

## บทความวิจัย (Research Article)

# การวิเคราะห์องค์ประกอบเชิงยืนยันปัจจัยที่มีผลต่อการบริการห้องสมุด ที่เน้นผู้ใช้บริการสำหรับห้องสมุดมหาวิทยาลัยราชภัฏ

## The Confirmatory Factors Analysis towards Library Services with a Customer-Focused Model for Rajabhat University Libraries

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### บทคัดย่อ

การวิจัยมีวัตถุประสงค์เพื่อศึกษาปัจจัยที่สนับสนุนการบริการห้องสมุดที่เน้นผู้ใช้บริการสำหรับห้องสมุดมหาวิทยาลัยราชภัฏ กลุ่มตัวอย่างคือนักศึกษามหาวิทยาลัยราชภัฏ 38 แห่ง จำนวน 1,607 คน ใช้วิธีสุ่มตัวอย่างแบบหลายขั้นตอน เครื่องมือที่ใช้ในการวิจัย ได้แก่ แบบสอบถามออนไลน์ การวิเคราะห์ข้อมูลใช้การวิเคราะห์องค์ประกอบเชิงยืนยัน ผลการวิจัยพบว่า ปัจจัยที่มีผลต่อการบริการห้องสมุดที่เน้นผู้ใช้บริการกลุ่มนักศึกษาสำหรับห้องสมุดมหาวิทยาลัยราชภัฏ ที่มีค่าน้ำหนักองค์ประกอบสูงสุดคือ ตัวแปรด้านการจัดการลูกค้าสัมพันธ์มีค่าน้ำหนักองค์ประกอบมากที่สุดเท่ากับ 0.929 รองลงมาด้านความต้องการของผู้ใช้บริการ ตัวแปรด้านบุคลากรของห้องสมุดมีค่าเท่ากับ 0.843 และด้านพฤติกรรมของผู้ใช้บริการ พบว่า ตัวแปรด้านการใช้ทรัพยากรสารสนเทศและบริการห้องสมุด เท่ากับ 0.685

**คำสำคัญ:** ปัจจัยที่สนับสนุนการบริการห้องสมุดที่เน้นผู้ใช้บริการ ห้องสมุดมหาวิทยาลัย มหาวิทยาลัยราชภัฏ

### Abstract

The objective of this research was to study the factors that support the library services with a customer-focused model for Rajabhat Universities. The samples were 1,607 students from 38 Rajabhat Universities by stratified sampling. The data were collected by using online questionnaire, and analyzed by using confirmatory factory analysis. The findings

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were found that: Factors supporting a customer-focused library service found that the variable among the students with the highest factor loading score was the customer relationship ( $\beta = 0.929$ ). Likewise, the user needs found that the variable among the students with the highest factor loading score was the need of the library staff ( $\beta = 0.843$ ). The behavior of users found that the variable among was the information resource and library service the highest factor loading score ( $\beta = 0.685$ ).

**Keywords:** Customer-Focused library services, Academic library, Rajabhat Universities

## Introduction

The progress of information technology and racing condition have caused every organization to be ready for the change which will impact the organization to achieve its goals (Sarawanawong & Wipawin, 2018). The diversity of library services currently and the different needs of customers are the important challenges of university libraries to make use of strategies on service by supporting organization culture which focuses customers and service providers (Harland et al., 2019). The university libraries have important roles supporting the instruction, assisting the information customers, promoting reading habits, seeking information corresponding the customers' needs, preserving the arts and culture, being the knowledge based supportive resources, and promoting lifelong self-learning continuously for the community. Therefore, the librarians should apply the User-Centered Design (UCD) to bring the information and innovation application enabling the procurement of the qualified information resources and services to meet the customers' satisfaction (Kautonen & Nieminen, 2018; Kraft, 2019).

Customer-focused library service has become the essential phrase in the present era because the customers now have more choices in seeking information or service to meet their various needs; therefore, the library should turn back and revise the library services that focus on customer more in order to engage and keep the customers in the library because their behaviors prefer social network and information search via search engine more than Information retrieval via university website (Online Computer Library Center, 2011). In addition, Cribb & Holt (2012) stated that the Turkish students use the information resources to do homework or do research mainly via websites, followed by books. For the information resources to write reports and do research for students, they use internet the most. Moreover, the information resource format should be more electronic because of easy access and convenience; the university should increase the space for mutual understanding customers to allow them to share knowledge and experience or to do the actual project together (Maker Space), and the interlibrary loan that meets with the customers preference and save the cost for the library. Consequently, the occurrence of change causes the library to retrospect the roles and develop the service model through information technology for the convenience and speed service as follows: 24 hour-service via website, development of information retrieval speedily world wide

by OPAC, adding network on information retrieval everywhere and every time, making use of technology for librarian operation (Ganguly & Bhar, 2018; Gowda, 2015).

Visions of Rajabhat Universities are to produce graduates with unique, quality, capability and being the main institutions that integrate the know-how to innovate the local development in order to build security for the country. Libraries of Rajabhat Universities have taken King Rama X initiatives in terms of education being the institutions for local development by being learning centers, developing information resources and information technology with technology and innovation to support the missions of the universities and community services such as local development project, training project/academic service e.g. academic knowledge transferred activities and careers, librarians for the community and society, activities via innovative learning on information technology and computers to the community and society (Rajabhat University Strategies for Local Development within 20 years (2017-2036), 2018).

From the aforementioned reasons, as a researcher working in Rajabhat University, is interested in studying confirmatory factors towards library service with a customer-focused model for Rajabhat Universities of which no such research has been done on this aspect. The researcher has studied factors supporting library service focused on customers, which will lead to model development on customer-focused library services concretely for Rajabhat Universities and lead to practice explicitly and reform the services for the Rajabhat University libraries in the future.

## Objective of Research

To study the confirmatory factors towards customer-focused services for Rajabhat University libraries.

## Conceptual research framework

Customer - focused is the idea of management and marketing which was developed in 1950. It is an ability that can identify the customers' needs and satisfy the customers on service which is consistent with main organization strategy and customers are the crucial factors for the survival of the organization; it is the well known idea of the marketing on customer focused activities (Sanuri & Mokhtar, 2013).

This research is the study of factors influencing library services with a customer-focused for Rajabhat University libraries by studying the ideas and theories and related literatures as follows :

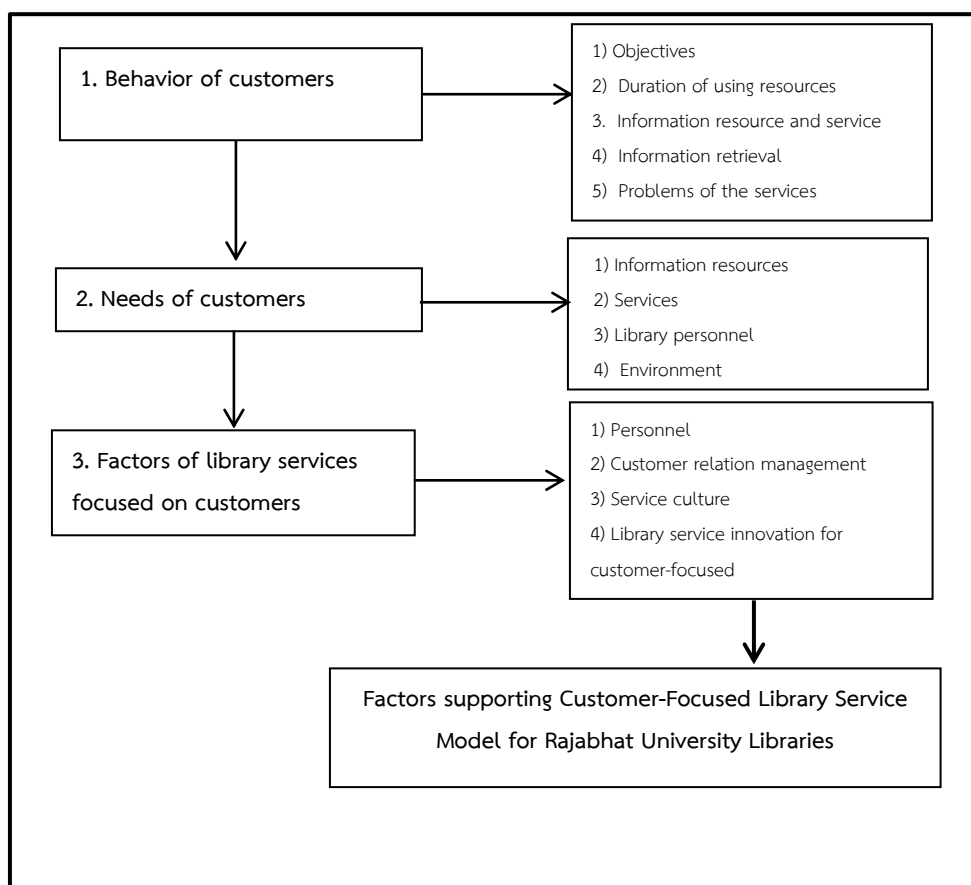
1. The ideas on behavioral study of library customers of which public library of Illinois has studied the Gretel Stock-Kupperman (2012) by starting from the study of customers' behavior using the library services. The factors are as follows: personal data, duration of using service, objectives of customers on using resources and information. This idea is consistent with the research of Robson & Robinson (2013) which studied the model building on information

behavior by connecting the searching information behavior and communication. From the study, it was found that the crucial factors on information behavior comprising 1) environmental context such as location, environment, culture, working factors, 2) status of respondents such as gender, age, education level, 3) expertise on the study or career excelled in, 4) psychological factors such as expectation of service e.g. searching information, library service received, the would-be knowledge, 5) the information met the need and goal achievement of the customers, 6) the information provider met with the customers' goal, and 7) type of information and information resources. Therefore, the researcher then study customers' behavior for Rajabhat Universities covering these 5 variables: objective, duration of using resources, information resources and services, information retrieval and problems of the services.

2. The factor study on the customers' needs, it was found that Stock-Kupperman (2012) studied the customer-focused service by providing the services that meet the customers' needs, presenting new services to attract more customers so that the development of tools is a must to study the customers' needs, which comprises of the study of service need, information resources, and environment. In addition, the research of Hossain (2013) that studied the design of cultural marketing focusing on the university library customers and it was found that factors on design of cultural marketing focusing on the library customers comprised of 1) the study of customers' needs, 2) the study of library personnel's needs, 3) customers' satisfaction, 4) personnel's satisfaction, 5) royalty of the customers, 6) the quality service, 7) assisting unit service provision, 8) assessment of services, 9) physical facilities of the library, 10) product quality, 11) service quality, and 12) service provider quality. This is consistent with the study of Afthanorhan et al. (2019) that studied the satisfaction towards the service which comprised of services, information resource retrieval, personnel, information resources, facilities, and environment. Thus the components aforementioned should be four variables for this study, namely, information resources, services, personnel of the library, and environment.

3. The factors supporting the library services have been found that Comb (2004) who studied the factors for customer-focused service successfully comprised of organization culture, personnel, leadership, and technology which will be crucial components to drive customer-focused business. From the previously mentioned, it has been applied with the marketing strategy of the library comprising of analysis of service value, convenience and fast, customer relation management, and organization culture which cause the successful services (Das & Karn, 2008). In addition, Yu & Sangiorgi (2018) studied the process of library service design that meets the customers' expectation by using the idea of service design. What to be considered is to understand the context of the customers for their conveniences as well as building value added and supporting the library services. Whereas Siriprasoetsin (2010) who studied factors supporting the process of customer relation successfully, there were four facets: knowledge and understanding factor of the library personnel, organization culture and communication, process

of customer management, technology supporting customer management. For this research, the researcher will study the factors supporting the library services focused on customers with four variables: 1) personnel, 2) customer relation management, 3) service culture, and 4) the innovation of customer-focused library services. Conceptual research framework:



## Research methodology

### Sampling

This is quantitative research to collect data on factors supporting customer-focused library services of Rajabhat University libraries from the customers who are students in 38 Rajabhat Universities by using sampling per observed variable ratio: 1 variable/20 students (Schumacker & Lomax, 2010). There are 13 observed variables, therefore the size of samples was 260 people by using proportional stratified random sampling classified by regions, namely, Southern Rajabhat Universities, Northern Rajabhat Universities, Central Rajabhat Universities, Northeastern Rajabhat Universities, Rajabhat Universities in Bangkok, and then classified by faculties. The data were collected by online questionnaires from February 28, 2019 to March

10, 2019 from 1,607 students who are respondents of the research and then the data were analyzed.

### Research instrument

The research instrument is a questionnaire covering issues on customers' behavior, comprised of objectives, duration on using information resources, resources and library services, information retrieval and problems on library services. These above questions use the nominal scales. On the issues of the customers' need which include the need of information resources, services, library personnel, and environment. For the factors supporting the library services focused on the customers, they cover the issues of personnel, customer relationship management, service culture and innovation of library service focused on customers. Likert scale is employed and then the constructed questionnaire is administered by using Cronbach's Alpha Coefficient with the value at 0.795 which shows that the questionnaire is at a high level suitable for the data collection.

### Data analysis

It is a single level confirmatory factor analysis with Mplus 7.3 program by analyzing coefficient among variables in the research of which is part of report of coefficient result between independent variables and dependent variables from 1,607 Rajabhat University students. The analysis is to test the linear correlation among the variables by finding the Pearson's coefficient value to identify the coefficient among the observed variables for the basic data on the Confirmatory Factory Analysis (Cohen, 1988).

### Research Conclusion

Confirmatory Factor Analysis is to test the validity or consistency of the model by considering the index criteria testing the consistency between the model with the empirical data.

**Table 1** Confirmatory Factor Analysis

Model structure (Cronbach's alpha)	The alpha coefficient of latent variable	P-Value	CR	AVE
<b>Behavior of library service (0.698)</b>			<b>0.830</b>	<b>0.364</b>
Objectives	0.606	0.000		
Duration of using resources	0.564	0.000		
Resources and services	0.685	0.000		
Information retrieval	0.598	0.000		
Problems of using services	0.558	0.000		
<b>Need of library customers (0.867)</b>			<b>0.902</b>	<b>0.639</b>
Information resources	0.759	0.000		
Services	0.783	0.000		
Library personnel	0.843	0.000		

Model structure (Cronbach's alpha)	The alpha coefficient of latent variable	P-Value	CR	AVE
Environment	0.812	0.000		
<b>Factors supporting customer-focused (0.927)</b>			<b>0.958</b>	<b>0.806</b>
Personnel	0.867	0.000		
Customer relation management	0.929	0.000		
Culture	0.908	0.000		
Innovative service for customer focused	0.886	0.000		

Confirmatory factor analysis indicates the completion of measurement quality

$\chi^2 = 60.784$  (df = 50) P-Value = 0.1412; tucker Lewis index (TLI) = 0.998; comparative fit index (CFI) = 0.999; Root mean square error of approximation (RMSEA) = 0.014 Standardized Root Mean Square Residual (SRMR) = 0.022

\*\*\*Remarks Composite Reliability (CR); Average Variance Extracted (AVE) has statistical significant (P-Value) < 0.001

From table 1 Results of confirmatory factor analysis of the model measuring latent variable of library customers' behavior were found that the alpha coefficient of latent variable of the customers was 0.698, the composite construct reliability at 0.830, and the average variance extracted at 0.364. In addition the observed variables with the most weighted factor was resources and services having the factor weight at 0.865, followed by the objectives of the library usage with the weighted factor at 0.606, whereas the variable with the least weighted factor was problems in service usage with the weighted factor at 0.558.

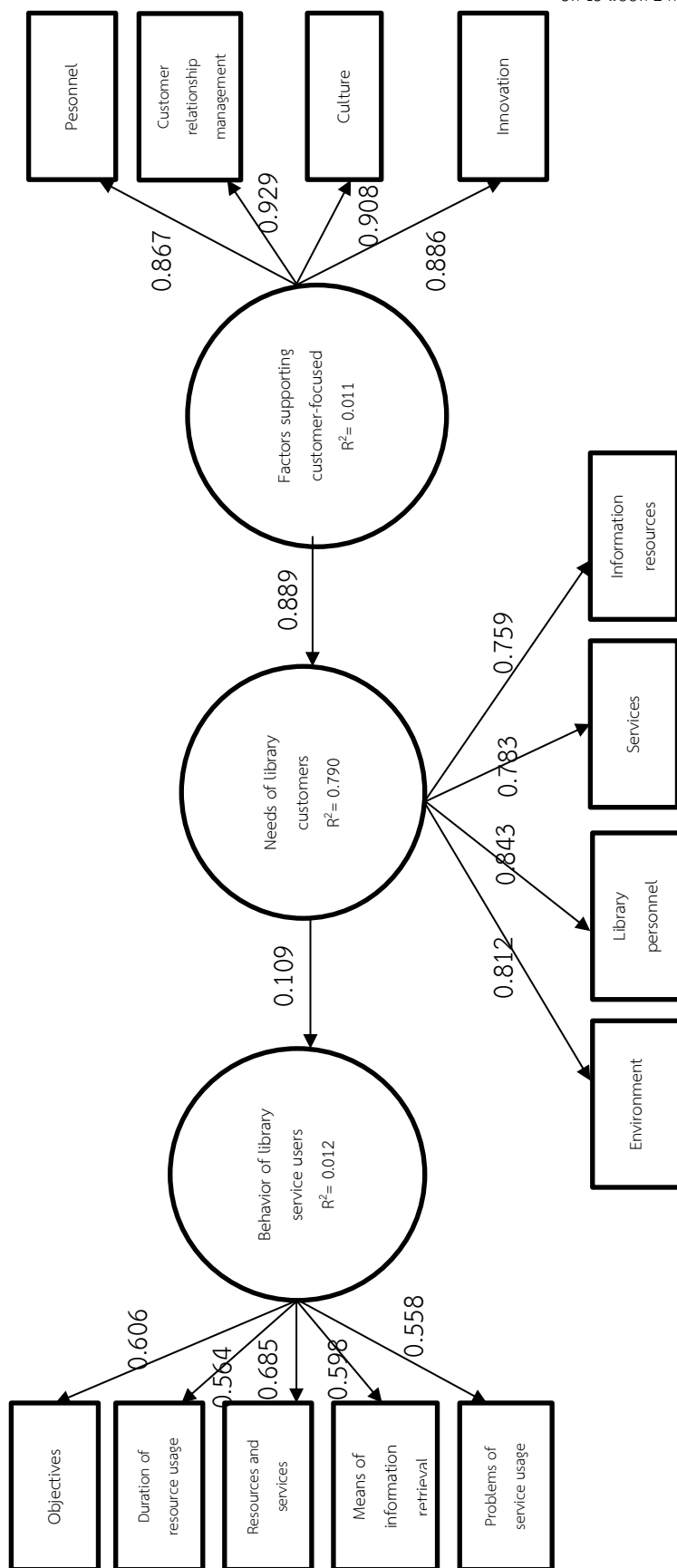
Results of confirmatory factor analysis of the model measuring latent variable of library customers' needs were found that the alpha coefficient of latent variable of library customers' needs was 0.867, the composite construct reliability at 0.902 and the average of variance extracted at 0.693. In addition, the observed variables with the most weighted factor was library personnel with the weighted factor at 0.843, followed by environment with the weighted factor at 0.812, whereas the variable with the least weighted factor was information resources with the weighted factor at 0.759.

Results of confirmatory factor analysis of the model measuring latent variable factors supporting the customers-focused were found that the alpha coefficient of latent variable factors supporting the customers-focused was 0.927, the composite construct variable with 0.958 and the average variance extracted with 0.806. In addition, the observed variables with the most weighted factor was the customer relation management with 0.929, followed by culture facet with the weighted factor of 0.908, whereas the variable with the least weighted factor was personnel facet with the weighted factor of 0.867 and it was found that all the observed variables were statistically significantly at 0.001.

From the factors resulted in the library customers' behavior of Rajabhat University students, it was found that factor supporting the customers-focused did not influence directly towards the behavior of the library customers so the libraries have to rely on the go-between variable to link the factors supporting the service focused with the students' behavior; however, it still has indirect impact on behavior of the library service users (as shown in figure 1).

This is quantitative research to collect data on factors supporting customer-focused library services of Rajabhat University libraries from the customers who are students in 38 Rajabhat Universities by using sampling per observed variable ratio: 1 variable





**Figure 1** Causal model factors resulted in behavior of library service users (N=1607)  $\chi^2 = 60.784$  (df = 50) P-Value = 0.1412; tucker Lewis index (TLI) = 0.998; comparative fit index (CFI) = 0.999; Root mean square error of approximation (RMSEA) = 0.014 SRMR= 0.022

## Discussion

Confirmatory factor analysis towards the library services with a customer-focused for Rajabhat University libraries comprises of three main factors: behavior of library service users with five variables; the needs of library customers with five variables; factors supporting customer-focused with four variables so the researcher will present the discussion of the research findings according to the factors as follows:

1. Factors on behavior of library service users were found that the alpha coefficient of concealed variables on library service users was 0.698. The variable with the most weight was behavior of resource users and library service users who believe that instructional books, research reports, non printed matters, electronic media are information resources that Rajabhat University students access at a high level. In terms of library service, most students access the service via automatic book case, followed by using service via internet. This behavior reflects the application of information technology in the library work, which is consistent to the research of Afthanorhan et al. (2019) that studied the satisfaction towards the service quality and found that information resources being used at a high level are books and the research of Kaur & Singh (2011) that studied the library service via websites and found that they studied the needs of the customers to survey via web comprising of online referencing service, service helping customers to have skill in searching information, communication with customers and listening to users' criticism via webs. This survey will be the model for library management in the electronical environment. The happening change enables the libraries to revise their roles and develop the service model by benefiting information technology to facilitate and increase the speed in services as follows: 24 hour service via website technology and develop the information retrieval fast via world wide.

2. Factors on needs of the library customers were found that the alpha coefficient of the latent variable of needs of the library customers was 0.867, the variable with the most weighted factor was library personnel; namely, they have knowledge and ability to help solve the problems for the customers, they know the customers' needs. Thus it could be the advance of information technology and communication occurring fast and continuously having resulted to the information organization which is consistent to Boonyued et al. (2016) who did the research entitled the Future Image of Academic Resources and Information Technology Center of Rajabhat Universities in the next decade (2016-2025) and they found that the personnel of Academic Resources and Information Technology Center should have good attitude towards services and love to give services more. In addition, Nakaro et al (2014) studied A Management Model for Rajabhat Universities' Libraries as Learning Organizations and found that personal mastery should be perceived and build up the awareness for the personnel on the essential capacity for the career development to solve the problems for the customers; understand the customers' needs, followed by the environment. The variable with the most weight was the

place for students to do search work in group more, followed by clear signs indicating the service areas on different floors of the library especially proving special quiet zone such as co-working space, learning space, co-maker space. This is also consistent with the research of Guthro (2019) and Curry (2017) which found that the library in the 21<sup>st</sup> century should provide service area such as coffee corner, communication equipment service, small group meeting area, common room, co-working space, wireless zone.

3. Factors supporting customer-focused service were found that the alpha coefficient of latent variable supporting the customer-focused services was 0.927; the variable with the most weight was customer relation management by connecting the activity with the customers such as sending the borrowing book promotion especially extending time on the occasion of customers' birthday, reduce the overdue pay on the establishment day of the university, organize activity meeting with the customers at faculties and working units. This is consistent with Kheokao (2007) that designated the mocked model of organizing the customer relation management and it was found that the Reward Model would make relation with the customers continuously in some extend and from the previous activity, it would build the data of the customers who joined in such activities. Furthermore, Comb's idea (Comb, 2004) indicated that using appropriate technology is believed to be part of the heart that makes the customer relation management successful, ones should choose appropriate technology in order to make the database of the customers, contact customer management by using communication technology such as informing news on organizing activities via E-mail Facebook line twitter or via telephone, using Application to facilitate the customers, and using Call center for customer service. Moreover, it is consistent with the research of Siriprasoetsin (2010) that studied the Development of Customer Relation Management of Thai Higher Education Libraries and found that how to get and designate the customer group, the libraries should keep records and details of the customers by registering lists of customers' service and this would be advantage over the rivals. For the variable with runner-up weight, it was the service culture. The issue with the most weight was activity and service to respond to the customers' needs, followed by the survey of regular customers' satisfaction which is consistent with Nokkaew et al. (2012) who studied the service culture framework of the Academic Libraries and found that the library officers in state higher education institutions had service culture by having service mechanism and having means of adhering and affiliating performers leading to the good service and excellent service. The library officers witness that the service culture of the performers important for the excellent service includes being service mind, cooperative, speedy service, polite and caring. Additionally, Hossain (2013) studied designing user-focused marketing culture in academic libraries and found that the study of the customers' need was one of the steps in the research on the study of customers' need on delivery information service and enable them to know the information of readjusting the services via the communication channel of the library regularly.

## **Recommendation for research**

### **1. Recommendation for Rajabhat University Libraries**

1.1 Set up customer focused service policy as a guideline for the administration. Along with building knowledge and understanding of library management customer focused service.

1.2 Develop the system and mechanism of behavioral study and need of the customers to provide the resources and develop the services that meet the need of the customers by using the following strategies: 1) designate the duration clearly for the customers in order to take the evaluation results to plan the services during the budget management. 2) bring the quality assessment tool during the evaluation for the service standards such as Libqual, E-Service Quality, ISO. And 3) adjust the service in accordance with the situation and environment such as the COVID-19 and the new normal situation.

1.3 Develop the lively learning center suitable for students, instructors and personnel's behaviors of the Rajabhat Universities and localities in consistency with the Rajabhat University missions as the higher educational institutions for the local development.

1.4 Promote and support in bringing factors that make library services for customers' focused service successfully comprising of customer relationship management, service culture, personnel and service innovation as follows: 1) train the how to service by using strategy of customer relation management. 2) organize the activity integrating service culture leading to the impressive service for the customers and 3) promote and develop the service culture for launching modern new services meeting with the needs of the customers.

1.5 Build the network of library services both locally and internationally to develop the services and promote the use of resources mutually in order to save the budget in developing information resources and services.

### **2. Recommendation for future research**

2.1 Develop the quality indicators to evaluate services suitable for the context of Rajabhat University libraries in order to apply for the development of the library services for local communities.

2.2 Study the model of customer relation management for Rajabhat University libraries.

2.3 Develop information service innovation for easily accessible and speedy.

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