setting of components of Thaitelecentre management

	Components of Thaitelecentre Management	Priority
1	Policy and Regulation	
	- A clear set of policy and regulation in establishing a Thaitelecentre	12
	- The details of Thaitelecentre's policy comprised of the main objectives of a Thaitelecentre, member of steering committee, and major responsibility and staff member tasks	18
	- Reviewing of policy and regulations persistently relative to the context of the local community	23
	- The direction of policy focuses on quality-oriented development rather than quantity driven.	33
2	Facilities and ICT Infrastructure	
	- Standard of internet connectivity, speed, and stability of equipment	12
	- The setting up of a leased line and wireless technology with high bandwidth of at least 2 Mbps	27
	- The acquisition of basic devices such as a telephone, fax machine, printers, scanners when it's sufficiently needed.	27
	- The installation of all devices matched the needs of users	33
	- The procurement of software and applications such as Internet/web application, word processing, educational and training software	37
	- Power and electric supply in cases of an emergency problem	44
	- The setting up of an air conditioner in order to reduce the operating temperature of the equipment and prevent computer and other devices to be out of order or overheating	47
3	Location	
	- Located in a safe place and be in a good environment	12
	- Have enough space for all equipment that make users feel comfortable when using	18
	- Located in the place with the availability of water, electricity, and a telephone connection	27
	- Located in the community site where local people can go comfortably and is easily accessible.	33
	- Sited in a central location which is close to the main road and the main group of villages	44

Table 27 (Continued)

	Components of Thaitelecentre Management	Priority
4	Strategic Management	
	- The formation of a steering committee in order to make an action plan of a Thaitelecentre	8
	- The arrangement of training programs from basic skills in using a computer to designing web pages in specific content and in a Thai version for local people to learn easily.	8
	- The development of an action plan which included objectives, strategies for achieving, progression of operation such as a list of rules for staff and users, rules for operation, and reviewing this plan every year which conforms to the context of the local community	12
	- Training programs that attract local people to attend and reach their expectation and needs	18
	- A wide range of services that are relevant to the community needs such as informational service, transactional services, and e-Government services free of charge	23
	- The arrangement of a steering committee meeting at least once a month	37
	- The content of service that served the specific needs of local people in community	37
5	Financial support and Budget	
	- The allocation of a sufficient budget from government or external organizations in all kinds of aspects which are human resource, training, and operational expenses such as equipment maintenance and replacement, staff salaries, volunteer's overtime, and marketing costs	8
	- Making a financial plan which contains all expenditures such as capital expenses and operational expenses	27
	- Reporting the actual expenditures every 3 months	37
6	Human Resource Management	
	- The selection of a good manager who has the potential for working in a Thaitelecentre to reach its goal	1
	- The selection of a competent leader who can drive the policy and regulation of a Thaitelecentre into practice	3
	- The procurement of appropriate salaries which are reasonably paid	3
	- The selection of qualified and visionary staff	6

Table 27 (Continued)

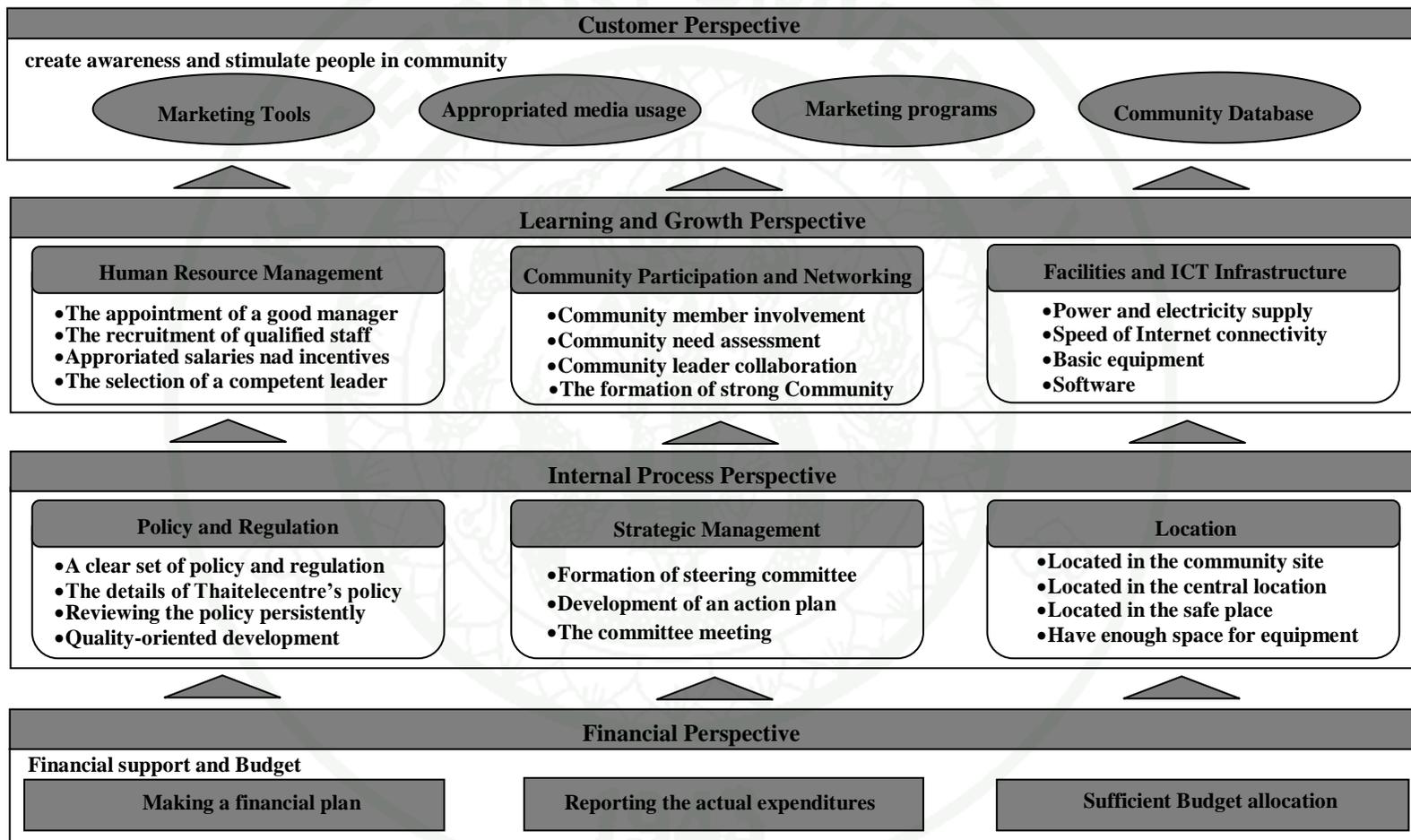| Components of Thaitelecentre Management	Priority
- The selection of a local champion who played a key role in communication with community member to persuade them to come to use the services of Thaitelecentre	12
- The selection of a powerful leader who acts as an IT leader, visionary, and careful manager who actually knows what benefits of a Thaitelecentre are and how it will be useful for all people on a community level	18
- The recruitment of a manager and staff that do their task as a full time job without doing any other jobs at the same time	18
- The procurement of incentives for managers and staff members such as ICT training programs, marketing techniques, and financial operational management in order to develop and improve their knowledge and skills	33
- The motivation of managers and staff by getting them to participate in introducing the new ideas and suggestion	44
7 Community Participation and Networking	
- The encouragement of community members to participate in a Thaitelecentre in various forms such as users, staff volunteers, and an advisory group.	1
- The collaboration with community leader for strengthening participation	3
- The assessment of community needs before providing a wide variety of services and activities	6
- The formulation of "strong community" by establishing forums to share a lot of ideas and bring local product information of each group of community into database of a Thaitelecentre.	12
- The supplement of community organization and other related agencies as Thaitelecentre's partners.	23
- The implementation of a pilot project of ICT training programs to a community committee and community pillar to be aware of the importance of the existing Thaitelecentre	27
- The encouragement of community members to be participant volunteers in a Thaitelecentre	27
- Rewards and incentives to participant volunteers such as earnings and overtime, training courses, free usage of services and equipment, college credits, etc.	37

Table 27 (Continued)

	Components of Thaitelecentre Management	Priority
8	Perception and need	
	- The creation of community members' awareness to know the benefits of a Thaitelecentre by using marketing tools	8
	- The selection of appropriate media to reach the target users. Mass media such as local radio, wireless transmitter, leaflets, and brochures are highly effective for creating general awareness, whereas interpersonal media are more effective for promoting users to come to use the service and increasing the usage level	23
	- The development of long term marketing programs	37
	- The construction of a website and database of the Thaitelecentre such as local product information, weather, health, and educational and vocational information which are relevant to the community needs.	37

Hence, from all of the above, considering the result of the priority setting of problems and components of Thaitelecentre management, the researcher could construct a (draft) Thaitelecentre management model for lifelong learning by means of the principle of balance scorecard. Because it is one kind of an implementation of strategic performance management tools which identify strategies and translate them into action. In addition, it was a framework that allowed the researcher to sort through all kinds of the problems and components into a strategy map in order to construct a management model. The simple four perspectives of a Balance Scorecard were added into the strategy map which consisted of financial, internal process, learning and growth, and customer perspectives. All four perspectives were linked among another. In this model, financial perspective was the first step of Thaitelecentre management. It represented the bottom-line of setting up a Thaitelecentre. While internal process perspective was an important aspect that a Thaitelecentre must have. Internal process could be grouped into three components which were policy and regulation, strategic management, and location. The next step was learning and growth perspective. It is necessary for a Thaitelecentre to improve its performance continuously, so the learning and growth perspective describes how community involvement, ICT technology, and capabilities of personnel and staff combine to

support Thaitelecentre management. Lastly, customer perspective defines the value proposition that a Thaitelecentre will use in order to create people's awareness and stimulate community members to use Thaitelecentre as a source of learning in their daily life. A draft of Thaitelecentre management model was shown in figure 10.

Figure 10 A (draft) of Thaitelecentre management model for lifelong learning of the MICT

G. The verification of Thaitelecentre management model Thaitelecentre for lifelong learning of Ministry of Information and Communication Technology.

In the process of investigation of a Thaitelecentre model, after the model was constructed, it was submitted to a panel of experts in a focus group discussion to verify the model. The researcher conducted a focus group discussion with 5 experts (the name list was in Appendix E). This panel allowed a group of experts to express their perceptions, opinions, and ideas towards a Thaitelecentre management model. The result analysis of experts' opinions was shown in Table 28

Table 28 Summary of experts' opinions

Number of experts	Summary of experts' opinions
1	Agree with this model, but it is not necessary to follow the concept of a Balance Scorecard similarly. In this research, local people in their community are the target group of a Thaitelecentre. So customer's perspective might change to be "user perspective". Ultimate outcome of the study should focus on the well being of a community when using ICT.
2	Agree with this model, but it does not always fit like that. Even though in a financial perspective it was the fundamental basic of the whole perspective, it will not be the driver of every perspective. Any component of Thaitelecentre management in each perspective can come across as financial support and budget. As a result of this, arrows in each perspective might be turned around or passed over among another.
3	Agree with this model. This model is admirable. The results get from this model are used as empirical data. It becomes a starting point of the implementation of problem solving in each crucial variable. Further study for Thaitelecentre management may select some critical problems to solve first. Therefore, in this model, the researcher might put asterisks in front of key components which are primary issues of the priority setting from the result of close-ended questionnaire for Thaitelecentre management.

Table 28 (Continued)

Number of experts	Summary of experts' opinions
4	Agree with this model. It should focus on a Thaitelecentre leader who is the key factor. How can we choose someone between a government officer and a professional executive who is capable of working in a Thaitelecentre. A Thaitelecentre contest may be added as an incentive by giving a reward to an outstanding center in terms of good management in both the Thaitelecenter itself and personnel and staff.
5	Agree with this model. Thaitelecentre management should be relative to the context of community. It should respond to the needs of local people in their community.

Finally, the researcher led the results from opinions of experts above to adjust the model. All the data were pulled together in the construction of the Thaitelecentre management model. This involved the creation of the framework's strategic map which is underpinned by the concept of BSC that the researcher mentioned above. This model was validated through all Thaitelecentre managers and staff who have ultimate responsibility in delivering the Thaitelecentres' strategy and has become an important management tool for the operational imperatives of Thaitelecentres. As shown in Figure 11, a Thaitelecentre management model consists of four levels. It comprises 8 areas which are policy and regulation, Facilities and ICT Infrastructure, Location, Strategic management, financial support and budget, Human resource management, Community participation and networking, and Perception and needs.

Level one: Financial perspective

The bottom up level describes the financial resources that the Thaitelecentre must have to manage its centre's operation as a whole. There is a clear casual relationship between financial resources and sequential aspects at the next three levels. The real connection here is the need to make a financial plan that encompasses a myriad of things in all levels that a Thaitelecentre must accomplish. These include all expenditures and operational expenses such as purchases of computers and equipment, water and electric utility, staff salaries, and marketing cost etc. Managers

and staff are responsible for making this plan and reporting all expenditures every three months. In line with the data from the priority setting of components, allocating a sufficient budget is the key issue to ensure that the centre will run smoothly and reach its goal.

Level two: Internal Process perspective

Dropping down to level two of the model, the research defined the key basic components that a Thaitelecentre must exceptionally have in order to manage a Thaitelecentre. Three key components comprise location, policy and regulation, and strategic management. It is remarkable that strategic management and human resource management in the third level are related inevitably. Looking on the Steering Committee of a Thaitelecentre, the manager must be a part of this committee. The role of the manager is to make an action plan which is one crucial component of strategic management.

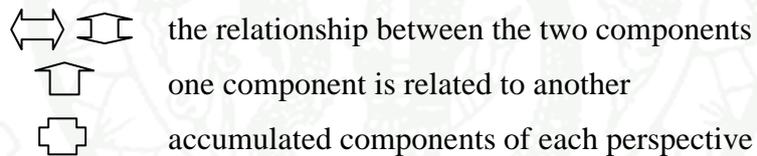**Level three: Learning and growth perspective**

Level three of this model describes those critical few aspects that Thaitelecentres must excel and improve on continuously under the changing situation. Three aspects are identified: human resource management, community participation, and facilities and ICT Infrastructure. From the study, it found that personnel and staff are a vital mechanism for all components of Thaitelecentre management. However, to ensure that people in rural districts can be an integral part of the development of the information society, the installation of all equipment should be provided and actually used when needed. Otherwise, a Thaitelecentre may face with financial problems due to the unnecessary cost. This linked to the reason why a financial plan needs to be done. On the other hand, obviously, people in their community did not see the importance of a Thaitelecentre, while the Thaitelecentre itself did not have any public relations to promote local people to use the services of the center. Thus, the responsibility of personnel and staff members are to work out how people in a community will participate in a Thaitelecentre such as being users, volunteers,

advisers, and so on. In order to create a sense of lifelong learning for every community member, the integration of different kinds of participation should occur.
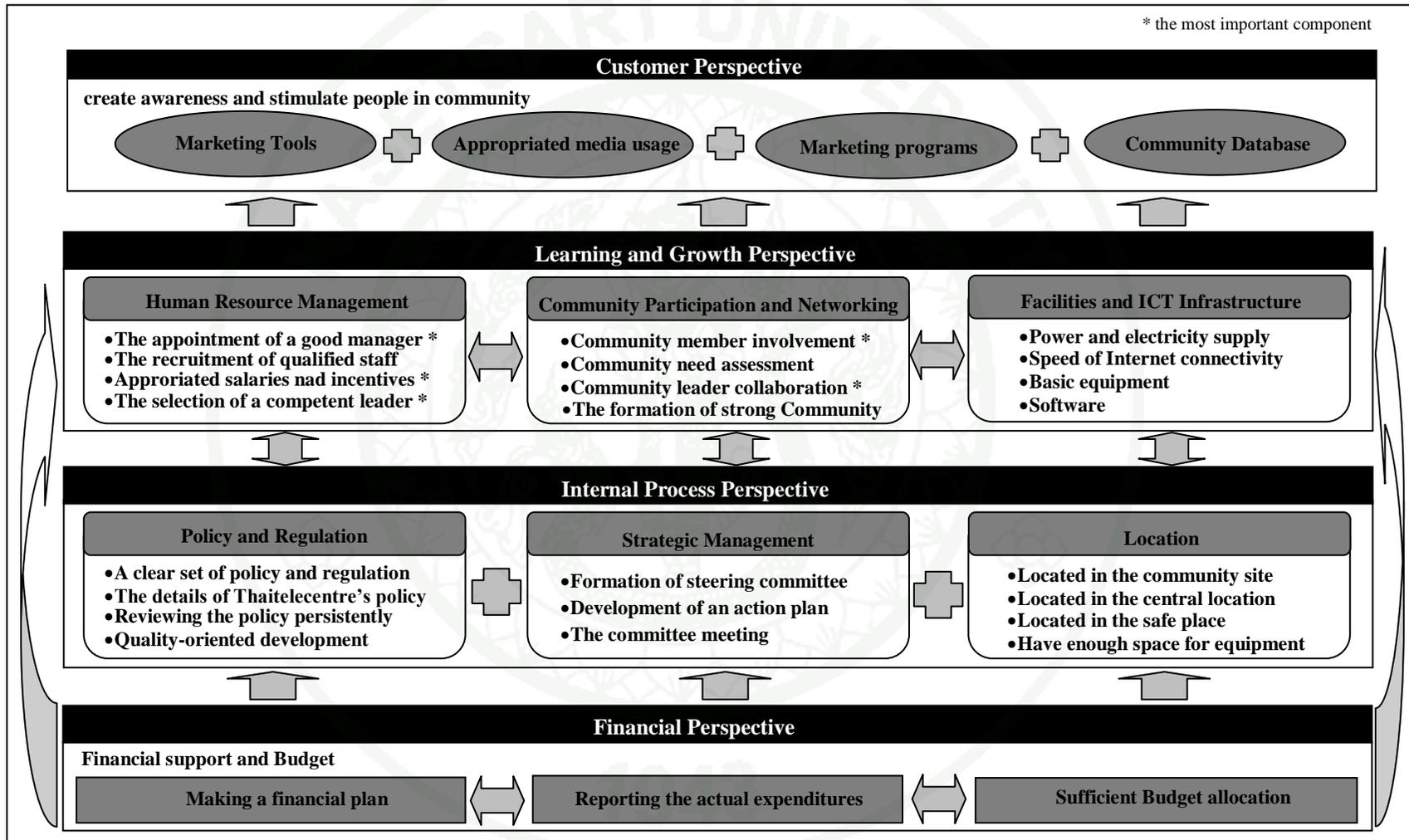
Level four: User perspective

The final level of this model describes a key resource that a Thaitelecentre must manage to serve their stakeholders. From the result of a Thaitelecentre problem in perception and needs aspect, the most critical issue is people in the community didn't see the importance and benefits of a Thaitelecentre. In this research, it is likely that the creation of community members' awareness will be the first duty for the Thaitelecentre manager and staff. Thus, to stimulate the usage and create the awareness, it is important to note that community members must become aware of the telecentre and its services before they will get involved in it.

Remarks: the interpretation of symbols in Thaitelecentre management model

    the relationship between the two components

    one component is related to another

    accumulated components of each perspective

Therefore, the final management model of Thaitelecentre was illustrated in figure 11.

Figure 11 Thaitelecentre management model for lifelong learning of the MICT

Discussion

According to the concept of a Thaitelecentre, it is involved in the creation of ICT knowledge, the utilization of computer, and the promotion of lifelong learning. The idea of providing ICT technology and equipment in a Thaitelecentre to people in rural areas can be an integral part of the development of technology of learning and the information society. The word "learning society" refers to two aspects, the first is learning without schools and the latter is learning by using technology (Spaulding, 1974 cited in Pennee Naireroth, 2007:7). In both ways, Thaitelecentre provided both. From guidelines for implementation of lifelong learning (Office of the National Education Commission, ONEC, 2000), it indicated that it should provide learning sources for all people. Thus, in terms of the learning source, a Thaitelecentre is one kind of a horizontal dimension of lifelong learning sources. The reason behind is there is a place for an involvement of community members to participate in all kinds of learning activities, particularly non-formal education which is continuously active throughout your lifespan. (Knapper and Cropley, 1985 cited in Nittaya Sumretphol, 2004:12).

However, based on the study results, it found that in response to a philosophy of lifelong learning, Thaitelecentres are still facing many obstacles and have a long way to reach their goals. The most part of Thaitelecentre management problem is a leader who drives the policy and regulation of a Thaitelecentre into practice and actually knows what benefits of a Thaitelecentre are and how it will be useful for all people on a community level. Unfortunately, it is difficult to find this leader in a Thaitelecentre.

In a facilities and ICT Infrastructure aspect, it is clear that Thaitelecentres still provided obsolete computers and low speeds of internet. A number of computers were not enough to serve as well as other devices were not provided. Additionally, the Thaitelecentre was not located in a place where community members can go comfortably. A good way to attract and stimulate all people within a community is to build a Thaitelecentre to be a place where people can go comfortably and is easily

accessible; mostly close to the main street, be around the main population in rural areas, or be in the vicinity of an electrical power area (Sumalee Sungsri, 2001).

Furthermore, obviously, people in a community did not see the importance of a Thaitelecentre, while the Thaitelecentre itself did not have any public relations to promote the local people to use the services of the center. Thus, the responsibility of personnel and staff members is to work out how people in their community will take part in a Thaitelecntre such as being users, volunteers, advisers, and so on. In order to create a sense of lifelong learning for every community member, the integration of different kinds of participation should occur (Sumalee Sungsri, 2001). Nevertheless, Suksri Panakul (2006) supported the idea of creating participation within a community, there should be a community board which consists of a community leader, representatives of people from their community, members of local organization, and delegates of other related agencies.

Personnel and staff are one of the big problems. After Thaitelecentres were set up for a while, it was much clearer that a Thaitelecentre could hardly find competent staff members who have ICT knowledge and skills to run the center. In addition, all staff members in the Thaitelecentre were lacking in motivation and incentives in doing their jobs. Following the manual 10 steps of sustainable implementation of Telecenter, the significant importance of the human factor has been highlighted (UNESCO, 2003). Therefore, it is best to seek a qualified manager and staff members to take care of a Thaitelecentre such as managing day-to-day operations, undertaking training when necessary, providing information, assistance, and advice to users, and creating a community database.

Even though, following the concept of lifelong learning, an aggregation of key components emphasized on establishing a Thaitelecentre, providing information technology, providing a wide variety of services and activities, managing budget and financial system, creating people participation, and developing all staff members, a Thaitelecentre cannot be formulated to be a source of learning, if people within their community are not aware of the essentials of learning which can occur anytime and

anywhere in a learning society (Phramahasutid Arpaglo, 2004). For this reason, there should be a linkage between lifelong learning and a Thaitelecentre which is described in Table 29.

Table 29 Summary of the linkage between the Thaitelecentre and lifelong learning theory

Guidance for Lifelong Learning Theory	Thaitelecentre
Build the understanding on lifelong learning to all people and stakeholders in order to adjust their attitude in a lifelong learning issue.	There should be a linkage between learning and a Thaitelecenter. So it leads to build the understanding of learning and the usefulness of a Thaitelecentre to all people in order to adjust their attitude in these two aspects at the same time.
It is harmony and a way of life for all people who can easily access and learn anytime, anywhere.	A good way to attract and stimulate all people within their community is to build a Thaitelecentre to be the place where people can go comfortably and is easily accessible.
Develop sources of learning and establish a lifelong learning network within the community for all people to learn throughout their life span.	There is a place of involvement for all community members to participate in all kinds of learning activities.
Establish technology infrastructure for all people to easily access and to learn thoroughly, continuously, and comfortably anytime and anywhere.	The concept of setting up a Thaitelecentre which is involved with the creation of ICT knowledge and the utilization of computers. The idea of providing ICT technology and equipment to all people in rural areas can be an integral part of the lifelong learning concept.
It should have a wide range of activities which spreads widely to all people.	The center offers training programs of ICT knowledge to all people and provides a wide variety of services that are relevant to the community needs.

Table 29 (Continued)

Guidance for Lifelong Learning Theory	Thaitelecentre
The integration of different kinds of participation for every community member should occur.	It enables all stakeholders within their community to take part in by identifying community needs, letting all people to share their opinions, and working with community leaders who act as middlemen between community members and the Thaitelecentre.
It is necessary to manage the budget and fund system to support the provision of lifelong learning.	The center must be able to have sufficient funds to start its operation and to keep it running.
Develop all staff members who are involved with lifelong learning to have an insight into the principle of lifelong learning.	Qualified staff members, managers, and participant volunteers are vital for Thaitelecentre sustainability.

From the research results, it contributed to the construction of the final Management Model of a Thaitelecentre for lifelong learning of Ministry of Information and Communication Technology relying on Balance Scorecard concept which is divided into 4 perspectives. All components of Thaitelecentre management are classified in 8 aspects which were contained in each perspective. These would are discussed as follows:

Financial Perspective

Financial Support and Budget

In a nonprofit organization such as a Thaitelecentre, the financial perspective was the first fundamental for the operation of a Thaitelecentre. Crucial components for financial support and budget aspects which emerged from the study are allocating a sufficient budget from government or external organizations in all kinds of aspects, making a financial plan which contains all expenditures such as capital expenses and operational expenses, and reporting the actual expenditures

every 3 months. In setting up a Thaitelecentre, the budget must cover all kinds of aspects which involve the facility, ICT infrastructure, human resource management such as the purchase of computers and equipment, water and electric utilities, employee's salaries, and marketing expenses. An insufficient budget can cause a Thaitelecentre's failure. Thus, in order to make sure that a Thaitelecentre will run effectively and to support its operations, the manager and staff are responsible for making a financial plan and reporting the actual expenditures continuously.

Similar to Jensen and Esterhuysen, 2001; Prichard Sivaruk,2002; Jauernig, 2003 pointed out that in operating a telecenter, financial management is a key factor for telecenter sustainability. A telecenter should establish a financial plan which contains all expenditures such as furniture and equipment cost, office expenses (papers, stationary, and so on), facility expenses, salaries, training expenses, marketing and public relations. Moreover, it must keep an eye on having a financial controlling mechanism by reviewing their actual expenditures every 3 months. A telecenter should mobilize funding that will be the operating expenditure continuously. Practically, in the long run if telecenters have to ensure their sustainability, it is necessary for them to be subsidized and granted.

Internal Process Perspective

This perspective focused on three main issues of Thaitelecentre management which comprised location, policy and regulation, and strategic management. All of these are basic components that a Thaitelecentre must have.

Location

Even though the findings of this research found that there was no concern about location of a Thaitelecentre, Barbara and Dennis (2007) described that generally, it is common sense that a telecenter should be located in an appropriate place where local people and users can comfortably go to and access easily. It is clear that if the telecenter is away from local the community, it might hinder participation.

Additionally, Jensen and Esterhuysen (2001) noted that it doesn't matter how a telecenter is, there should be enough space for all equipment provided. In addition, in order to create the right atmosphere, it needs to be safe, cool, secure, and comfortable. A comfortable telecenter with good security and well cared for equipment will attract users and ensure a Telecenter's survival. The equipment must be protected from theft and damage caused by heat and dust.

Policy and Regulation

Based on the research results, one director of Thaitelecentres said that "I think the policy and regulations of a Thaitelecentre must be improved and renewed immediately, in this case I mean MICT should have clear guidance of operation and development" and "Nowadays, the center's operation became as a mistletoe task of municipality. No one can take care of this seriously. The most important thing is you must understand the content of local community first". It resembled the same as Colle (2000) pointed out that in consistencies and unexpected changes in policies and regulations it can also have a huge effect on telecenters or projects that are already struggling to survive. The government must play an important role to make policies and regulations that will enable communities to take advantages of ICT. A framework of establishing a telecenter must have a clear set of regulations in both local and international levels. Colle and Roman (2003) also supported that the details of a telecenter's policy for running and maintaining itself should include 1) the main objective of a telecenter 2) members of management committee and major responsibilities 3) staff member tasks and so on. However, there is a linkage between policy and regulation and human resource management in that the Thaitelecentre leader is a key person to drive the policy and regulation of Thaitelecentre into practice. This leader influences the development of a Thaitelecentre. If the leader sees the importance of the center, the opportunity to drive the policy and regulation of a Thaitelecentre into practice will be viable.

Strategic Management

The variety of factors potentially affecting Thaitelecentre management in this research consists of the formation of a steering committee, the arrangement of training programs, and the development of an action plan, respectively. Jensen and Esterhuysen (2001) stated that the first step in setting up a telecenter is to appoint a permanent Steering Committee. It will be responsible for guiding the whole process of starting a telecenter. A steering committee will normally consist of members of the community who have keen interest in staring a telecenter.

However, it is remarkable that strategic management and human resource management are related inevitably. Looking on the Steering Committee of a Thaitelecentre, the manager must be a part of this committee. The role of the manager is to make the action plan which is one crucial component of strategic management. In that sense, Jensen and Esterhuysen (2001) also mentioned that the steering committee should consist of at least the telecenter manager, a representative from the target group or the broader community, a representative from the local business sector and local institutions such as schools, health, and local governmental organizations and one or more technological expert. According to Colle and Roman (2003), in the developing process of a business plan, the meeting of the steering committee was conducted to determine a strategy for ongoing operation, identify the telecenter's program which reflect the needs and interests of the community, and design a fund-raising plan. However, steering committee meetings should be held once a month to ensure that the day-to-day operation will run smoothly or needs to be adjusted.

Moreover, Jensen and Esterhuysen (2001) indicated that in doing a business plan, every telecenter must have a list of rules for users and staff to ensure that every user gets the full benefits of the telecenter and records are kept so that the telecenter can become sustainable. It is similar to a manager of a Thaitelecentre suggested that "Providing a statistic note of using in order to know an accurate record

of people who come to use the services of the center for daily and monthly use. This can be as backup information for monitoring".

Furthermore, training is an essential requirement for successful Thaitelecentres. It should continue as a regular part of the Thaitelecentre's priorities. Barbara and Foote (2007) confirmed that even a small amount of training can help people understand the benefits of telecenter resources such as internet and other services. Training can also reduce some people's fear of information technology. From the study of Barbara and Foote (2007); Jersen and Esterhuysen (2001) ; Jauernig (2003) can be reviewed that the telecenter should be capable of providing most of the information and communication requirements of the local population to serve for farmers, students, professionals, entrepreneurs, NGOs, community leaders and other members of the community, not even disabled people. For example, a training program for adolescents on how to use the internet may require more varied and shorter activities than for elderly participants. In addition, practice activities would have to be focused around the learners' interests. For example, web service activity on finding market prices for crop products may not be as interesting for a teenager as it might be for a farmer with crops to sell. Finally, it is important to meet participants' expectations and needs, and all these people must leave the telecenter satisfied with the knowledge and skills they have just learned. Thus, a telecenter must offer a wide range of training programs from basic keyboarding to designing web pages as well as self-paced learning opportunities to all people within the community.

Learning and Growth Perspective

This perspective highlighted the main three components of Thaitelecentre management, including facilities and ICT Infrastructure, human resource management, and community participation and Networking.

Facilities and ICT Infrastructure

One major component of facilities and ICT infrastructure requirement is standard of internet connectivity, speed, and stability of equipment. Jauerning (2003) noted that connectivity which means local people in community could search for an abundance of information and could communicate with high speeds of internet without interruption. In this study, the setting up of a leased line and wireless technology with high bandwidth of at least 2 Mbps plays another key role in infrastructure sustainability. Jensen and Esterhuysen (2001) pointed out that using a leased line and wireless solutions, which offer high bandwidth, can make it possible to provide affordable broadband access in many rural areas. Bandwidth becomes another important issue of connectivity. Slow speeds of internet caused by insufficient bandwidth can be very discouraging to the user. A Telecenter must provide a network of at least a bandwidth of 2 Mbps. It will ensure that people in rural districts can be an integral part of the development of the information society. Jensen and Esterhuysen (2001) also pointed out that a basic list of devices that a telecenter should offer are telephone, fax machine, personnel computer and internet access, printers, scanners, and video conferencing equipment etc. However, the installation of all equipment should be provided when it's sufficiently needed. Otherwise, the Thiatelecentre may face with a financial problem due to the unnecessary cost. This is linked to the reason why a financial plan needs to be done. Barbara and Dennis (2007) described that apart from computer and devices, it is important that a telecenter must provide users with software applications with which the users are familiar with or will need to use in their daily life. This study agreed with Harris (2001) and said that software tools must match the needs of the community associated with the use of a suitable language.

Human Resource Management

The selection of a good manager who has the potential to help a Thaitelecentre to reach its goal is the first priority of Thaitelecentre management in the finding of this research. In conformity with Colle and Roman (2003), qualified

telecenter staff and managers are vital for telecenter success. Finding a good manager is probably the most important factor to ensure that a telecenter will achieve its goals. A good manager will have the vision to cooperate with his or her own community and may also move beyond the community as well. It is clear that a Thaitelecentre can be a failure very quickly if the manager does not have the right qualities for the job. In order to find the right person to be a manager of Thaitelecentre, at least, he or she must have various skills such as knowledge and experience in management issues including business plans, annual reports, policy formulation, preparing funding and budgets, computer literacy, and so on.

From the study, it found that personnel and staff is a vital mechanism for all components of Thaitelecentre management. Jensen and Esterhuysen (2001) described that there are certain essential functions that a manager will have to perform for a telecenter 1) manage day-to-day operations 2) show users and other staff how to use all of the telecenter's equipment 3) be responsible for the management, supervision and evaluation of staff members 4) keep up to date with all new developments in the community concerning, evaluation, training, technology, communication, information, and business enterprise 5) undertake training when necessary 6) promote the telecenter 7) plan and coordinate activities to increase the number of telecenter users 8) purchase appropriate hardware and software for the telecenter in consultation with the Steering Committee 9) ensure that the facilities of the telecenter are maintained in good working order 10) provide information, assistance and advice to telecenter users 11) take responsibility for the administration of any money that is paid into the telecenter on a day-to-day basis 12) together with the telecenter steering committee, be responsible for the on-going evaluation of the telecenter 13) attend Steering Committee meetings and present monthly reports on the activities, usage and outcomes of the telecenter and 14) create a community database.

Not only appointing a good manager for telecenter operation, but also hiring telecenter staff is a mechanism for telecenter sustainability. As a result of low salaries paid in rural areas, telecenter staff with very high profile qualification is difficult to be found on the local community. Finding from the study show that the

lack of staff's motivation and incentives in doing their job due to having another job to work simultaneously has been a critical problem of Thaitelecenter management. There were no competent staff members that have ICT knowledge and skills to operate in a Thaitelecenter. Most telecenter manager and staff are not appropriately compensated for their work (Shetty, 2005). Hiring staff that have knowledge and skills in using ICT is a key component of Thaitelecenter management. Jauernig (2003) described that the telecenter should be provided for in many ways to reward and motivate staff members willing to do their job and allow them in using free services.

According to the study of Fabulya (2006) many telecenter employees did not receive even the basic training and nearly 80% of them requested that they would like to attend further training. Ferenc (2010) stated that staff satisfaction, remuneration, career opportunities are strong influencing factors for a telecenter. Poor career opportunities could force staff to leave the center. Jensen and Eterhuysen (2001) confirmed that to prevent staff turnover, telecenters have to provide an appropriate salary to their employees or other incentives for them. It is relative to the result of this research in which the procurement of appropriate salaries which are reasonably paid will be an important factor to Thaitelecentre management model.

Community Participation and Networking

Colle and Roman (2003) mentioned that the key component to a successful participatory process is the involvement of the stakeholders who will use the telecenter, directly or indirectly. In most cases this will include representatives of the entire community correspond to the research result which found that the encouragement of community members to participate in Thaitelecentre in various forms such as users, staff volunteers, and advisory group is the most important component of Thaitelecentre management. To operate Thaitelecentres in the most effective way, the Thaitelecentre manager must continually access the needs of the community to ensure that the center is up-to-date in meeting those needs. One of the best ways to ensure that the emerging needs are met is to ask the community. Jensen

and Esterhuysen (2001) noted that a needs analysis in a community serves the two purposes of collecting assessments from outside the telecenter as well as stimulating participation. Similar to this study, it was clear that the assessment of community needs before providing a wide variety of services and activities to community member is another crucial factor. Based on guidelines for strengthening participation in the telecenter, Jensen and Eterhuysen (2001) also recommended that a telecenter should start work with community leaders who have the potential for collaboration. A group leader is necessary to strengthen an aggregation of network on a community level. The evolution of network stems from a leader who has the capacity to persuade villagers to join together. These leaders will act as the connecting people or focal point between community members and telecenters by providing them with ICT training courses in order to let them be aware of the benefits of telecenters which are related to their life.

In considering another form of participation, Colle and Roman (2003) found that participant volunteers have more significance. Some of these people are high school and college students, retired business people, active and retired school teachers and senior citizens. Encouraging community members to volunteer at the telecenter is an excellent way to promote participation, and to establish community relationships. Jauernig (2003) stated that no telecenter can stand alone, if it does not have a network among each other. Another way of participating is coordinating with community organizations as partners. Their experiences and contacts in the community will help ensure that the telecenter will find the resources and support its need. These organizations include educational institutions, churches, health agencies, libraries, non-governmental organization (NGOs), and farmer's organizations and so on.

User Perspective

Perception and Need

From the result of Thaitelecentre's problems in perception and a needs aspect, the most critical issue is people in the community didn't see the importance and benefits of a Thaitelecentre. According to Jensen Esterhuysen (2001); Colle and Roman (2003); Jauernig (2003), it can be concluded that people in the rural community may get scared of new technologies that they have never seen before. In rural areas, it is indicated that local people, mostly farmers, are not familiar with computers and understand that it is not worth their time and energy to use ICT to solve their problems. In the eyes of community members, sometimes, telecenters are an innovation; on the other hand, it will be strange to the community. Some members of the community will welcome the telecenter with curiosity and be willing to use the services of a telecenter, but the others will see it as a threat. The obstacle here has two parts: awareness that the telecenter exists and awareness of what benefits there are from the telecenter. So it is a difficult task to communicate the benefits of the telecenter to the community.

In this research, it is likely that the creation of community members' awareness will be the first duty of a Thaitelecentre manager and staff members. Responding to the study, Colle and Roman (2003) pointed out that to stimulate the usage and create the awareness, it is important to note that community members must become aware of the telecenter and its services before they will get involved in it. Thus, trying to make the Thaitelecentre relevant to the community environment, all staff members should deal with marketing and awareness building, while identifying and choosing appropriate media to the target users is the basis of the marketing program. There are two basic types of media: mass and interpersonal. Mass media which include television, newspapers, magazines, radio and other information sources are highly effective for creating general awareness, whereas interpersonal channels which are groups of people sharing information, usually in a face to face communication are more effective for promoting attitude or behavioral change.

However, there is no better marketing tool than providing services that match the community needs. It is related to "demand-driven services" that show the community how services can be useful to their life with ICT. For an excellent way of demand driven, Thaitelecentre manager and participant volunteers should build their own websites and databases which are relevant to local users. Data and information that are contained in a website and database should be related to the context of the particular community such as local market prices for grains and crops, pest management plans for local products, data on infestations and animal diseases, weather information, health and environment issues, educational practices and training, and so on. Nevertheless, it is not necessary to try to provide information on everything; it should focus on issues that are the most relevant for the community. Although there is no fixed answer to how much media will be chosen, a telecenter has to choose the media that reaches the greatest number of target users. However, when planning the marketing strategy, it is important to keep the Thaitelecentre budget and media cost in mind.

CHAPTER V

CONCLUSIONS AND RECOMMENDATIONS

Conclusions

This research aims to study the major problems and components of Thaitelecentre management of Ministry of Information and Communication Technology and to construct and verify a management model of Thaitelecentre for lifelong learning of the MICT.

Research Methodology

This research procedure will be divided into two phases which are as follows:

Phase I The study on major problems and key components of Thaitelecentre management of the MICT.

A. Population. Due to the going out of KosumpisaiThaitelecentre, population of the study consisted of 19,883 people in three communities of Thaitelecentres which are Kumpawapi, Jutthurat, and Tabo communities in UdonThani, Chaiyaphum, and NongKhai provinces respectively.

B. Sample of this phase were divided into three groups (a) 252 respondents which came from a table of Krejcie and Morgan (1970) to determine the sample size by using stratified random sampling (b) 18 people in three targeted areas of Thaitelecentres who are purposive sampling from three kinds of user: six are frequent users, another six are non-frequent users, and the last six are non-users. (c) a director and managers of three targeted centers.

C. Research Instruments were used in this phase are case study, questionnaire, focus group discussion and in-depth interview.

D. Data Collection. In cases of case study, questionnaire, and focus group discussion, the researcher went into the field to collect data by observing, recording, and note-taking and asked for cooperation from assistant researcher who helped the researcher to gather all data during the data collection process. As in-depth interview, the research took the letter of approval from Kasetsart University to a director and managers of three targeted centers to ask for collaboration on in-depth interview process.

E. Data analysis. In case study, the researcher used data explanation which described in background and operation of Thaitelecentre management. For questionnaire, the percentage and frequency were used to analyze the collected data while content analysis was applied in analyzing the record transcriptions of focus group discussion and in-depth interview.

Phase II The construction and verification of a management model of Thaitelecentre for lifelong learning of Ministry of Information and Communication Technology

F. Sample of this phase was ten representatives from experts and directors and managers of Thaitelecentres by using purposive sampling.

G. Research instruments used in this study were close-ended questionnaire and focus group discussion. For close-ended questionnaire, the result from phase I was created to be a close-ended questionnaire which was used to prioritize the problems and components of Thaitelecentre management that led to the construction of Thaitelecentre management model. While focus group discussion would be a powerful tool to recheck the Thaitelecentre management model in which it could get rid of the researcher bias and have confirmability from experts and scholars.

H. Data collection. The researcher took official documentation from Kasetsart University to a group of sample to ask for collaboration in responding the close-ended questionnaire and set a focus group discussion to verify Thaitelecentre management model.

I. Data analysis. Mean ($\bar{x}$) and Standard deviation (S.D.) were used to evaluate data from close-ended questionnaire. The result from this questionnaire was used to construct Thaitelecentre management model by means of the concept of Balance Scorecard.

J. The verification of Thaitelecentre management model. The researcher set a focus group discussion to check the details of each perspective of such model in order to get trustworthiness and creditability.

In doing this research, the findings from the study were derived from two phases which are as follows:

Phase I The result of major problems and key components of Thaitelecentre management of the MICT.

Phase II The construction and verification of a management model of Thaitelecentre for lifelong learning of the MICT.

I. Phase I

The result of major problems and key components of Thaitelecentre management of the MICT was relied on a scope of the study by applying the conceptual framework of this research as a guideline. Based on the results from questionnaires and focus group discussion, it could be concluded that the major problems of Thaitelecentre management were assorted to 5 issues which are as follows:

A. Facilities and ICT Infrastructure referred to inadequate computers, obsolete computers, unavailable of other devices such as a printer and a scanner, and low speed of internet.

B. Location referred to inconvenient to commute, narrow space of the center, and the center's atmosphere doesn't attract people to come in.

C. Strategic management referred to unequipped with useful ICT training programs, no advertising for stimulating community members to come to use the services of Thaitelecentre, Be opened in an office hour on weekday but closed on weekend, and no useful community database that responded to the need of community.

D. Personnel and staffs refer to deficient competent staffs to explain users how to use a computer and to train on ICT program.

E. Perception and needs refer to people in community didn't see the importance and benefits of Thaitelecentre, dare not to come to use the services, had their own computers and internet in their houses, didn't know how to use computer and internet, and had no time to come because they have to work.

By the results of in depth interviews (see table 23), it could be concluded that key components of Thaitelecentre management could be classified into 8 aspects which was as follows

A. Policy and Regulation

1. A clear set of policy and regulation in establishing Thaitelecentre in both local and international levels.
2. The details of Thaitelecentre's policy comprised the main objectives of Thaitelecentre, members of the steering committee, major responsibility, and staff member tasks.

3. Reviewing of policy and regulation persistently with relatively to the context of local community.

4. The direction of policy focused on quality oriented development rather than quantity driven.

B. Facilities and ICT Infrastructure

1. Power and electric supply in cases of emergency problem

2. The setting up of air conditioner in order to reduce the operation temperature of the equipment and prevent computer and other devices to be out of order or overheating.

3. Standard of internet connectivity, speed and stability of equipment.

4. The setting up of leased line and wireless technology with high bandwidth at least 2 Mbps.

5. The acquisition of basic devices such as telephone, fax machine, printer, and scanner with actually sufficient for needed.

6. The installation of all devices matched the need of users.

7. The procurement of software and applications such as Internet/web application, word processing, educational and training software

C. Location

1. Located in the community site where local people can go comfortably and easily to access.

2. Sited in a central location where closed to the main road and the main group of villages.

3. Located in the place with the availability of water, electricity, and telephone connection.

4. Located in the safe place and be in the good environment.

5. Have enough space for all equipment that made users feel comfortably when using.

D. Strategic Management

1. The formation of steering committee in order to make an action plan of Thaitelecentre.

2. The development of an action plan which included objectives, strategies for achieving, progression of operation such as a list of rules for staff and users, rules for operation, and reviewing this plan every year which conforms to the context of local community.

3. The arrangement of a steering committee meeting at least once a month.

4. A wide range of services that are relevant to the community needs such as informational service, transactional services, and e-Government services with free of charge.

5. The content of service that served the specific needs of local people in community.

6. The arrangement of training programs from basic skill of using computer to designing web page in specific content and language version for local people to learn easily.

7.   Training programs that attract local people to attend and reach their expectation and needs.

E.   Financial support and Budget

1.   Making a financial plan which contains all expenditures such as capital expenses and operating expenses.

2.   Reporting the actual expenditures in each 3 months.

3. The allocation of sufficient budget from government or external organizations in all kinds of aspects which are human resource, training, and operational expenses such as equipment maintenance and replacement, staff salaries, volunteer's overtime, and marketing costs.

F.   Human Resource Management

1.   The selection of a good manager who have a potential for working to reach Thaitelecentre goal.

2.   The selection of qualified and visionary staffs that have fully responsibility and pay more attention on their own jobs as well as have knowledge and ICT skills.

3.   The recruitment of a manager and staff that do their task as a full time job without doing any other jobs at the same time.

4.   The procurement of appropriated salaries which are reasonably paid.

5.   The procurement of incentives for managers and staff such as ICT training program, marketing technique, and financial operational management in order to develop and improve their knowledge and skills.

6.   The motivation of managers and staff by giving them to participate in introducing the new ideas and suggestion.

7. The selection of local champion who played a key role in communication with community member to persuade them to come to use the services of Thaitelecentre.

8. The selection of a competent leader who can drive the policy and regulation of Thaitelecentre into practice.

9. The selection of a powerful leader who acts as IT leader, visionary, and careful manager who actually know what benefits of Thaitelecentre are and how it will be useful for all people in community level.

G. Community Participation and Networking

1. The encouragement of community members to participate in Thaitelecentre in various forms such as users, staff volunteers, and advisory group.

2. The assessment of community needs before providing a wide variety of services and activities.

3. The collaboration with community leader for strengthening participation.

4. The implementation of a pilot project of ICT training programs to community committee and community pillar to aware of the importance of the existing Thaitelecentre.

5. The formulation of "strong community" by establishing forums to share a lot of ideas and bring local product information of each group of community into database of Thaitelecentre.

6. The supplement of community organization and other related agencies as Thaitelecentre's partners.

7.   The encouragement of community member to be participant volunteers in Thaitelecentre.

8.   Rewards and incentives to participant volunteers such as earning and overtime, training courses, free usage of services and equipment, college credit.

H. Perception and need

1.   The creation of community members' awareness to know the benefits of Thaitelecentre by using marketing tools

2.   The selection of appropriated media to reach the target users. Mass media such as local radio, wireless transmitter, leaflets, and brochures are highly effective for creating general awareness, whereas interpersonal media are more effective for promoting users to come to use the service and increasing the usage level.

3.   The development of a long term marketing program.

4.   The construction of website and database of Thaitelecentre such as local product information, weather, health, and educational and vocational information which are relevant to the community needs.

II. Phase II

The construction and verification of a management model of Thaitelecentre for lifelong learning of the MICT.

In this process, the construction of a management model of Thaitelecentre was derived from the results of phase I and close-ended questionnaire with 5 rating scale which determined the priority setting of problems and components. The result of the questionnaire pointed out that all components of Thaitelecentre management were highly important which allow the researcher to assort all kinds of the problems and components into strategy map in order to construct a management model. Additionally, the research used expert focus groups to verify the model; consequently, the final of Thaitelecentre management model was shown in Figure 12.
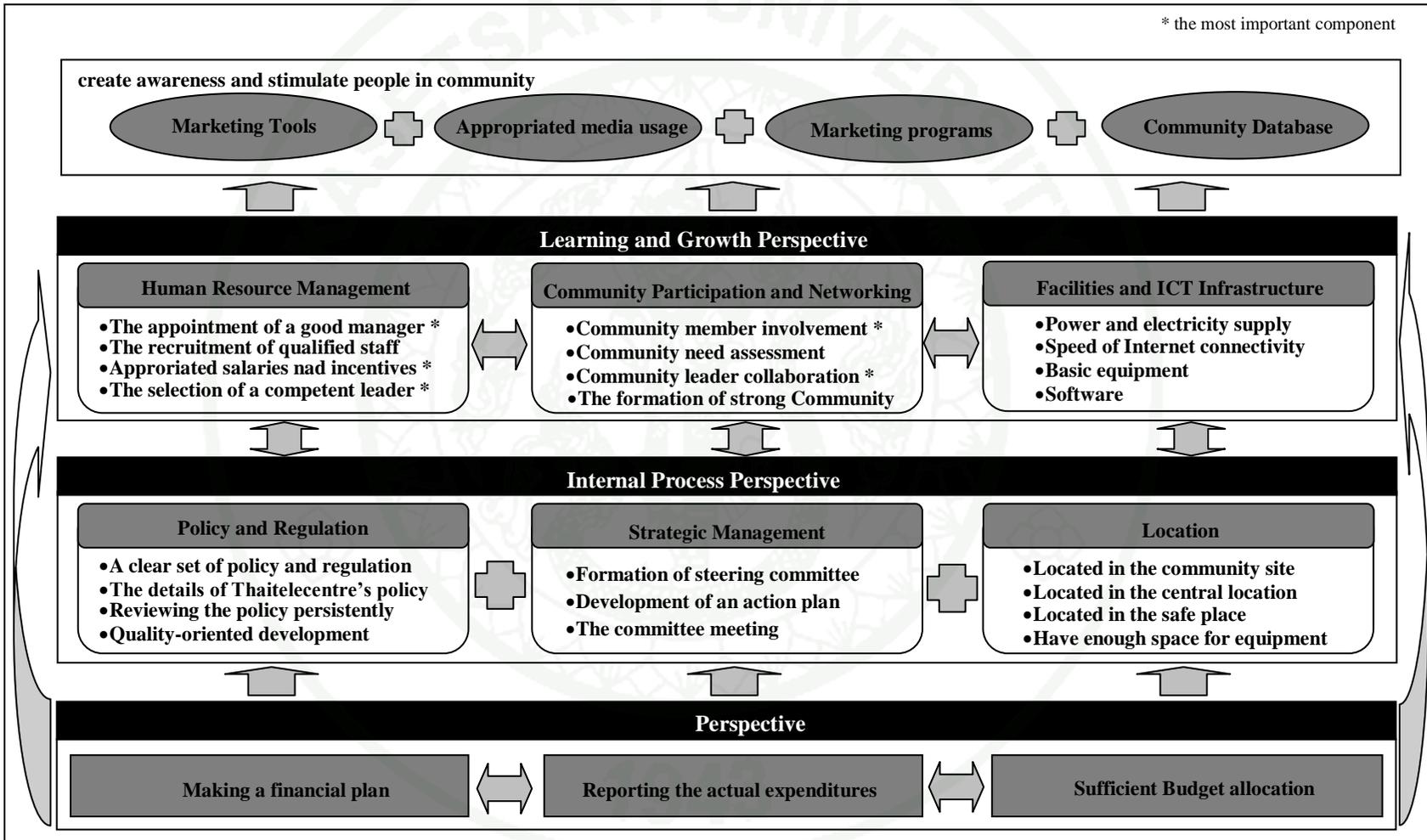
Figure 12 Thaitelecentre management model for lifelong learning of the MICT

The detail of a management model of Thaitelecentre was described in Table 30

Table 30 The detail of Thaitelecentre management model

Perspective	Details
	Financial support and budget
Financial Perspective	a) Thaitelecentre should establish financial plan which contains all expenditures such as capital expenses (purchase of equipment, furniture, electricity, telephone connection, etc.) and operational expenses (salaries, equipment maintenance and replacement, marketing costs, telecommunication costs, and training expenses).
	b) It must keep an eye on having financial controlling mechanism by reviewing the actual expenditures in each 3 months.
	c) The budget should be allocated sufficiently to operate and develop Thaitelecentre in all kinds of aspects such as human resource, training, and operational expenses such as equipment maintenance and replacement, staff salaries, volunteer's overtime, and marketing costs. In terms of financial sustainability, it is necessary for Thaitelecentre to be subsidized and granted by government and external organizations which support funding in normal kinds of budget such as purchase of equipment, training expenses, staff costs, and so on.
	Location
Internal Process Perspective	a) Thaitelecentre should be located in the community site where local people can go comfortably and easily to access.
	b) The site of Thaitelecentre should be in a central location where closes to the main road and the main group of villages.
	c) It has to concern with the availability of water, electricity and telephone connection.
	d) It must be safe, cool, secure, and comfortable place in order to create the right atmosphere for all users to come in with good impression and want to visit again and again.
	e) It should be enough space for all equipment provided and for users feel comfortably when using.

Table 30 (Continued)

Perspective	Details
	Policy and Regulation
	a) A framework of establishing Thaitelecentre must have a clear set of policy and regulation in both local and international levels.
	b) The details of Thaitelecentre's policy for running and maintaining itself should be included:
	(1) the main objectives of Thaitelecentre
	(2) members of steering committee and major responsibility
	(3) staff member tasks
Internal Process Perspective	c) It should be improved and renewed persistantly and it should be relied on particularly guidance for development and is relatively to the context of local community.
	d) The direction of policy should focus on quality-oriented development rather than quantity-driven. It is not necessary to cover all country, but it should emphasize on quality issue in each Thaitelecentre.
	Strategic Management
	Business Plan
	a) The formation of the Steering Committee to make the business plan. The Steering Committee consists of Thaitelecentre manager, representative from community members, local organizations such as schools, health agencies, and local government organizations, and one or more technology experts

Table 30 (Continued)

Perspective	Details
Internal Process Perspective	b) The development of a business plan. The key component of business plan includes determining a strategy for ongoing operation and evaluation, identifying services and programs which reflect the needs and interests of the community, and designing a fund-raising plan. Examples of strategies for doing business plan should include a list of rule for staff and users, rules for operation, the daily and month report which describe the activities, its equipment, and problems such as complaints and frequent faults, and a statistic note of using which will be supporting information to monitor and evaluation plan. It should be reviewed every year which conforms to the context of local community. c) The steering committee should be held once a month to ensure that day-to-day operation will be run smoothly or needed to be adjusted. **Services** a) Thaitelecentre must provide a wide range of services that are relevant to the community needs such as informational services, transactional services, and e-Government. All services should be provided free of charge. b) The content of services must be developed locally in order to serve the specific needs of local people in community c) The arrangement of training programs as a regular part of the telecenter priority from basic skills of using computer to designing web page which are relatively to all kinds of people within community. Training programs should be created in specific content and language version for local people to learn easily. d) It is essential for Thaitelecentre to make sure that training programs will attract local people to attend and reach their expectation.

Table 30 (Continued)

Perspective	Details
	Facilities and ICT Infrastructure
Learning and Growth Perspective	**Power and Electricity** a) It should be concerned about power and electricity supply in order to keep all devices running when short power failure, besides minimum requirement such as the availability of a reliable power source. b) Thaitelecentre must have air-conditioned facility in order to reduce the operating temperatures of the equipment and prevent computer and other devices to be out of order or overheating. **Hardware and Software devices** a) Minimum standard of connectivity, speed, and stability of equipment have to be fulfilled. b) At least leased line and wireless technology which offer high bandwidth should be set up. It must be provided a network with a bandwidth of 2 Mbps. c) A basic list of devices that should be provided in Thaitelecentre is telephones, fax machine, personnel computer and internet access, printers, scanners, and video conferencing equipment. All equipment within Thaitelecentre should be matched the needs of users. d) The installation of these equipment should be provided in actually use and sufficient for needed. e) Thaitelecentre must provide users with software applications. A choice of applications that users can be able to access is Internet/Web application, word processing, desktop publishing, and educational and training software.
	Human Resource Management
	Manager and Staff a) Thaitelecentre must find a good manager who is a part of the Steering Committee to take responsibility for day-to-day operation. The Steering Committee members will select and appoint a properly manager who have a potential for working to reach its goals.

Table 30 (Continued)

Perspective	Details
Learning and Growth Perspective	b) The selection of qualified and visionary staffs that have fully responsibility and pay more attention on their own jobs as well as have knowledge and ICT skills should be selected. The essential functions of manager and staff to perform may include manage day-to-day operation, undertake training, plan to purchase equipment, advise users on how to use computer and other devices, create a community database, and so on c) Manager and staff should do their tasks as a full-time job without doing any other jobs at the same time. d) Thaitelecentre has to provide appropriated salaries which reasonably paid to its manager and staff members in order to prevent turnover rate of employment. e) Thaitelecentre should provide equipment, services, and training programs to reward and motivate manager and staff members to willing to do their jobs and allow them for free usage. Manager and staff should be trained in ICT skills and computer, equipment and application management, financial operation, and marketing technique. Training programs should be conducted when necessary and continuously in order to develop and improve their knowledge and skills. f) The motivation of managers and staff by giving to participate in sharing the new ideas and suggestion about services weaknesses and improvement of Thaitelecentre is another way to motivate. **Thaitelecentre Leader and Local Champion** a) Thaitelecentre find and work with "local champion' who will play a key role in communication with the community to understand the concept of Thaitelecentre. The local champion is someone trusted by the community and will have a potential to share a vision for the future, see a picture, and support technology solutions for Thiatelecenter success. He or she can convince people in community to come to use the service of Thaitelecentre. b) Thaitelecentre must have a competent leader who can drive the policy and regulation of Thaitelecentre into practice which is a key issue for Thaitelecentre's sustainability.

Table 30 (Continued)

Perspective	Details
	c) The powerful leader must act as IT leader, visioner, and careful manager who actually know what benefits of Thaitelecentre are and how it will be useful for all people in community level.
	Community Participation and Networking
Learning and Growth Perspective	**Stakeholder Involvement**
	a) Every community member should be encouraged to participate in Thaitelecentre in various forms which include participants as users, staff volunteers, and advisory groups. These people can be representative from community members, community organizations, teachers, students, and other professionals in ICT skills, etc.
	b) Thaitelecentre must assess the needs of the community before providing a wide variety of services and activities to them in order to ensure that participation will meet those needs by letting them share their opinions, analyzing, providing information, planning and making decisions, translating finding, and carrying out action strategies of Thaitelecentre.
	c) It should start work with community leader for strengthening participation. A group leader is necessary to strengthen an aggregation of network in community level. These leaders who act as the connecting person between community members and Thaitelecentre will have a capacity to persuade all people to join together in Thaitelecentre by providing them with ICT Training programs in order to let them aware of the benefits of ICT and Thaitelecentre which related to their life. Consequently, they will translate knowledge which just learned from Thaitelecentre to their community members and convince their members to use the services. Community leaders who are a part of the Steering Committee will involve in planning
	d) Thaitelecentre should drive community committee and community pillar to aware of the importance of existing Thaitelecentre by implementing a pilot project of ICT training programs to this group. This group can be a mouthpiece or spokesperson to communicate and magnify knowledge which gained from Thaitelecentre. The meeting of committee should be held every week in order to review the existing problems and find the solution together. Thaitelecentre issue must be included in the meeting agenda.

Table 30 (Continued)

Perspective	Details
Learning and Growth Perspective	e) Building "strong community" as a preceding process to support the community participation by working with a number of groups in community, building links between them and Thaitelecentre, and establishing forums to share a lot of ideas for their community. In case of community involvement in Thaitelecentre, local product information of each group of community can be transformed into database of Thaitelecentre. This database will provide a wealth of knowledge and information that are relevant to their livelihood f) Community organizations and other related agencies can support and coordinate with Thaitelecentre as partners. These organizations include educational institutions, churches, health agancies, local libraries, non-governmental organizations (NGOs) as well as farmer's organizations, and so on. The association example of non-formal education institution is to create a certain curriculum of ICT training for Thaitelecentre exclusively. **Thaitelecentre Volunteers** a) Encouraging community members to be participant volunteers at the Thaitelecentre is another way to promote participation, and to establish community relationships. Participant volunteers can be high school and college students, retired business people, active and retired school teachers and senior citizens. The contribution of volunteers is operating day-to-day basics of Thaitelecentre, fundraising, running training programs, and doing marketing and public relation plan. b) Rewards and incentives to participant volunteers is an important issue to meet the volunteer's expectation and satisfaction and to keep them working in Thaitelecentre as long as possible. The example of incentives are volunteer's earning and overtime, training courses, free usage of services and equipment, college credits in the local university for student volunteers, or discounts contributed by local merchants.

Table 30 (Continued)

Perspective	Details
	Perception and need
User Perspective	a) Manager and staff must persuade community members to know the benefits of Thaitelecentre in order to create awareness and stimulate the usage. The action of marketing and awareness building should be built on how to make the benefits of Thaitelecentre's relevance to people in community. Specifying marketing objectives is the first step of building awareness. In the case of people awareness, Thaitelecentre should introduce and publicize itself to every member in community continuously by using marketing tools. b) Thaitelecentre has to identify and choose appropriated media to reach the target users. Mass media are highly effective for creating general awareness, whereas interpersonnel channel are more effective for promoting attitude or behavior change. In using mass media, local radio and wireless transmitter together with leaflets and brochures can attract people's awareness and attention. In other word, by means of word of mouth, interpersonnel media. It can bring new users to come to use the services of Thaitelecentre and increase the usage level at the same time. c) The marketing toolkit which is an important thing in a long term of marketing programs must be developed. It contains the key marketing information and materials that is available to use again and again. This may consist of telecenter fact sheet, number of staff and type of services. d) The "demand-driven services" concept should be provided to the community on how services will be useful for them. Staff and participant volunteers must build website and database of Thaitelecentre. Data and information that contained inside website and database should be related in the context of the particular community and should be useful for making a job and generating income of local people. The details of database are local product information, weather, health, and educational and vocational information. Database should include a collection of application software, e-content, and reference materials as CD Rom which is relevant for responding to local need.

Recommendations

In recommendation, the main management actions which could be undertaken include:

Policy level

A. From the study, there were hardly successful experiences with Thaitelecentres that were managed by Municipalities. Generally, if the municipality has resources, a commitment from local authorities to maintain the center may be sufficient. But this was not always the case. Therefore, the key to success should lie in keeping the operation of Thaitelecentre independent from the mayor's office and reducing the potential for political interference by supporting the implementation of Thaitelecentre with a systematic action plan in a sustainable management model.

B. Specific attention to the community participation was extremely important. Because community participation is an on-going process, while the needs and desires of a community are also continually changing. One of the best ways to ensure that the emerging needs are met is to ask the community. This can be done by making participation as a part of the management policy of Thaitelecentre.

Thaitelecentre level

C. It was evident that the main problem in Thaitelecentre management is the lack of public relation in order to promote local people to use the services of Thaitelecentre. The most challenging of Thaitelecentre is how it can build people in community think about Thaitelecentre's relevance to them. Then, an effective way to increase people's awareness to Thaitelecentre is marketing program that could play an important role in stimulating communities of the benefits to be gained through information technologies. Technology is the medium, but advertisements in local paper, on the local radio, pamphlets, are all examples of basic marketing idea to create awareness of community members.

D. It is not reasonable to expect Thaitelecentres to expand quickly and spontaneously enough in rural areas. Quality-driven must come first. To ensure that Thaitelecentre is sustainable, MICT should make sure that Thaitelcenter starts off correctly. The starting point should be the appointment of a competent leader who will be responsible for guiding the continuous development of Thaitelecentre. Even though, Thaitelecentre staff with very high profile qualification is difficult to be found particularly in the rural area. Qualified Thaitelecentre staff and managers are vital for its success. All staff should be made familiar with the mission and goals of Thaitelecentre as well as with procedures and best practices.

E. In the concept of lifelong learning, Thaitelecentre is a good source of informal learning. The center can foster high levels of computer literacy which increase community involvement and people awareness in using ICT. Thaitelecentre should provide an important supplement to informal education system. Therefore, ICT training programs should be geared primarily toward all people in rural community. The lack of knowledge about use of the Internet and computer is not a serious obstacle for young or well-educated adult users. For Thaitelecentre serving rural area, training program for novice adult users may be essential.

Future Study

Some suggestion concerning future areas of research that arose from this study were the following:

F. The area of study: it might study from a wealth of success experiences in any other community telecenter as best practice in order to collect key success factors of community telecenter comparison with Thaitelecentre of Ministry of Information and Communication Technology.

G. The use of the research methodology: quantitative research might be used to gather key variables of Thaitelecentre management by using factor analysis.

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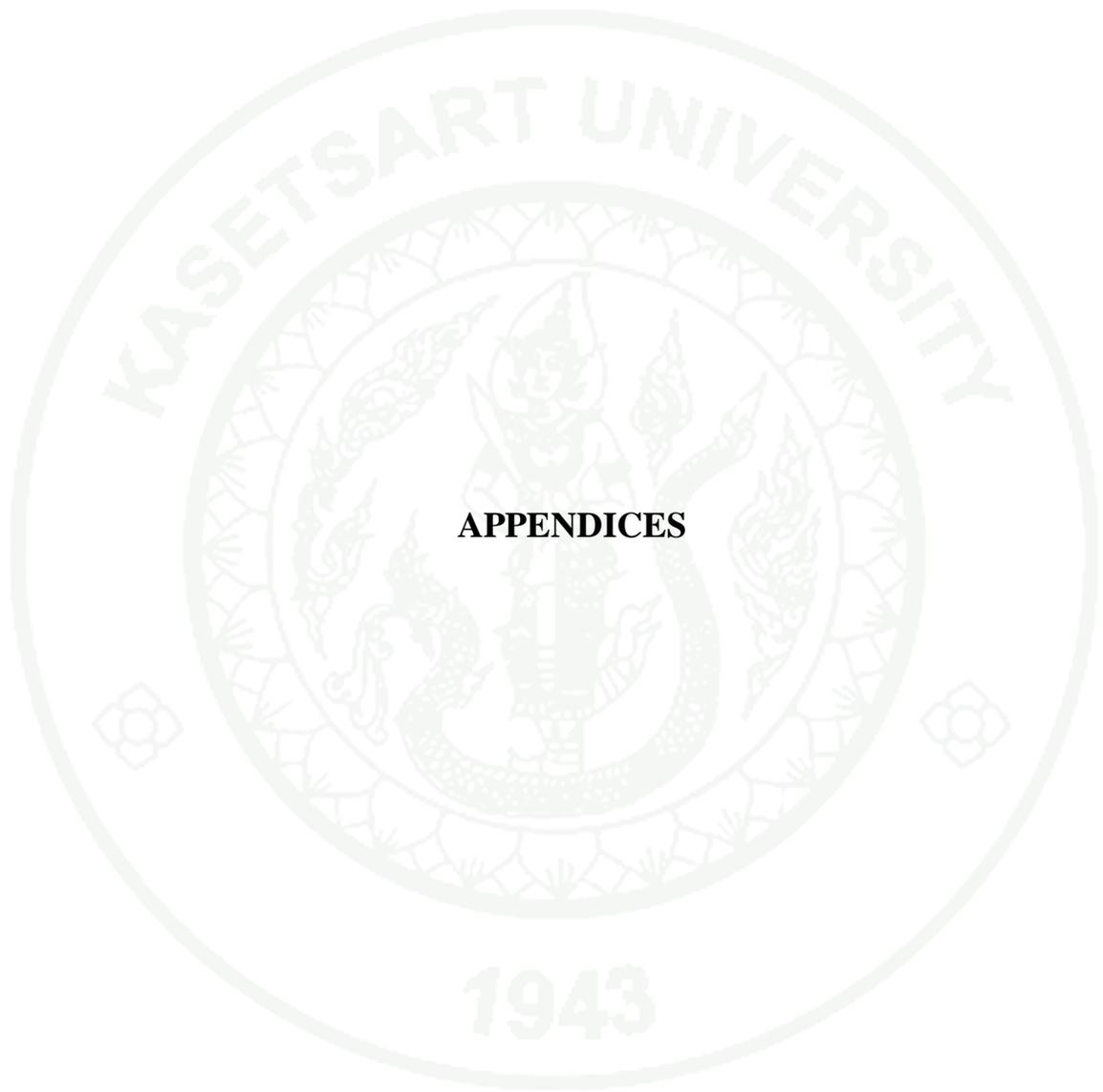
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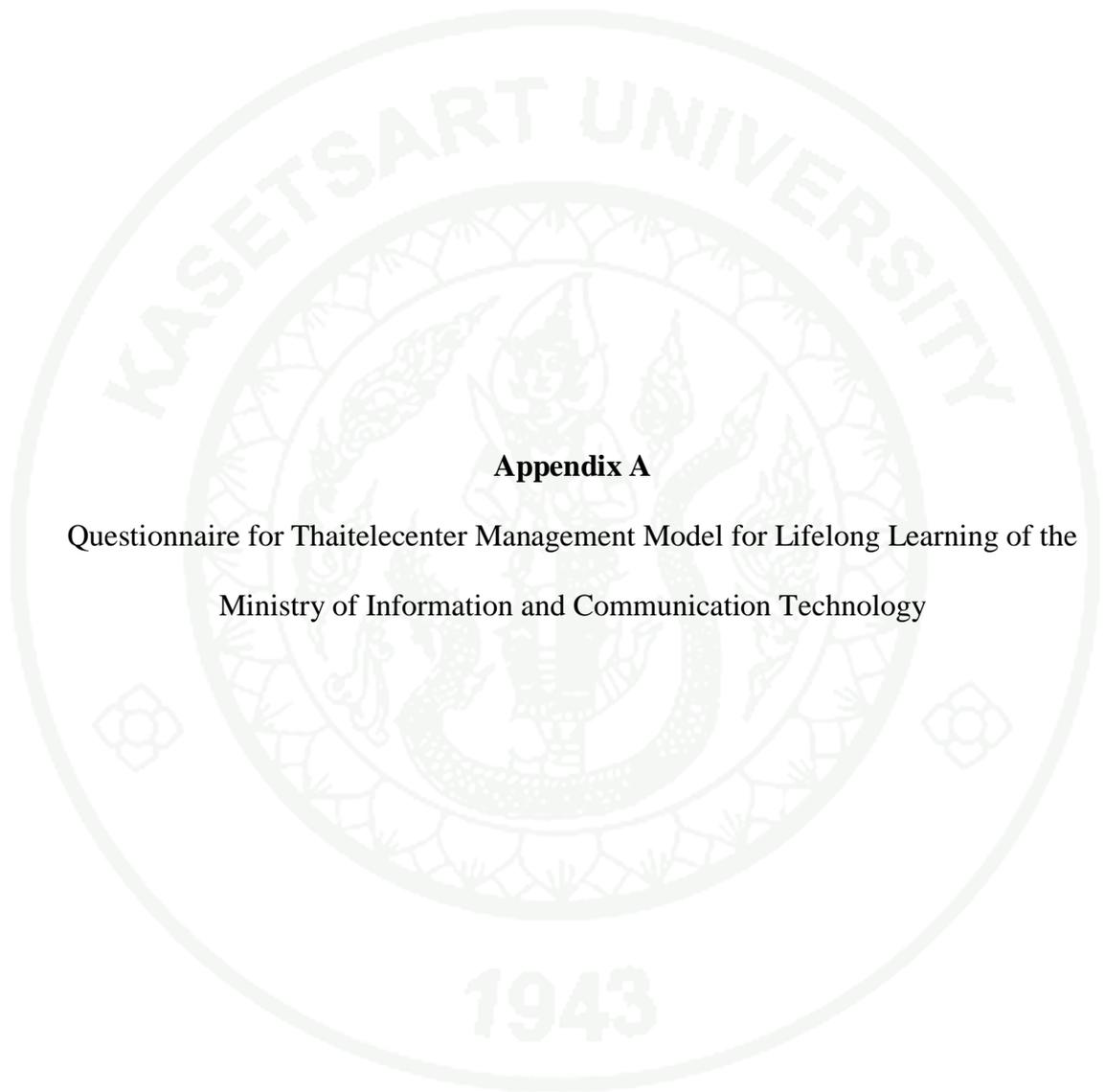
Appendix A

Questionnaire for Thaitelecenter Management Model for Lifelong Learning of the

Ministry of Information and Communication Technology

Questionnaire for

Thaitelecentre Management Model for Lifelong Learning of the Ministry of

Information and Communication Technology

Part I: Background Information

Instruction: Please would you take some time to answer the following questions by making a mark ( ) below.

1. Gender   ( ) Male   ( ) Female
2. Age

         ( ) under 10   ( ) 10-20

         ( ) 21-30   ( ) 31-40

         ( ) 41-50   ( ) over 50

3. Education Level

         ( ) Componentary Level   ( ) Secondary Level

         ( ) Vocational/ High Vocational Certificate

         ( ) Bachelor Degree

         ( ) Higher than Bachelor Degree

         ( ) Other - please specify ………………………………

4. Occupation

         ( ) Student/College student ( ) Entrepreneur/Ownership

         ( ) Agriculturist   ( ) Employee

         ( ) Government Officer/State Enterprises

         ( ) Other - please specify ………………………………

Part II: Opinion Questionnaire for problems of Thaitelecentre Management of the Ministry of Information and Communication Technology.

5. Do you know about Thaitelecentre?

    ( ) Yes   ( ) No [end of questionnaire for respondent who doesn't know]

    If *yes*, how do you know about Thaitelecentre?

    ( ) From my acquaintance   ( ) Close to my house

    ( ) By the media   ( ) by community radio

    ( ) Other-please specify…………………………………………………………..

6. Have you ever used services in a Thaitelecentre?

    ( ) Yes [please answer on question 8-11]   ( ) No [please answer on question 7]

7. If you answer *no* to question 6, what are your reasons? (Could answer more than 1)

    ( ) Unaware of usefulness.

    ( ) Inconvenience to commute into Thaitelecentre.

    ( ) No time to use.

    ( ) Unfamiliar or unable to use computer and internet.

    ( ) I have my own computer and internet at home.

    ( ) The services and activities provided did not match the requirement.

    ( ) Other- please specify ………………………………

    [End of questionnaire for respondent who hasn't ever used its services]

8. If you answer *yes* to question 6, how often do you use a Thaitelecentre per week?

    ( ) 1-2 times   ( ) 3-4 times   ( ) more than 4 times

9. What are your purposes to use a Thaitelecentre? (could answer more than 1)

    ( ) Playing games on computer and internet.

    ( ) Doing homework/assignment on the computer.

    ( ) Searching information

    ( ) Chat and sending e-mail to others.

    ( ) Training

    ( ) Other- please specify……………………………………………….

10. Are you satisfied with the services of Thaitelecenter?

    ( ) yes   ( ) No

    If *no*, please indicate what problems you have found?

    ( ) Inadequate a number of computers

    ( ) Out of date computers

    ( ) Speed of internet

    ( ) Unavailability of facilities such as telephones, a fax machine, and a printer.

    ( ) Uncomfortable to commute

    ( ) Narrow space

    ( ) No electronic content that does not match the requirement.

    ( ) Unequipped with useful training programs.

    ( ) Inefficient and incompetent staff members who are unable to train in the use of ICT programs and services.

    ( ) Other- please specify ………………………………………………….

11. Do you have any comments about Thaitelecentres in order for it to improve and run more effectively?

…………………………………………………………………………………

…………………………………………………………………………………

………………………………………………………………………………..
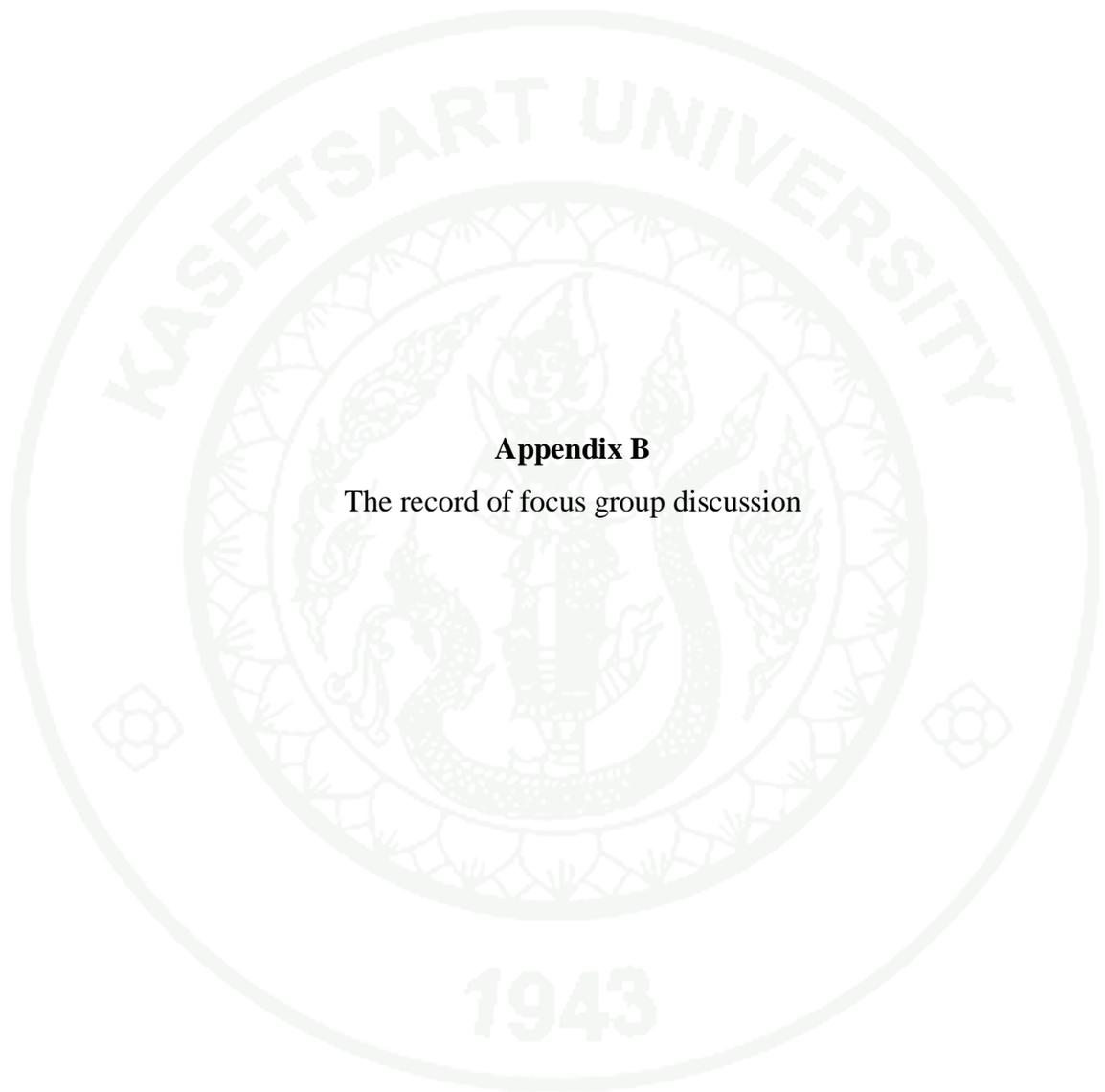
Appendix B

The record of focus group discussion

The record of focus group discussion

On Tuesday, October 27, 2009

At the Kumpawapi Thaitelecenter, Udon Thani

A. Name lists of participants

No	Name	Age	Occupation	Type of user	Purpose to use
1	Rodjanan promkeaw	12	student	Frequent user	Playing games and Searching for information
2	Bungon Triyothee	13	student	Frequent user	Searching for information
3	Jeerapa Buthrasrising	13	student	Non-frequent user	Playing games and Searching for information
4	Chawanrat Poonsiri	11	student	Non-frequent user	Playing games
5	Nava Triyothee	39	Municipal employee	Non-user	Have to work and don't have time to use it
6	Sutthisuk Prapun	35	Employee	Non-user	Have to work and don't have time to use it

B. Transcription of focus group discussion

Issue 1: Facilities and ICT Infrastructure

(From your view points, are you satisfied with the service of the center and what more would you like from it?)

a) Not much, because during the period of school holidays, there are a lot of people who come to the center which results in an inadequate number of computers, if possible, the center should provide more computers to all users.

b) Sometimes, there are long queues and have to wait to use the computers.

c) The center should provide a printer which would help students print out some useful information when needed.

d) A number of existing computers in the center is not enough.

e) Need more high speed Internet access and the center could do with a broadband internet system that has more speed than its current one.

Issue 2: Personal and staffs

(Do you think that now all staff members can serve your requirements? And what do you want from them?)

a) It looks like all staff members don't have much ICT skills. These people cannot teach or even give advice on the basics of using a computer.

b) Every time when users come, all staff members always sit behind their counter and seem to do nothing except to listen to the radio.

c) There are three staff members who manage the center; unfortunately, no one can give any advice to users on how to effectively use a computer.

Issue 3: Strategic management

(Since you have used the services of the center, what other kinds of services could be provided or improved? Can it be a source of lifelong learning?)

a) Besides, the provision of computers and internet, the center should provide training programs from basic skill sets to an advanced program level to students and people in the community.

b) Despite personally having a computer, if the center provides interesting programs that are relevant to their life, those who have personal computers will still get involved with the center.

c) In the future, if the center has a community database and software packages that could assist children in the community to develop their educational skills especially in mathematics and science skills, students will come to join the center.

d) To create electronic educational content for school kids in different kinds of subjects, school students can practice their lessons apart from learning in the classrooms. This can support a lifelong learning concept.

e) For those who are unable to access, if the center offered a training program on how to use a computer and explained what benefits they would gain from using it, they might come to the center

Issue 4: Usage and Perception

(Why didn't you ever use the service of the center? And do you think that you can change your mind to come and visit the center in the near future?)

a) Not every member in the community can access computers and the internet. In rural areas, the majority of people are agriculturists. Most of them don't even know how to use computers and the benefits that they could gain from them.

b) It can be seen that local people don't use the service of the center because they have to work hard and don't know how it can improve their daily life.

c) If the center built a community database that is related to their livelihood, they may come.

d) It doesn't mean that this is not useful, but they don't have time to come in because of other work requirements.

The record of focus group discussion

On Wednesday, October 28, 2009

At the Jutthurat Thaitelecenter, Chaiyaphum

A. Name lists of participants

No	Name	Age	Occupation	Type of user	Purpose to use
1	Ravin Kreutanavit	31	Government officer	Frequent user	Chatting and using e-mail
2	Nattapoom Junya	21	Employee	Frequent user	Searching information
3	Vitoon Pikun	29	Government officer	Non-frequent user	Searching for information
4	Ratchadaporn jareuntho	33	Employee	Non-frequent user	Searching for information
5	Nichapa Hongsakeaw	31	Government officer	Non-user	-
6	Sudavadee Kiengkeaw	27	Government officer	Non-user	-

B. Transcription of focus group discussion

Issue 1: Facilities and ICT Infrastructure

From your view points, are you satisfied with the service of the center and what else would you like?)

a) A lot more computers need to be requested.

b) At the end of semester, many students come to use the service of the center which results in non-availability of computers and internet.

c) High demand in computer use when crowded can result in internet failure.

d) The existing computers are obsolete, they should be upgraded.

e) The center should provide a number of computers which meet the needs of users. Otherwise, the students will return to the services of internet cafés.

f) The site of the center is suitable for people in the community to access, but the center should replace old computers and buy new ones instead.

g) Ministry of Information and Communication Technology should take into account in providing sufficient modern computers and other devices as well as sending a technician for equipment maintenance at least every 3 months.

Issue 2: Strategic management

(Since you have used the services of the center, what other kinds of service could be provided or improved? And how can you stimulate every member in the community to use the services of the center?)

a) The center should provide a basic training program for all people in the community.

b) Train children and teenagers in computer use and ICT programs. Experts and lectures should cater to them several times a year.

c) One thing that the center can do is advertising. In order to attract local people to see the importance of using computers and the internet, the center should ask for cooperation from community leaders and members from the sub-district administrative organization to publicize the center to community members by circulating letters and leaflets.

Issue 3: Usage and Perception

(Why didn't you ever use the service of the center? And do you think that you can change your mind to come and visit the center in the near future? And in your opinion, what would you like to change in the center to be a source of lifelong learning?)

a) It is not necessary to come to use the service of the center, because most of participants have their own computers and internet in their houses.

b) In rural areas, the big problem here is almost all of the people who are unaware and don't see the benefits of ICT are agriculturists. Most of them have to make a living and having computers and internet is not a necessity.

c) If the center fosters and educates adolescents and people in the community to realize the benefits gained from using computers and internet, this will make the center be a source of learning more or less.
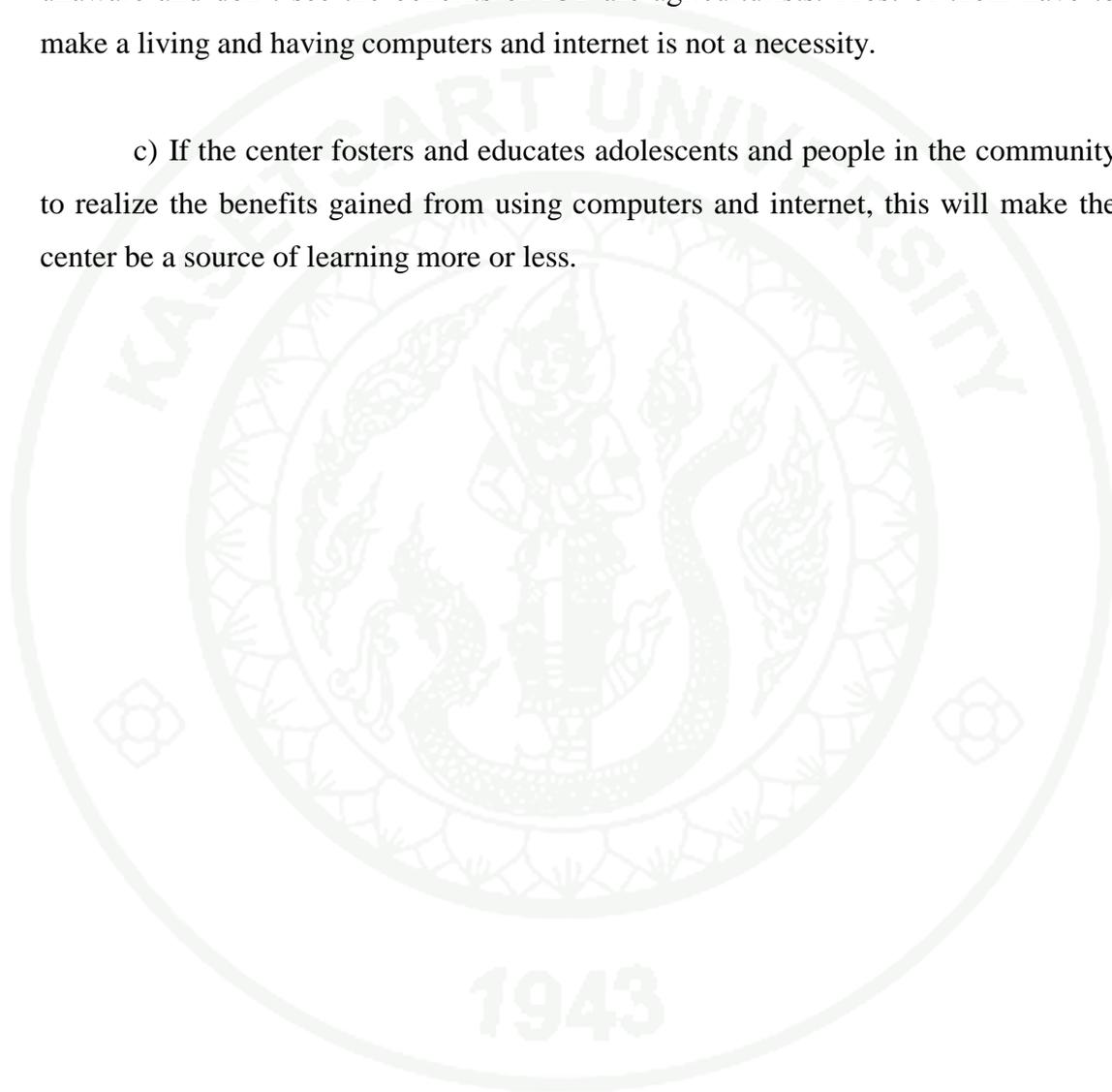
The record of focus group discussion

On Thursday, October 29, 2009

At the Tabo Thaitelecenter, Nong Khai

A. Name lists of participants

No	Name	Age	Occupation	Type of user	Purpose to use
1	Jularuk Choeichaiyaphum	20	Undergraduate student	Frequent user	Searching information
2	Nattapong Somchai	20	Undergraduate student	Frequent user	Searching information
3	Orjunthra Kondee	20	Undergraduate student	Non-frequent user	Searching information
4	Nattanon Padungsri	27	Municipal officer	Non-frequent user	Searching information
5	Nitthaya Nuntha	36	Agriculture	Non-user	-
6	Junthima Maniyom	30	Agriculture	Non-user	-

B. Transcription of focus group discussion

Issue 1: Facilities and ICT Infrastructure

(From your view points, are you satisfied with the service of the center and what do you want more?)

a) It is o.k.

b) It is alright. The center has a number of computers and has a set up of broadband internet.

c) Because of high speed internet access, mostly frequent users often come to use the service of the center.

Issue 2: Strategic management

(Since you have used the services of the center, what services could be provided or improved? And how can you stimulate every member in the community to use the service of the center?)

a) The center is covered by a murky blue curtain so that it makes users feel uncomfortable and not at ease.

b) A nameplate is not displayed clearly which makes people think that the center is one of the municipal offices so they don't dare to come in.

c) The center's atmosphere doesn't attract people to join in. The environment in front of the center should look bright and airy which may attract passersby to visit the center.

d) In order to invite people to come to use the service of the center, the nameplate should be shown in an outstanding area.

e) A functioning library system might be applied in the center.

f) Advertising should be used to community members to know the center.

g) If possible, it should be opened on weekends and extended beyond office hours.

h) It is significant for the center to provide basic training programs for all people in community continuously.

i) The center should hire participant volunteers who are stakeholders and beneficial to the community such as computer and ICT equipment technicians and vendors. Those people can act as an advisor and teach all users how to use computers and internet properly; meanwhile, they can also repair the equipment in the center and sell their products as a channel of distribution at the same time. Furthermore, volunteers like students in universities can participate in operating the center. This participation can promote them to practice and develop their knowledge such as computer skills, software and applications, and equipment maintenance that enable them to share their experiences with all users in the center.

Issue 3: Usage and Perception

(Why didn't you ever use the service of the center? And do you think that you can change your mind to come to visit the center in the near future? And in your opinion, what would you like to change in the center to be a source of lifelong learning?)

a) In spite of driving by it everyday, most non-user participants never know the center or its purpose.

b) All non-user participants totally don't know the center. Also, they are unable to use a computer.

c) As being agriculturists, they don't know what kind of benefits they can get from using a computer.

d) Its location is too far from their home so they decide not to go.

e) In the rural community, those who are unable to use computers are agriculturists. It can be noted that the gap between a house that has computers and a house that does not still exists. Those who have computers are not necessarily going to come and use the services at the center, compared to those who don't know how to use computers. So in order to attract local people to use it, advertising should be launched.

f) A training program by starting from a basic program on how to open a computer to an advanced program can play a role in encouraging people within the community to understand the benefits of using computers that involves them in their daily life.

g) The center should build a community database which contains occupational information such as the trading of local crop information in order to promote a group of agriculturists to attend. This can be another way to generate their income.
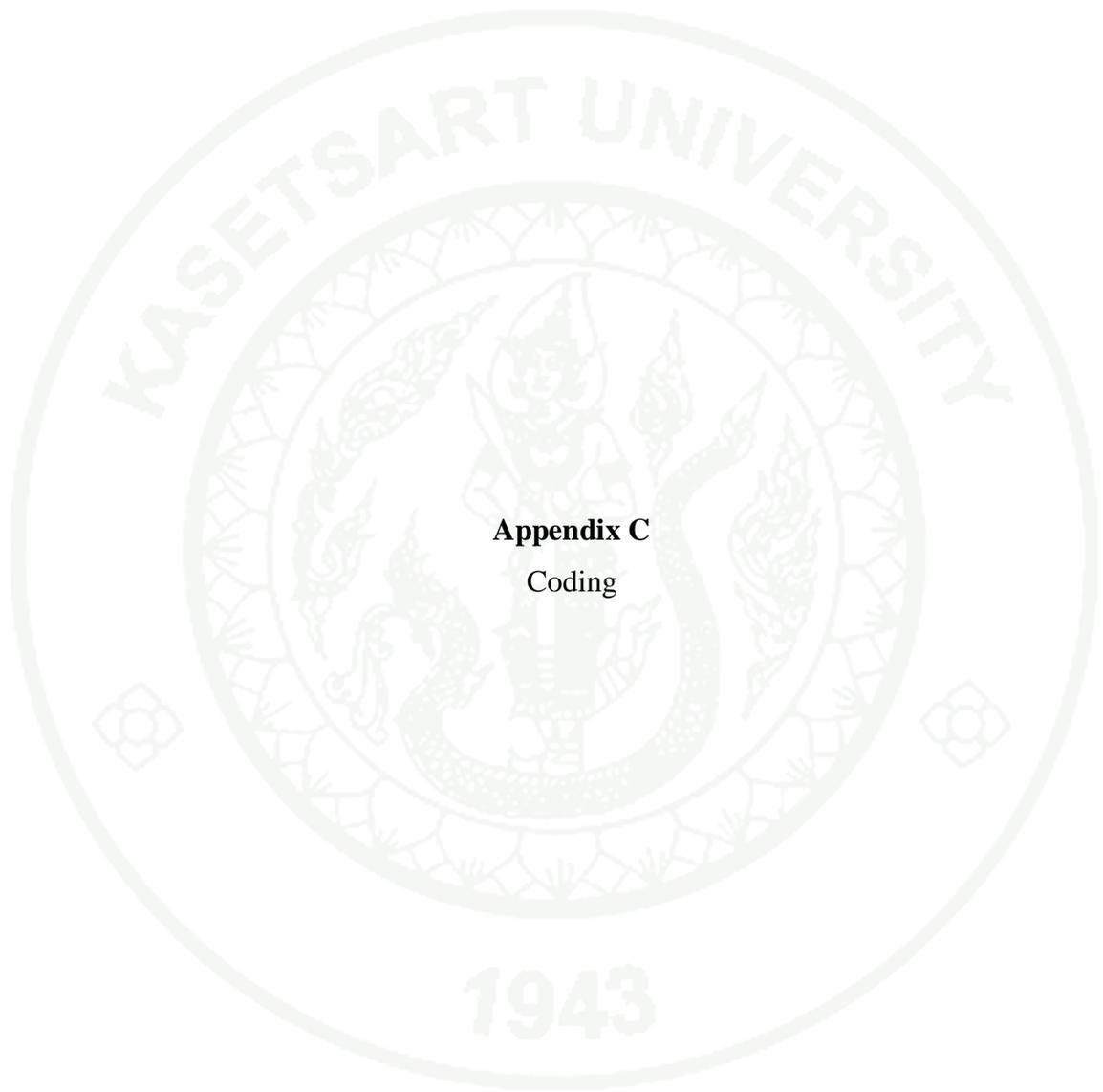
Appendix C

Coding

Coding

Appendix Table 1 Coding

No	Code
01	Policy and Regulation
02	Facilities and ICT Infrastructure
03	Location
O4	Strategic Management
05	Business Plan
06	Services
07	Training
08	Financial Support and Budget
09	Staff Qualification and Responsibility
10	Payment and Incentives
11	Thaitelecentre Leader
12	Stakeholder Involvement
13	Participant Volunteers
14	Usage and Perception
15	Marketing and Awareness Building
16	Demand-driven service

Appendix Table 2 Summary of content analysis from in-depth interview

Interview	Data	No	Code
Interviewer	Since 2006, the i-Community project was delivered to Municipality and now the center has been authorized by Kumpawapi Municipality. What do you think of the center and how did it come to be?		
1st interviewee	No progression. Its operation runs by feeling. The development doesn't come from the basic root. If people in community do not try to get inside, its operation will be the same. This is a big problem. If being such, the center will act as a normal place where children can play internet like an internet café. This was not the way it is. It should not be like that. In case of Thai people, most of them don't have much ICT knowledge. Even if technology reaches to their home, some households don't know how to use a computer and internet. For Kumpawapi community, there are both middle and lower classes. There are those who are concerned about working and earning their living.	14	Usage and Perception
Interviewer	As you knew that the objective of setting up Thaitelecentre is to have a source of non-formal learning which can be one of components of lifelong learning. From your view point, how can you build all people in community to understand the benefits of the center and stimulate them to access it?		
1st Interviewee	We must find the way to bring this center into their hands. The idea is to bring IT mobile cars into community as a bookmobile which contains computes and wireless technology inside. By doing such, local people can try to use computers and search information at the same time. These benefits can stimulate them to realize the usefulness of computer and internet more or less. Consequently, it plays an important role in making local people who are busy to come to use the service of the center and be aware of the importance of ICT. Besides, if you want to attract people to access it, we must try to foster them to know about the benefits that gained from using computer and the internet and tell them that what they can get from it.	15 14 14	Marketing and Awareness Building Usage and Perception Usage and Perception

Appendix Table 2 (Continued)

Interview	Data	No	Code
Interviewer	Do you think that marketing strategy and public relation can drive people's motivation to be aware of the benefits of using the services of the center?		
1st interviewee	First of all, we must understand the condition of community. In today's working age, people normally leave their child with their elders. So it isn't their business, if we want them to visit the center. They have to work. Recently, from different statistics, it showed that the center has already become a data entry center. Many local government officers often come to use the service of the center for data entry, because of the outworking in data processing. In other words, if we want people to come in, the advertising must be used heavily. In Kumpawapi, there are a lot of community products which can be publicized. If we combine community product center to be one part of a Thiatelecenter, it will moved on. Consequently, community members may come to the center because they think that it involves with their life. Moreover, by creating local wisdom which consists of local products, local vocational information of each community, the center can invite all people in community to get involve with it, particularly for housewives and working groups. For school students, apart from playing game and chatting, one thing that we have to do is to encourage them to realize the value of computer and internet such as searching for more useful information outside of their classrooms.	15 16 14	Marketing and Awareness Building Demand-driven service Usage and Perception
Interviewer	Thus, What kinds of strategic management should be used with marketing and advertising to attract people in rural community to use the service of the center?		
1st Interviewee	It must be used an approach strategy rather than a defensive one by focusing on "localization" and holding onto human resource development principle which relies on building competent personnel and staffs. Because now the problem here is human. However, you had better not forget the concept of setting up the center	04	Strategic Management

Appendix Table 2 (Continued)

Interview	Data	No	Code
	which emphasizes on community. <u>The important thing is the center has to be tangible, have constant direction and an action plan.</u> How can the center be sustainable? Hence, <u>we have to upgrade our center to be a center prototype</u> which will enable other centers needed to follow. In the future, my idea is <u>to build the center to be a computer school without paying</u>.		
Interviewer	Turn back to the issue of location, what do you think of this? And How is it important?		
1st Interviewee	Yes. Location is another important factor. <u>The center must be sited near the community. People can go comfortably.</u> Besides, in this center, it looks wider than before because of rearrangement. <u>The new space allows users to feel comfortably when using it and creates a good impression</u> that makes people want to come again and again.	03	Location
Interviewer	Besides location, do you think that ICT infrastructure is one important factor of Thaitelecentre management? And how is it important?		
1st Interviewee	<u>It is necessary for the center to have up-to-date computers. A number of computers must be adequate for all users.</u> In this fiscal year, it has a budgeting plan to purchase new computers. As I said, the issue of ICT is far from the rural community. Moreover, because of limitation of budget, it is essential for me to pick up something that is urgent to do first. However, <u>it must have a broadband internet.</u> Even so, it became a data entry center instead which was the wrong purpose of Thaitelecentre.	02	Facilities and ICT Infrastructure
Interviewer	Beyond ICT Infrastructure, what kinds of services should be provided in order to stimulate people in community to come and use it?		
1st Interviewee	As I mentioned, the problem here was almost of all the people in the rural area did neither see the benefits of ICT, nor want to access it. What I would like to do is <u>to gather all existing local wisdom into the website and create them as a real time database for all people within the</u>	16	Demand-driven service

Appendix Table 2 (Continued)

Interview	Data	No	Code
	<u>community to search for a wealth of</u> <u>information</u>. In addition, I would like <u>to</u> <u>provide a basic computer training program to</u> <u>all kinds of people and interesting groups</u> <u>continuously.</u> Yet, the same problem still happened. My staffs are not be able to take these actions at all. Because we didn't have competent staffs and money. So everything now is stagnant.	07	Training
Interviewer	Just a moment ago, you mentioned about men and money. Both are the problem. Thus, in terms of personnel and staffs, what would you like them to be?		
1st Interviewee	We have to build teamwork and <u>find someone</u> <u>who has ICT knowledge, computer skill, and</u> <u>technical skill to do this job</u>. Moreover, <u>all</u> <u>staffs should be able to teach and advise users</u> <u>on how to use the computer properly. All staff</u> <u>members must have strong responsibilities, and</u> <u>pay more attention to their own jobs.</u> I believe that if all staffs can follow on the setting policy and regulation of the center's operation, the effectiveness of a Thaitelecentre will occurred immediately. But in the real situation it was so sad. Regardless of doing other things, all my staffs just had only this job, but they didn't want to do it. However, I do believe that <u>leader</u> <u>will play an important role. He or she must act</u> <u>as a visionary person and actually know that</u> <u>what benefits of Thaitelecentre are.</u> For me, I have still worked here for 3 years, but my destination has not changed at all. I hope to develop the center to be a source of lifelong learning. Unfortunately, we lack competent staffs. Hence, the selection of qualified staffs who are enthusiastic people must be done as soon as possible.	09 11	Staff Qualification and Responsibility Thaitelecentre leader
Interviewer	How can you motivate them to work effectively?		
1st Interviewee	One thing that I have to do first is to find new staffs that are enthusiastic people to do this job. And then, <u>we have to ask for cooperation from</u> <u>the MICT to provide a source of training where</u> <u>I can send my staffs to train and develop their</u>	10	Payment and Incentives

Appendix Table 2 (Continued)

Interview	Data	No	Code
	knowledge continually. Afterward, this result can extend to the development of the center. In addition, the ministry should allocate the budget in the part of salary and payment to all staff members in order to stimulate them to have motivation for working. This return to the financial problem again.		
Interviewer	The last thing that you just said about the financial problem. It means that this is another components to manage the center effectively. Thus, what do you think of this?		
1ˢᵗ Interviewee	As you mentioned. If we don't have money, everything will be obstructed. There is nothing you can do, if you have no budget. As I said, due to the limitation in our budget, we have to measure that which one is the most important thing that we should invest first. In a rural community, public utility infrastructure such as road constructions, water and electricity supply system for people are more crucial than a Thaitelecentre aspect. Consequently, the operational budget of the center was allocated just a little portion. It includes only equipment maintenance and electricity expenses. For this reason, the development of the center could not progress and move on. Therefore, if we would like the center run further, a systematic budget plan must be done.	08	Financial support and budget
Interviewer	Do you think that community participation is one of components of Thaitelecentre management? How should it be?		
1ˢᵗ Interviewee	It's very important. Because now the problem is community members don't want to access it. Most of them though that it is useless to come to the center, and it is a waste of times. Thus, it is necessary to build community participation among local people in the community by offering any activities to attract them to take part in. Besides, it should force thr community committee to see the importance of Thaitelecentre. The awareness of community must be originated from strong community, if people realize that the center can be a channel of making their jobs, finally, they will come in.	12	Stakeholder Involvement

Appendix Table 2 (Continued)

Interview	Data	No	Code
Interviewer	Look at this point. Do you think that a community leader can support community participation?		
1st Interviewee	In my opinion, community participation must come from strong community. It was imitated from community parliament. The meeting of all stakeholders such as a local leader and villager headman should be held every week in order to encourage them to be spokespersons who can communicate the center's benefits to their community members.	12	Stakeholder Involvement
	At present, I will arrange the meeting with all my fourteen communities in order to review the existing problems and find a solution together. Nevertheless, I will try to create the accession of ICT and promote local community products at the same time. I think that all these things can make local people understand the importance of ICT; consequently, they will come to the center.	14	Usage and Perception
Interviewer	From all above, what is another component to support Thaitelecentre Management to work more effectively?		
1st Interviewee	From my point of view, I think that the policy and regulation must be improved and renewed immediately. The policy maker in this case MICT should have a clear guidance of operation and development. The most important thing is you must understand the content of local community first. Don't force them. It should focus on quality-oriented development rather than quantity-driven. The concept of establishing aThaitelecentre is not necessary to cover all around the country, in turn, it should emphasize on quality issue. Therefore, you should look at which community is ready to do it and select it to be a pilot community center. I think it's better than to distribute the budget over the country.	01	Policy and Regulation

Appendix Table 2 (Continued)

Interview	Data	No	Code
Interviewer	Since 2006, the i-Community project was delivered to Municipality and now the center has been authorized by Jutthurat sub-district administrative organization. What do you think of the center and how was it started?		
2nd interviewee	The problem now is people in community don't have much ICT knowledge. They think that it is irrelevant from their life. Most of the villagers don't exploit the benefits of ICT. Children come to play games at the center. The environment of the center looks like an internet café surrounding. Therefore, the main point is to give ICT knowledge to the targeting group by letting them be aware of the usage of computers and internet.	14	Usage and Perception
Interviewer	How can you build all people in community to understand the benefits of the center and stimulate them to access it?		
2nd interviewee	If we want all people in community see the importance of the center, I think it should start from an interesting group or a community leader. In an effort to ensure the targeted leaders aware of the center's benefits, training and courses are provided in the areas of usage of computer s and internet as a pilot project for the target groups. Among the courses are basic training in personnel computers and internet awareness programs. Beyond training programs, it may be difficult to stimulate local people to visit the center, on the other hand, if we coordinate with the community pillar as a medium of communication to their community about such benefits which promoted the positive usage of technology, finally, the outcome variable for the center has the fullest use of its technology.	12 12	Stakeholder Involvement Stakeholder Involvement
Interviewer	How can you stimulate people in community to aware of the center's benefits?		
2nd interviewee	The center may build a community database by collecting useful data such as vocational information. The example of this information lies in the problem of rice farming and botanic diseases. A community database will act as a data warehouse to help the local community to	16	Demand-driven service

Appendix Table 2 (Continued)

Interview	Data	No	Code
	easily access and to stimulate them to use it. However, the concept of creating community database must be done together with training courses.		
Interviewer	Do you think that advertising can motivate community members to be aware of the center's benefits? And could you explain more about it?		
2nd interviewee	Advertising is so important. It should be publicized continuously. At least, it enables every community member to access computers and internet. Using wireless transmitter into all 18 villages, villagers can know about the existence of Thaitelecentre. Besides, the meeting of local leader can be a channel of communication which passes along the center issue to community members. The production of e-content, CD-Rom, or brochures which came from the searching and collecting of useful community data will attract community members to come to use the services of the center.	15	Marketing and awareness building
Interviewer	What do you think of financial aspect? How is it important?		
2nd Interviewee	For Thaitelecentre sustainability, sub-district administrative organization should keep an eye on the allocation of the budget. Nowadays, the budget for development is not enough. Most of its budget appears as facility infrastructure which is directly involved with villagers rather than as ICT Infrastructure which is still far away from their living. In my opinion, the budget allocation should include salaries of staffs, training expenses, the purchase of equipment, maintenance cost, and advertising costs,	08	Financial support and budget
Interviewer	Are staffs important to manage the center effectively? What are the staff qualifications?		
2nd Interviewee	The development of Thaitelecentre cannot just occurred, if we lack competent staff members. Thus, the staffs' capacity is a crucial part of Thaitelecentre's sustainability. Staff members should be an enthusiastic person who pays more attention to their own jobs as well as		

Appendix Table 2 (Continued)

Interview	Data	No	Code
	having a service mind. In addition, the MICT should play an important role <u>in recruiting qualified staffs that have ICT knowledge and skills to work at the center</u> and <u>supporting in some kinds of expenditures such as payment and incentives for staff members.</u> I do believe that the development of Thaitelecentre will be moved ahead. However, not only personnel and staff, but also Thaitelecentre leaders will play a crucial part in development aspect. There is a need to find a competent leader who acts as a visionary person and actually knows what benefits of Thaitelecentre is and how it will be useful for all people in the rural community. If the leader see the importance of the center, the opportunity to drive the policy and regulation of Thaitelecentre into practice will be viable.	09 08 11	Staff Qualification and Responsibility Financial support and budget Thaitelecentre leader
Interviewer	Besides, all mentioned above, What do you think is another component for helping Thaitelecentre management worked effectively? And how can the center be a source of learning?		
2nd Interviewee	Firstly, you should focus <u>on policy and regulation which should have a clear framework. Also, it must be consistent.</u> On the contrary, due to inconsistency of the policy from an administrator, the operation of the center is stagnant. Secondly, <u>the management of the center needs to be required an integrated action plan.</u>	01 05	Policy and Regulation Business plan
Interviewer	Since 2006, the i-Community project was delivered to Municipality and now the center has been authorized by Jutthurat sub-district administrative organization. What do you think of the center and how was it started?		

Appendix Table 2 (Continued)

Interview	Data	No	Code
3rd Interviewee	It is quite terrible! The big problem at this time is a lack of budget. Also, <u>most of the people in community didn't come to use the service of the center.</u> Its center became a place where children come to play games. Anyway, we didn't agree with that. In addition, many people in Tabo community have already had their personnel computers in their house. So it is not necessary for them to come to use its services. Another group of people such as agriculturists didn't dare to come in, whereas some groups like to go to the internet café instead.	14	Usage and Perception
Interviewer	Thus, how can you create the awareness of community to know the benefits of the center?		
3rd Interviewee	First<u>, promote every community member to take out a permanent subscription of a Thaitelecentre without paying anything.</u> Second, <u>provide a wide range of activities to encourage community members to take part in, particularly housewives and vocational groups by teaching them to search for vocational data.</u> In doing such, it might be a way to create the awareness of people to come to use its services more or less.	14 12	Usage and Perception Stakeholder Involvement
Interviewer	What do you think of community participation? And how can you encourage them to participate?		
3rd Interviewee	I think that community participation is very important. <u>We must arrange an exhibition as an academic activity to attract all people who are living in community to get involved with that.</u> In addition, <u>the center may provide experts or lecturers who have ICT knowledge to teach community members on the introduction of computers and internet. On the other hand, if the community needs to be trained in the basics of using computers, they can inform their requirements to us. In response to their requirements, we will arrange a certain training courses to them.</u> Moreover, <u>community volunteering is likely to be another way to encourage people to participate. Those who might be participant volunteers include municipal teachers or university's students.</u>	12 07 13	Stakeholder Involvement Training Participant volunteer

Appendix Table 2 (Continued)

Interview	Data	No	Code
	All participants can play an important role in taking care of the center. However, the collaboration which is fully sacrificed by those doesn't get any compensation, because we cannot afford on this.		
Interviewer	As you mentioned about participant volunteering, How do you think that the local leaders and community networks can participate in the center?		
3rd Interviewee	Actually, we can work with them. <u>Those people may include local leaders, community pillars, village headman, and village leader. The meeting of those should be held every week by attaching the Thaitelecentre issue in the meeting agenda.</u> Consequently, those people will be as a medium of communication to publicize about the center to community members. <u>Brochures and leaflets should be used as a complement tool in advertising which can attract people's attention and increase the usage level.</u>	12 15	Stakeholder Involvement Marketing and awareness building
Interviewer	What else do you have to stimulate every community member to come to use the services of the center?		
3rd Interviewee	Look at this point! The advertisement can attract local people to come in by using local radio, the meeting of community committee, brochures, and activities. All kinds of these media should be launched continuously.	15	Marketing and awareness building
Interviewer	What kinds of services should be provided?		
3rd Interviewee	As a matter of fact, the main aim of setting up Thaitelecentre is to be a source of lifelong learning. <u>Perhaps we gather all useful data in rural community to be as a community database which is relevant to people's life, it will be a wealth of source of learning among people in a community. For example, housewives and working groups can search for useful information involving with their jobs and generating their income as well.</u>	16	Demand-driven service

Appendix Table 2 (Continued)

Interview	Data	No	Code
	Nevertheless, the center should provide training programs from basic needs to advanced programs by cooperating with non-formal educational institutions. Each training session should consist of 20-25 persons. Because of the end of harvest season, the duration of its course should be started from the beginning of November to the end of March and run at least 2 weeks per month. This course is free of charge.	07	Training
Interviewer	What do you think of leadership and staff members? How are they important? And what are the staff qualifications?		
3rd Interviewee	The most important here is a mayor of municipality as a Thaitelecentre leader. He must have a long vision in both ICT and management aspects. The more the leader doesn't have clear vision and missions, the more the followers cannot know how to do it. For staff qualification, it is essential for them to have a wide variety of ICT knowledge and skills such as repairing its equipment and building a community database. In the sense of responsibility, all staff members should have a service mind.	11 / 09	Thaitelecentre leader / Staff Qualification and Responsibility
Interviewer	How can you motivate them to work effectively?		
3rd Interviewee	It should provide appropriate salaries to staff members and let them do their task as a full-time job without doing any other jobs at the same time. Moreover, the MICT should give a favor in providing training courses to all staffs. All staff members can gain more knowledge and can pass on their knowledge to villagers in community.	10	Payment and Incentives
Interviewer	What kinds of strategic management should be used to operate the center effectively?		
3rd Interviewee	It should provide advanced computers and broadband internet system to all kinds of users including providing a statistic note of using in order to know an accurate record of people who come to use the service of the center for daily and monthly. This can be as backup information for monitoring. In addition,	02 / 04 / 05	Facilities and ICT Infrastructure / Strategic management / Business plan

Appendix Table 2 (Continued)

Interview	Data	No	Code
	an action plan should be made every year. <u>In terms of budget, it should be allocated systematically which covered all kinds of expenditures such as the purchase of new equipment, salaries and overtimes of staffs and participant volunteers, equipment maintenance, training costs, and so on. Nevertheless, the policy itself must have a clear framework.</u>	08	Financial support and budget
Interviewer	Go back to the location aspect, what do you think of it?		
3rd Interviewee	Location is also important. The site of this center was located in front of a municipality office and next to the disaster and prevention mitigation center where people who are living in a community can go to easily and feel safe when they are using its facilities.	03	Location
Interviewer	How can the center be a source of learning which is relevant to the theory of lifelong learning?		
3rd Interviewee	To achieve the objective defined earlier, the scope of a Thaitelecentre management needs to be doing the following: first, rebuild the Thaitelecentre image in order to encourage local people to be aware of the existing of the center; second, stimulate and publicize the benefits of using computers and internet to every community member; third, build a community database which promote people's income; fourth, provide ICT training programs for all people in the community as much as you can; fifth, select competent staffs that have ICT knowledge and skills to work at the center together with providing appropriate payment and incentives in order to motivate them to work with us as long as possible; sixth, the leader must act as a visionary who is ready to develop the center to be sustainable; seventh, both policy and action plan must be reviewed annually. Finally, if we can do all of these, it is assured that the center will be a source of lifelong learning for all people in a rural community in the near future.		
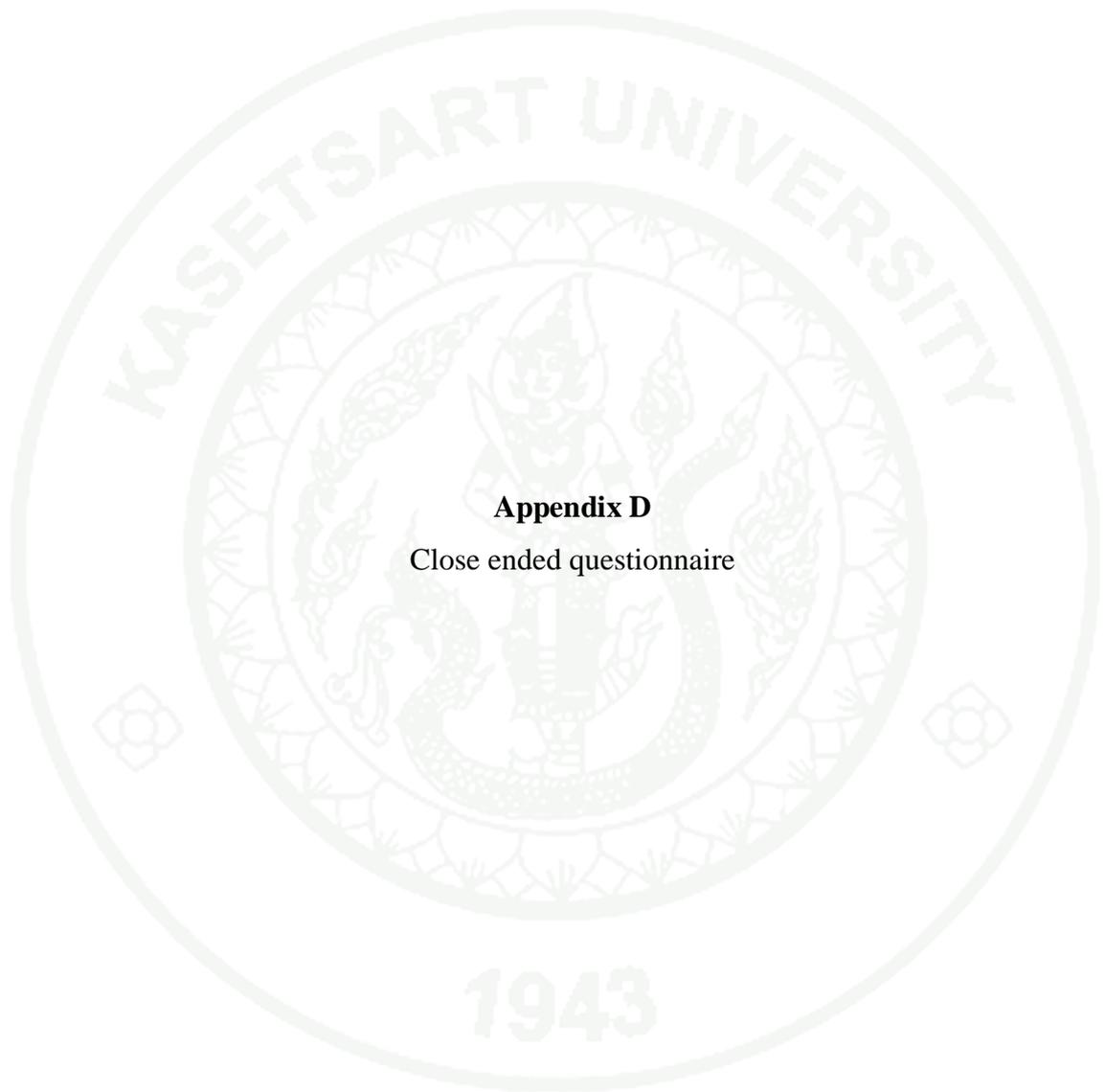
Appendix D

Close ended questionnaire

Questionnaire for priority setting of major problems and key components
For
Thaitelecentre management model for lifelong learning
of the Ministry of Information and Communication Technology

Explication: This questionnaire has 2 parts

Part I   Questionnaire for priority setting of major problems of Thaitelecentre management of Ministry of Information and Communication Technology

Instruction: Please give your priority setting opinion by putting a check ✓ into each problem. The priority levels are as follows.

5 = very much   **4** = much   **3** = fair   **2** = little   **1**= very little

No	Major problems of Thaitelecentre management	Priority level				
		5	**4**	**3**	**2**	**1**
1	**Facilities and ICT Infrastructure**					
	1.1 Inadequate computers					
	1.2 Obsolete computers					
	1.3 Low speed of internet					
	1.4 Lack of other devices such as a printer and a scanner					
	1.5 No air condition					
2	**Location**					
	2.1 Inconvenient to commute					
	2.2 Narrow space					
	2.3 The center's atmosphere doesn't attract people to come in.					
3	**Strategic Management**					
	3.1 No systematic action plan for operation.					
	3.2 No advertising to publicize people in community to be aware of the benefits of Thaitelecentre.					
	3.3 No public relations in order to promote local people to use the services of Thaitelcentre.					

No	Major problems of Thaitelecentre management	Priority level				
		5	4	3	2	1
	3.4 No community database that responded to the needs of community.					
	3.5 Unequipped with useful ICT training program.					
	3.6 Be opened in an office hour on weekdays but closed on weekend which made every member in community cannot fully use the service.					
4	**Personnel and staffs**					
	4.1 No competent staffs that have ICT knowledge and skills to operation.					
	4.2 Staffs lacking in passion to do their jobs.					
	4.3 Staff lacking in motivation and incentives in doing their job due to having another job to work simultaneously.					
	4.4 No competent leader who sees the importance of Thaitelecentre.					
5	**Perception and needs**					
	5.1 People tend to overlook the importance of Thaitelecentre.					
	5.2 People are afraid of coming into the centre.					
	5.3 People had their personnel computers at homes.					
	5.4 People didn't know how to use a computer and internet.					
	5.5 People in community didn't have time to use the service of the center because they have to work.					

Part II   Questionnaire for priority setting of key components of Thaitelecentre management of Ministry of Information and Communication Technology

Instruction: Please give your priority setting opinion by checking ✓ into each component. The priority levels are as follows.

5 = very much   4 = much   3 = fair   2 = little   1= very little

No	Key components of Thaitelecentre management	Priority Level				
		5	4	3	2	1
1	**Policy and Regulation**					
	1.1 A clearly set of policy and regulation in establishing Thaitelecentre.					
	1.2 The details of Thaitelecentre's policy comprised of the main objectives of a Thaitelecentre, members of the steering committee, and major responsibilities and staff member tasks.					
	1.3 Reviewing of policy and regulation persistently that are relative to the context of the local community.					
	1.4 The direction of policy focuses on quality-oriented development rather than quantity drive.					
2	**Facilities and ICT Infrastructure**					
	Power and Electricity					
	2.1 Power and electricity supply in cases of an emergency problem.					
	2.2 The setting up of an air conditioner in order to reduce the operating temperature of the equipment and prevent computer and other devices to be out of order or overheating.					
	Hardware and Software devices					
	2.3 Standard internet connectivity, speed, and stability of equipment.					
	2.4 The setting up of a leased line and wireless technology with high bandwidth at least 2 Mbps.					
	2.5 The acquisition of basic devices such as telephone, fax machine, printers, scanners when needed.					
	2.6 The installation of all devices matched the need of users.					
	2.7 The procurement of software and applications such as Internet/web application, word processing, educational and training software.					

No	Major problems of Thaitelecentre management	Priority level				
		5	4	3	2	1
3	**Location**					
	3.1 located in the community site where local people can go comfortably and easily to access.					
	3.2 Site in a central location where closes to the main road and the main group of villages.					
	3.3 located at a main street, but it has to concern with the availability of electricity and telephone connection.					
	3.4 Located in the safe place and be in the good environment.					
	3.5 Have enough space for all equipment provided and for users feel comfortably when using.					
4	**Strategic Management**					
	Business plan					
	4.1 The formation of steering committee in order to make an action plan for Thaitelecentre.					
	4.2 The development of an action plan which included objectives, strategies for achieving, progression of operation such as a list of rules for staff and users, rules for operation, and reviewing this plan every year which conforms to the context of local community.					
	4.3 The arrangement of a steering committee meeting at least once a month.					
	4.4 A wide range of services that are relevant to the community needs such as informational service, transactional services, and e-Government services that are free of charge.					
	4.5 The content of service that served the specific needs of local people in community.					
	4.6 The arrangement of training programs from basic skills in using computers to designing web pages in specific content in a Thai version for local people to learn easily.					

No	Major problems of Thaitelecentre management	Priority level				
		5	4	3	2	1
	4.7 Training programs that attract local people to attend and reach their expectation and needs.					
5	**Financial support and Budget**					
	5.1 Making a financial plan which contains all expenditures such as capital expenses and operational expenses.					
	5.2 Reporting the actual expenditures every 3 months					
	5.3 The allocation of a sufficient budget from government or external organizations in all kinds of aspects which are human resources, training, and operational expenses such as equipment maintenance and replacement, staff salaries, volunteer's overtime, and marketing costs.					
6	**Human Resource Management**					
	Managers and staff					
	6.1 The selection of a good manager who has the potential for working on a Thaitelecentre to reach its goal.					
	6.2 The selection of qualified and visionary staff that have full responsibility and pay more attention to their own jobs as well as have knowledge and ICT skills					
	6.3 The recruitment of a manager and staff that do their tasks as a full time job without doing any other jobs at the same time.					
	6.4 The procurement of appropriate salaries which are paid.					
	6.5 The procurement of incentives for managers and staff such as ICT training programs, marketing techniques, and financial operational management in order to develop and improve their knowledge and skills.					

No	Major problems of Thaitelecentre management	Priority level				
		5	4	3	2	1
	6.6 The motivation of managers and staff by getting them to participate in introducing new ideas and suggestions					
	Local Champion and a Thaitelecentre leader					
	6.7 The selection of a local champion who played a key role in communication with community members to persuade them to come to use the services of Thaitelecentre					
	6.8 The selection of a competent leader who can drive the policy and regulation of Thaitelecentre into practice.					
	6.9 The selection of a powerful leader who acts as an IT leader, visionary, and careful manager who actually knows what benefits of a Thaitelecentre are and how it will be useful for all people on a community level					
7	Community Participation and Networking					
	Stakeholder Involvement					
	7.1 The encouragement of community members to participate in a Thaitelecentre in various forms such as users, staff volunteers, and advisory group.					
	7.2 The assessment of community needs before providing a wide variety of services and activities.					
	7.3 The collaboration with community leaders for strengthening participation.					
	7.4 The implementation of a pilot project of ICT training programs to community committees and community pillars to be aware of the importance of the existing Thaitelecentre.					
	7.5 The formulation of a "strong community" by establishing forums to share a lot of ideas and bring local product information of each group in the community into a Thaitelecentre database.					

No	Major problems of Thaitelecentre management	Priority level				
		5	4	3	2	1
	7.6 The supplement of community organization and other related agencies as Thaitelecentre's partners					
	Thaitelecentre Volunteer					
	7.7 The encouragement of community members to be participant volunteers in a Thaitelecentre					
	7.8 Rewards and incentives to participant volunteers such as earning and overtime pay, training courses, free usage of services and equipment, college credits, etc.					
8	**Perception and need**					
	8.1 The creation of community members' awareness to know the benefits of a Thaitelecentre by using marketing tools					
	8.2 The selection of appropriate media to reach the target users. Mass media such as local radio, wireless transmitter, leaflets, and brochures are highly effective for creating general awareness, whereas interpersonal media are more effective for promoting users to come to use the service and increasing the usage level					
	8.3 The development of long term marketing programs					
	8.4 The construction of a website and database for the Thaitelecentre containing local product information, weather, health, and educational and vocational information which are relevant to the community needs					

Appendix E

A list of experts

A list of experts

1. Associate Professor Bordin Rassameethes, Ph.d.

   Faculty of Business Administration, Kasetsart University

2. Associate Professor Suttanu Srisai, Ph.d.

   Faculty of Political Science, Chulalongkorn University

3. Associate Professor Supot Boonwises ,Ph.d.

   Faculty of Political Science and Law, Burapha University

4. Associate Professor Kovit Wongsurawat, Phd.

   Faculty of Social Science, Kasetsart University

5. Mr.Suparerk Sooksmarn, Ph.d.

   Faculty of Business Administration, Kasetsart University

6. Mr.Thanerat Siripachana

   Deputy Permanent Secretary of Ministry of Information and Communication
    technology

BIOGRAPHICAL DATA

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