

Factors Affecting Research Support Services in the Research University Libraries in Thailand

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【Abstract】

This research was conducted as a part of the study on model development for research support services in research university library in Thailand. An increased focus on research within the universities, driven by the government's research agenda, has heightened interest in research provided by academic libraries to enhance research within the universities. The research aimed for studying the factors having effects on providing research support services in the research university libraries in Thailand. Quantitative method was used as a research methodology. The purposive sampling was used to obtain the sample group of research university libraries, one library from each four regions. The questionnaires were sent to the research samples: 1) researchers, including permanent faculty staff and graduate students, and 2) service staff who were librarians and information specialists of the research university libraries. The data was analyzed by using descriptive statistics, and explorative factor analysis. For the research findings based on the descriptive

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2016/10/24 received; 2016/12/20 accepted

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statistical analysis, it was found that information technology was the most important factor to have impact on research support services in the library, followed by information resources, users' skills, service staff, and management. However, based on the factor loading values the highest factor loading was information resources, followed by information technology, staff's competency, service management, and users' skills. The findings in this research will be useful for library administrators and academic librarians and information scientists to review and find ways for their changing roles in order to be congruent with the research university's mission.

【Keywords】

Research support services; Research universities; Library's research supports; Research universities' libraries

INTRODUCTION

Research is the foundation for competitive capacity in socio-cultural development owing to its important role in socio-economic growth. Thus, strengthening research capacities means building long-term national advantages. The UNESCO's World Conference on Higher Education for the Twenty-first Century clarifies the objectives of this level in terms of research support and development in social, cultural and economics. Research must be promoted in sciences and technologies along with social sciences, humanities and creative art (UNESCO, 1998). Additionally, our confronted crises of the world phenomena and the higher education reform itself have impact on the necessity of Thai higher education to divert its management direction so as to respond to social needs. This is done through research and value adding to personnel and product qualities. The Office of Higher Education Commission initiated the university research promotion project and development of the "national research universities" with a target of 7-10 Thai universities reaching the world class level and having the capacities to produce research work that meet with the country's developmental demand. Nine universities have the criteria set by the committee and were upgraded as the national research universities in 2009. Under this project

it is expected that Thailand will produce a larger number of researchers, who would not only support the social and economic development of the nation, but also improve the international ranking of Thai Higher Education as a whole. The indirect benefit of the project will include increasing the country's competitiveness, and building up multiplying effects in terms of research capacity and human resources in Thailand (OHEC, 2011).

In a knowledge intensive society, the research university is a key institution for social and economic development. While research universities represent only a small proportion of higher education, other institutions often look to them as models so their influence is greater than their numbers would suggest. Research universities are institutions with a high priority on the discovery of new knowledge and the production of doctoral study programs in a wide range of disciplines. While research universities also educate undergraduates, train professionals for a wide range of positions, provide service to society, and engage in applied work and technology transfer, their distinguishing feature is the production of new knowledge especially (but not exclusively) in science and technology areas. To achieve this mission, research universities must provide the necessary infrastructure — libraries, laboratories, technicians, and administrative support — for conducting scholarly work at the highest levels (Mohrmana, Meb, & Bakerc, 2008).

The Research Information Network in the UK, in its advocacy work with vice-chancellors and senior institutional managers, concluded, “good library and information services are an essential underpinning for research, just as they are for successful teaching and learning” (Research Information Network, 2008). It is conceivable then, that the efforts of the Library in providing support to the research community have contributed towards the impact and quality of the research being carried out at the university. In Australia, an increased focus on research within Australian universities, driven by the federal government's research agenda, has heightened interest in the services and resources provided by academic libraries to enhance research within higher education institutions. While academic libraries have always had as part of their mission support for research within the university, what constitutes this support has changed over time (Kennan, Corral, & Afzal, 2014). Reviews of the web pages of the world renowned research universities' libraries in the United States also found that they have offered

research support services to the university's research communities. The services were ranging from consultations with subject-specialist librarians, course-related instruction and workshops, and citation management software and expertise to research guides, online tutorials, and the vast collections and resources provided for use. There was also a report on an analysis of research support services at international best practice institutions in Denmark by Larsen, Dorch, Nyman, Thomsen, and Drachen. (2010) which indicated that eleven international (UK, USA, The Netherlands, Australia, and Singapore) and eight Denmark's national university libraries have had clear research vision and services. Research support services were developed more or less organically, and service contents were moving toward becoming more tool-oriented, i.e. with less focus on the traditional information objects; books, journals, manuscripts. Take for example the field of scholarly publishing: the libraries focus was moving from acquiring, cataloging and local dissemination – in their OPAC and on web pages – of books and journals, to instead facilitating the production and publication of books and journals, to supporting the authors on legal issues and to disseminating globally.

For universities in Thailand in general, there are two organizational units responsible for research support, the Research Division under the university administration, and the Central Library. The Research Division is usually responsible for enhancing and promoting research activities and productions of the university researchers by seeking for financial supports and scholarly research networks. The Central Library is usually providing information, reference, and bibliographical services. However, based on the challenges of research strategies of the universities, it is also critical that the universities need to have an effective research publications and services management. For example in some universities, the Research Division or the Central Library have started working on the development of an institutional repository, but in many universities it is still a question of which organization shall responsible for this. As well as other research services such as, development of researchers' capacities, providing research tools, etc. are still on an argument.

Although the research universities in Thailand have been announced for 5 years to strengthen the national research development, there has been very little movement on changing roles for research support services

in those research universities' libraries. Reviews the web pages of the nine research universities' libraries in Thailand in the year of 2015 found very few research support services. The study of Leenaraj and Tuamsuk (2012) found that there were some efforts on research support services found, such as providing e-resources on research theses of post-graduate students, developing the institutional repository of research publications, and providing advices on research information searching. The library administrators recognized the importance of strengthening the library staff competencies on providing research support services. Some administrators have mentioned on the needs for subject librarians in Thai academic libraries who have educational backgrounds in the subject areas other than library and information science. It can be said the needs for changes were recognized, but the real changes have not occurred. This study is a part of the research that looking for the model for research support services in the research university's library so that it can be guidelines for changes in the future. The study of the factors affecting the research support services in the libraries is a part of a model development.

RESEARCH OBJECTIVES

This research is aimed for studying the factors having effects on providing research support services in the research university libraries in Thailand.

LITERATURE REVIEWS

Excellent services that demonstrate success standards based on principles and the environment that lead to excellence come from reliability of the institution and service staff which results in confidence of users. The institution and service staff must be able to prevent and solve mistakes, must be impartial and give services beyond what is expected.

Information services comprise 4 main items: the information-service institution administrators, officers or service providers, users or customers, and the services used by users with the following details (Suebsonthi, 2005): (1) The information service institution administers with a focus

on the users, having strategic management, value service culture, service quality management, placement of importance on excellent model, creating changes and culture. (2) The officers or service staff authorize, set policies and plans to increase service capacities among the personnel to be able to use the information system and technology for communication to their optimal benefits. (3) Customer relation management is implemented for the users or customers. The requirements of users are studied, which include types of information users, information resources required for the research, characteristics of information for the research, information services for the research. (4) Services provided for users include electronic information services, individual customized services, service quality management, service zoning management, and value adding.

Study of the work by Corral and Brewerton (1999) revealed that there are 5 factors supporting information services in library: management, information resources, information service providers, users, and information technology, with the following details:

Management

Library management necessitates the study of missions and major objectives of the affiliate institution and translation into the missions of the libraries and the information services. The missions should be spelled out with the targets and aims of implementation stated. Prioritization of work should reflect details of each staff member's operation. Such is the essence of personnel administration. Planning should be in advance and management of service fundamentals and personnel evaluation should be performed to ensure confidence in staff development related to operation rewards.

Strategic management is an important mechanism of efficient administration. It consists of strategic planning, administering personnel and budget management as follows:

(1) Strategic planning is in fact anticipation of the future, a response to the surrounding factors, responsibility towards changes, all of which form the unity and direction for the institutional activities which are different from traditional long-term planning that only tackles indication and solution of problems. Strategic planning is the new trend that does not attach to continuity and is operated parallel to multiplicity of the future including the changes of quality directions. Bryson (1996) stated that strategic

planning requires compilation of broad information in order to find various alternatives; the information possessed would be important for decision-making in the future.

(2) Personnel administration, leadership, and leadership building for all levels of staff - Staff development takes into account analysis of training needs and all issues related to the responsible work with the use of modern tools. Team working builds motivation, increases capacities of each team and creates relationships among middle-level staff, team leaders, and head of sections in order to integrate knowledge and creativity in the work.

(3) Budget management is an important issue for libraries since this is where the library constraint is. Hence, the staff needs to understand the budget context and be aware of the worthiness of jobs which should be analyzed in order to improve all services.

The study of management factors to provide services in the research universities revealed the following essential mechanisms: strategic management, personnel management, and budget management. Importance should also be placed on pro-active implementation.

Information Resources

The major challenging job of the library's operations is finding the cooperation in prioritizing the services in information resources development and then ensuring that the activities done to develop the resources are in line with users' requirements. Subject librarians need to create products that are related to the field of responsibility, set clear policies for information resource development, set agreements for degrees of services, and procure effective facilities for selecting and developing more resources. Researchers use multiple resources of information from data to information, primary items in several forms such as books, academic journals, proceedings, government publications, etc. Librarians need to understand the ecology of knowledge of each discipline which is different from others and may be in the form of books, academic articles, research reports, or others. Besides, items stated by researchers as useful resources may vary. What should be aware of is that it is impossible for any library to serve users' needs sufficiently owing to budget constraints as well as limited library space. The library needs to publicize and operate so as to enable users to have access to existing information. This can be in the form of direct assistance and training

users to know and understand and be able to use information worthily. Technologies should be used and cooperation made among libraries to the fullest extent in order to support development of information resources (Webb, Gannon-Leary, & Bent, 2007). It can be said that information resource management under the network boundary can be complicated since there are multiplicity of resource types, both in hard copies and digital. The means of procurement can also vary, e.g., purchasing, acquiring license, and borrowing. It can be seen that management of information resources covers selection processes, acquisition, management, maintenance, and development of information resources according to users' requirements.

In a library's information resource development, the success depends on the following operations: (1) using pro-active operations for the staff and users, especially through the nature of lecturers and cooperation of subject librarians; (2) ensuring that the contents and forms of information resources selected support instructions, research, and other projects under the universities' responsibilities; (3) adhering to the efficiency of procurement and the rights of users in accessibility to resources by means of purchasing, acquiring, borrowing, and other means; (4) adhering to effectiveness of classification and inventories, displays/storing in order to rapidly and conveniently serve users who work intellectually; and providing access to physical resources; (5) maintaining resources for services by selecting the resources needed to be repaired and replaced with new ones in order to have good-condition resources for services at all time; (6) incorporating resources inspection for their appropriateness in terms of modernity/relocation to meet with users' needs and making the resources resemble a living thing; (7) planning strategies for developing information resources under the overall library's strategies and information strategies of the university including the academic plans.

The Research Information Network and Consortium of Research Libraries (2007) conducted a study on 250 researchers who used the United Kingdom university libraries and their services and 300 librarians. The results were used to improve the libraries and future services. Most researchers were found to use digital devices to retrieve printed matters. Few researchers in the fields of arts and humanities still searched printed items. The researchers wanted to be certain that users use the library resources as much as possible. The researchers applied various means to overcome obstacles in access to information. The libraries had to enlist those backlogs

to have the resources appear quickly in the database and reduce risks of inability to provide the resources until the researchers no longer use the library. In addition, high quality focus in meta-data and digital retrieving devices enable users to search both digital and printed resources. Formal borrowing from other libraries would decrease and researchers would rely more on informal mechanism to share information.

In conclusion, there are four factors supporting information resources management: (1) Development of a means to ascertain that resources provided meet users' needs and support the research under each university's responsibility, for instance, pro-active implementation to build cooperation from lecturers and evaluating the modernity, scope, content depth, and historical values of the resources; (2) Development of an efficient means for classification, listing and display of storage and inventories for convenience of use for both electronics resources and physical resources; (3) Maintenance of resources to retain their conditions and readiness for use, for example, repairing, substitution, storage zoning, etc.; and (4) Setting of visions in managing and developing resources, developing strategies for developing resources for research by taking into account the university's academic plan, prioritizing and allocating budget for procurement of each type of resources.

Information Service Staff

Because information technology and communications propel almost all information services, service staff must converge their roles in information technologies and professional capacities. Homepage can be designed and monitored with links to important information sources such as niche portals to the sources that are useful for target users. Librarians can participate in research (Webb, Gannon-Leary, & Bent, 2007). (1) They can assist in selecting the journal appropriate for publication of a certain researcher's article (Fan, 2005), i.e., in journals with high impact factor. Then the details in article writing can be recommended. (2) The number of librarians who can participate in developing research projects should be increased. (3) Librarians can add values to their consultation by giving the strengths and weaknesses of library resources in terms of research support. The values of resources that are the major components of the research lead to development of the library's resources as well. Therefore, librarians are the major assistants of the researchers. (4) Librarians support researchers by assisting

in retrieval of information for writing criticism, research literature, and advices for writing a new research project. Librarians may take an important role in the research team if the project is granted budget for literature study - which could raise an income for the library. Besides, assistance in research provides current research information that will result in efficient development of information resources.

The study of related literature on factors supporting information service staff showed that there are 5 important points to consider: (1) Occupational and expertise development, right attitudes and working principles, understanding of knowledge structure and information provided, retrieval skills and knowledge of retrieving tools, information management skills with a focus on facilitating users of different disciplines to have access to information, knowledge in other issues necessary for giving information services to support the university's research. (2) Knowledge related to their customers both as a group and individually in order to be able to truly provide information services based on studying of various types of customers both formally and informally, understanding the nature of changes both in users' needs and in ever-changing academic. (3) Awareness of the importance of all types of services and all areas in the library, investigating and evaluating work done, hearing all opinions in order to continually learn and improve work qualities. (4) Promoting information literacy in all channels possible since it is the basis of research and it supports researchers' academic communications by incorporating intellectual bank into information literacy training. (5) Being a researcher in order to understand and know about the science of research, increase of research skills, project management, demonstrating evident values to researchers, and understanding more about researchers' requirements.

Users Of Information Services

The rapid changes in technology will lead to a change of users. New researchers will emerge from the millennial generation or what is dubbed the 'Generation Y', the 'Digital Native', or the 'Screenagers' (Candy, 2006). This generation was born after 1982 and has a specific trait which must be taken into account by libraries for their future services. In general, the millennial group is well capable of the use of virtual information and is satisfied to do several things in social software programs. Meanwhile,

Byrnko (2006) explained the new group's trait to be "pessimistic, easily adjustable, flexible, cooperative, of no religion, and forever-entrepreneur". The millennial people are not necessarily more skillful than their previous generations. However, since they were born with technologies, with games and mobile phones, quick news sending and receiving, they are used to different types of digital tools and hence develop special characteristics libraries must understand.

Future researchers may have their ways of research from the different perspectives since they were born to be familiar with cooperation and team work. They also study in the system in which information transfer is mandatory. Additionally, the new generation has high expectation on the 24/7 (or around-the-clock communication). They therefore do not stand delays. Most of this new generation believes in Web 2.0 environment. It can be said to be the age of amateurs in which everyone is able to disseminate his or her own work as seen fit (using Youtube on the internet). This is another impact on the work of libraries. Brindley (2006) suggested that the millennial group thinks analogue is stationary and tedious. Modernization of information technologies forms a gap in critical thinking and research skills between generations. The younger generation is able to transform information or copy academic work needed using a technological tool on the website in a wink of an eye. Thus, it has become very important to instill awareness of intellectual properties and plagiarism in the millennial generation. It is necessary to reflect the community knowledge and skills by means of evidence that is the basis for working assumptions (Webb, Gannon-Leary, & Bent, 2007).

The SCONUL Vision 2010 (SCONUL, 2005) suggested that library and information sciences must promote cross-boundary research since it is advancement of technologies and electronics science. Research libraries will exist in this age only if they are flexible and determined to find a new trend for their role in the research community. It is the special sort of service that research libraries can develop to serve researchers and use as the basis for research development of research universities. Each group of researchers has different styles of library usage depending on individual characteristics, preference, and perspectives in the field. Principally, the library needs to prioritize the main customers (Webb, Gannon-Leary, & Bent, 2007). Erens (1996) conducted a survey and discovered that 75 percent of UK researchers

stated that their university library was the most important component in doing research. The same percentage believed that book resource in their library met their requirement at a good level. One third of their questionnaire respondents were not satisfied with the services of the library in their area. Most academics perceived the importance of access to good texts and academic journals (journals at 96% and books at 84%). Moreover, there were certain indications found in accessibility to journals. Academics from the old Oxbridge University were satisfied with the resources in the library at the highest level, while academics from new universities showed lowest satisfaction. Some behavioral changes were found; half of the respondents said they rarely selected books from the shelves now and one third said they visited the library less. It was also found that one fourth more often used other libraries than their university's library. The research results indicated clearly that access to electronic information services began to have impact – 50 percent of the respondents started to use electronics information resources more.

A research study by the Research Information Network (2006) revealed the changing needs and behaviors of researchers. It was found that researchers use services that ensure finding such as search engines, Gateway, library references, and databases. The research found medium satisfaction of discovery services, especially in scientific fields, despite the fact that researchers were not able to have access to the information at the final stage.

Information Technology

In today's situations, it is a must for libraries to provide services using technologies, the infrastructures of which are more advanced and at the same time challenging. Kumbakara (2008) stated that managed information technology services comprise sub-types of management including the service-level management, availability management, capacity management, IT services continuity management, and IT financial management. Technological and communication systems take their positions both as supporters and factors driving changes. In the study of information technology to support research services, we found an implementation example in Australia. Garner (2006) mentioned the main duty of university libraries and their methods to build participation from the academic community and plan the roles to support future university research where it becomes the international participatory activities. The facilitating element

is the internet, and the primary operations are on the infrastructure systems. This arose from the awareness of the vitality of infrastructures towards high-quality research and covered facilities such as the library.

RESEARCH METHODOLOGY

Data collection was performed by mailing the questionnaires to the target population and having areal personnel collecting data directly from the target groups of administrators, lecturers, and students of Thai universities affiliated with the Office of Higher Education Commission based on the baseline data inventory of March 2015. There were 116 universities involved, categorized into 14 governmental (public) universities, 12 governmental autonomous universities, 40 Rajabhat universities, 9 Rajamangala universities, and 41 private universities. The details of data collection are as follows:

The administrator group: The administrator here could be a vice president or an assistant to president, or an administrator in a position responsible for general production and development of the graduates' qualities of each university totaling 116 administrators. 81 completed questionnaire forms were returned (69.83%) from 12 public universities (10.34%), 9 autonomous universities (7.76%), 26 Rajabhat universities (22.41%), 7 Rajamangala universities (6.03%) and 27 private universities (23.28%).

This research was conducted using the quantitative research method by surveying data from users who were researchers, graduate students, and service staff who were librarians or information officers working in the research university libraries. The issue studied was on factors affecting research support services. The research analysis was performed based on the organizational unit which was the research university libraries in Thailand. The purposive sampling technique was used to obtain the sample group of research university libraries, one library from each four regions. The population under this study was divided into 2 groups: (1) researchers, including 5,052 permanent faculty staff and 36,505 graduate students of in the four research universities; and (2) 131 service staff who were librarians and information specialists of the research university libraries. The sample sizes of faculty staff and students were determined based on Yamane (1967) formula sample size calculation with the level of confidence at 0.5. The

number of samples and questionnaire survey were shown in Table 1.

The questionnaire was developed based on relevant academic concepts for posing questions that cover the research objective. Factors affecting the research support services in research university libraries including 5 factors with 37 items were listed in the questionnaire. The validity and coverage of the content of the questionnaire were tested by 3 experts, namely, one university research administrator, one university library director, and one library and information science professor who evaluated and analyzed the Index of Item-Objective Congruence (IOC) from 3 levels of the answers: +1 means suitable, -1 means not suitable, and 0 means uncertain. The results showed $IOC = 0.96$, which is considered congruent to the objective at a high level. The data was collected by sending the questionnaires via postal mails as well as self-collected at four research university libraries in the central, the north, the south and the northeast of Thailand which have been selected to be the sites for the study. The respondents were asked to specify their level of agreement or disagreement on a symmetric 5 agree-disagree on the 37 items in the questionnaire. The validity and discrimination values were found as shown in Table 2.

The following statistics were used in data analyses: (1) Descriptive statistics including means (\bar{x}), and standard deviations (S.D.), and (2) explorative factor analysis to identify the factor loading values of each item. All variables from the explorative factor analysis had the factor loading values greater than 0.30 which according to Kerlinger (1973) is acceptable.

FINDINGS AND DISCUSSION

Based on the descriptive statistical analysis (Table 3) it was found that information technology was the most important factor to have impact on research support services in the library ($\bar{x}=4.46$). The following factors were found next, listed in the order of the average scores: information resources ($\bar{x}=4.42$), users' skills ($\bar{x}=4.42$), staff's competency ($\bar{x}=4.38$), and service management ($\bar{x}=4.32$). However, based on the factor loading values (Figure 1) the highest factor loading was information resources ($\beta=0.940$) and the next were information technology ($\beta=0.908$), service staff ($\beta=0.901$), management ($\beta=0.869$), and users' skills ($\beta=0.861$) respectively.

Responses from the researchers revealed that information technology

had the highest average score to have impact on research support services in the library ($\bar{x}=4.47$). The next factors were, listed in the order of the average scores: information resources ($\bar{x}=4.42$), users' skills ($\bar{x}=4.42$), staff's competency ($\bar{x}=4.38$), and service management ($\bar{x}=4.31$). Responses from the service staff were found different from the researchers'. The service staff indicated that users' skills was the most important factor ($\bar{x}=4.48$) and the next were information technology ($\bar{x}=4.42$), information resources ($\bar{x}=4.41$), service management ($\bar{x}=4.36$), and staff's competency ($\bar{x}=4.36$).

Findings of the analysis of the sub-factors were as follows (Figure 1, Table 3):

Information Resources

Overall, this factor obtained the highest factor loading value ($\beta=0.940$). There are 8 sub-factors as follows, listed from the highest to lowest factor loading values: acquisition prioritizing to ensure the coverage of library's research collections ($\beta=0.853$); acquisition of research information resources based on the users' requirements ($\beta=0.810$); developing the research information resources regularly to ensure the up to date and current resources ($\beta=0.781$); promoting the uses of research information resources to ensure the cost-effectiveness of research support services ($\beta=0.779$); having the strategies to ensure the coverage of information resources to support the university graduate studies and research directions ($\beta=0.762$); ensuring the efficiency of the library's research information databases and providing open access to the university's community ($\beta=0.707$); providing timely and reliable research information that meet the needs of the researchers ($\beta=0.684$); and communicating the news on the library's research information resources using various channels and providing the channels for users' feedbacks ($\beta=0.684$).

Researchers rated the greatest importance of providing timely and reliable research information that meet the needs of the researchers ($\bar{x}=4.48$), followed by developing the research information resources regularly to ensure the up to date and current resources ($\bar{x}=4.47$), and ensuring the efficiency of the library's research information databases and providing open access to the university's community ($\bar{x}=4.47$). Service staff saw the greatest importance of acquisition of research information resources based on the users' requirements ($\bar{x}=4.53$), ensuring the efficiency of the library's

research information databases and providing open access to the university's community ($\bar{x}=4.52$) and promoting the uses of research information resources to ensure the cost-effectiveness of research support services ($\bar{x}=4.45$).

The results indicated the essential of having new ways on information resources management for research support services. Larsen et al. (2010) found that research support services are often developing more or less organically, and service contents are moving toward becoming more tool-oriented, i.e. with less focus on the traditional information objects, books, journals, manuscripts. In scholarly publishing the focus is moving from acquiring, cataloging and local dissemination to facilitating the production and publication of books and journals, to supporting the authors on legal issues and to disseminating globally. It is recommended that special focus be put on primary research data and accompanying metadata – data verses, environments for generating and sharing research content. The study of Garner (2006) also indicated that a range of new services targeting the research output of the university were emerging to support researchers. Many of these research output services were initiated by and/or promoted by library staff who, in many cases have the technical skills and expertise to make research output available globally using the Internet. These services take libraries beyond providing access to published scholarly information to becoming the publishers of the information. Examples include: electronic theses, institutional repositories of peer reviewed e-prints, e-press publishing of institutional journal titles, BLOGS & WIKIS, and repositories for grey literature. MacColl and Jubb (2011) suggested that in term of library resources for research supports, it included widening and deepening the range of resources whenever possible, promoting services widely to the research community using a number of different mediums, targeting the external research community, offering support through the mediums of Collaborate and Skype in addition to e-mail and telephone, and introducing a workshop on the different types of social media available and their usefulness for research.

Information Technology

The factor relating to information technology received the second highest factor loading value ($\beta=0.908$). It comprises 7 sub-factors, listed according to the highest to lowest factor loading values as follows: having the budget planning and allocation of the budget on ICT for research support

services ($\beta=0.809$); having sufficient ICT for research information searching ($\beta=0.802$); ensuring the ICT for research support services is available both inside and outside the library ($\beta=0.787$); providing access to research support services through the library's website which effective usability and meets the users' needs ($\beta=0.754$); having high quality and innovative ICT for research support services ($\beta=0.753$); having high capacity computer networks to support research services of the library ($\beta=0.748$); and having the strategic plan on information and communication technology for research support services ($\beta=0.746$).

On the information technology factors, both researchers and service staff placed the greatest significance on having the high quality and innovative ICT for research support services ($\bar{x}=4.58$ and 4.54), and the next were having high capacity computer networks ($\bar{x}=4.53$ and 4.54), and ensuring the ICT for research support services is available both inside and outside the library ($\bar{x}=4.52$ and 4.46). Service staff also saw the importance of having the budget planning and allocation of the budget on ICT for research support services ($\bar{x}=4.46$). The findings correlated with Kumbakara (2008) noted that the advanced and modern technological infrastructures are the challenges for modern libraries. Most researchers and present students do not normally come to the library since research resources outside the library are available in great quantities. Therefore, unlimited access to research information resources in the library should be the technological services that respond to users at the greatest degree of efficiency. Garner (2006) mentioned the main duty of university libraries and their methods to build participation from the academic community and plan the roles to support future university research where it becomes the international participatory activities. The facilitating element is the internet, and the primary operations are on the infrastructure systems. This arose from the awareness of the vitality of infrastructures towards high-quality research and covered facilities such as the library.

Staff's Competency

The factors relating to service staff's competency received the third order of factor loading value ($\beta=0.901$). There are 9 sub-factors listed according to the highest to lowest factor loading values as follows: having the knowledge and understanding on the concepts of research and the importance

of research ($\beta=0.790$); having ability to give advice on the research's ethical, legal and plagiarism issues ($\beta=0.772$); having ability to give advice on reference and bibliographic writing ($\beta=0.760$); having service mind and good understanding of users who are researchers in different fields ($\beta=0.754$); having trained in the research skills to understand how research works are conducted ($\beta=0.738$); having opened-minded for the users' feedbacks and providing appropriated response ($\beta=0.691$); having flexible personality, proactive, and quick response to the users ($\beta=0.628$); having ability to give advice in selecting research topics, research designing, literature review and research publications ($\beta=0.548$); and having the knowledge on research information resources and research information retrieval skills ($\beta=0.532$).

Researchers saw that staff's competency of having service mind and good understanding of users who are researchers in different fields was the most important factor ($\bar{x}=4.60$), while service staff rated the highest factor on having the knowledge and understanding on the concepts of research and the importance of research ($\bar{x}=4.65$). The next important factors for researchers were the knowledge and understanding on the concepts of research and the importance of research ($\bar{x}=4.57$), and having flexible personality, proactive, and quick response to the users ($\bar{x}=4.53$). And the next important factors for service staff were having service mind and good understanding of users who are researchers in different fields was the most important factor ($\bar{x}=4.59$), and having ability to give advice on reference and bibliographic writing ($\bar{x}=4.48$).

MacColl and Jubb (2011) found that new area of mission for libraries seemed at best orthogonal, and at worst irrelevant, to the support needs of researchers. Academic staff and researchers are time-poor. They want to concentrate on their research with the minimum disruption. They will comply to a limited degree with what they perceive to be bureaucratic intervention in their working lives, because they realize that some of it is necessary. Therefore, the challenges for librarians and information scientists would be how they could cover with the new requirements for research supports. It should be noted, therefore, that this research findings prioritized the importance of knowledge and understanding on the concepts of research and the importance of research, followed by knowledge in referencing and bibliography, ability to give knowledge and consultation in quoting others' writing, flexible personality, understanding and quick response to users. This

correlated to Thomas (2011) who suggested that research service librarians must embrace “research literacy” or “e-research literacy” and start to work more closely with the scholarly community. Moreover, the librarians should be “research liaison, which implied that librarians involved in research liaison require a broad overview of researcher needs across disciplines and the scope to design new services for researchers based on the changing landscape (Parker, 2012). Mamtora (2013) found that with the increasing changes in the role of librarians in the research process and their relationship with researchers, the qualifications they need to have to be able to competently carry out their duties are inevitable changed. The necessary competencies are including knowledge to advise on data management, support researchers in complying with the various mandates of funders, including open access requirements, advise on potential data manipulation tools used in the discipline/subject, advise of sources of research funding to assist researchers to identify potential funders. In addition Kennan, Corral, and Afzal (2014) suggested that research service librarians should have the knowledge required for bibliometrics and research data management services.

Service Management

The factors relating to service management received the fourth order of factor loading value ($\beta = 0.869$). It consists of the following 7 sub-factors, listed in the order of high to low factor loading values: having clear strategic actions in providing the research support services ($\beta = 0.853$); allocating budget for information resources and facilities to support research services ($\beta = 0.810$); developing the research skills of librarians to be able to support research ($\beta = 0.781$), developing the necessary skills for research support services to librarians and staff ($\beta = 0.779$); prioritizing the research support services as the important strategy of the library ($\beta = 0.773$); building the organizational culture in providing research support services to the university community ($\beta = 0.762$); having suitable administrative structure to support research services ($\beta = 0.707$); and having the regular evaluation of the quality of research support services to enhance effectiveness ($\beta = 0.684$).

Researchers rated the greatest importance of allocating budget for information resources and facilities to support research services ($\bar{x} = 4.39$), followed by prioritizing strategies for research support information services as the important strategy of the library ($\bar{x} = 4.37$), and building

the organizational culture in providing research support services to the university community ($\bar{x}=4.33$). While the service staff rated the greatest importance of developing the necessary skills for research support services to librarians and staff ($\bar{x}=4.48$); prioritizing the research support services as the important strategy of the library ($\bar{x}=4.46$), and having clear strategic actions in providing the research support services ($\bar{x}=4.46$). It is a recommendation to formulate a strategy for the area of providing research support services, formulate clear goals for the institution as well as for the individual services, dedicate resources for running services, dedicate resources to developing services, coordinate existing services, provide overview of goals and services (internally and externally), participate in networking and user activities, position university libraries as part of the university research infrastructure (Larsen et al., 2010).

Users' Skills

The factors relating to users' skills received the fifth order of factor loading value ($\beta=0.861$). It includes 5 sub-factors, in the following order: computer and information technological skills ($\beta=0.873$); information literacy skill ($\beta=0.831$); information seeking behaviors ($\beta=0.777$); skills of working with the others and information sharing ($\beta=0.763$); and knowing how to provide service, and knowledge of research information resources ($\beta=0.732$).

Researchers saw that the most important users' skills was information seeking behaviors ($\bar{x}=4.52$), followed by information literacy skills ($\bar{x}=4.43$), and computer and information technology skills ($\bar{x}=4.40$). Service staff saw that the most important users' skills was information technology skills ($\bar{x}=4.61$), followed by computer and information technology skills ($\bar{x}=4.54$), and information seeking behaviors ($\bar{x}=4.54$). This correlated to Garner (2006) who found that the demand for training both for postgraduate research students and academic staff has increased with many new electronic services and resources available to support research. Training workshops may include information literacy for the researcher, bibliographic management software, referencing styles for academic publishing, citation searching, More specifically Larsen et al. (2010) suggested that academic library should offer training for research students in use of Web 2.0 technologies for research purposes: blogs, RSS feeds, etc. Training research students in use of Web 2.0 technologies is a collaborative initiative between

the library and a learning technologies innovation unit in the university.

RECOMMENDATIONS

The university having a vision and strategic aim to develop towards becoming a research university or to strengthen its research competitiveness should consider positioning its “library as one of the driving forces” behind the strategic aim besides faculties and the research institute or center responsible for research products and research administration. The university library is a supporting unit equipped with high-quality knowledge, information and communication technology channels to reach other external resources. The research results reflect a truth that the library of a research university with high achievements has clear visions and policies in being the university’s research support organization, with outstanding model roles for library development in different and interesting dimensions. The researchers thus recommended the following application of the research results in university libraries:

(1) Establishing a strategy to improve research-support services – Although Thai research university libraries see the importance of the role to support and promote research, most research support services are still inherent in the general information services. From studies of the strategies of leading university libraries in the world, their research support unit or research support roles are clearly established. Thai university libraries wishing to become outstanding in their research support roles should set clear, short- and long-term strategies in this respect. Clear strategies influence resource allocation and activities which must be achieved each year according to the plans.

(2) Provision of library infrastructures for supporting research – If research support services are the important strategy and the prominent role, then infrastructures are necessary to accommodate concrete operations. The study shows that researchers and service providers see that physical condition of the research university library is an important supporting factor. In addition, it was found that both the researchers and staff see that the research university libraries do not clearly demonstrate this. The infrastructures necessary for research support services in a university library consist of a unit or staff directly responsible for research, a space or inside environment for giving services, information technology and

communications and knowledgeable and capable personnel to conduct research support services.

(3) Management of research support information resources – In principle, although university libraries manage information resources that enhance and support instruction and research, if the library wants to focus on research support then it is necessary to set policies for management of information resources according to the university's research strategic direction. Many aspects could be profound or relate to the research strategies in disciplines outside any curriculum or instruction. The library needs to know the university's research themes, details of each sub-theme and consider how it would manage information resources to respond effectively to the needs of researchers and graduate students.

(4) Development of capacity of research support service staff – It can be said that some types of services for research support are new for library staff. Existing staff may not be prepared in terms of service proficiency or the number of competent officers may not be sufficient. It is vital for university libraries to set a means to strengthen the staff's capacity. These capacities include knowledge in the disciplines to support research and knowledge on doing research; skills in giving advices, teaching, communicating, and doing research; and personal attributes. Service staff should be open to new knowledge, react quickly, ready to provide flexible and several patterns of services. These are the characteristics important for development of the library and information science occupation towards being a subject specialist or librarian. The means of development could be obtained from successful libraries abroad. It may be necessary to invest by organizing on-the-job training apart from training as a big group normally organized by university libraries in general.

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Table 1

The number of samples and returned questionnaires

Population of the study	Population (Person)	Number of samples (Person)	Returned questionnaires (set/persons)	
1. Researchers				
1.1 University faculty staff	5,052	357	230	64.43
1.2 Graduate students	36,505	379	297	78.36
2. Service staff (Librarians and information specialists)	131	131	112	84.73
Total	41,688	867	639	73.70

Table 2

Testing the validity and discrimination values of the questionnaire

Inherent variables in supporting factors for research support services in library	Number of items (37)	Experimental group using the questionnaire(n = 35)		Real sample group(n = 639)	
		Validity	Discrimination values	Validity	Discrimination values
		Cronbachs' alpha coefficient	Standard Deviation (S.D.)	Cronbachs' alpha coefficient	Standard Deviation (S.D.)
1. Service management	8	.846	.643 - .837	.934	.752 - .862
2. Information resources	8	.818	.510 - .761	.934	.719 - .781
3. Staff's competency	9	.827	.402 - 1.470	.900	.671 - 1.052
4. Users' skills	5	.816	.500 - .710	.900	.706 - .785
5. Information Technology	7	.831	.471 - .752	.923	.700 - .751

Table 3

Factors affecting the research support services in Thai research university libraries

Factors affecting the research support services in Thai research university libraries		Users		Staff		Total	
		N=527		N=112		N=639	
		Mean	S.D.	Mean	S.D.	Mean	S.D.
1	Service management factor	4.31	0.634	4.36	.815	4.32	.667
1.1	Prioritizing the research support services as the important strategy of the library.	4.37	0.727	4.46	.879	4.38	.758
1.2	Having suitable administrative structure to support research services.	4.23	0.731	4.30	.786	4.24	.786
1.3	Having clear strategic actions in providing the research-support services.	4.32	0.761	4.46	.909	4.34	.788
1.4	Allocating budget for information resources and facilities to support research services.	4.39	0.734	4.45	.868	4.40	.755
1.5	Developing the research skills of librarians to support research services.	4.29	0.834	4.41	.694	4.30	.861
1.6	Developing the necessary skills for research support services to librarians and staff.	4.28	0.828	4.48	.910	4.31	.843
1.7	Having the regular evaluation of the quality of research support services to enhance effectiveness.	4.31	0.804	4.21	.981	4.29	.833
1.8	Building the organizational culture in providing research support services to the university community.	4.33	0.717	4.12	.789	4.29	.817
2	Information resources factor	4.42	0.573	4.41	.823	4.42	.622
2.1	Having the strategies to ensure the coverage of information resources to support the university graduate studies and research directions.	4.40	0.722	4.35	.867	4.39	.748
2.2	Acquisition prioritizing to ensure the coverage of library's research collections.	4.42	0.719	4.30	1.003	4.40	.775
2.3	Acquisition of research information resources based on the users' requirements.	4.40	0.687	4.53	.849	4.42	.717
2.4	Developing the research information resources regularly to ensure the up to date and current resources.	4.47	0.704	4.36	.932	4.44	.750
2.5	Promoting the uses of research information resources to ensure the cost-effectiveness of research support services.	4.36	0.718	4.45	.894	4.37	.757
2.6	Ensuring the efficiency of the library's research information databases and providing open access to the university's community.	4.47	0.690	4.52	.870	4.48	.729

Factors Affecting Research Support Services
in the Research University Libraries in Thailand

Factors affecting the research support services in Thai research university libraries		Users		Staff		Total	
		N=527		N=112		N=639	
		Mean	S.D.	Mean	S.D.	Mean	S.D.
2.8	Providing timely and reliable research information that meet the needs of the researchers	4.48	0.725	4.40	.956	4.47	.767
2.7	Communicating the news on the library's research information resources using various channels and providing the channels for users' feedbacks	4.36	0.737	4.37	.962	4.36	.779
3	Staff's competency factor	4.38	0.536	4.36	.775	4.38	.587
3.1	Having the knowledge and understanding on the concepts of research and the importance of research.	4.57	0.620	4.65	.835	4.58	.669
3.2	Having trained in the research skills to understand how research works are conducted.	4.33	0.744	4.37	.959	4.33	.784
3.3	Having the knowledge on research information resources and research information retrieval skills.	4.18	0.800	4.01	1.127	4.15	.869
3.4	Having ability to give advice in selecting research topics, research designing, literature review and research publications.	3.92	1.026	3.81	1.143	3.92	1.049
3.5	Having ability to give advice on reference and bibliographic writing.	4.44	0.700	4.48	.968	4.45	.755
3.6	Having ability to give advice on the research's ethical, legal and plagiarism issues.	4.41	0.773	4.37	1.004	4.40	.816
3.7	Having service mind and good understanding of users who are researchers in different fields.	4.60	0.644	4.59	.876	4.59	.695
3.8	Having opened-minded for the users' feedbacks and providing appropriated response.	4.49	0.679	4.47	.880	4.48	.716
3.9	Having flexible personality, proactive, and quick response to the users.	4.53	0.696	4.45	.915	4.51	.740
4	Users' skills factor	4.42	0.592	4.48	.732	4.42	.623
4.1	Having information literacy skills.	4.43	0.681	4.61	.809	4.49	.706
4.2	Having knowledge of research information resources.	4.33	0.761	4.39	.894	4.34	.785
4.3	Having computer and information technological skills.	4.40	0.700	4.54	.782	4.42	.723
4.4	Having skills of working with the others and information sharing.	4.37	0.733	4.31	.839	4.36	.752
4.5	Having the information seeking behaviors.	4.52	0.676	4.54	.793	4.51	.712
5	Information technology factor	4.47	0.537	4.42	.777	4.46	.588

Factors affecting the research support services in Thai research university libraries		Users		Staff		Total	
		N=527		N=112		N=639	
		Mean	S.D.	Mean	S.D.	Mean	S.D.
5.1	Having the strategic plan on information and communication technology for research support services.	4.44	0.649	4.39	.874	4.43	.697
5.2	Having the budget planning and allocation of the budget on ICT for research support services.	4.45	0.684	4.46	.848	4.44	.719
5.3	Ensuring the ICT for research support services is available both inside and outside the library.	4.52	0.648	4.46	.859	4.50	.695
5.4	Having high quality and innovative ICT for research support services.	4.58	0.623	4.54	.826	4.57	.669
5.5	Having sufficient ICT for research information searching.	4.53	0.676	4.54	.869	4.53	.712
5.6	Having high capacity computer networks to support research services of the library.	4.48	0.699	4.29	.946	4.44	.751
5.7	Providing access to research support services through the library's website which effective usability and meets the users' needs.	4.35	0.698	4.27	.890	4.33	.734

Factors Affecting Research Support Services in the Research University Libraries in Thailand

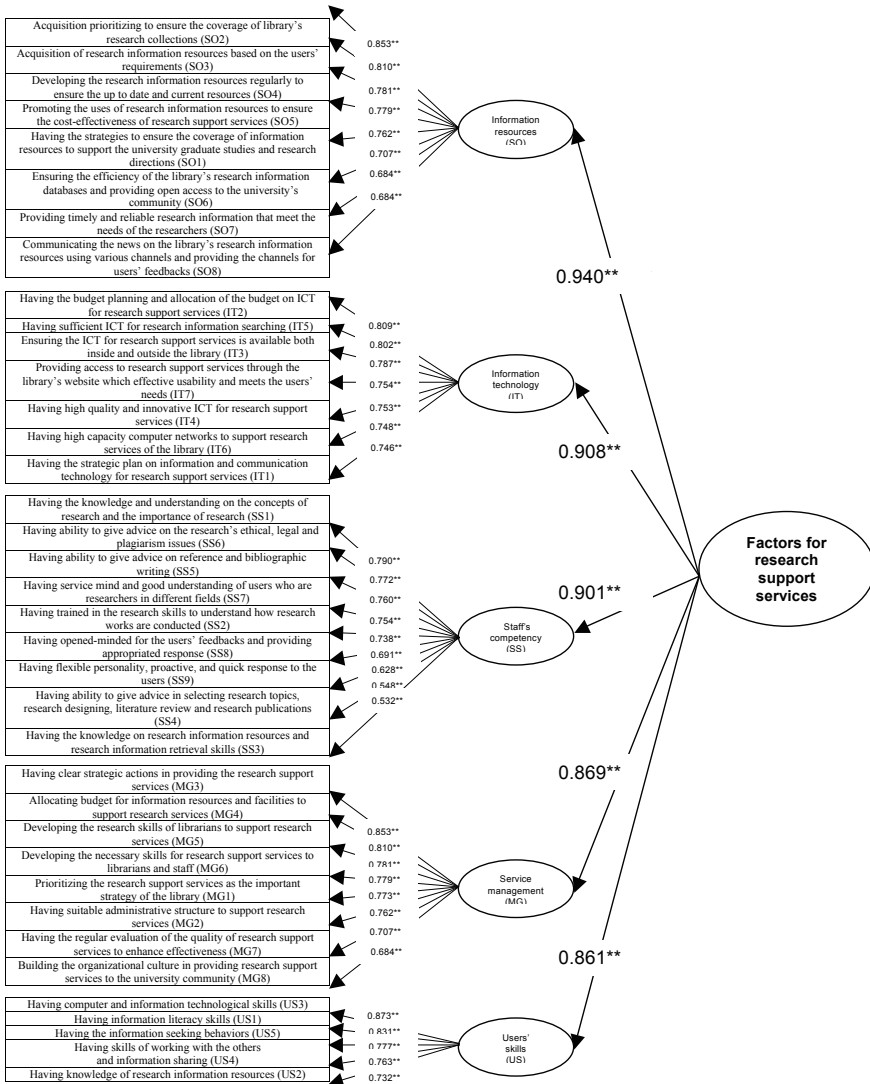


Figure 1. Factor loading values through confirmatory factor analysis

泰國研究型大學圖書館 研究支援服務影響之因素

Factors Affecting Research Support Services
in the Research University Libraries in Thailand

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【摘要】

本研究為泰國研究型大學圖書館對研究支援服務模型發展的部份成果。隨著泰國政府對學術研究的日益重視，大學開始更加關注相關議題，對圖書館如何強化校內之學術研究也益感興趣。本研究旨在了解影響泰國研究型大學圖書館提供學術研究支援服務各項因素。研究方法採用量化研究，針對研究性大學圖書館進行立意抽樣，每一區選出一間圖書館進行調查。調查問卷發送對象為：1、研究人員：包括全職教師以及研究生；2、服務行政職員：包括研究型大學圖書館圖書館員和資訊專家。將研究資料進行描述性統計和探索性因素分析後，發現資訊技術為影響圖書館研究支持服務的最重要因素，其次是資訊資源、使用者技能、服務人員以及行政管理。然而若獨立審視因素負荷值時，資訊資源具最高的因素負荷值，接下來為資訊技術、服務人員能力、服務管理以及使用者技能。本研究結果將有助於圖書館行政人員、學術圖書館員和資訊專家在面對時與俱進的研究型大學目標時，得以提

供審視並調整自身角色時的方法。

【關鍵字】

研究支援服務；研究型大學；圖書館研究支援；研究型大學圖書館