GUIDELINES FOR DEVELOPMENT OF INFORMATION MANAGEMENT SYSTEMS FOR LAB SCHOOL LIBRARIES IN THAILAND

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Received: February 14, 2018; Revised: August 8, 2018;
Accepted: January 8, 2019

Abstract

Lab school libraries are important learning resources for children and teachers. This study aims to explore the state of information management systems in lab school libraries in Thailand and to develop guidelines to improve them. The sample group included 400 teacher librarians in mixed quantitative-qualitative research. The quantitative approach used statistical analyses with percentage, means and standard deviation and found that 98.18% of teacher librarians had knowledge and ability to use Microsoft Word and library automation software for information management. The qualitative findings revealed that the teacher librarians were equipped with knowledge and abilities to use both basic computer software and the library information management software. They reported problems related to computer usage, inadequate computers for reading promotion, inefficient OBEC Library Automation Systems for cataloging, and inadequate budgets to update software. The approaches for information management development in lab school libraries indicate that, based on an adequate budget, most schools needed to formulate an information system development plan for the library as a learning resource, to provide computers for library data storage, and to hire a librarian with a degree in library and information science together with library staff who can manage information and communication technology in the school library

including a website to foster the use of an information system to make use of existing learning resources.

Keywords: Information management; lab school; school library; lab school library

Introduction

A lab school project was initiated on April 22, 2003 in accordance with cabinet approval from the Ministry of Education. The stipulated missions were: 1) school selection should follow community intentions and needs; 2) school development should seek concrete and ongoing support from potential private and state-enterprise sectors, in addition to government provided annual budget; and 3) the instructional process should cooperate with nearby higher educational institutions and Rajabhat Universities, with hands-on student training as currently practiced in demonstration schools (The Ministry of Education, 2010). In this case, cooperation from all parties concerned to develop, support, and accept responsibility, will provide opportunities for Thai children to have better lives through educational advantages. The mission of lab school libraries is to create a positive learning community that will recognize, foster, and assess ongoing improvement toward high levels of academic and social achievement for students, pre-service teachers, faculty and staff.

At present, the operation of the One Amper, One Lab School project is still in effect following the government's policy to foster equitable quality standards among schools, as well as to improve the quality of education with the use of information and communication technology (ICT) (The Ministry of Education, 2010). After training the teachers who did not have degrees in library and information science, 17,284 teachers were able to use ICT while 1,511 teachers were able to employ ICT to develop their own work. However, an inadequate budget and insufficient aids from library-monitoring higher-education institutes have resulted in poor motivation among teacher librarians. This outcome was confirmed in a study by Petchsalabkawe (2009), indicating low levels of achievement in instructional and information technology management in lab schools in Narathiwat Province. The results reveal that the teacher librarians did not use information technology in teaching.

A part of the explanation for poor outcomes is indicated in the growing body of research regarding the relation of quality of school facilities to achievement, and attitudes, including teacher librarians' attitudes and resultant behavior. School libraries have played a part in recent discussion on the quality of educational infrastructure in Thailand. In fact, it has been noted that teacher librarians do not use ICT in instruction.

Information management refers to the management of processes and systems that create, acquire, organize, store, distribute, and use information. The goal of information management in lab school libraries is to help students access and use information effectively. Doing so helps lab school libraries to operate more competitively and strategically, and indeed, helps people better accomplish educational tasks and become better informed (Choo, 2002; Detlor, 2010). Moreover, information management of lab school libraries views the treatment of information as a strategic resource that needs to be managed like any other critical organizational resource, including people, equipment, and capital. Many organizations recognize the potential value of information and the need to be aware of what information resources exist in an organization, as well as the costs associated with acquiring, storing, processing and using that information (Karim and Hussein, 2008).

In addition to the aforementioned surveys, there is other research regarding educational practices in lab school libraries in Thailand. As Suwanthanongchai, Jenkwao and Sithitool (2015) found, the school library under the jurisdiction of Pathumthani Primary Educational Service Area Office 2 achieved a high level of management effectiveness, with problems at a low level. Rank scores for the problems studied from highest to the lowest were for management, technology, services and activities, respectively. Also, a study by Anchalisangkas' (2010) revealed that the problems faced by schools in using ICT systems were at a moderate level mostly related to budgets, personnel, and computer networks. It was found more specifically, that the major problems faced by most libraries included a lack of personnel who could maintain the system and widespread computer viruses. Furthermore, Petchsalabkawe's (2009) research suggests that teacher librarians do not use information technology in teaching. The library has shifted from being a place where children had access to books for reading and information, to a place in which the learner is the focus. School libraries are no longer "repositories of information but transformational spaces, where information is not only accessed, shared and stored, but challenged and created for information management (Erikson and Markuson, 2007).

To develop lab schools, learning resources must be made available. This effort also abides with the law that stipulates the government's role in

supporting in- and out-of-school learning resources to foster life-long education for Thais. The National Education Act of B.E. 2542 (1999) stipulated in item 25 that the state is required to adequately and efficiently establish all types of life-long learning sources, including public libraries, museums, art galleries, zoos, public parks, botanical gardens, science and technology parks, sports and recreation centers, and other learning resources. This study explores the state and problems surrounding lab school libraries, the lack of teaching facilities and the fact that teacher librarians do not use ICT for instructional purposes. The researchers, therefore, decided to explore a concrete approach to develop information management in lab school libraries; the policy generated from these research findings will be presented further to the Office of the Basic Education Commission of Thailand.

Research Objectives

1. To study the information management system in lab school libraries in Thailand.

2. To develop guidelines to improve information management in lab school libraries in Thailand.

Research Methods

This study is based on a mixed method research foundation combining strengths and avoiding weaknesses of a single approach qualitative and quantitative study. The mixed methods research design makes use of Explanatory Sequential Design (Creswell, 2013). The research is divided into 2 phases: Preliminary Quantitative Research to answer the research problem objective 1 and continues with qualitative research to help clarify the results of objective 2.

1. Quantitative research approach

1.1 Population and sample

1.1.1 The population of this study consisted of 2,626 teacher librarians and school directors in basic education in lab schools that participated in the One Amper-One Lab School project in Thailand (Basic Education Commission, 2011).

1.1.2 The quantitative sample consisted of 400 librarian teacher assistants in the One Amper-One Lab School project in each province in all regions in Thailand. The sample size was derived using elementary sampling theory (Yamane, 1973) (p=0.05). The sample was selected using stratified random sampling. First, researchers selected the lab schools in each province in proportion to the total number of lab schools in that particular province, and then used simple random sampling to select the lab school, and eventually recruited the teacher librarians working in the selected lab schools.

1.2. Research Tools

A questionnaire asking about the information management system in specific Thai lab schools under study was used to collect data from the selected subjects. It was brought to 4 experts to validate item clarity, appropriateness of wording, construct validity, and content validity. The research instruments were content analysis and an index of item objective congruence analysis (IOC = 0.8-1.0). It was later modified in accordance with their advice and proposed for final approval to the research advisor. The questionnaire was tested with 30 non-sample teacher librarians in lab school libraries. The alpha coefficient of .915 indicated the questionnaire had high reliability.

The questionnaires were sent to participants with a self-addressed envelope of which 365 completed questionnaires were received from teacher librarians (91.25%) and 360 interview forms from school directors (90.0%) for further analysis. The questionnaire consisted of the following parts:

1) Section 1: Check-list questions on personal demographics of the sample analyzed using a percentage;

2) Section 2: Scalar questions about the state of information management and use in the library in the lab schools in question. The queries included library-type information management, meaning the process of library work. It was analyzed using frequencies and percentage;

3) Section 3: Scalar questions were asked about problems stemming from the use and management of information, as well as opinions on how to develop, improve, and seek an approach to deal with information management in lab school libraries. The data in this section were analyzed using percentages, and analyzing comments, observation, and recommendations. This data was fundamental for phase 2 of the research and may be affected by the research

process or its outcomes. To analyze the quantitative data, the researchers synthesized and categorized the data, and presented it in descriptive and frequency formats.

2. Qualitative research approach

This phase concerned the question list that came from the results of sections 2 and 3, as well as general opinions which were used to generate the question frames for in-depth interviews in the qualitative research. The interview question form was proposed to four experts to validate accuracy and clarity. In accordance with appropriate use of wording and objectivity, the content was tested using the method of Index of Consistency (IOC=.89).

The researchers proceeded as follows to gather information from selected key respondents:

1) 400 executives were selected from lab schools in Northern, Northeast, Central, and Southern areas, to be interviewed to determine how to develop information management systems for lab school libraries. 310 completed interview question forms (78%) were received for further data analysis.

2) A set of questions for interviews were derived from the findings from sections 2 and 3 of the quantitative questionnaire.

3) Suggestions of the teacher librarians

The queries were broken into three main parts:

Part 1: Information Management Plans in the Lab School Library;

Part 2: Information Technology Development;

Part 3: Information Management Software Development as a Learning Resource.

4) The qualitative data was analyzed, synthesized and categorized in accordance with the 5 predetermined issues, and presented descriptively in essay format.

Results

Phase 1: The state of Information Management in Lab School Libraries in Thailand

A list of methods and survey results from interviews are statistically summarized in Table 1.

Table 1: Frequency and Percentages on the State of Information Management in Lab School Libraries

Variables	Frequency	Percentage
1) Lab School Libraries with 1-5 computers for work	208	56.98
2) Availability of computers as a channel for learning resources, and an internet connection for education purposes	340	93.15
3) Knowledge and ability to use Microsoft Word and OBEC Library Automation System for information management	358	98.18
4) Problems using the library computer	300	82.19
5) Existing information management software in the library used for information circulation and exhibiting information for the promotion of reading	339	92.87
6) Registering library resources, and encouraging library use among teachers and students	309	84.65

As shown in Table 1, the overall state of information management in lab school libraries is sorted into 6 variables in order of importance, most to least. Knowledge and ability to use Microsoft Word and library automation software for information management was 98.18% in the sample, followed by computers used as a channel for learning resources, and an Internet connection available for education purposes with 93.15%. Similarly, existing information management software in the library for information circulation and exhibiting information for reading promotion was 92.87%.

The development of guidelines to improve information management by school directors of lab school libraries.

To begin, most schools had initiated a plan to develop information management in the school library as a learning resource, along with implementation of the plan as required by the basic education office. The 3-phase evaluation (pre, during, post) of the implementation was conducted using a questionnaire, behavioral observation code sheet, and a satisfaction measurement scale. In addition, teacher librarians were assigned to be in charge

of the library, but most had neither experience nor a degree in Library Science or Information Science which is a disadvantage.

The results are characterized in the following example statements:

"*I think most schools had initiated a plan to develop the information management of the library as a learning resource*"

"It's hard to put into practice as most of the teachers assigned to be in charge of the library had neither experience nor a degree in Library Science or Information Science"

Secondly, it was reported that computers were used for library data storage, book registration, the circulation system, data searches, and statistical recording of library use. The students used computers to search for information to write class papers, while the teacher librarians used them to produce their academic work and to enhance self-learning. In this case, despite their ability to use computer software in their work, the school personnel needed knowledgeable and experienced library staff with a degree in Library Science or Information Science, as well as an assistant specializing in information and communication technology to supervise, maintain and develop computer software. The computers should also be capable of serving modern automatic library management software, to provide more accessibility to a variety of content. A website should also be created to enable round-the-clock access to information and learning resources, to publicize library activities, and coordinate with other higher education institutions and external organizations.

Further interview examples.

"*I think, in this case, school personnel needed a knowledgeable and experienced library staff with a degree in Library Science or Information Science, as well as an assistant specializing in information and communication technology, so as to supervise, maintain and develop the computer software"*

Thirdly, features of information management software as a learning resource were used mostly in instructions as well as to record library data, for book registration, book searches, loan services, issuance of library cards, and recording statistics on library use, students' favorite books, and top readers. Since the school was provided with an automatic library system by the office of the basic education commission, it should regularly update the system to be a

full-scale electronic library. As a result, the school could gather information regarding the school itself, areas of study, school history, available learning resources and their characteristics, local speakers (monks and teachers), cultural knowledge, and details of local festivals. These kinds of information should be available for further reference and may have beneficial uses for all parties concerned.

The following is another example from an interviewee's comment on this point:

"It is possible to have the school more regularly update the system to be a full-scale electronic library"

"The librarian should be equipped with the ability to exhibit and update information, message, and read students' statistics"

Fourthly, some problems were revealed in information management. The schools need to recruit a librarian with a degree in library and information science to be on school staff. Moreover, teacher librarians in all areas should convene to set an information management plan for the lab school library. Some schools, however, lacked staff and teacher librarians directly in charge of the library services as well as a member of staff to maintain the computer information system. Other problems included staff lacking knowledge to improve and maintain basic computer software or even to optimize computer operation; unavailability of system maintenance staff when needed; inadequate service equipment; and a lack of funds for ongoing updates of the information management system.

The following comments are typical from interviews:

"*I think a librarian with a degree in library science and information science should be recruited as school staff.*

"The teacher librarians of the schools should convene to set an information management plan for the lab school libraries"

Phase 2: The development of guidelines to improve information management in lab school libraries

The stated findings were elicited from in-depth interviews with 13 key expert respondents, consisting of seven experts in library and information science, five experts in technology and communication, and one executive of a

lab school in the One Amper-One Lab School project. The following are constructive approaches generated to manage information in lab school libraries:

1. Information collection

1) Explore all types of information, both quantitatively and qualitatively, and then categorize the available information while eliminating irrelevant information.

2) Investigate the needs of users of both electronic and digital media and books in the library, including students, teacher librarians and the community, and promote information sharing that responds to those needs. Various information and learning resources in the community should also be explored.

3) All information formats should be made available, including print media (important for children), and electronic media, and then stored in a digital database-system center, and transformed into Pdf files or electronic instructional media. Moreover, the library should also provide eye-protection devices for children since frequent use of fun-and-exciting computer-based information is generally detrimental to their eyes.

4) A distinctive strategy to organize information in the lab school library should be established by brainstorming from teacher librarians, executives, school personnel, students, community, parents, and all school stakeholders. The strategy should be synthesized with knowledge from the community, and integrated with knowledge of all areas using learning mechanisms. Hence, with network cooperation, diversity and coverage of information both inside and outside the education system will eventually go forward. Moreover, equipment from the locality should be applied as part of an information collection tool, in addition to IT devices.

2. Steps to search information resources

1) Explore the information resources in the community where the library is located, focusing particularly on the types and categories of information, e.g. museum/archives/natural parks, etc. In this case, cooperation with the resources researched should be enhanced, since the school library information may be inadequate.

2) Explore the community's information resources in person by interviewing community leaders, teacher librarians, school directors, and community members. This endeavor may be assigned to students as homework to explore information resources in their neighborhood.

3) Order information from publishing houses and book shops, or produce information from school teachers themselves, e.g. guidebooks for teacher librarians with content relating to curriculum, or counseling guidance. Gather online information resources that support instruction and explore the reading needs of teachers and students to be used for further procurement.

4) Procure updated and advanced information resources, and avoid redundancy by pre-checking an existing information resource list. The procurement process should be set as a distinctive strategy network since the nature of the information is diverse and may come from both inside and outside the education system. Moreover, instead of using only the established procurement budget, generating local knowledge from a cooperation network should also be emphasized.

3. Information checking

1) Appoint a committee to draft regulations for the lab-school library, with students helping to cross-check with local teachers, teacher-librarians, internal and external experts, and multi-sourced documents. This will serve as a student training forum for research and communication skills. In addition, transparent information checks should include searches for originality and existing patents.

2) Librarians should consider the advancement of curriculum content to update and improve them so as to extend children's imagination. As such, they need to focus on credible authors and production sites, procurement of updated (no more than 5-10 years old) information resources to cover content specified in the curriculum. Hence, the library has to establish regulations regarding the age of information to procure and the length of time to keep it, as well as how to keep core information.

3) Force each library to submit a report via a specifically designed system for fast and correct investigation. An additional measure including on-site surprise visits to each library in order to ascertain quality control and problem recognition for further solutions should be considered.

4. Analysis of information processes

1) Be aware of types of information storage, e.g. on shelf, in computer, or in cloud computing, and data structure, since each type requires a different handling process. Moreover, the information types to be analyzed or processed, and the relevant analytical purposes should also be determined.

2) Analyze the types and extent of information resources used and needed by students and teachers, and the data which should be further processed for operational improvement of the library. Also, adequacy of available information should also be investigated. This data and all aspects of library operations should be periodically reported on a monthly or bi-monthly basis.

3) Procure software for database management with connectivity both inside and outside the school library. This is for the annual checking of informational resources in the database for outdated or missing information, so as to update it as well as to analyze and process the stored data to make the report responsive to service users' needs.

4) Establish a linked system to be accessed by any library to acquire a more extensive search beyond each library's capabilities. This will eventually result in inter-library loan services and an operational report summary with various formats and flexibility. The data generated will be available for further analysis and serve as a development plan for lab school libraries all over Thailand.

5. Information storage

1) Store information in document and e-document formats to save space, for convenience of use, and to respond to users' changing needs. In this case, a web server from the Electronic Government Office should be requested instead of purchasing a separate server. In addition, standardized content should be established for common implementation, books stored as local collections in the library, and the system itself procured within budgetary limits, and properly designed to suit users, especially students.

2) Store the information in a pre-established library database, or develop one for the school itself for easy storage and access with space and facilities for print or audio-visual media, so as to prolong information life and face value.

3) Catalogue the information in accordance with the Dewey standard, with the AACR2 or Metadata cataloguing methods, e.g. Dublin Core Metadata in explicating the digital content and contexts in audio-visual, voice, picture, text, and mixed media (e.g. web page implementation). The Dublin Core Metadata is presently functioning on the basis of XML and resource description framework (RDF) in the case of building a data warehouse for an American-type library. Yet, in a library for primary-school children, color shades or symbols of animals, trees, etc. may be more effective to refer to information content. The information may also be stored in the database designed by librarians themselves to gather data about library operations by categorizing it according to areas of study. In this case, the storage of print information resources on shelves should be limited to those not older than 5-10 years.

4) Store information in the library database using Microsoft Excel or Microsoft Access, automatic library software provided by The Office of Basic Education, Library 2000, or digital library software (Greenstone) to create a digital media database or digital library, with instructions on installation and use.

Greenstone is open source software distributed under the GNU General Public License. Thus, users may learn about source codes, modify software operation, and freely distribute the modified version to others. Greenstone was developed by a research team from Waikato University in New Zealand to operate on the operation systems of Microsoft Windows 3.1 to 2000, Darwin for Mac OS X, Solaris, and FreeBSD2. The purpose of this software is to develop a Digital Library (DL), in order to group the digitally formatted documents for easy search and access, and manage the digital library both online and offline, such as document distribution via CD-ROM.

The strengths of Greenstone are that it supports various Metadata, can format past (ISIS) and future documents, and be tailored to efficiently develop a digital library in accordance with the developer's needs. In addition, information management development and information storage should be carried out following the information cycle and school information structure, and with specific consideration for users including school executives, teachers, and students.

5) Instead of purchasing their own server, the schools should request space in the server of the Office of Electronic Government. The content should

follow a commonly practiced standard, with related manuals stored as a local collection in the library. The system itself may be purchased within the limits of available budgets, with specific concern for users, especially students.

Thus, practical approaches to develop information management for lab school libraries were elicited from the stated steps in the information management process. First, the national policy of the lab school library should be established, and its importance recognized by government administrators, by Ministry of Education executives, and school executives. This means that this issue should be part of a national agenda, and the library should be perceived as a critical tool for nation building. Moreover, the school has to be prepared to implement information and communication technology, and to make an automatic library available in the library.

Conclusion and Discussion

Most librarians and library supervisory teacher librarians surveyed were equipped with no more than five computers for information management in lab school libraries. Their internet connections were also used for literature research and as a learning resource. Most used Microsoft Word, Internet Explorer browser and an automatic library circulation system along with an exhibition designed for reading promotion. In this respect, information is a value added to the instructional technology system. Hence, teachers and students alike should be able to search for information resources that coincide with curriculum content or respond to learner's interests. As a result, the collection of available information resources should provide services beneficial to both teachers and students. Tipaksor (2010) reported a congruent finding that, at the lab schools located in the Office of Roi-et Primary Educational Service Area 3, school executives, teachers, and students reported insignificant differences regarding the usage of 5 categories of learning resources-print media, electronic media, in-school, local and personal learning sources.

Crow and Kastello (2016) also compared the intrinsic motivation of children to search for information in Colorado Springs, Colorado, and in Kampala, Uganda. It was revealed that their life experiences had fostered intrinsic motivation to seek information, and the Ugandan students exhibited

more competence-building activities than their Colorado Springs counterparts, who were prone to noncompetitive dispositions. These attributes have also been identified by the American Standards Association of School Librarians' Standards; that is, 21st-century learners acquire competence from both internal and external school environments.

The learning resource used most by teachers and students was the school library, while the least accessed was electronic media. The problems encountered the most were reckless use of learning resources; lack of budget to create, purchase, maintain, improve, or develop resources to quality standards; inadequate computer hardware and inefficient cataloging systems. However, most teacher librarians have reportedly formulated a personnel development plan aimed particularly at teachers and students who use library services. In general, most used the information in the lab school library to a moderate degree, especially print media, non-publication resources, and e-documents.

Most teacher librarians reported inadequate computers and inefficient software for cataloguing purposes. They also reported having a plan for personnel development focusing specifically on encouraging teachers and students to use the library services. After training, most used the library information in lab schools at a moderate level, e.g. print and non-publication media, and electronic documents. Nobaew (2016), who investigated learning processes and knowledge management in Lanna communities via electronic media, indicated that information serves as a basic right and should be readily accessible for use by anyone. The two villages in the study in Chiang Rai possessed a similar structure of information exposure by receiving centralized information from various media and exchanged information among community members. However, they were different in terms of media use, group arrangements, and assessment of information from traditional and electronic media.

In addition, the librarian should be equipped with the ability to exhibit and update information, send electronic messages, and read statistics from students in all fields. More effort should also be invested in cataloging, correcting information lists, canceling outdated information older than 5-10 years, around–the-clock information searches and an automatic internet book return system in the school library, as well as information storage in various

forms, e.g. document formats, pdf files, presentation files, websites, CD-ROM, and electronic files and databases. Furthermore, to develop the information development system in schools, information storage should be made available in universal formats to facilitate easy access and use by students and community members. Such efforts are also in accordance with the online- and pdf-related criteria of education quality assurance. Additionally, easy and quick download capability should also be made available.

These findings were also supported by Robins (2015) who conducted research on strategies employed in school libraries. She stated that a successful library program should be initiated with well-planned research for systematic improvement and to generate data-based evidence. Respondents in Robins study reported using the Internet the most. This is due to the fact that computer technology and the Internet have played an increasingly important role in society, enabling significant social change via the online community. Hence, school executives and teacher librarians recognize the importance and benefits of the application of technology application in schools and daily life.

School executives and teacher librarians realized the importance of the internet in data management, instructional management, to enable fast and convenient teaching-related work, to provide updated information, and to motivate learners. A study by Shields and Behrman (2000) on computer technology use with children revealed several findings. First was the family, teacher librarians, and caretakers had to equip children with necessary skills and methods for proper use of online software. The study indicated that children were enthusiastic to use computer technology for communication with others and to search for information worldwide. Second, the children became more confident in using the computer technology through creative activities, and cooperated and chatted with other children in class. Prapawaog (2015) studied the identity and efficiency of online communication among secondary school students. It was found that new media use had increased audience satisfaction, information use, and assisted in the acquisition of knowledge. To develop communication for clip-format online publicity and advertising, they needed a computer, a smartphone, the Internet, and social networks to enable easy and low-cost access to a specified target group.

The school should also consider using free available software, for example, the library management software invented by the Office of Basic Education Commission (The Ministry of Education, 2010). A budget for software development should be allocated for further round-the-clock connectivity with other libraries. Executives and all parties concerned should support the idea of the lab school library by establishing a policy and budget to allow each school to have a librarian and assistant in information and communication technology. Inter-office cooperation should also be promoted. For example, the Ministry of Science and Technology should utilize its knowledge in network software and technology to establish a network of information management in school libraries across Thailand.

This effort is consistent with that of the National Science Technology and Innovation Policy Office regarding the Development Plan of Information and Communication Systems (2018), through which the management via information technology and communication media in the lab school can connect school data with all offices and generate a report and an information management guidebook for each school. As a result, such a plan would enable the lab school to efficiently utilize the network, the basic education center and equipment, multimedia, and learning center for curriculum-related knowledge management. The school could additionally have digital media, e.g. e-Library, e-Books, e-learning, etc. for instructional development; a website for knowledge exchanges and knowledge distribution to the public; a maintenance network; and information management system with database linkage, operational processes, and system reports. Thereby, every teacher librarian would be able to efficiently organize his learning activities using information and communication technology.

Suggestion

The approach to develop information management systems in lab school libraries in Thailand should focus specifically on overall systematic procedures, starting from the formation of national policy on lab school libraries, with government administrators and the executives of the Ministry of Education and schools formulating a national agenda for using libraries for nation building.

As a result, an adequate budget, a librarian with a degree in library science and information science, and an assistant in information and communication technology should also be made available. The Ministry of Science and Technology should be brought in to utilize its knowledge in network software and technology to establish a network of information management in school libraries all over Thailand. Therefore, the generated approach for developing information management for the lab school libraries in Thailand are 1) Steps for information collection 2) Steps to search for information resources 3) Steps to check information 4) Analysis of information processes and 5) Information storage.

Acknowledgements

The researchers would like to thank the Research Council of Thailand for their funds provided through the Research and Development Institute of Suan Dusit University and The Office of the Basic Education Commission in The Ministry of Education support for phase 2 research.

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