IETC 2014

The development model of knowledge management to strengthen Thai ICT community learning center

Assoc. Prof. Dr. Narong Sompong, Dr. Nattaphon Rampai*

Department of Educational Technology, Faculty of Education, Kasetsart University, Thailand

Abstract

The objectives of this research were to: 1) study the problems, obstacles, and best practices in Local Wisdom Knowledge Management for strengthening Thai ICT Community Learning Centers (ICT-CLC) in various areas of Thailand; 2) develop Local Wisdom Knowledge Management Model to strengthen Thai ICT-CLC; 3) construct a training operation plan for administrative committee members and staff to strengthen the center; and 4) evaluate the KM strategic operation plan for strengthening ICT-CLC.

The research sample included 49 administrative committee members and staff of 8 ICT-CLCs in the central provinces of Thailand. Five experts were also included as part of the focus group who critiqued the strategic operation plan for strengthening ICT-CLC. The research instruments composed of a questionnaire on ICT-CLC and strategic plans, training operation plan, and an evaluation form for strategic operation plan assessment. The data were gathered using a survey on basic information of ICT-CLC in the central provinces. Based from this, the strategic plan was developed and tried out with the target group. Finally, the assessment of the plan was conducted.

Findings showed that most of the small, medium, and large ICT-CLCs had problems and obstacles in terms of center management and services. Moreover, most of the small centers did not have long-term plan activities and maintained the local wisdom study and collection. The result of the strategic plan development revealed that the first strategic plan included issues on human development, efficiency in services, and availability of training services for administrative committee members. The second strategic plan involved the improvement of the quality of life, issues in the environment, community, sociality, and capability in enhancing the learning of the people in community through electronic media.

The results of the strategic plan utilization found that the suitability of the plan was at a high level. The assessment of the ICT-CLC involving the plan revealed that the community participated in local wisdom collection with the team and bring about the indigenous knowledge to construct online media on two websites: www.donpingdad.ictlearningcenter.org and www.khemasampun.ictlearningcenter.org. The Local Wisdom Knowledge Management Model in strengthening ICT-CLC had been tried out and tested. The result showed that the model was applicable at a good level. This could be also applied to the other centers.

* Corresponding author. Tel.: +6625797142; fax: +6629428674.
E-mail address: fedunrs@ku.ac.th, fedunpra@ku.ac.th
1. Introduction

The concept of Thai ICT Community Learning Center was founded in Thailand in 2001-2002. Since then, many organizations have supported their activities. The Ministry of Information and Communication Technology (MICIT) emphasized the development of Thailand as a Knowledge Base Society. Projects on One Temple One Learning Center (OTEC) and Information Community (i-Community) were established. After a short period of development, Thai ICT Community Learning Center was then established in 2007 with the support of MICIT.

From 20 centers in the beginning, the centers expanded throughout the country with almost 1,887 centers in 2013. The Thai ICT Community Learning Centers are generally managed by the CEO of the organization where the centers are located in the various places (e.g. school, temple, Local Administrative Bureau etc.). A community board is also created to help advice the ICT center management on lead policies and to increase the transparency of the center’s activities.

The management team intended to strengthen the role of the community board to be more concrete and participatory, which is expected to improve operations. Thai Community ICT Learning Centers were established to develop the lifelong learning of people in the community by using ICT as tools. However, there were limitations and issues in the management and services. Almost all of the centers could not integrate ICT applications in enhancing the potential in the community development.

Another significant limitation include the community’s inability to search, collect, and gather knowledge, content or other local wisdom. Therefore, ways to manage their learning about ICT to support their daily lives should be enhanced by the ICT Community Learning Center (Sompong, 2014). The community contents such as the specific knowledge and local wisdom should be collected and put into websites and other kinds of electronic media. The center administrator should encourage the organization to gather data and put them in a database or website for sharing and learning with other members. The services should be planned and worked out with short and long – term strategic plans. In doing so, potential of the center could be strengthened.

Therefore, to enhance the ICT potential into the knowledge-based society, this research investigated and developed the KM model for strengthening ICT Learning Centers in the future. This can be used in reinforcing the competencies of the staff and the indigenous people in the remote communities. This can eventually create an impact to community development using ICT-based learning under the strategic plan implementation of the center committee. Moreover, the outcome can decrease the gap of digital divide as well.

Some studies showed that ICT Community Learning Centers (ICT-CLC) in Thailand experienced many problems in the operation. The centers need to enhance their potential to serve other ICT learning centers. Findings of this research could be used to strengthen the capacity in improving teaching and learning ICT utilization in the community through training and allowing them learn how to operate their own centers using the strategic plans.

2. Objectives

The objectives of this research were to:
1) study the problems, obstacles, and best practices in Local Wisdom Knowledge Management for strengthening Thai ICT Community Learning Center (ICT-CLC) in various sizes of Thailand;
2) develop Local Wisdom Knowledge Management Model to strengthen Thai ICT-CLC;
3) construct a training operation plan for administrative committee members and staff to strengthen the center; and
4) evaluate the KM strategic operation plan for strengthening ICT-CLC.

3. Review of related literature

When people use computers to help them complete tasks which they regard as problems, they are likely to have a more positive attitude towards the use of computers, and are likely to look for further tasks which can be completed using a computer. However, if people use a computer to complete what they regard to be an unnecessary task or in using the computer and the task is made more difficult or less satisfying, then they are less likely to use computers in the future. One way to bring ICTs to indigenous communities is to develop digital community centers that should be considered in implementing such centers (Newhouse, 2002).

This emphasizes the need to create an enabling environment for sustainability through public policy, careful planning, creation of local content and most importantly through direct involvement of the indigenous people being served. Therefore, the involvement of the information society is embedded in their use and adoption of ICTs. It is clear that the “digital divide” can turn into a “digital opportunity”. Moreover, infrastructure and technology are generally the most dominant factors in the ICT development practice. These are also essential elements that need to be considered to match any given locality. Therefore, the ICT development stage should enable the analysis of needs and conditions in the selection of appropriate technology to match the community’s circumstances. The selection and deployment of the technology to be used has to be tailored to benefit indigenous communities.

ICT Learning Center in the community can achieve success if it carries out intensive reflection and organizational work of the team. These concerns the organization leader and the committee members who have high leadership competencies which could be developed to the good performances by training. Therefore, training strategies may be one of the ways to develop the skills of ICT Learning Center’s members in the communities.

4. Scope of the study

1) The study area included the lower central provinces of Thailand. The target centers were sampled from 8 provinces namely, Nakorn Prathom, Ratchaburi, Kanchanaburi, Supanburi, Samut Songkram, Samut Sakorn, Petchaburi, and Parjeob Kheereekhun. The sample was composed of ICT Community Learning Center in 3 sizes: small, medium, and large centers. Best practices were analysed at Klong Ban Keing (small) in Ampawa District, Samut Songkram Province; Ban Rang Mai Dang (medium) in Muang District, Rachaburi Province; and Ban Pluk Mai Lai (big) in Kam Pang Sean District, Nakorn Prathom Province. The administrator and staff of each centers in these 3 provinces were then selected as respondents of the study.

2) The strategic plan for strengthening ICT-CLC was used and assessed by 2 centers located in Petchaburi Province. Five experts in the field of Agriculture, Educational Technology, and Knowledge Management were involved in critiquing the model. Then, the KM model was developed and verified.

3) The Knowledge Management 5-Step Model was developed in terms of: Step 1 - Explore & Capture; Step 2 - Identify & Organize; Step 3 - Exchange & Apply; Step 4 - Transfer & Share; and Step 5 - Collect & Store. The model was modified and tested after the assessment.

5. Methodology

5.1 Population and sample of the study

The respondents of the study came from the central regions of Thailand. In determining the number of samples, the centers were classified by location, management, and size (small, medium, or large). The respondents included: 1) 34 administrator and staff of the ICT-CLC committee from 3 groups in 3 selected centers; 2) 15 members of ICT-CLC committee in Petchaburi Province chosen purposively from 2 centers for the implementation of the strategic plan, and 3) 5 experts in agriculture, educational technology and ICT for the
focus group meeting.

5.2 Research instruments

2) Evaluation questionnaire for the centers’ training course for participants.
3) Strategic plan for strengthening the 2 centers which involved activities from training to practice.

5.3 Data collection

1. The researcher gathered data about the problems, needs, and some administration issues in the Thai Community ICT Learning Centers. Three centers in the central regions of Thailand (small, medium, big) were studied.
2. The researcher gathered data from the 3 centers about their best practices, problems, and needs, and some administration issues in the ICT Community Learning Centers.
3. The training course was arranged for 15 participants by the researcher. This training focused on the knowledge and practice potential enhancing plans to improve the ICT Learning Centers. The training courses were evaluated by the researcher.
4. The activities of the strategic plans were implemented on the remote area.
5. Strategic plans and operation for strengthening two ICT-CTC were launched at the center namely, Khemasampun and Donpingdad in Petchaburi Provinces.
6. The community participation were followed up and evaluated using five steps.
   - Step 1 Study of local wisdom
   - Step 2 Knowledge capture of the center
   - Step 3 Follow up and monitoring
   - Step 4 Media production for communication
   - Step 5 Evaluation
7. Model revision of KM in local wisdom to strengthen for ICT Community Learning Centers
8. Modify and test the model of KM in local wisdom
9. Conclusion and report writing

5.4 Data analysis

Data were analyzed using SPSS for windows. Descriptive statistics such as means, standard deviation, and percentage were used. Qualitative data analysis using thematic approach and photo and video recording analysis were employed.

6. Research findings

Part 1 The basic information and practices of ICT-CLC about local wisdom

Most of the problems and obstacles of three ICT-CLCs were found at moderate and high levels in terms of personnels (3.51), infrastructure and ICT facilities (3.27), and administration (3.22) which could be divided into the following issues:
1. **Training.** The problems were at a moderate level (2.99). The training service for community was not conducted regularly. The training curriculum was not formulated in the beginning so the training program was not sustained.
2. **Administration.** This problem was at a moderate level (3.22). There were no the reports to community, no operation plan or prior plan for activities, and sometimes, the center closes the service.
3. **Equipment.** The problem in infrastructure and facilities was at a moderate level (3.27). The computer sets, especially in the small size centers, were not enough for services and training. Some buildings of centers lacked aircons.
4. **Location.** This problem was at a moderate level (2.30). The centers were far from the downtown and were difficult to reach. Some areas were located in the church and school. Some were located near internet cafés so users prefer to use the computers in these shops rather than in the center.

5. **Staff.** The problem involving center’s staff was at a moderate level (3.51). This include the insufficient number of service staff who are knowledgeable in using ICTs, and the number of nonpermanent staff and part-time staff.

6. **Networking.** The problem was at a moderate level (2.96) in terms of lack of human networking, no connection in the centers, and ICT issues in government offices.

7. **People participation.** This problem was at a moderate level (3.30). The people in community did not see the significance of the ICT-CLC.

**Part 2 The strategic plan for strengthening ICT-CLC**

The strategic plan was developed based from the survey data gathered from the ICT Community Learning Centers. In general, this included 2 strategies.

2.1 Opportunities to increase capacity and enhance the learning standard of people with electronic media (e-Learning).

1. **Making policy to promote media creation for learning community plan**

<table>
<thead>
<tr>
<th>Planning</th>
<th>Project/Activity</th>
<th>Output/Indicator</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Making policy to promote media creation for learning the community plan</td>
<td>1. The workshop training for video on demand in local wisdom documentary project 2. The development of local wisdom database for continuing the learning project</td>
<td>1. Satisfaction of trainee 2. Efficiency of local wisdom database</td>
</tr>
<tr>
<td>2. Promotion of staff &amp; volunteers to develop &amp; use electronic media (e-Content) to continue community learning plan</td>
<td>1. The organization of ICT knowledge bank</td>
<td>1. Efficiency of organization of ICT knowledge bank 2. Satisfaction of customer services in organization of ICT knowledge bank</td>
</tr>
<tr>
<td>3. Promotion &amp; cooperation of public &amp; private sector to e-Contents co-creation for community learning plan</td>
<td>1. The development of e-Learning media to increase capacity in agro-industry project 2. The development of e-Training in the occupations course for the people project</td>
<td>1. Efficiency of e-Learning media &amp; e-Training 2. Satisfaction on e-Learning media &amp; e-Training</td>
</tr>
</tbody>
</table>
2. Development of the quality of life, community, environment, and national stability strategy.

<table>
<thead>
<tr>
<th>Planning</th>
<th>Project/Activity</th>
<th>Output/Indicators</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Enhancing the stability of economy and occupations for people plan</td>
<td>1. The ICT based learning &amp; sharing for wealthy project  2. The promotion of leadership &amp; administration project  3. The promotion of local wisdom &amp; occupations for the people project</td>
<td>1. Percentage of occupations &amp; employment  2. Percentage of increasing benefit for people  3. Value of overall economy</td>
</tr>
<tr>
<td>2. Developing the quality of life, community, healthy, and security in life and property plan</td>
<td>1. The enhancement of ICT knowledge for quality of life project  2. The knowledge enhancement of community network for quality of life development project  3. The promotion of alternative energy use &amp; production project</td>
<td>1. Percentage of ICT use via community network system  2. Percentage of happiness in people &amp; community  3. Number of alternative energy use &amp; production in household</td>
</tr>
<tr>
<td>3. Conservation of Thai identity for ASEAN community plan</td>
<td>1. The promotion of knowledge conservation for historic and cultural purposes in 4 regions of Thailand project  2. The promotion of basic English language skills project  3. The promotion of learning for culture in ASEAN community project</td>
<td>1. Percentage of people knowledgeable in Thai history  2. Percentage of people with basic English language skills  3. Percentage of people with of culture in ASEAN community</td>
</tr>
</tbody>
</table>

2.2 The evaluation of strategic plan

Findings of the focus group discussion in the Strategic Plan for strengthening ICT-CLC Capability revealed 6 issues. These were as follows:

1. The suitability of the strategic plan for strengthening ITC-CLC
The suitability of the plan was at a high level. It can be used in the training course with the objectives matching their size. The consideration for the strategic plan focused on the motivation to participate in the center, develop the structure of the center organization, and the training curriculum compatible with ICT skills.

2. The suitability of work plan and activities of ICT-CLC
The center activities should be planned with emphasis on computer skills, specifically on using the internet in their daily lives and on the identities of the community.

3. The suitability of the project under the workplan of ICT-CLC
The plan should be used after the community recognition of the significance of the center. This could inform the people, motivate, and encourage them participate in the activities. Available media in the village may be used to match their needs.

4. The suitability of the product and index under ICT-CLC
The product showed in the plan maintained the ICT application to the basic IT literacy and devices, develop the website and simple computer software for community use.

5. The suitability of the financial requirements under project of ICT-CLC
The budgetary requirement of the project need not be equally distributed but should depend on the level of the project significance. Some projects were capable of requesting financial support from the ICT Ministry.

6. The opinion and suggestion toward the strategy
The priority of the plan should train the staff and provide assistance to develop some media in the internet. This could support the people to learn more about their knowledge wisdoms and the ways to apply the web
for major occupation development. This may also be good for outsiders to learn about the products and services of the community.

The ICT-CLC committee and staff worked as volunteers so they need to have compassion for the community. In order to uplift their morale more, their sacrifices must be recognized may be by MICT.

The network collaboration among the nearby ICT-CLC should be included in the plan in terms of exchanging the knowledge and products of each community. The electronic commerce may be developed and worked out together by the community members, involving the private sectors.

In conclusion, the following strategies can be used as suggested by the experts:

1. The recognition strategy or the paradigm shift on how to use ICT in ICT-CLC focusing on knowledge access and sharing. The operation plan would not only be used just as “the Internet Café”.

2. The participatory strategy of the community to emphasize the perception, accessibility and participation in the center development such as center management structure and people services through the various communication.

3. The enhancing potential strategy for center staff and people in the community.

**Part 3 The evaluation of the action plan**

Findings in the implementation of strategic plan revealed that the suitability of the plan was at a high level (4.11). The assessment of the ICT-CLC involving the plan also found that the community participated in local wisdom collection with the team and bring about the indigenous knowledge to construct the online media on two websites: http://donpingdad.ictlearningcenter.org and http://khemasampun.ictlearningcenter.org.

The Local Wisdom Knowledge Management Model in strengthening ICT-CLC was tried out and tested. The result showed a good level. This implies that it could be applied in the other centers. The target center staff had the skills and the ability to workout (4.57), and could bring about the knowledge to utilize with the network.

**Part 4 The evaluation of the KM Model for strengthening ICT-CLC**

The output of the model was modified after the researcher implemented the strategic plan and the experts’ verification. The evaluation showed that the KM Model for strengthening ICT-CLC has high efficiency level for use in other centers. The final KM 5-Step Model was verified as follows:
7. Discussion and conclusion

The investigation of the practice of the ICT-CLC in small, medium, and big – size centers in the central regions of Thailand showed that there were some aspects in the training, management, equipment, location, personnel resources, human network, and participation that are required to improve and strengthen the service potentials. These finding bring about the strategic planning by the researcher and the target centers in the remote area in the lower central region of Thailand. The strategic plan had been implement at 2 centers in Petchaburi Province.

The strategic plan implementation showed that the center and staff were satisfied. They could use the knowledge gained from the training program to develop their website and use in disseminating their local wisdom to the community and outsiders, as well. They could share their capabilities by using ICT knowledge under the strategic plans. This may come from the outcome of strengthening the potentials of the center administrator and staff with the participation of the people of the community.

This research recommends the following: 1) the administrator should have a policy on public relation about the center services in collaboration with other centers as networks; 2) the administrator of ICT-CLC should
plan the budget for the long-term activities to implement the program effectively. They should be open for other sectors to participate in the projects, especially the private sector; 3) the center administrator should prepare the operation plan for the important project in ICT teaching and learning of the community; 4) the development of the internet infrastructure and the stability of the network by continually providing service facilities; 5) the center staff should develop their knowledge management for local wisdom, improve their online learning media production techniques, show compassion, and strengthen the service for the center care officer, and upgrade the capability in equipment services from time to time.

8. Author acknowledgements

The authors would like to acknowledge the Kasetsart University Research and Development Institute for the research grant and the Kasetsart University Department of Educational Technology for the facilities and equipment used in this research.

9. References

International Telecommunication Union, 2005 Community Development through ICTs, World Summit on the Information Society. WSIS.
Sompong, Narong, 2013, Learning Management in Enhancing Potential of Thai Community ICT Learning Center Project for ICT Development and Utilization, Procedia - Social and Behavioral Sciences 00 (2013) 000–000
http://www.thaitelecenter.org, available 7-05-13