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## **MEASUREMENT OF USABILITY OF LIBRARY SERVICES AND FACTORS AFFECTING THE USE OF THESE SERVICES/ RESOURCES IN ACADEMIC LIBRARIES: A CASE OF THE LIBRARY, FEDERAL UNIVERSITY OF TECHNOLOGY, OWERRI.**

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### **Abstract**

This study measures the usability of library services as well as the factors that affect the use of its resources by students of Federal University of Technology, Owerri. Sample size of 1479 students was drawn randomly from 200, 300 and 500 level students as shown in table 2. The usability frequencies of the various factors/variables in table 4 identified the percentage of its effect on usability of library resources. Regression analysis conducted on the data expressed the relationship between usability and the identified variables, thus:  $usability(y) = 0.312 + 0.103x_1 + 0.178x_2 + 0.174x_3 + 0.052x_4 + 0.067x_5 + 0.062x_6 + 0.093x_7$ , further showing that the identified variables have a significant effect on the usability of library resources.. Further test conducted using correlation analysis shows that the identified variables contributes about 78% on the usability of library resources ( $R=0.780$ ) and that there exists a strong positive relationship ( $R^2 = 0.608$ ). Based on the findings, lack of awareness, library orientation and perception were identified as major factors affecting Usability of library resources. Concerted efforts should be geared towards awareness, library orientation and enhancing the perception of library users in order to increase usability.

**Keywords:** Library usability, library services, library resources, academic library services, library users, library orientation.

### **Introduction**

According to Aguolu and Aguolu (2002) the principal function of any university is to preserve the existing information, to convey knowledge through teaching and to add value to knowledge through research. The university library is the university's principal apparatus in the preservation of knowledge through its coherent, logical and all-inclusive acquisition of all type of human communications, published and unpublished records that represent the gamut of knowledge (past and present) from which new idea or innovation grows and are disseminated to enrich humanity.

University libraries have the basic academic role of supporting teaching, learning and research activities that take place in their parent institutions, thus providing a gateway for students and researchers to access various resources, both print/physical and digital. University Libraries are subscribing to electronic journals databases, providing research and scholarly writing software, computer workstations or computer labs for students to access journals, library search databases and portals, institutional electronic resources, Internet access, and course- or task-related software.

Further more modern libraries are increasingly being redefined as places to get unrestricted access to information in many formats and from many sources; extending services beyond the frontier of a physical library walls, accessing materials electronically and using the assistance of librarians in navigating and analyzing very large amounts of information with a variety of digital resources. Libraries are increasingly becoming community hubs where programs are delivered and people engage in lifelong learning

However, for the academic libraries to achieve these functions, several services are been offered by them to varying users. The services which are offered by academic libraries in order to facilitate the use of books and dissemination of information resources to meet the academic, social and recreational need of its user include: Circulation Service, Reference Service, Online reservation of books, Recommendation of library material, Current Awareness Service (CAS), Inter Library Loan Service, Photocopying / Printing Service, Orientation and Information Sessions, Selective Dissemination of Information (SDI), Audiovisual service and Multimedia section. Other services include cataloguing, classification, computer and internet services, display of new arrivals, current content, externally purchased database, internally published newsletter, reports and journal publications, reprography/bindery, bibliographic services and so on (Shynee, Murugiah & Nandhini,2016).

While service is the act of making information resources available through facilities and procedure for onsite use, information resources come in various format – printed, audio, video, multimedia and electronics. However, the usability of these set of services offered by the university library is paramount, as they will all be worthless if the end users cannot utilize them. Usability has been seen as a multi-dimensional concept, having a number of definitions. However, the International Organization for Standardization ‘1998’ defines usability as “the extent to which the product can be used by specified users to achieve specified goals with effectiveness, efficiency and satisfaction in a specified context of use”. Usability can be defined as the quality of a user's experience when communicating with products or systems, including websites, software, devices, or applications. Usability is about effectiveness, efficiency and the overall satisfaction of the user. (usability.gov, 2019).

### **Statement of the problem**

The mission of academic library is to create a learning environment in which faculty and students are provided with a variety of resources/services that will ultimately make them become competent users. Over the years academic libraries has evolved strategies to attract and retain library users by increasing quality of its stock and services. But despite new library services being introduced, it is pertinent that some who still visit the library still do not use most of the library services/resources. The scenario has continued to impact negatively not only on the library services but on knowledge development. It is therefore pertinent to find out why the student's users' do not maximize the library services provided for the enhancement of their academics. This is the gap this work seeks to close. This paper attempts at exposing the anomaly by measuring students' use of library services with a view to identifying the factors/variables that affects the usability of these services.

The result of this work will provide useful and reliable statistics on use of library services by students of the Federal University of Technology, Owerri. It will equip the University and the Library Management with relevant tools to solving the problem of usability/non usability of library services and as well serve as a reference point to future plans on library services.

### **Objective of the study**

The general objective of this study is to measure the students' use of the various services provided by the library of the Federal University of Technology, Owerri. Specifically, the study seeks to:

1. Ascertain the student's knowledge/ awareness of the services provided by the library
2. Identify the actual student's usability of these services
3. Identify the factors that affect usability of library services.
4. Proffer solutions that will ensure maximum and adequate use of library services

### **Literature Review on services provided by FUTO Library.**

Usability is how easy it is for a user to interact with a product. Usability is distinctly different from accessibility, which concerns the needs of users with disabilities. It is broader than simple tools such as feedback surveys. Usability is a systematic model for observing how users behave when using resources, analyzing that use, and making changes to improve the user experience. In the words of Aaron Schmidt and Amanda Etches Johnson, usability means “Watch people use your stuff” (Schmidt and Etches-Johnson, 2012).

### **Circulation Services**

Library materials are borrowed and returned at the circulation desk, which is located near the main entrance. Reserved books, audio visual materials, periodicals, reference books and CDs / DVDs can be used within the library. The circulation counter or desk is usually the users' first point for enquiry and services. A lot of services are being rendered at the circulation desk depending on the user's queries. It is pertinent that some library users avoid the circulation desk.

### **Reference Service**

Library provides reference and referral service to its users. Queries are answered using all possible sources. If the required information source is not available / accessible at its Library, the users are referred to other libraries where the required information may be available.

### **Online Reservation System**

Library users can reserve any book using our online reservation system if it is already issued. Reserved books are not reissued. Library user is automatically informed through email when a reserved book is returned and the same is held at circulation desk for two days. If the reserved book is not collected within two days, it is issued to other users or shelved.

### **Recommend an Item**

The library welcomes faculty, staff, students and other members to recommend any material, which can add value to our library collection. Purchase of recommended items is subject to approval and availability of funds. However, we try our best to honor all recommendations of our valued library members.

### **Current Awareness Service**

Library members are regularly informed about the recent acquisitions in the library. A list of "NEW ARRIVALS" is sent to the library users by e-mail on regular basis.

### **Inter Library Loan Service.**

Materials that are not held by our library might be borrowed temporarily from other libraries on Inter Library Loan basis. To avail this facility, users need to submit their demands to the Library Officer. .

### **Photocopying, Printing Service**

Photocopying and printing facility is available within the library. Users can get the photocopy of required information from reference materials (like reference books, encyclopedias, dictionaries, journals and magazines etc.) on request.

**Orientation and Information Sessions** The library's orientation and information program extends the role of library in ensuring that users make the most effective use of library resources. The program is designed to educate the faculty members, students, and staff in locating printed and electronic knowledge resources to fulfill their information needs. This service is provided on individual and group basis as the case may be.

### **Selective Dissemination of Information (SDI)**

Keeping in view the area of interest of the library members, selected materials are provided to them in order to keep them abreast of the latest knowledge in their field.

### **Audio Visual Service.**

Library members can utilize audio visual resources available in library. To facilitate the users, necessary equipment has been provided for this purpose. Library staff also extends help to the members in using the resources.

## **Multi Media Section.**

Multimedia section is established in library with 10 latest computers equipped with multimedia and internet facilities. Equipment required for the use of different types of information media (like CDs, DVDs, Audios, Videos etc.) are available in this section so that users can have better access to the information resources in digital format.

In spite of the foregoing services, libraries should take cognizance of the fact that some patrons do not know how to fully use the library's resources. This fact may be attributable to either individual's phobia in approaching a staff member or the ways in which library's content is displayed/accessed. A staff that is unwilling or inadequately trained to engage a patron would impact on use or limit library's usefulness. Therefore a lot depends on the library to enforce a high degree of service usability.

## **Factors affecting library service usability**

Over the years, so many librarians/ authors have suggested factors like lack of awareness of some library resources/services, lack of orientation and user education, user perception, lack of adequate space, quality of services, lack of library and information skills, and computer literacy as major factors that affect the usability of library services. (Lydia, 2014; Thulasimani, 2016; Louis & Elaine, 2011). With respect to awareness Lydia (2014) opined that poor communication and inadequate interaction between users and the library staff, coupled with the library's failure to apply marketing strategies to promote its service affects awareness. She added that insufficient knowledge among library users of the services their university libraries provide is a growing concern in academic librarianship, arguing that if the library is to promote awareness of its services and activities, there must be continual interaction with its users. This Interaction can be influenced both by factors directly related to the library, such as how efficiently and effectively it is run, the relevance of the information it provides and the communication channels it employs.

While Goggin (1974) defined library orientation as the introduction of students and faculty to the library, to locations of essential areas and resources, basic elements of using the library, and the services provided by librarians; awareness is gained through library orientation programme. The objective of the programme is to introduce the students to the physical plant of the library, its policies and procedures, and its resources (Loftin, Long, and Rouge, 1983).

Perception of library users on the other hand has been viewed as an obstacle to library service usability. According to Jiang and Wang, (2006), service perception is the users' judgment and evaluation of a service performance, received and how it compares to their need. This is very true since university libraries are an integral part of the education system and how they are perceived determines their smooth existence and value to the library users. Academic Libraries should therefore contribute to the goals of the system as a whole and respond to the changing social needs. This will help the libraries to achieve its goal and invariably contribute to its parent institution. Masinti (2005) views it as the opinion held by an individual, the art of linking what is sensed with some past experience to give the sensation meaning.

Computer Literacy refers to the new information environment which requires that students develop understandings, motivations, or abilities to guide their own and others' learning to result in richer and more interesting learning outcomes than in the case under the traditional learning situations. Studies on computers in libraries show that many college students experience library anxiety (Jiao & Onwuegbuzie, 2004). Such experiences have negative effect on the success of searches and thereby affect usability of library services.

Nitecki & Hernon (2000) defined service quality as meeting or exceeding customer expectations, or the difference between customer perceptions and expectations of service. In the library context, I-Ming & Shieh (2006) defined service quality as the overall excellence of library services that satisfy users' expectation. He also stated that quality of service a user receives affects his/her ability to use library services provided.

The paper written by (Victor & Biokuromoye ,2014) investigated the factors affecting the use of library resources and services by undergraduate students in Niger Delta University, Bayelsa State. The researchers adopted a survey research design method to collect data for the study.

A total of 268 undergraduate students participated in the study. The findings of the study revealed that poor quality of services provided negatively affected the use of the library. Lack of inadequate space in the library and lack of orientation/user education are major factors affecting the use of the library. The paper recommends that the university management should provide the university with a purpose-built library to enhance adequate space for the teeming population of students. The study identified awareness and familiarity with library and information resources, including their organization and retrieval tools, library skills and information literacy as the main factors that influence utilization of libraries' resources. The findings indicated that lack of library and information skills, which are the basis for empowering students with information literacy competencies of identifying, locating, and use of information resources, is the source of underutilization of integrated information resources accessible through Mombasa Library.

Ashaver and Bem-Bura (2013) conducted a study aimed at examining how student perceive the library services offered in Benue State University and the Federal University of Agriculture Makurdi, Benue State, Nigeria, respectively. Random sampling was used and data were collected through a questionnaire and interviews. The study found that students at Benue State University and the Federal University of Agriculture Makurdi in Nigeria have a negative perception of the library services rendered by these university libraries. The negative perception arises from lack of awareness by the students on how to search for information materials and ignorance on information search and retrieval strategies. In addition, the issues of outdated materials in these libraries and the attitudes of most librarians and library officers toward students in search of information, or students' awareness about library use and services, contribute to the negative perception.

This was corroborated by Long (2011) who conducted a study with the purpose of exploring the attitudes of Latino undergraduate students with regard to their use of the academic library and its librarians, and to identify the conditions which impede or facilitate their use of the library services. A qualitative research approach was adopted and convenience sampling was used while data was collected through semi-structured interviews. The findings of the study show that students perceive the library as a social destination and as a community network rather than a place which supports their learning. Students interpret the library as a space for cultural support based on their experiences with public libraries, and do not fully understand the range of resources and support available.

## Methodology

Survey approach was adopted for this Study. Primary data were collected with the aid of a Questionnaire administered to students of FUTO. The Population of the students at FUTO is 16,556 which were obtained from the University's Information and Communications Technology records (FUTO,ICT, 2019). According to Nwana (1981), if a population is in many hundreds, one needs a sample size of 20%. But if a population is in few thousands, one needs a sample size of 10%. Based on the foregoing recommendation, a sampling fraction of 10% was used to select the sample size, which is put at one thousand six hundred and fifty six (1,656) students in the University. A multistage sampling technique was employed. FUTO is made up of 46 departments, from which 36 students were selected from each department. The research concentrated on students of 200, 300 and 500 levels of study. 12 respondents were selected from each level giving a total of 1,656 respondents. To guarantee the reliability of the instrument, it was administered on thirty (30) participants out of the envisaged population of the study. A test-retest reliability method of two weeks interval was conducted, response obtained were subjected to Pearson Product Moment Correlation method and a reliability co-efficient of 0.81 was obtained. Meanscore,significantmeanand standard deviation were used in describing the data while regression analysis was used to analyze the hypothesis.

$$Y_i = \alpha + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \dots + \beta_n X_n$$

where

$Y_i$  = Usability

$X_1$  = Awareness

- $X_2$ = Library orientation  
 $X_3$ = Perception  
 $X_4$ = Computer Literacy  
 $X_5$ = Quality of service  
 $X_6$ = Library Space  
 $X_7$ = Information Literacy

## Research Findings and Discussions

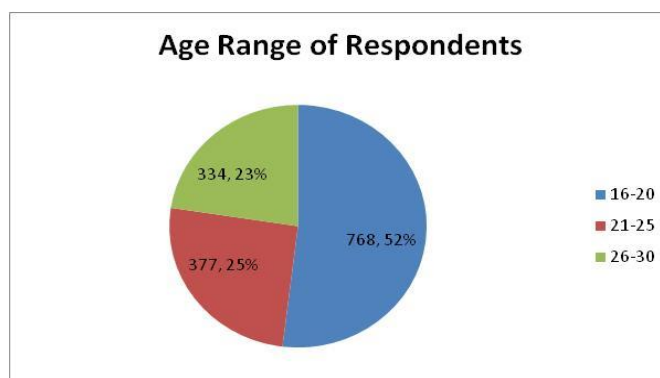
Out of the 1,656 questionnaires that were administered, 1,533 (92%) copies of the administered questionnaire were returned and 1479 (89%) were properly completed and thus 1479 responses were therefore used for the study.

### Demographic Data

**Table 1: Age of respondents**

Age range	Frequency	Percentage (%)
16-20	768	52
21-25	377	25
26 & above	334	23
<b>TOTAL</b>	<b>1479</b>	<b>100</b>

Table 1 shows that 768 (52%) of the respondents are within the age range of 16-20 years, 377 (25%) of the respondents are within the age range of 21-25 years of age while 334(23%) of the respondents are within the age range of 26-30 years of age and above. This Table shows that majority of the respondents are within the age range of 16-20 years of age. This can also be represented in a Chart as below:



**Figure 1: Age Range of Respondents**

**Table 2: Academic Level of Respondents**

Level	Frequency	Percentage (%)
200	451	30
300	573	39
500	455	31
<b>TOTAL</b>	<b>1479</b>	<b>100</b>

Table 2 shows that 451 (30%) of the respondents are students in 200 Level, 573 (39%) of the respondents are students from 300 Level, while 455 (31%) of the respondents are students from 500 Level. Therefore majority of the respondents (39%) are students from 300 Level. The levels represent the students Year of Study.

**TABLE 3: Gender of Respondents**

Gender	Frequency	Percentage (%)
Male	921	62
Female	558	38
<b>TOTAL</b>	<b>1479</b>	<b>100</b>

Table 3 shows the distribution of respondents by gender. The Table reveals that 921(62%) of the respondents are males while 558(38%) of the respondents are Females.

Therefore, majority of the respondents (62%) are males. This is understandable being a University of Technology. Perhaps, the result could have been different if this university had been a conventional one.

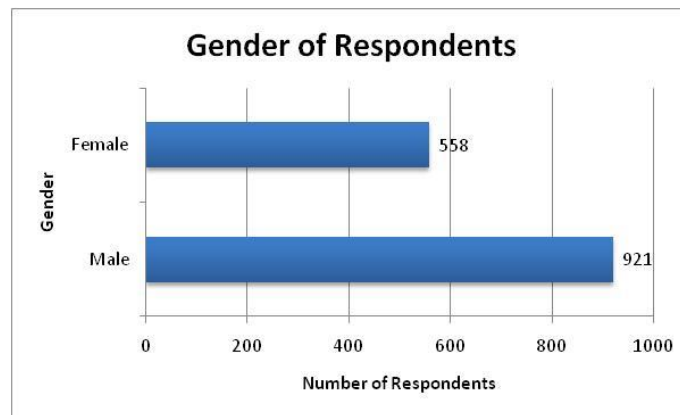


Figure 3: Gender of Respondent

Table 4: usability Frequencies

usability <sup>a</sup>	Responses		Percent of Cases
	N	Percent	
X1	1179	14.7%	79.9%
X2	1173	14.7%	79.5%
X3	1196	15.0%	81.1%
X4	1092	13.7%	74.0%
X5	1065	13.3%	72.2%
X6	1118	14.0%	75.8%
X7	1171	14.6%	79.4%
Total	7994	100.0%	542.0%

a. Dichotomy group tabulated at value 1.

The table above shows the multiple response analysis of the participants responses, 1179(79.9%) of the respondents indicated that awareness is a factor that affects the usability of library services. 1173(79.5%) of the respondents indicated that library orientation is a factor that affects the usability of library services. 1196(81.1%) of the respondents indicated that perception is a factor that affects the usability of library services. 1092(74.0%) of the respondents indicated that computer literacy is a factor that affects the usability of library services. 1065(72.2%) of the respondents indicated that quality of service is a factor that affects the usability of library services. 1118(75.8%) of the respondents indicated that library space is a factor that affects the usability of library services while 1171(79.4%) of the respondents indicated that information literacy is a factor that affects the usability of library services. This shows that majority of the respondents are of the affirmation that all the listed variables are factors that affects the usability library services.

Table 5: Model Summary

Model	R	R Square	Adjusted Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. Change
1	.780	.608	.597	.314	.608	73.871	7	1471	.000

a. Predictors: (Constant), X7, X6, X5, X3, X4, X2, X1

In order to ascertain the effect of the variables ( $X_1$ ,  $X_2$ ,  $X_3$ ,  $X_4$ ,  $X_5$ ,  $X_6$ , and  $X_7$ ) on the usability of library services, the data was subjected to a simple linear regression analysis, to find out if there is any significant effect. Table 5 above depicts a strong relationship between usability and the variables. It shows that 78.0% level of coefficient exist between level of usability and the variables.

The coefficient of multiple determination denoted by r-square is therefore strong thus indicating that the data does fit well in the statistical model (60.8%) since it is near to 100%, therefore a reasonable amount of usability is been determined by these variables, this therefore appears to be useful for making predictions since the value of R-Square is close to 1.

Also when the R-Square was adjusted for possible error in fitness an Adjusted error of 59.7% was observed, this normally do serve as an indication that some other explanatory variable(s) by which without them the dependent variable (usability) cannot be fully measured. Therefore other predictor variables are needed to be sourced out in order to fully measure the dependent variable (usability).

An F-test was also performed to determine if the model is useful for prediction at 5% level of significance.

The F-ratio was calculated of the predictor variable to be 78.87 with an alpha value of 0.001 which was found to be higher than f-tabulated value at 0.05 and  $df=7$  and 1471 is 3.23. This therefore shows that the model is useful for predicting usability based on these variables.

**Table 6: Provision of Library Services**

**Do you know about the following library services?**

S/N	ITEMS	YES (%)	NO (%)
1	Lending of books	1000(68)	479(32.4)
2	Helping user locate material/information needed	50(3.4)	1429(96.6)
3	Alerting user of newly arrived textbooks	50(3.4)	1429(96.6)
4	Linking users to their information requests	50(3.4)	1429(96.)
5	Reservation of recommended textbooks for easy access	240(16.2)	1239(83.8)
6	Reference services (answering user's enquiries)	250(16.9)	1229(83.1)
7	Online reservation of books	100(7.0)	1379(93)
8	Inter-library loan services	12(0.8)	1467(99.2)
9	Provision of offline and online databases	1449(98)	30(2)
10	Provision of data to surf the net	1219(82.4)	260(17.6)
11	Provision of internet services	1179(80)	300(20)
12	Providing users with library guide	472(31.9)	1007(68.1)
13	Photocopying information materials for users on request	1389(94)	90(6.0)
14	Binding of users personal books on request	1449(98)	30(2.0)
15	Provision of in-door games for relaxation and recreation	1079(73)	400(27.0)
16	Provision of interactive TV board for tutorials and Pre-thesis presentation	979(66.2)	500(33.8)
17	Provision of TV board for display of news update and current discoveries	879(59.4)	600(40.6)

**Table 7: Have you been using these services in the library?**

S/N	ITEMS	YES (%)	NO (%)
1	Lending of books	1320(89)	159(11)
2	locating material/information need on the shelve through library staff	240 (16)	1239(84)
3	Using alerting service to access newly arrived textbooks	200 (14)	1279(86)
4	Linking users to their information requests (selective dissemination service)	200 (14)	1279(86)
5	Reservation of recommended textbooks (current awareness service)	200 (14)	1279(86)
6	Reference services (answering user's enquiries)	350 (24)	1129(76)



7	Online reservation of books	150 (10)	1329(90)
8	Inter-library loan services	200 ((14)	1279(86)
9	Provision of offline and online databases	250 (17)	1229(83)
10	Use of data/ credit card to surf the net	230 (16)	1249(84)
11	Use of free Internet services	240 (16.2)	1239(83.8)
12	Use of users library guide for indepth knowledge of the library setting	200 (14)	1279(86)
13	Photocopying information materials for users on request	300 (20)	1179(80)
14	Binding of users personal books on request	300 (20)	1179(80)
15	Use in-door games for relaxation and recreation	1000(68)	479(32)
16	Use interactive TV board for tutorials and Pre-thesis presentation	120 (0.8)	1359(92)
17	Provision of TV board for display of news update and current discoveries		

**Table 8: Extent to which these factors affect usability of library services amongst university students**  
Coefficients<sup>a</sup>

Model (Constant)	Unstandardized Coefficients		Standardized Coefficients	T	Sig.	95.0% Confidence Interval for B	
	B	Std. Error	Beta			Lower Bound	Upper Bound
<b>Usability</b>	.312	.025		12.282	.000	.262	.362
<b>Awareness</b>	.103	.024	.114	4.269	.000	.056	.150
<b>Library orientation</b>	.178	.024	.198	7.494	.000	.131	.224
<b>Perception</b>	.174	.024	.188	7.219	.000	.126	.221
<b>Computer Literacy</b>	.052	.021	.082	-.074	.031	-.043	.040
<b>Quality of service</b>	.067	.020	.083	3.376	.001	.028	.106
<b>Library Space</b>	.062	.021	.073	3.001	.003	.022	.103
<b>Information Literacy</b>	.093	.023	.103	4.061	.000	.048	.137

Dependent Variable: y

The table above reveals the extent to which the factors affect usability of library services amongst university students, while all the variables were found to have a significant effect on usability, awareness, library orientation and perception were found to affect library services usability to a large extent.

The regression equation is thus given below;

$$usability(y) = 0.312 + 0.103x_1 + 0.178x_2 + 0.174x_3 + 0.052x_4 + 0.067x_5 + 0.062x_6 + 0.093x_7$$

## Conclusion and Recommendation

### Conclusion

Based on the findings the researcher makes the following conclusions

1. Awareness, Library orientation, Perception, Computer Literacy and Quality of service, Library Space, and Information Literacy are among the factors that affects the usability of library services.
2. There is a significant relationship between these factors and library services usability.
3. Awareness, library orientation and perception were found to affect library services usability to a larger extent than others.

### Recommendation

The following suggestions were made by the researcher based on the findings

1. Libraries should always try to create awareness on how the available library services can be used.
2. Orientation can be organized, especially for the new students on how best to use the library services.

3. The library administrative department should always try to look at the quality of services the students receive in order to help them be able to use the library services provided.
4. Other determinants or factors such as computer literacy, information literacy, perception and library space should be taken into consideration in order to improve the usability of library services by students.

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