Users' Perceptions and Use of Electronic Resources in Academic Libraries: A Case of ARRUPE College Library, Zimbabwe

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Abstract

The main purpose of this study was to investigate user perceptions, use and challenges in accessing electronic resources by students and lecturers at Arrupe College Library. However, underutilisation and users' perceptions remain a major concern for the Arrupe College Library. To establish the cause a study was conducted to investigate user perceptions, use and challenges in accessing electronic resources at Arrupe College Library. The Technology Acceptance Model was adopted as the framework for analysis. The results supported that TAM is an effective model in understanding the use and adoption of technology. The study employed both qualitative and quantitative approaches. The research design used was a descriptive survey while the sampling technique was stratified random sampling using proportional representation to select participants from a student population of 118. Data was collected using the questionnaire technique from students and supplemented by the observation technique on the use of electronic resources. Statistical Package for the Social Sciences (SPSS) and content analysis were used to analyse the quantitative and qualitative data. The study revealed that awareness and usage was high, but not uniform across all electronic resources offered by the library. Users found ease of use and were satisfied with the service but expressed the need to expand e-resources particularly e-books. The findings also revealed that there was low intake of open access resources. The main challenge was inadequacy of e-resources, computers, awareness, and training. The study recommends that

the library invests in more e-resources, particularly e-books, conducts more awareness and training, increase computers, and promote the use of open access.

Key words: Electronic resources, Use, and Adoption.

Introduction

Libraries have embraced the use of ICTs by investing in a range of electronic resources which facilitate research and play a complementary role to print library resources. The 21st century has been characterised by a dominant role of Information and Communication Technologies (ICTs). This has seen a transformation in the way information is provided, accessed, and used. ICTs enable the creation and capturing of information in various formats and makes it available to users. They provide an opportunity for libraries to add more value to their services whilst improving efficiency. Amongst the many opportunities provided for by ICTs is the provision of electronic resources (e-resources) in academic libraries. Electronic resources refer to those materials that require computer access, whether through a personal computer, mainframe, or smart technologies (Madondo, Sithole & Chisita, 2017). Chandel and Saikia (2012) argue that the advent of electronic resources is like a great revolution in the capture and dissemination of academic knowledge. Academic libraries benefit from electronic resources by assisting users in learning, teaching, and research. Electronic resources offer many advantages to the academic library such as multi access, speed, mobility, and convenience. In spite of all these advantages, Chandel and Saikia, (2012) warn of the challenges associated with the provision and use of electronic resources. It is in this regard that this study sought to investigate the challenges of user perceptions and use of electronic resources at Arrupe Jesuit School of Philosophy and Humanities.

Statement of the Problem

Despite orienting students and lecturers on how to access and use e-resources Arrupe College Library's e-resource utilisation remains below the anticipated degree. Library monthly report statistics and observations as well as informal discussions with users, pointed to low utilisation of electronic resources, which take up a considerable percentage of the budget to set up and maintain. Ranganathan stated that the library is for use and when that does not happen, it becomes a cause for concern to librarians. The mission of the Arrupe College Library is to support the teaching, learning, and research activities of the academic community of the Arrupe Jesuit School of Philosophy and Humanities. This is availed through the provision and use of appropriate information resources, collections, and services. One of Ranganathan's laws, as stated earlier, is that the library is a growing organism, and as with most academic libraries of the 21st century, the Arrupe College Library has embraced

the use of ICTs to provide and enhance use of electronic resources in support of the teaching, learning, and research activities of the Arrupe academic community. The provision of e-resources continues to expand in an effort to enhance effective and better-quality service to users.

Objectives of the study were to:

i.   Find out if students and lecturers were aware of the availability of e-resources at Arrupe College.

ii. Establish the level of usage of e-resources by students and lecturers at Arrupe College.

iii. Investigate the students and lecturers' perception in regard to e-resources.

iv. Identify the E-resource challenges faced by students and lecturers at Arrupe College.

Research Methodology

This study adopted a mixed method approach. The quantitative approach was used to obtain data from students whilst the qualitative approach was used during interviews to collect data from lecturers. The research strategy was a descriptive survey and the data collection tools included structured interviews for lecturers, and a semi-structured questionnaire to students, supplemented by the observation method. The study used triangulation as a way of ensuring validity and reliability. Neuman (2006) points out that getting identical measurements from diverse methods implies greater validity. The study took cognisance of the challenges encountered in using the mixed methods approach as identified by Creswell and Plano (2014). These include the selection of participants, unequal sample sizes, and the steps for conducting the whole research. In this study, the sample size was determined using the SurveyMonkey sample size tool. Kumar (2011) advice that the larger the sample size, the more accurate the findings. Nueman (2014) and Kothari (2011) state that the most commonly used confidence level is 95% and margin of error is +3. The confidence level represents how often the true percentage of the population who would pick an answer lies within the confidence interval.

The population for this study was 118 and using the Survey Monkey tool, the sample size was 91. However, Welman, Kruger, and Mitchell (2005) point out that in order to increase the overall response rate, a researcher can add to the original sample size. Thus, the original sample size had an additional 9 to give a sample size of 100. Also considered in increasing the sample size was the willingness of participants to participate in the study. Due to the fact that the population of study was heterogeneous, with three different degree programmes, the stratified random sampling technique was used. According to Rensburg, et al. (2010)

stratified random sampling technique is where the population is divided into different groups or sub groups called strata. The population was stratified based on the programme they were studying, that is BA Philosophy, MA Philosophy, and Postgraduate Diploma in Philosophy.

Table 1. Number of students selected for the sample from each degree programme.

N=118, n=100		
MA Philosophy	13(11%)	11(11%)
BA Philosophy	95(81%)	81(81%)
Postgraduate Dip Philosophy	10(8)	8(8%)
Total	**118**	**100**

Data from the closed-ended questions was analysed using the Statistical Package for Social Sciences (SPSS). A total of 100 questionnaires were distributed and 86 were returned giving a response rate of 86%, which can be considered high. The measurements in this study included a Likert type rating scale to indicate the strength of responses to the questions. Inventory type of questions were also used. The results from the questionnaires were presented descriptively and in figures with explanations. Percentages were rounded to the next whole number.

Literature Review

Academic libraries around the world have recognised the importance of electronic resources in line with the changing needs of the 21st century user, which are fast changing. The Arrupe Jesuit School of Philosophy and Humanities offers degree programmes in philosophy and has embraced the use of ICTs to grow and transform over the twenty years of its establishment. The library started with a collection of about 5 000 books and used the brown issue system, which was still widely used by most libraries during that time. Twenty years later after its establishment, the library adopted ICTs and has a computerised system offering a range of e-resources. These include an online public access catalogue (OPAC), online journal database, JSTOR, on and off campus, as well as an index of philosophical journal articles. The library offers these e-resources in an effort to remain relevant in an environment characterised by users who have access to a range of information from the internet. The expectation is that the users find value in these services provided by the library.

The Arrupe academic library has a computer centre which provides internet access to its users through search engines, subject gateways, subject directories, and other web-based resources. In addition, there is a media centre that offers facilities for viewing films and videos and

other multimedia products on compact disc (CDs), digital video device (DVDs) and other formats. The library also provides links to several open access databases such as the Directory of Open Access Books (DOAB) and Directory of Open Access Journals. (DOAJ). Also included is an email and reference service through the "ask the librarian service" on the website and on the Online Public Access Catalogue (OPAC). The objective of availing all these resources and services is to enhance and improve access to electronic information and meeting the overall objectives of the college. This is also in line with the international trend that has seen academic libraries increase the uptake of ICTs in support of teaching, learning, and research. (Thanuskodi, 2013). When such resources are availed, it is expected that users use them to their satisfaction. However, the observation from library records and informal discussions with users pointed to underutilisation, wrong perceptions, and lack of awareness about the e-resources service.

Despite the college gradually expanding the e-resource service in line with increased enrolment, this did not seem to be in tandem with the usage of electronic resources. Popoola (2008) observes that availability does not always mean accessibility and utilisation. Users at Arrupe College Library were not confident in using electronic resources and sometimes expressed ignorance about the existence of e-resources. This scenario could have stemmed from a number of factors. It could be as a result of irrelevant or inadequate e-resources, lack of skills in using the resources, lack of awareness, or challenges in using the e-resources. Since the inception of electronic resources starting with the introduction of an online catalogue, and progressing to the present-day situation, which has a range of e-resources such as e-books and e-journals, there has been no study to determine factors affecting the use of e-resources. This may not be an ideal situation in the academic library and may result in a situation where the library provides an inappropriate service. Ross and Sutton (2016) concur by putting emphasis on ongoing evaluation and assessment as well as persistent attention to the use of e-resources. Shim, McClure, and Bertot (2001) similarly stress the importance of evaluation and assessment by stating that libraries should cultivate a culture of assessment which will enable them to make decisions based on facts, research, and analysis, and provide services which are planned. It is therefore, of paramount importance to carry out a scientific study to determine the true nature of affairs regarding e-resources at the academic institution.

It may not suffice to look at the history of electronic resources in libraries that has led to the present-day situation. Hawthorne (2008:2) chronicles the history of electronic resources in libraries from machine readable cataloguing, through to Compact Disk Read Only Memory (CD-ROMs) in the 1980s. The 1990's and 2000 saw the introduction of the internet with information being availed across the globe. Since then, technology has continued to advance

and so have e-resources. However, Chandel and Saikia (2012:148) warn of the challenges that come with the provision of e-resources. There are problems relating to the provision and use of electronic resources, which must be addressed for an effective service.

Most libraries are still guided by the five laws of library science as conceptualized by Dr. S.R. Ranganathan in 1931. Whilst these laws were formulated decades ago before technology was as advanced as it is today, the laws are still applicable and relevant to guide libraries in the provision and use of electronic resources in the 21st century. Hawthorne (2008) paraphrases Ranganathan's laws, particularly for use in the electronic resources environment to "resources are for use, every person his or her resource, every resource its user, save the time of the user, and the library is a growing organism".

Consequently, an e-resource service must be utilised by the intended users, e-resources must be relevant and adequate, they must be user friendly such that they are easy to use and not waste the user's time, and as Ranganathan puts it, the library must be a growing organism. In this regard, the library must grow by adopting and moving with the current ICT trends. Adeniran (2013) points out that electronic resources play a prominent role in facilitating access to the required information in a fast and timely manner and electronic information sources are becoming more and more important for the academic community. It is expected that such resources are fully utilised, but it becomes a concern for librarians when electronic resources are underutilised.

In the context of an academic library, an electronic resource is any resource that uses a computer application. According to Ross and Sutton (2016) the Anglo-American Cataloguing Rule (AACR2) refers to electronic resources as data or programmes which require the use of a peripheral directly connected to a computerised device such as a CD-ROM drive or connection to a computer network such as the internet. Simply put, an electronic resource is any resource that makes use of a computer network. Electronic resources in the library refer to a broad range of resources. Ross and Sutton (2016) list these as electronic books, electronic journals, digital audio files, digital video files, electronic indexes, and databases. Libraries spend considerable investments in setting up and maintaining e-resources, hence the continued emphasis on the awareness and use of these resources.

Previous research on the use of electronic resources has produced various results. Madondo, Sithole, and Chisita (2017); Cook, Amusa, and Atinmo (2016); Chimah and Nwokocha (2015); Joo and Choi (2015); and (Bashorun, Isah, and Adisa (2011) are some of many researches that have been done on the use of electronic resources with varying results. Tenopir (2001) supports this to say that sometimes results are contradictory and unclear.

Theoretical Framework.

TAM was adopted as the most suitable model for this study as it gave an insight into how users are using electronic resources at Arrupe College. TAM has been used widely and successfully in previous studies as reported by (Park, 2009:151). Alharbi (2014:151) gives TAM weight when he states that its high validity has been proven empirically in many previous studies. TAM comprises two beliefs, perceived usefulness, and perceived ease of use, which determine attitudes to adopt new technologies. The attitude toward adoption will decide the adopter's positive or negative behaviour in future concerning new technology. It also gives insight about the users perceptions of the ease of use and usefulness of the e-resource service (Davis, 1989). TAM helped explain the relationship between usefulness, ease of use, and system use. Put in other words this model gave an insight on whether the e-resources at Arrupe were useful from the point of view of the users. It also helped establish whether e-resources were straightforward, and users used minimal effort in accessing them and if this resulted in the use of the e-resources. This provided an insight into the factors leading to poor utilization of electronic resources.

Discussion and Findings

The study findings were drawn from both qualitative and quantitative giving both a descriptive and a statistical analysis. Data gathered from interviews and the open-ended questions was analysed using a content analysis. Kumar (2011) provides the process which starts with identification of the main themes that emerge from the descriptions given by respondents, assigning codes to the main themes, classifying responses under the main themes, and integrating themes and responses into the text of the report before coding is done. The main themes in this study were identified as awareness, perceptions, ease of use, ICT infrastructure, challenges, and solutions

Demographic Data

As illustrated in **Table 2**. the college has a total student enrolment of 118. Ninety-five in the BA Philosophy programme, constituting 81% of the total student population. MA Philosophy has 13 students constituting 11% whilst the Postgraduate Diploma in Philosophy has 10 students constituting 8% of the total student enrolment. The majority of students in the college are undergraduates in the BA Philosophy programme.

Table 2. Total Enrolment of Students by Programme

Total Enrolment (N=118)		
Programme	Students	Percentage (%)
BA Philosophy	95	81
MA Philosophy	13	11
Post Graduate Dip Philosophy	10	8
Total Students	**118**	**100**

It is evident from **Table 3**. that the majority of respondents, 76 were from the BA Honours in Philosophy representing 88% of the total respondents whilst the least where from MA Philosophy which had 6 (7%) of total respondents. The Post Graduate Diploma had 4 (5%) of total respondents. However, this corresponds with the enrolment ratios as these two programmes have the least students.

Table 3. Respondents to the Questionnaire

Number of Respondents (N=86)		
Programme	Students	% of Total Respondents
BA Philosophy	76	88
MA Philosophy	6	7
Post Graduate Dip Philosophy	4	5
Total Respondents	**86**	**100**

The first research question of this study enquired about students' awareness of the availability of e-resources at Arrupe College library. The study findings revealed that users were aware of e-resources but were not aware of the full range of electronic resources. There was a high degree of awareness for some e-resources such as 95% for OPAC. These were attributed to the requirement that students must use authentic sources from the library and the library orientation they received which placed emphasis on OPAC. Awareness of the Library Webpage were also quite high at 86%. The study established that most students use the main website, which they rely on for communication with the college, resulting in the frequent use of the Library Webpage. Awareness of JSTOR, which was 78%, were attributed to the

deliberate campaign from the library that used traditional means of communication, in addition to electronic means such as the Library Webpage and a link on OPAC.

Findings from the interviews with lecturers revealed that student were being ordered by their instructors to access learning materials using JSTOR and OPAC, which explains the high awareness. This corroborates with previous studies by Akpojotor, (2016); Chimah and Nwokocha, (2015); SAGE, (2014); and McCreadie,(2013) that recorded high awareness especially after a deliberate campaign or promotion. The study discovered that students were unaware of the full range of electronic resources with the least responses for the journals index (2%), DOAB (34%) and DOAJ (30%). These results confirms that users were not manipulating the OPAC as much as the link to DOAB and DOAJ were on the OPAC.

Awareness

Figure 1. illustrates awareness of the various e-resources by respondents. Awareness was highest for the online catalogue with 82 respondents out of the total 86 giving 95%. This was followed by the Library Webpage with 74(86%), JSTOR, 67(78%), the E-Library, 62(72%) and the least were the open access databases, DOAJ and DOAB with 26(30%), and 29(34%) respectively. Of concern, is the journals index, which recorded 2 (2%) awareness. The results revealed that there was high awareness from the masters' students' more than 80% awareness for all e-resources. The 2% awareness for the journals index was both from the MA Philosophy programme.
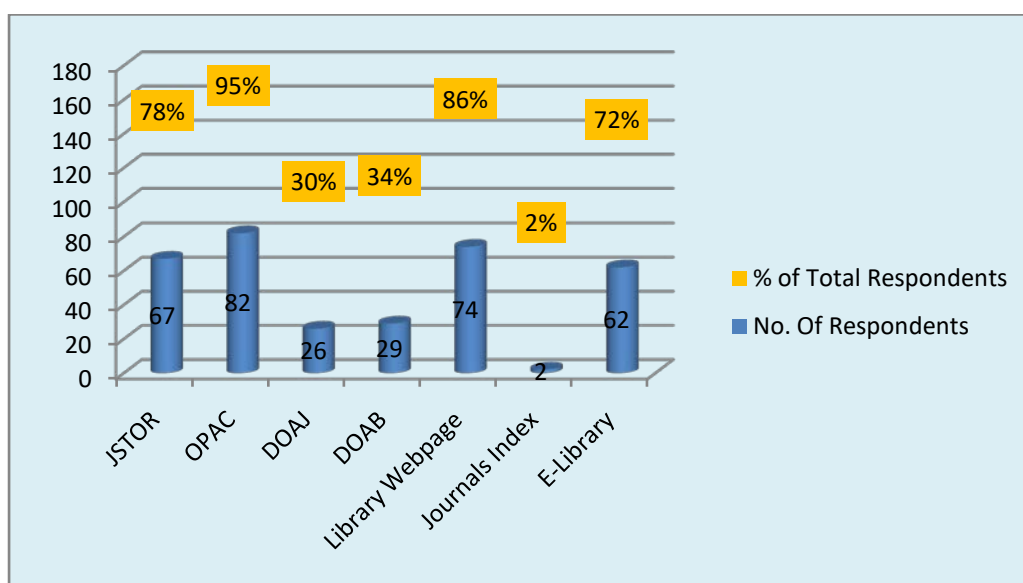
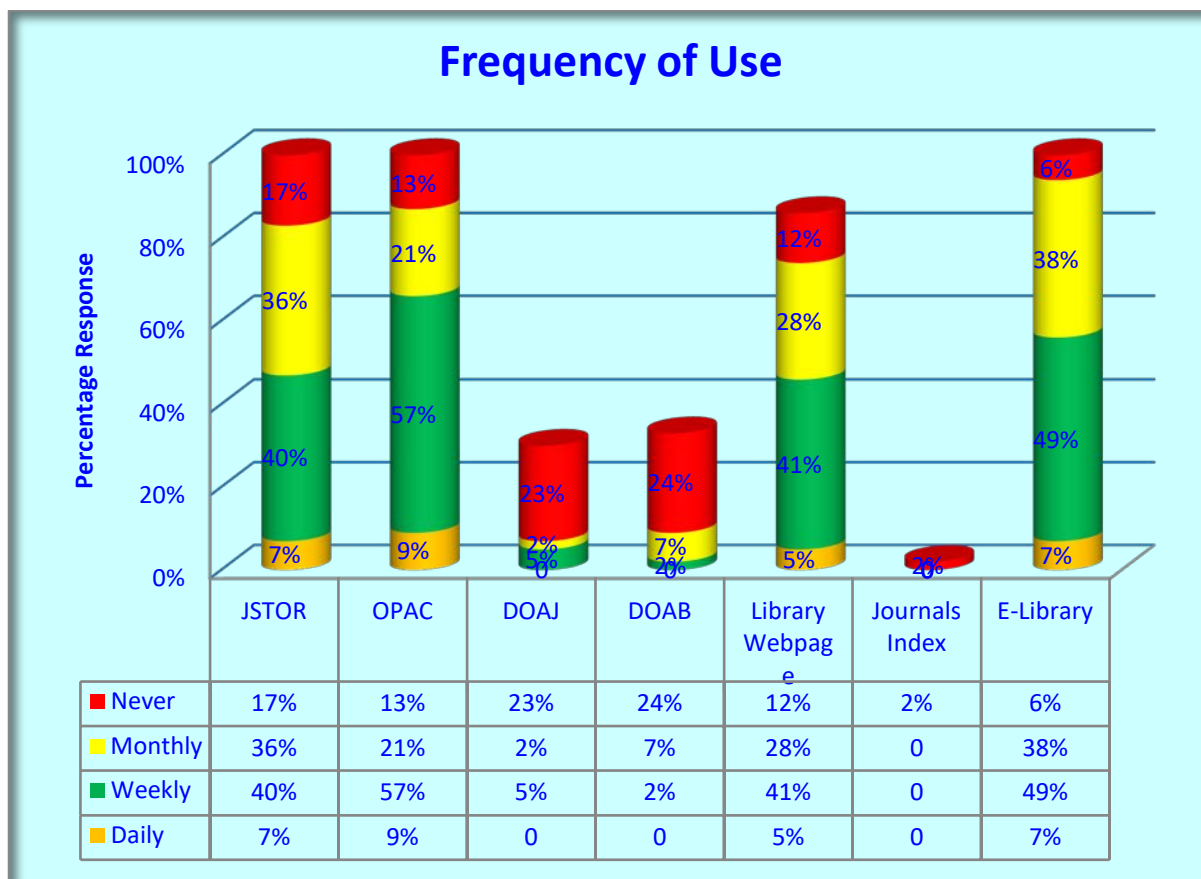**Figure 1. Awareness of E-Resources by Type**

The second research question of this study probed on the usage of e-resources by students and lecturers at Arrupe College Library. The results indicate that e-resources usage were very

high for JSTOR, OPAC, the Library Webpage, as well as the E-Library. According to observation and gathered up statistics for daily, weekly, and monthly reports: E-Library recorded use of 94%, Library Webpage were 88%, OPAC at 87%, and JSTOR were 83%. This collaborates with other researchers Amusa and Atinmo, (2016); Natalee, (2013) and Wu and Chen, (2012) that when awareness is high, usage is likely to be high. The study also noted that the use DOAG and DOAJ were very low. In addition, the study found out that the journal index were not being used. This was attributed to poor awareness campaign by the library and lack of training on how to use or access it. Findings from the open-ended questions point to a mistrust of open access databases. This may explain the low use of the two open access e-resources. Jain and Akakandelwa (2016) similarly report of slow acceptance of open access resources in their study.

Usage of E-Resources

An analysis of frequency of use from **Figure 2**. indicates that some of the e-resources were rarely used on a daily basis. These include the two open access databases DOAG and DOAJ as well as the journals index. Data gathered revealed that JSTOR were used daily by 7% of the respondents whilst OPAC and the Library Webpage were accessed by 9% and 5% respectively. The E-Library is used daily by 7%. The study found out that those who had never used the e-resources were 17% for JSTOR, 13% for OPAC, 23% and 24% for the DOAJ and DOAB respectively, 12% for the Library Webpage, and 6% for the E-Library.

Findings revealed that Usage were high for most e-resources (daily, weekly, monthly) with the E-Library, 94%, Library Webpage,88%, OPAC,87%, and JSTOR,83%. Consequently, the two respondents who indicated awareness for the journals index had not yet used it. Results from the interviews showed that the most used e-resources were OPAC and JSTOR, whilst the least used was the Library Webpage and the two open access databases. The journals index was never used by any of the lecturers interviewed.
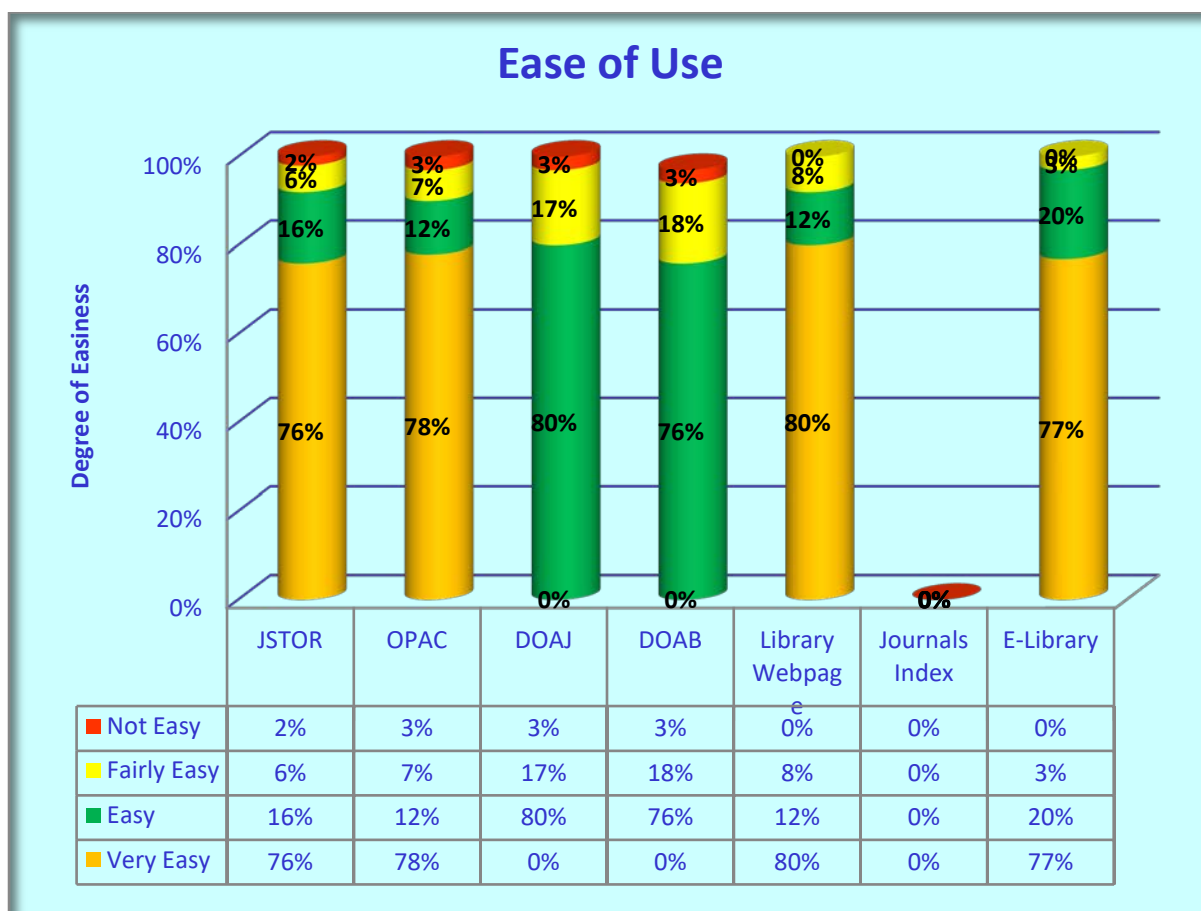
Figure 2. Frequency of Use by Resource Type

	JSTOR	OPAC	DOAJ	DOAB	Library Webpage	Journals Index	E-Library
■ Never	17%	13%	23%	24%	12%	2%	6%
■ Monthly	36%	21%	2%	7%	28%	0	38%
■ Weekly	40%	57%	5%	2%	41%	0	49%
■ Daily	7%	9%	0	0	5%	0	7%

Ease of Use

The majority of respondents who use electronic resources said it was easy to navigate and use them. These e-resources that were found to be easy to use also recorded high frequency of use. For instance, the E-library recorded 100% ease of use as there were no responses on "not easy". It also recorded 98% satisfaction and 94% frequency of use. This corresponds with the TAM construct, which says that there is a connection between perceived ease of use, user acceptance and effective use of a system. Results show that a trend has been established where, when awareness is high, and there is ease of use, frequency of use is also high. This is also in tandem with Toteng, Hoskins and Bell (2013) study which established that high usage was a result of ease of use among other factors. Spencer and Millson-Martula (2014) point out that perceived ease of use is the overall dominant variable in use of the system and advice that libraries must make systems that are easy for students to use. The four electronic resources (Library Webpage, OPAC, E-Library, and JSTOR) with high response rate for ease of use were also found to be highly used, that is above 70%. What can be concluded from these findings is that users need an easy-to-use system, hence they are motivated to use it regularly. Some responses from the open-ended questions indicated frustration on the part of users when they failed to use the system.

According to the findings majority of users who use electronic resources as shown in **Figure 3.** find them on most easy to use as less than 5% from all the e-resources responded, "not easy" to use whilst the majority found them "very easy", "easy", and "fairly easy" to use. The Library Webpage, OPAC, E-Library, and JSTOR had a high rate of 80%, 78%, 77%, and 76% respectively for "very easy".

Ease of Use

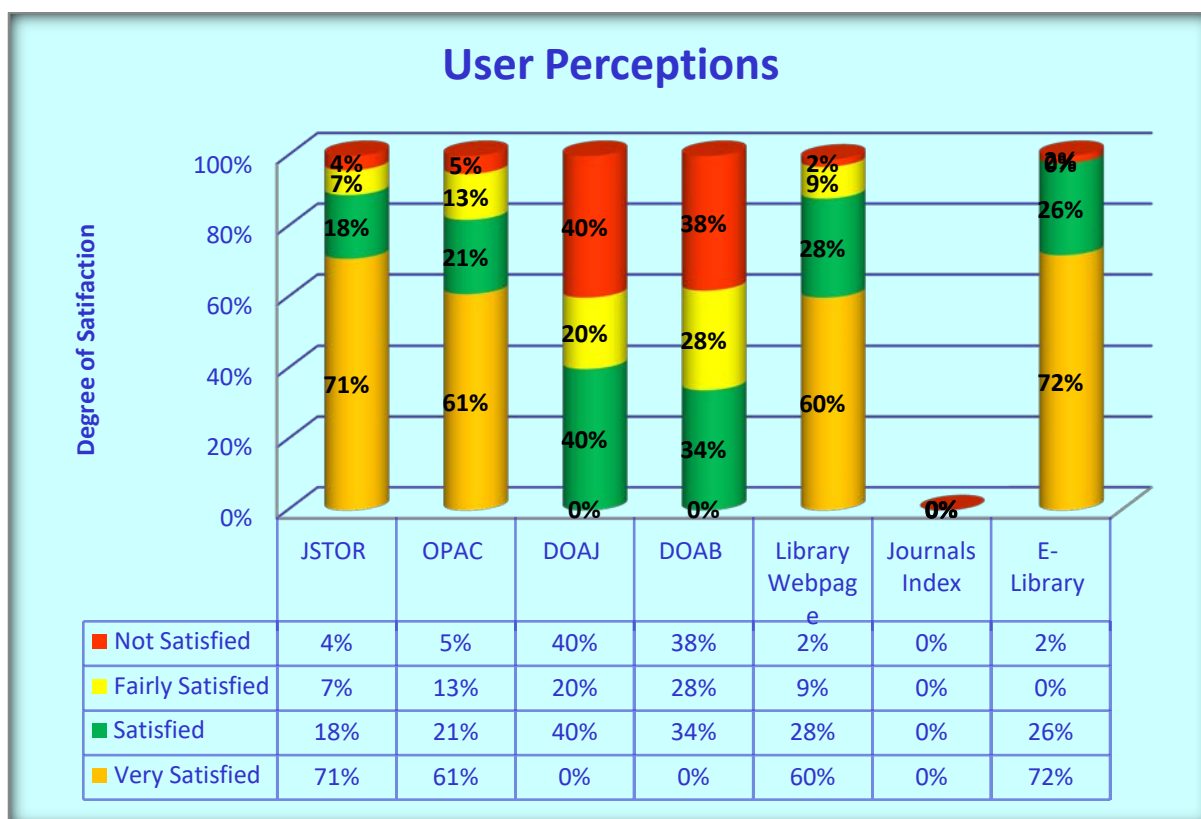|	JSTOR	OPAC	DOAJ	DOAB	Library Webpage	Journals Index	E-Library
■ Not Easy	2%	3%	3%	3%	0%	0%	0%
■ Fairly Easy	6%	7%	17%	18%	8%	0%	3%
■ Easy	16%	12%	80%	76%	12%	0%	20%
■ Very Easy	76%	78%	0%	0%	80%	0%	77%

Figure 3. Ease of Use of E-Resources by type

User Perceptions on E-Resources

The third research question of this study endeavoured to find out user perceptions on use of E-resources. Findings indicate that users are satisfied with most of the electronic resources offered by the library, but dissatisfactions were stemming from inadequate content especially e-books. There is also a correlation of satisfaction and ease of use as supported by Snavely (2012) who states that providing easy to use resources contributes to overall satisfaction with the library. The study also found out that there were inadequate training and marketing of e-resource usage. This corresponds with previous research by INASP (2014) and SAGE (2014) that some effort is required from the librarian for resources to be perceived positively and used. The two open access databases DOAB and DOAB had some worrying levels of dissatisfaction.

The results on perceptions as indicated in Figure 4. shows that those using electronic resources are satisfied with the service. Responses for "very satisfied" were quite high with the E-Library, 72%, JSTOR, 71%, OPAC, 61%, and Library Webpage, 60%. However, the two open access databases recorded some high levels of dissatisfaction with 40% and 38% respectively for DOAJ and DOAB, 5% for OPAC, 4% for JSTOR, and 2% for the Library Webpage and the E-library. The journals index had no responses as the results show that none of the respondents had ever used it.
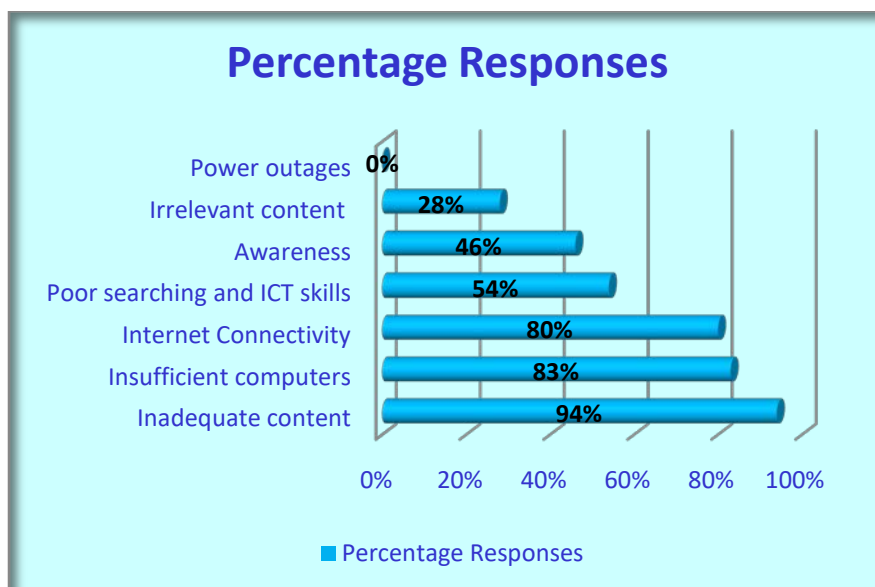

User Perceptions

	JSTOR	OPAC	DOAJ	DOAB	Library Webpage	Journals Index	E-Library
Not Satisfied	4%	5%	40%	38%	2%	0%	2%
Fairly Satisfied	7%	13%	20%	28%	9%	0%	0%
Satisfied	18%	21%	40%	34%	28%	0%	26%
Very Satisfied	71%	61%	0%	0%	60%	0%	72%

Figure 4. User Perceptions of E-Resources

Challenges faced by E-Resources Users

The fourth research question of this study queried about user challenges in using electronic resources. The study discovered that there were inadequate e-resource content which had a high response rate of 94%. The findings revealed that there were insufficient computers in the library, thus Out of a student population of 118, the library had 6 computers in the research commons and 4 computers for OPAC. The users also cited that there were discouraged from coming to the library due to inadequate computers and difficulties in logging in. The study discovered that difficulties in logging in by users were as a result of technological digital divide. Thanuskodi (2013) notes that one of the reasons for poor utilization of electronic resources is lack of skills among users and information intermediaries. The findings revealed

that Internet speed and poor connections were a major problem to Users of E-resources at Arrupe College Library.

Regarding User challenges, **Figure 5.** indicates inadequate content (94%), insufficient computers, (83%), internet connectivity (80%), poor searching and ICT skills (54%), awareness (46%) and irrelevant content (28%) were the most problematic in that order. The major challenge for lecturers were poor internet connectivity.

Percentage Responses

- Power outages — 0%
- Irrelevant content — 28%
- Awareness — 46%
- Poor searching and ICT skills — 54%
- Internet Connectivity — 80%
- Insufficient computers — 83%
- Inadequate content — 94%

■ Percentage Responses

Figure 5. Percentage Responses on Challenges

Conclusion

The purpose of this study was to investigate user perceptions, use and challenges in accessing electronic resources by students and lecturers at Arrupe College Library. This study was guided by a set of research objectives outlined. The results confirmed that TAM is an acceptable framework in explaining the use of technology in academic libraries. It was established that for those specific e-resources such as JSTOR, the E-Library and OPAC, where there was ease of use, frequency was also high and perceptions positive. E-resources are useful as indicated by perceptions and frequency of use, but findings revealed that e-resources were inadequate.

It can be concluded that students and lecturers were aware of the electronic resources offered by the library but were not aware of the full range of resources. There were high awareness for some resources and low awareness for some. The levels of awareness were not uniform. On frequency and ease of use, it was concluded that users find most e-resources easy to use and frequency of use were high for the same. There appeared to be a relationship between ease of use and frequency of use as well as perceptions. The Users were satisfied with e-

resources they were using but there were persistent calls to increase e-resources, particularly e-books. The major challenge, which accounted for most of the negative perceptions, were inadequate content. Findings also indicated that Users preferred e-books more than journals.

It can be concluded that the current breed of Users at Arrupe College were keen to use more electronic resources not limited by physical barriers, but they face the challenge of inadequate e-resources, lack of skills and inadequate computers.

Recommendations

i. The library should increase e-books and provide off campus access to cater for the changing needs of users who prefer to work in their own space and time.

ii. The library need to increase awareness campaigns through various forums and means so that users are aware of the full range of electronic resources. This may include regular seminars especially after the introduction of a new resource. The library may consider brochures, posters, and flyers. They can also use the Library Webpage and OPAC, which have high awareness and use to raise awareness about the availability of the rest of the e- resources.

iii. The library need to increase the number of computers in the library so that it is in proportion to the number of students

iv. The library need to identify those who need extra training sessions and also conduct regular refresher courses.

v. The library need to promote the use of open access scholarly work considering the limited budgets of most institutions who cannot afford subscription-based databases.

Acknowledgment

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