



International Students Library Usage Frequency Patterns in Academic Libraries: A User Survey at Jiangsu University Library

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Abstract

Academic libraries are supposed to provide quality services to its user including international students in order to increase its patronage. The main purpose of this paper is to assess the frequency patterns of how international students use academic libraries. The user survey was conducted in Jiangsu University Library using the library usage pattern with Five-Point Likert scale survey questions from the LibQUAL+™ model. The survey was administered to the international students, with 201 respondents based on simple random sampling. The researchers used analysis methods like descriptive statistics in the form of frequencies and percentages, inferential statistics and Structural Equation Model (SEM). The study revealed that majority of international students frequently use library resources both on library premises and through the library webpage on daily, weekly, monthly and quarterly basis while majority of them use non library resources like google on daily and weekly basis. Majority of these respondents who use the library resources are Asians (Non-Chinese) and Africans. The results also revealed that there is a negative relationship and effect of using non-library resources on library premises on using library resources and no effect on using library resources through the library webpage. This implies that and increase in the use of non-library resources will significantly decrease the use of library resources. The study implies that academic libraries should improve its services and resources to international students to increase their patronage.

Subject Areas

Library, Intelligence and Philology

Keywords

International Students, Academic Library, Library Usage, User, Resources

1. Introduction

Every organization wants to stay relevant and recognized, and so are academic libraries. For academic libraries, patronage of library services as well as the frequency of access is a major determinant of their relevance. Academic library is the clearly and obviously the “heart” of the university community as described by several researchers and scholars. Therefore, it should provide quality learning and research services as well as serving as a place for all users to study, conduct research, acquire scholar information and also to advance their knowledge in any field of study. This will make the academic library a more conducive and an informative attractive environment to its user thereby attracting more users and increasing its usage. It is therefore important for libraries to learn usage patterns of its users being it on the library premises or online in order to know their needs to deliver services that will attract them to access the library frequently.

It is important to know whether university libraries are actually achieving their goals. Library users’ usage patterns essentially determine the effectiveness and efficiency of university library services. It is evident that quite a few studies have been carried out on the usage pattern of academic libraries. Behling and Cudd [1] stated that library users were the most analytical root for determining whether libraries were functioning satisfactorily. Perera [2] believes that meeting the needs of users is essential to library management. Librarians need to be aware of the current needs of their users, which may vary from time to time. Therefore, regular survey of user needs and usage frequencies in all aspects of library usage will be a valuable guide to ascertain the future focus and direction of libraries. Using user surveys have been widely spread in the past three decades in assessing academic libraries. Hiller [3] states that application of user surveys within academic libraries during these past decades by external library accrediting agencies was because of the rapid modification in library services and operations, demanding institutional accountability internally and assessment expectations. Cullen [4] on the other hand describes the primary motive behind user surveys in academic libraries is to collect user’s opinion of library services, clarify the librarians’ concept of library services as well as their suppositions on user needs, identify problems and propose solutions these user problems. While several research works have limited themselves to collecting data about library usage patterns, many researchers aim at assessing users’ behavior towards the library, and determining the level of satisfaction being achieved [5]. This is very true and important because it will give a clear understanding on users of all kinds and background. Also, it is important to study users library accessibility frequency to determine whether library resources are user centric. It is of this view that this

paper tries to study the usage frequency patterns of international students as a distinctive group since they find themselves in a different environment.

Academic library, which was considered as the core of every university, now finds its value and importance deteriorating. This is due to the digitalization and virtualization of libraries. The rapid evolving of technology and innovation has increased the patronage of virtual libraries, electronic library resources and has thereby decreased the library physical functions and presence in the university community. This can be done by regularly assessing the changing needs and accessibility patterns of users using user surveys. According to Clougherty, Forsys [6], developing and implementing internal instruments specifically designed to assess user satisfaction with services and resources are one of the methods that have received increasing attention. User satisfaction can be determined by the frequency at which they access the library.

For the optimum use of this library, its users should also have knowledge to access its resources to their full benefit making every search effective. But still the information searching strategies shows that the user's searching behavior as being subject specific and they use it to search for the needed information. However, most students finish their education without even visiting the libraries or using library resources. Especially the international students of all levels, they generally start their searches with google rather than using library resources. This is because majority of these students use less of their home libraries because of inadequacy of meeting their needs. Realizing this malicious situation, it is necessary for students at all level especially international students, to be given library-user education so that they won't waste their valuable learning time and without assistant also student can make an effective use of library resources. Therefore, make library resources user friendly and easily accessible to users to increase patronage.

With an increase in students travelling to study abroad, Chinese universities have had huge influx of international students year in and out, with Jiangsu University of no exception. The university is one of the universities with more international students. According to the Overseas Education Center (OEC), the university has more than 2000 international students from 80 unique nations enrolled in bachelor, masters, doctorate and post-doctoral programs. Majority of these countries are African and Asians (Non-Chinese) and these students originate from different nations all over the world with unique and widely backgrounds such as, religion, socio-economic, tradition, political structure and language. Jiangsu University Library (JUL) comprises of the main library, the Mengxi Campus Library, the Beigu Campus Library, the Jingjiang College Section and four reference rooms located in social science, arts administration and foreign languages. Jiangsu University Library offers a clear manner of organized services including the collection and circulation of books, talent education, in addition to research information and consultations, which has been and will continue to provide services, effective information and quality resources for teaching and research at

Jiangsu University. Library usage patterns are considered in this paper because it will assist Jiangsu University Library and other academic libraries to better understand international students. This paper aims to reveal how the Jiangsu University Library has been used by its international students. Thus, the aim of this study was conducted to assess library frequency usage patterns of international students at the Jiangsu University Library adapting the LibQUAL+™ survey tool and the effect of using non library resources on using library resources. The study specifically looks at how international students use of resources on the library premises, access library resources through the library web page, use of google™ and other non-library gateways for information and also determine the relationship and effect between using library resources and using non library resources or gateways using the structural equation model.

2. Literature Review

Several researches done in the past about the use of academic library, will help present researchers and also shape future researches on study relating to the previous works. These previous and several research works will serve as guideline to research in many and relating field of study, which intend will make the foundation of a study solid. Hence, this study reviewed several researches on usage patterns of the academic library.

Academic libraries are important part of the educational institutions in which they find themselves and play a major role in designing and providing services that meet the needs and goals of the institution depending on the type and level of the educational institution.

Academic libraries will not survive and perform their ultimate functions if there are no users available. They will just act as storage house for books and equipment. This makes library users the best assessors of library services and their opinions on library services is of utmost importance [7]. Therefore, all users of academic library including international students have a right to be provided with an up-to-date quality library services and better human resources that correspond to their needs.

International students constitute a significant proportion of university populations around the world and contribute to their cultural diversity. In China and the rest of the world, international students keep increasing every year at a fast pace. According to the Ministry of Education of the People's Republic of China, a total of 492,185 international students from 196 countries and regions studied in China in 2019 which is an increased by 3013 over that of 2017 and keeps increasing every year [8]. This therefore is a huge task for academic libraries to study and understand these diverse user group to provide better and quality services to meet their needs and attract them to use the library more often. Several studies have been conducted on academic library usage but few focuses on international students as specific user of the academic library.

There are few research works that have been published on Chinese academic

libraries and their usage and frequency by the international students. A study by Click, Wiley [9] revealed that articles published about international students and academic libraries have increased steadily between 1990 and 2014. The majority of authors are affiliated with universities and institutions in the United States. Mu [10] conducted a viewpoint and survey of international students of Marketing academic library resources and information services to international students from Asia. The author used personal experience, observations and survey to find out whether Asian international students had experiences of using academic libraries; and whether they are aware of the services and resources available for their study in a Western academic setting. The paper revealed that students' level of success in using the library is related to their English proficiency, frequency of library use, and frequency of reference desk inquiry according to [11], reference librarians should continue to exploit ways of promoting the library resources and their reference services for international students. Besides, new approaches should be developed to make them feel more comfortable about coming into the library, asking reference questions and using the library resources so that they can achieve better grades in their studies.

Simba [12] reported on the user perceptions of the quality of service at Iringa University College Library, Tumaini University in Tanzania. The manuscript describes the need to be more concerned about user needs which define the services in the library. He assessed user expectations, perceptions and service quality by also looking at the frequency of library usage by the user by using the LibQUAL+™ survey questionnaire. According to the results, majority of the users frequently access the library and its resources on daily basis while majority of postgraduate students use the library on weekly basis for research. Largest proportion of the respondents use yahoo, google and other non-library gateways for information. Therefore, library should be aware of user needs and usage frequently because they will use the library one way or the other even if they are not highly satisfied with library services.

Sharman [13] found out the story behind international student library usage in the Library Impact data project using ethnographic research techniques. The study used both questionnaire and interview methodology alongside with ethnography techniques to solicit data on library usage for Chinese international students at the University of Huddersfield. The results showed that majority of this user group use the library for reading, learning and research. Also, majority of them access eBooks both from the library website and also more from Summon. In addition, almost all of them use journals from summon, google and google scholar. Moreover, these user groups use the library help center and student library helpers who shelve the books and answer IT enquiries whenever they need help.

In recent years, Chinese universities have seen a large influx of international students due to increase of international students coming to China. This has therefore increased their awareness of Chinese academic libraries of the user

group, and has improved on the developing services for international students' users. Many universities libraries such as Nanjing University of Science Technology Library, Peking University Library and Jiangsu University Library provide special programs and services for international students. For example, Jiangsu University Library has built an English website for the library and international students that provide better services for this user group. The Jiangsu University Library also established information technology institute that offers undergraduate and graduate courses in library information and management to international students. In addition, Jiangsu University Library offers custom-designed workshops in English for international library major students and orientations for all international students.

3. Methodology

This study was conducted among the international students who use the Jiangsu University library. In order to meet the objective of the study, survey methodology was used. The study follows a cross-sectional, survey design and is quantitative in nature. The survey questions of the LibQUAL+™ tool developed by Association of Research Libraries (ARL) was adapted to gather data and examine and know the library usage patterns of the international students in Jiangsu University. To measure and quantify the library usage patterns of international users, the research instrument was self-administered questionnaire comprised of organized questions and closed ended questions predesigned to extract responses on a five-point Likert frequency scale (1 = never, 2 = quarterly, 3 = monthly, 4 = weekly and 5 = daily). The target population of the study consisted of all the international students in the university community which according to the overseas education college is more than thousand students as at September 2018. The questionnaires were administered to international students who visit the university library and a total 201 respondents were obtained in that time frame. The collected data was analyzed by using Statistical Package for the Social Science (SPSS) version 25 and Amos version 23. Using SPSS, the researchers utilized analysis methods like frequencies, percentages and tables. Spearman's correlation and Structural Equation Modelling (SEM) analysis was performed to analyze the correlation and effect of using resources on the library premises, accessing library resources through the library web page and using google mail, google, or non-library gateway (Bing, Aol, etc.).

4. Results

The results of the present study are based purely on the response returned by the users. The findings of the present study are based purely on the response returned by the users. A total of 201 students participated in the survey. Data were organized using Microsoft excel, save and further used in the Statistical Package for the Social Science (SPSS) for further processing and analysis. Descriptive statistics in the form of frequencies and percentages were used present usage fre-

quencies. The spearman correlation was done to measure the relationships between variables with a 95% confident interval confirming statistical significance of results and structural equation modelling was done using standardized direct effects to determine the effect of using resources on the library premises, accessing library resources through the library web page and using google mail, google, or non-library gateway.

4.1. Characteristics of Respondents

Background information on the respondents was asked. Demographic information was essential for correlation of the response sets between different groups of library users. This information was necessary to explore whether the responses were consistent across groups. Thus, background questions determined respondents' gender, age, continent, academic level and academic discipline. The biographical data of the respondents are reflected in **Table 1** and **Table 2** below.

Table 1. Demographic data of respondents.

Variable	Characteristic	Frequency	Percentage (%)
Gender	Male	143	71.1
	Female	58	28.9
Age	Under 20	10	5.0
	21 – 30	132	65.7
	31 – 40	57	28.4
	Over 41	2	1.0
Academic Level	Undergraduate	56	27.9
	Master	112	55.7
	Doctorate (PhD)	31	15.4
	Other	2	1.0
Continent	Africans	110	54.7
	Asians (Non-Chinese)	81	40.3
	Europeans	9	4.5
	Americans	1	0.5
Academic Discipline	Science/Math	16	8.0
	Engineering/Computer Sciences	61	30.3
	Business Management and Economics	79	39.3
	Arts and Social Sciences	22	10.9
	Health Sciences	18	9.0
	Science/Math	16	8.0
	Engineering/Computer Sciences	61	30.3

With reference to **Table 1**, representing a categorization of survey respondents by gender, 143 (71.1%) of the respondents are male and 58 (28.9%) are female. Also, the table shows a classification of survey respondents by age; both the number of respondents (n) and the percentage of the total number of respondents represented by each age group are displayed. The majority of the respondents were aged between 21 and 30 years representing 132 (65.7%) and minority of them are aged over 40 years which represents 2 (1%). According to the table, showing a dissection of survey respondents by their continent, 110 (54.7%) of the respondents are from Africa, 8 (40.3%) are from Asia (Non-Chinese), 9 (4.5%) are Europeans and 1 (0.5%) from America. This confirms an enquiry conducted about international students from the overseas education office that, Africans and Asia (non-Chinese) students were highly populated in the school. Furthermore, the table shows survey respondents' details in terms of their academic level. Majority of the respondents are master students representing 112 (55.7%) followed by undergraduate, 56 (27.9%) and post-doctoral students and others represented by others has the minority respondents representing 2 (1.0%). Also, the results show survey respondents biographical data in terms of their academic discipline, based on their responses to the demographic background questions. Majority of the respondents were from the Business Management and Economics and Engineering/Computer Sciences disciplines and the percentages are 39.3% and 30.3% respectively as shown in **Table 1**.

4.2. Library Usage Patterns

To enquire about the library usage patterns of international student, three questions were asked to probe how frequently international students use the library and its services. Thus, how often do you use resources on the library premises, how often do you access library resources through the library web page and how often do you use google mail, google, or non-library gateway (Bing, Aol, etc.) for information. The questions were aimed at examining the usage patterns of international in order to weigh the importance of the library for the heterogeneous group in terms of usage patterns which was then analyzed.

This chart above shows a pictorial representation of library use (both on the premises and online), and also use of non-library gateways such as yahoo and google. Bars symbolize the frequency with which respondents use these resources: daily, weekly, monthly, quarterly, or never as shown in **Figure 1**. Majority of the respondents representing 79% often do you use resources on the library premises, 69% of the respondents do access library resources through the library Web page and 99% of the respondents use google mail, google, or non-library gateway (Bing, Aol, etc.) for information as shown in **Figure 1** below.

4.2.1. Use of Resources on the Library Premises

Respondents are asked here, how often they use resources on the library premises. The usage patterns of the library and its resources by the respondents are shown in **Table 2** and **Table 3** below.

Table 2 shows that, 21 (10.4%) student respondents use library resources on the premises daily. 41 (20.4%) of the respondents use library resources on weekly basis. 62 (30.8%) international student respondents use the library premises monthly, 35 (17.4%) of the respondents use library resources quarterly and lastly 42 (20.9%) never use library resources on library premises. This shows that majority of the international students 159 (79.1%) use library resources on library premises as compared to the 42 (20.9%) who never use library resources on library premises as shown in **Table 2**.

Table 3 below shows further usage patterns of using library resources on library premises within the different groups of respondents. The male respondents, 16 (76.2%), Asian (non-Chinese) respondents, 14 (66.7%), master students' respondents, 13 (61.9%) and Business Management/Economics academic discipline 9 (42.9%) have the highest percentage of daily usage of the library resources on the library premises. Moreover, 17 (40.5%) female, 1 (2.4%) American, 2 (4.8%) post-doctoral and others and 3 (7.1%) Health Sciences academic discipline never uses library resources on the library premises as shown in **Table 3**.

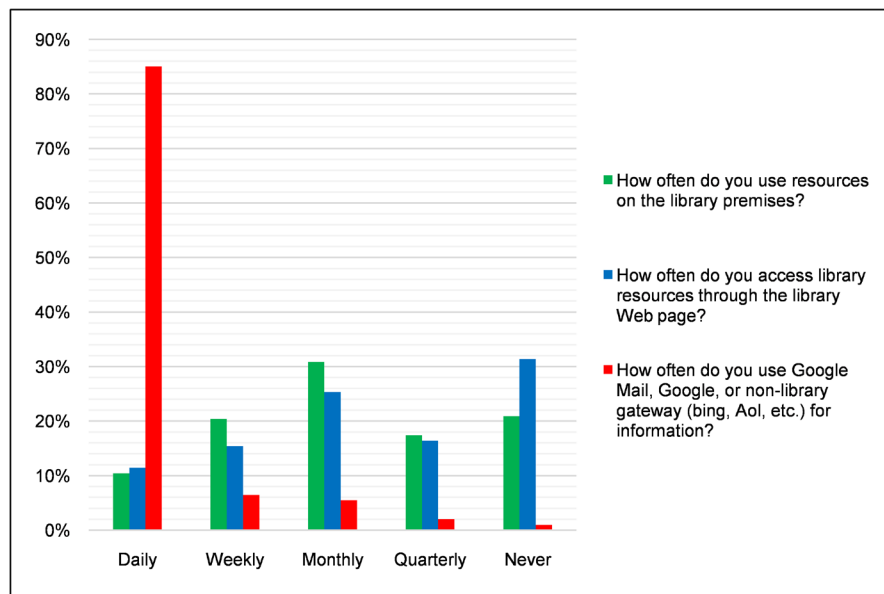


Figure 1. Library use summary.

Table 2. Overall frequency of use of resources on the library premises.

Usage	Frequency	Percentage (%)
Daily	21	10.4
Weekly	41	20.4
Monthly	62	30.8
Quarterly	35	17.4
Never	42	20.9
Total	201	100

Table 3. Frequency and percentile of use of resources on the library premises by groups.

Variables	Groups	Daily	Weekly	Monthly	Quarterly	Never	Total
Gender	Male	16 76.2%	31 75.6%	45 72.6%	26 74.3%	25 59.5%	143 71.1%
	Female	5 23.8%	10 24.4%	17 27.4%	9 25.7%	17 40.5%	58 28.9%
Continent	African	7 33.3%	24 58.5%	35 56.5%	21 60.0%	23 54.8%	110 54.7%
	Asian (Non-Chinese)	14 66.7%	16 39.0%	23 37.1%	14 40.0%	14 33.3%	81 40.3%
	European		1 2.4%	4 6.5%		4 9.5%	9 4.5%
	American					1 2.4%	1 0.5%
Academic Level	Undergraduate	4 19.0%	16 39.0%	20 32.3%	4 11.4%	12 28.6%	56 27.9%
	Master	13 61.9%	16 39.0%	34 54.8%	26 74.3%	23 54.8%	112 55.7%
	Doctorate (PhD)	4 19.0%	9 22.0%	8 12.9%	5 14.3%	5 11.9%	31 15.4%
	Other. Specify					2 4.8%	2 1.0%
Academic Discipline	Science/Math	1 4.8%	2 4.9%	4 6.5%	5 14.3%	4 9.5%	16 8.0%
	Engineering/Computer Sciences	7 33.3%	14 34.1%	17 27.4%	9 25.7%	14 33.3%	61 30.3%
	Business Management/Economics	9 42.9%	13 31.7%	28 45.2%	14 40.0%	15 35.7%	79 39.3%
	Arts and Social Sciences	4 19.0%	7 17.1%	3 4.8%	2 5.7%	6 14.3%	22 10.9%
	Health Sciences		5 12.2%	7 11.3%	3 8.6%	3 7.1%	18 9.0%
	Education			1 1.6%	2 5.7%		3 1.5%
	Other. Specify			2 3.2%			2 1.0%

4.2.2. Accessing Library Resources through the Library Web Page

Furthermore, respondents were asked how often they access library resources through the library web page. The usage patterns of library users of accessing library resources through the library web page are shown in **Table 4** and **Table 5** below.

Table 4. Overall frequency of accessing library resources through the library web page.

Usage	Frequency	Percentage (%)
Daily	23	11.4
Weekly	31	15.4
Monthly	51	25.4
Quarterly	33	16.4
Never	63	31.3
Total	201	100

Table 5. Frequency and percentile of accessing library resources through the library web page by groups.

Variables	Groups	Daily	Weekly	Monthly	Quarterly	Never	Total
Gender	Male	16 69.6%	26 83.9%	36 70.6%	24 72.7%	41 65.1%	143 71.1%
	Female	7 30.4%	5 16.1%	15 29.4%	9 27.3%	22 34.9%	58 28.9%
Continent	African	12 52.2%	19 61.3%	27 52.9%	18 54.5%	34 54.0%	110 54.7%
	Asian (Non-Chinese)	11 47.8%	12 38.7%	21 41.2%	13 39.4%	24 38.1%	81 40.3%
	European			3 5.9%	2 6.1%	4 6.3%	9 4.5%
	American					1 1.6%	1 0.5%
Academic Level	Undergraduate	6 26.1%	9 29.0%	14 27.5%	6 18.2%	21 33.3%	56 27.9%
	Master	8 34.8%	16 51.6%	27 52.9%	25 75.8%	36 57.1%	112 55.7%
	Doctorate (PhD)	9 39.1%	6 19.4%	8 15.7%	2 6.1%	6 9.5%	31 15.4%
	Other. Specify			2 3.9%			2 1.0%
Academic Discipline	Science/Math	2 8.7%	3 9.7%	6 11.8%	1 3.0%	4 6.3%	16 8.0%
	Engineering/ Computer Sciences	7 30.4%	12 38.7%	14 27.5%	10 30.3%	18 28.6%	61 30.3%
	Business Management/ Economics	9 39.1%	8 25.8%	20 39.2%	12 36.4%	30 47.6%	79 39.3%
	Arts and Social Sciences	5 21.7%	6 19.4%	6 11.8%	3 9.1%	2 3.2%	22 10.9%
	Health Sciences		2 6.5%	3 5.9%	6 18.2%	7 11.1%	18 9.0%
	Education			1 2.0%	1 3.0%	1 1.6%	3 1.5%
	Other. Specify			1 2.0%		1 1.6%	2 1.0%

Table 4 shows that, 23 (11.4%) international student respondents access library resources through the library web page daily. 31 (15.4%) of respondents, access library resources through the library web page weekly. 51 (25.4%) international student respondents access library resources through the library web page monthly, 33 (16.4%) of the respondents use library resources quarterly and lastly 63 (31.3%) never access library resources through the library web page. This shows that majority of the international students 138 (68.7%) access library resources through the library web page as compared to the 63 (31.3%) who never access library resources through the library web page as shown in **Table 4**.

Table 5 below shows further usage patterns of accessing library resources through the library web page within the different groups of respondents. The male respondents, 26 (83.9%), African respondents, 19 (61.3%), master students' respondents, 16 (51.6%) and Engineering/Computer Sciences academic discipline 12 (38.7%) have the highest percentage of weekly usage pattern of accessing library resources through the library web page. In addition, 22 (34.9%) female, 1 (1.6%) American, 2 (6.1%) doctorate (PhD) and others and 1 (1.6%) education and other disciplines never access library resources through the library web page as shown in **Table 5**.

4.2.3. Use of Google™ and Other Non-Library Gateways for Information

Lastly, respondents were asked how often do they use google mail, google, or non-library gateway (Bing, Aol, etc.) for information. The usage patterns of library users of these non-library gateways for information are shown in **Table 6** and **Table 7** below.

Table 6 shows that, the largest proportion of respondents 171 (85.1%) use google mail, google, or non-library gateway (Bing, Aol, etc.) for information on a daily basis and interestingly 2 (1%) respondents had never use google mail, google, or non-library gateway (Bing, Aol, etc.) for information as shown in **Table 6**.

Table 7 below shows further usage patterns of using google mail, google, or non-library gateway (Bing, Aol, etc.) for information within the different groups of respondents. The male respondents, 8 (72.7%), African respondents, 6 (54.5%), master students' respondents, 6 (54.5%), and Engineering/Computer Sciences and Business Management/Economics academic disciplines 4 (36.4%) have the

Table 6. Overall frequency of use of non-library resources/gateways for information.

Usage	Frequency	Percentage (%)
Daily	171	85.1
Weekly	13	6.5
Monthly	11	5.5
Quarterly	4	2.0
Never	2	1.0
Total	201	100

Table 7. Frequency and percentile of use of non-library gateways for information by groups.

Variables	Groups	Daily	Weekly	Monthly	Quarterly	Never	Total
Gender	Male	123 71.9%	10 76.9%	8 72.7%	2 50.0%		143 71.1%
	Female	48 28.1%	3 23.1%	3 27.3%	2 50.0%	2 100.0%	58 28.9%
Continent	African	93 54.4%	9 69.2%	6 54.5%	2 50.0%		110 54.7%
	Asian (Non-Chinese)	70 40.9%	3 23.1%	5 45.5%	2 50.0%	1 50.0%	81 40.3%
	European	7 4.1%	1 7.7%			1 50.0%	9 4.5%
	American	1 0.6%					1 0.5%
Academic Level	Undergraduate	50 29.2%	2 15.4%	2 18.2%		2 100.0%	56 27.9%
	Master	91 53.2%	11 84.6%	6 54.5%	4 100.0%		112 55.7%
	Doctorate (PhD)	28 16.4%		3 27.3%			31 15.4%
	Other. Specify	2 1.2%					2 1.0%
Academic Discipline	Science/Math	16 9.4%					16 8.0%
	Engineering/Computer Sciences	53 31.0%	4 30.8%	4 36.4%			61 30.3%
	Business Management/Economics	67 39.2%	6 46.2%	4 36.4%	2 50.0%		79 39.3%
	Arts and Social Sciences	15 8.8%	3 23.1%	2 18.2%	2 50.0%		22 10.9%
	Health Sciences	17 9.9%				1 50.0%	18 9.0%
	Education	2 1.2%		1 9.1%			3 1.5%
	Other. Specify	1 0.6%				1 50.0%	2 1.0%

highest percentage of monthly usage pattern of using google mail, google, or non-library gateway (Bing, Aol, etc.) for information. However, it can be seen the vast majority of respondents in all groups used the non-library gateways for information on either a daily or weekly basis.

4.3. Relationship between Using Library Resources and Using Non Library Resources or Gateways

Spearman's correlation analysis was conducted to explore the correlation of use

patterns of how often users use resources on the library premises, access library resources through the library web page and use google mail, google, or non-library gateway (Bing, Aol, etc.). A correlation matrix is presented in **Table 8**. A significant positive correlation was found between using resources on the library premises and accessing library resources through the library web page ($r = 0.333$, $p < 0.01$). It was also found that there was a significant negative correlation between the use of resources on the library premises and use google mail, google, or non-library gateway (Bing, Aol, etc.) ($r = -0.17$, $p < 0.01$). However, no significant correlation was found between using google mail, google, or non-library gateway (Bing, Aol, etc.) and accessing library resources through the library web page ($p > 0.05$) as shown in **Table 8**.

A structural equation modelling (SEM) was also conducted using Amos to find the effect using non library resources or gateways has on using library resources being it on the library premises or the library website. The SEM path analysis is presented in **Figure 2** below.

The effect of using non library resources or gateways on using library resources on the premises in Jiangsu University Library has a negative path coefficient -0.10 which is significant ($p < 0.05$) as shown in **Figure 2**. From a practical perspective, using library resource on the library premises distract your attention and interest from using non library resources to focus on the quality of services the library has to provide. The effect of using non library resources or gateways on using library resources on the library premises is such that when usage of library resources on the library premises is enhanced or increased, there is lower likelihood of using non library resources such as google, Bing, etc. This relationship was explained in the negative spearman's correlation of -0.17 ($p < 0.01$) between using non library resources or gateways and using library resources on the library premises. Moreover, there is a positive effect of using non library resources or gateways on accessing library resources through the library web page

Table 8. Correlation coefficient of academic library usage.

Variables		1	2	3
1) How often do you use resources on the library premises?	Correlation Coefficient	1		
	Sig. (2-tailed)	.		
	N	201		
2) How often do you access library resources through the library web page?	Correlation Coefficient	0.333**	1	
	Sig. (2-tailed)	0	.	
	N	201	201	
3) How often do you use google mail, google, or non-library gateway (Bing, Aol, etc.) for information?	Correlation Coefficient	-0.179*	-0.078	1
	Sig. (2-tailed)	0.011	0.271	.
	N	201	201	201

**Correlation is significant at the 0.01 level (2-tailed); *Correlation is significant at the 0.05 level (2-tailed).

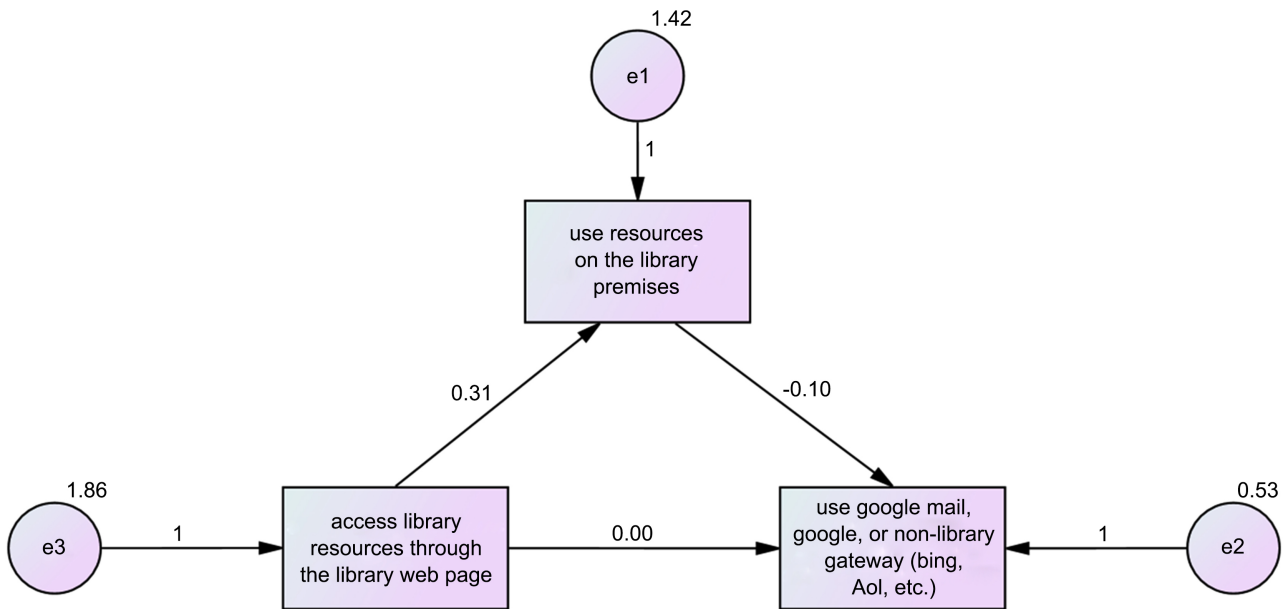


Figure 2. SEM path model and analysis of the relationships between variables.

with a path coefficient of 0.00 which is not significant ($p > 0.05$) as shown in **Figure 2**. This implies that using non library resources or gateways like google does not impact on accessing library resources through the library web page since they are both accessible on the internet and they can be accessed at same time. This relationship was also explained in the non-significant spearman's correlation of ($p > 0.05$) between using non library resources or gateways and accessing library resources through the library web page as shown in **Figure 2**.

5. Discussion

The academic library serves different users and these include international students and the university as whole. Since the library is the nerve center of the university, it is therefore supposed to design and provide resources and services that meets the need of all users in order to increase the effective usage of the library. This study therefore provide empirical evidence on the library usage patterns of the international students at Jiangsu University base on the LibQUAL+™ survey questionnaire on library usage pattern. The findings of this study reveal that the academic library is a preferred place to study and spend time frequently on daily, weekly, monthly and quarterly basis which is supported by a study by Houlihan [14] and Waxman, Clemons [15] who concluded that the academic library is a regular place where users meet to work and socialize.

The study revealed that majority of the international students 159 (79.1%) use library resources on library premises as compared to the 42 (20.9%) who never use library resources on library premises. The study shown that Jiangsu University Library is vital for international users, though there are variations within different groups of respondents concerning the use of the library. Overall, many users are aware of the importance of the library and make use of library services

to gain access to information on a daily 21 (10.4%), weekly 41 (20.4%), monthly 62 (30.8%) and on quarterly 35 (17.4%) bases. The comparison on frequency of use of library resources on library premises within groups of respondents shows that males, 16 (76.2%), Asian (Non-Chinese), 14 (66.7%), Master students, 13 (61.9%) and Business Management/Economics academic discipline 9 (42.9%), had the highest percentage of daily usage of library resources on library premises. These findings are consistent with previous study by Simba [12] on the topic User perceptions of the quality of service at Iringa University College Library, Tumaini University, Tanzania. A study on Students usage of an academic Library: a user survey conducted at the Main Library University of Peradeniya by Gunasekera [16], also confirms the findings from this study. A study by Shrestha [17] conducted on a study on student's use of library resources and self-efficacy, concluded that student as a whole use the physical library to a great extent for study purpose and that they do see their particular library as a part of the educational institution and visits there to inquire about services that serve their needs.

The study also revealed that majority of the international students 138 (68.7%) access library resources through the library web page as compared to the 63 (31.3%) who never access library resources through the library web page. The Jiangsu University English Website was designed specifically for international students and they are aware of its importance and therefore make use of it to gain access to information on a daily 23 (11.4%), weekly 31 (15.4%), monthly 51 (25.4%) and on quarterly 33 (16.4%) bases. The comparison on frequency of accessing library resources through the library web page within groups of respondents shows that male respondents, 26 (83.9%), African respondents, 19 (61.3%), master students' respondents, 16 (51.6%) and Engineering/ Computer Sciences academic discipline 12 (38.7%) have the highest percentage of weekly usage pattern of accessing library resources through the library web page. This study confirms several researches and academic library reports by Association of Research Libraries (ARL) on library services usage, service quality and satisfaction [18] [19] [20]. These surveys were done several reputable universities across the globe including McGill University Library, Rutgers, the State University of New Jersey, Texas A&M University, College Station, University of Colorado at Boulder Libraries, University of Georgia Libraries and Western University. A study by Nyame [21] on developing usable academic Library website for international students through usability testing revealed that the Jiangsu University English Library Website (JUELW) did not only need an update but had to be usable for the various groups of users it served. This shows that international students use the library website and made recommendation for improvement. Their study also used two groups (Africans and Asian) which confirms the results of this present study with these group being the majority respondents. The two groups being the majority is also evident by the Chinese ministry of education's statistics of foreign students in China [8].

The findings of this study also show that international students who use Jiangsu

University library are aware of other non-library information gateways availability through the use of networked and Internet capable computers. Through these information gateways, many users are able to access information that support their research, learning and teaching needs on a daily 171 (85.1%), weekly 13 (6.5%), monthly 11 (5.5%) and quarterly 4 (2.0%) bases. The results show that the vast majority of respondents in all groups used the non-library gateways for information on either a daily or weekly basis. These studies conducted on library usage in academic libraries concluded that majority of students uses non-library gateways for information frequently [12] [16] [18]. A short form report by Anglia Ruskin University, Eastern Virginia Medical School, Edward E. Brickell Medical Sciences Library and University of Bath using the LibQUAL+™ survey tool shows that students use more of non-library gateways on daily and weekly basis [22] [23] [24]. A study Shrestha [17] on a study on student's use of library resources and self-efficacy concluded that, google is the most used search engine that is employed for study purpose. For a large portion of heavy google users the use of a search engine is more informative, efficient and updated than the use of the libraries and library resources. These studies conform to the results of the present study which make international students of no exception in the frequent usage of non-library resources like google.

6. Conclusions and Recommendations

This study applied and adopted the LibQUAL+™ instrument to determine the usage pattern of international students in academic libraries. The study provides the empirical evidence of international student usage pattern of the Jiangsu University Library. International student's library usage patterns were grouped into three; how often they use resources on the library premises, how often they access library resources through the library web page and how often they use google mail, google, or non-library gateway (Bing, Aol, etc.) for information. The study suggests that the library is a more preferred place for international students to go study and make use of the academic library services for educational purposes.

It was found that majority of international students frequently use library resources on the library premises on daily, weekly, monthly or quarterly basis. This is because these users have positive and high perception of the library as place dimension which includes, "library space that inspires study and learning, quiet space for individual activities, a comfortable and inviting location, a gateway for study, learning, or research and community space for group learning and group study". This therefore implies international users have high expectation of the library as a multi-purpose environment that assists variety of user activities. To remain a worthy place for the academic community, libraries should evolve into an inviting place to support wide range of user activities by continuously reforming their facilities and services. Also, the study shows that male, African and Asian (non-Chinese), masters and Business Management/Economics

international students use library resources on the library premises frequently than any other group. This is because they are the majority in the overseas community according to statistics from the overseas education college. This should therefore serve as a yardstick for the library to increase and innovate its resources on the library premises to accommodate the increasing usage of library by international students.

The findings of the study also show how international students frequently access library resources through the library web page. Majority of users were found to access library resources through the library web page frequently daily, weekly, monthly or quarterly basis. This is evident that international students value online and internet resources provided by the library. The academic library should therefore innovate its international library webpage as well as its online resources to make it more user friendly for the international user of the library.

Moreover, the study revealed that a large proportion of respondents use google mail, google, or non-library gateway (Bing, Aol, etc.) for information on a daily basis but also relatively low in weekly, monthly and quarterly basis. This means the international users tend to assess the non-library resources instantly whenever they need information. This is huge blow to the library and as such the library should provide more library orientations for international students and encourage them to visit the library more frequently, introduce more and variety of online library resources and services and improve its internet services as well as electronic resources.

Furthermore, the relationship between using library resources and using non library resources or gateways was investigated and the results revealed that using resources on the library premises also enhances accessing library resources through the library web page; using resources on the library premises decreases using google mail, google, or non-library gateway (Bing, Aol, etc.) while there no significant effect between using google mail, google, or non-library gateway (Bing, Aol, etc.) and accessing library resources through the library web page.

The main limitation of the study was that the study was conducted at one university. Future research can be conducted in more university libraries to obtain more generalizable results.

Conflicts of Interest

The authors declare no conflicts of interest.

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