The Utilization of e-resources at Modibbo Adama University of Technology (MAUTech), Yola, Adamawa State, Nigeria

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ABSTRACT

This article examines the utilization of e-resources Modibbo Adama University of Technology, (MAUTech) Yola under the auspices of the central library, the Ibrahim Babangida Library. Academics and students are primary users of information resources of any library, hence, their responses towards the utilization of e-resources in the institution have been critically considered in this study. A Mixed method research Design was adopted for the study. A case study approach was employed. The Technology Acceptance Model (TAM) and Diffusion of Innovation (DoI) theories were used to develop the conceptual framework of this paper. Questionnaires were used as data gathering tools. Academics and students acted as participants. Major findings are lack of sufficient Internet access for academics and students and lack of training and awareness campaigns. Conclusion has shown that e-resources did not impact research and teaching of academics in MAUTech, Yola.

1. Introduction

This article investigated a report from library users which includes students and academics of Modibbo Adama University of Technology, Yola (MAUTech) on the utilization of diverse e-resources provided by the Ibrahim Babangida Library (IBL). When the academic community have access to a variety of library resources, it enhances their potential and adds value to the higher institution of learning (Rao & Mulloth, 2017: 12).

Modibbo Adama University of Technology (MAUTech) is situated in the capital city Yola, in one of the 21 local government areas called Girei, in Adamawa State. According to City Population (2017), the state's projected population, consisting of 80 different ethnic groups, is 4 248 400. Apart from colleges and polytechnics, the state has three universities, namely the privately owned American University of Nigeria, the state-owned Adamawa State University, Mubi, and the federal-owned MAUTech. MAUTech is among the accredited Nigerian universities by National Universities

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Commission, a body under the Federal Ministry of Education that supervises the Nigerian university system (National Universities Commission, 2019).

MAUTech has been established by the Federal Government of Nigeria in 1981 and is one of the few technological universities in the country. As the university's vision is to become a world-class university in science and technology, most of the programmes of the university are science-based. There are cybercafés, computer centres, a geo-informatics unit, an Ericsson GSM training centre and an ICT unit with ICT equipment in the campus. Internet access on campus is available via Wi-Fi. Both students and academics pay an hourly rate of N100 for Wi-Fi access. The university has a website and a portal for student registration (Modibbo Adama University of Technology Website, 2015).

1.1 Problem statement

The problem that this study seeks to investigate is whether students and academics of Ibrahim Babangida Library, in Modibbo Adama University of Technology, Yola utilize sufficiently the variant e-resources provided by the university library. This study is significant as no research article have investigated e-resources utilization in Ibrahim Babangida Library, MAUTech, Yola. Although, there are research articles in Nigerian universities and beyond who identified the use of e-resources (Igbo & Imo, 2017; Ajayi, Shorunke, & Aboyade, 2014; Joshua, 2014). This current study thus fills a gap by investigating views of library users (both academics and students) on the actual usage/utilization of e-resources in the university main library. MAUTech, Yola as a technology driven university should have abundant e-resources in the library for utilization by students and academics. Despite this fact, our knowledge is inadequate on the utilization of these e-resources by students and academics.

1.2 Aim and Objectives of the Study

The aim of the study is to evaluate the utilization of e-resources in MAUTech. The specific objectives are:

a) to determine how academics and students access Internet in connection to perceived usefulness and perceived ease of use of e-resources;
b) to investigate the extent students and academics are familiar with e-resources in connection to their attitude towards using e-resources (system) as a decision process;
c) to find out the impact of e-resources to students and academics in MAUTech in connection to adoption or rejection of e-resources vis-à-vis applicability, compatibility, productivity, market-ability, and dependability.

1.3 Research Questions

The study will be guided by the following research questions.

a) How has academics and students Internet access in the library and MAUTech?
b) How are students and academics familiarity with e-resources in library and MAUTech?

c) Are there satisfaction/impact of e-resources for students and academics with the e-resources provided in the library by the University?

2. Literature Review

This article will review relevant literature following this order: the benefits of using e-resources (pari passu with Diffusion of Innovation theory (DoI) which posits that the diffusion theory offers valuable insights on the interface design that supports e-resource usage and access or utilization), the challenges of using e-resources and awareness (taking into consideration the conceptual framework of this study which reiterate that academics and students perceived usefulness and perceived ease of use of e-resources will determine their attitudes on a decision process to either adopt or reject the utilization of e-resources), and utilization of e-resources (linking the philosophy of Technology Acceptance Model (TAM) which states that perceived usefulness as the degree to which academics and students believe that access and utilization of e-resources will enhance or increase their productivity in their studies and research at university level).

2.1 Benefits of using e-resources

Quadri, Adetimirin, and Idowu (2014: 28, 31) emphasize that e-resources have enormous influence on information services provided to students. Their examination of two private universities (Babcock and Redeemer) has revealed that most of the students use e-resources for assignments, research and projects, and this has resulted in improved class activities and collaboration. This finding is consistent with the view of Olofinniyi et al. (2012) that mobile phones, tablets and i-pads affect the study pattern of students all over the world. With the use of these devices, students now easily connect to the Internet, e-learning platforms as well as to social media platforms.

In a related study, Edem and Egbe (2016: 61) have maintained that e-resources offer postgraduate students at the University of Calabar, Nigeria the chance to access relevant and current information from different subject areas. E-resources are available at any time of the day, provide hyperlinks to other resources (for example, inter-library lending), have huge information reservoirs, provide quick information and various search options for easy retrieval, are easy to cite, can easily be uploaded, stored, archived, disseminated, shared and updated, and have flexibility features. For the physical library, it has the benefit of not requiring any physical space, and because they do not wear and tear, they are cost-effective in the long run (Tekale, 2016: 15; Tekale & Dalve, 2012).

E-resources are used to supplement printed resources as they can be accessed remotely without a physical presence in the university library building and are becoming popular with students and academics. Thanuskodi's (2012: 1-7) study on e-resource usage by students has revealed that e-resources supplement printed resources but because they can be accessed remotely without a physical presence in the academic library, they are popular with students and are seen as disseminated data for research.

Chimah and Udo (2015: 8, 11) posits that electronic resources are not made publicly available

unless subscribed and authenticated. Their study has revealed that the open-access movement ensures that countless e-resources are currently available to library users free of charge on various open-source platforms. Lippincott (2015: 286) further asserts that "in support of education, some academic libraries are bringing their open access principles into the realm of e-textbooks" and that libraries can design learning laboratories and provide hardware, tools, facilities and expertise to assist students to develop new skills in producing new information products.

2.2 Challenges of using e-resources

Agyekum and Ossom (2015: 13) studied the extent of e-resources usage amongst academic staff and faculty members of Kumasi Polytechnic, Ghana. Investigations showed that although more than twenty databases comprising three thousand e-journals were subscribed through the Consortium of Academic and Research Libraries in Ghana, utilization was hampered by access complications, slow Internet connectivity, frequent power outages and lack of search skills.

Pricing, licensing, digital rights management, design platforms and e-book format have been discovered to hamper e-book workflow at the University of Nevada, Reno (Beisler & Kurt, 2012: 97). In a similar view, Johnson et al. (2012: 12) maintain that there is no standard model for packaging and pricing electronic publications, and that libraries can best determine which best range of purchase and pricing models should be adaptable in relation to access agreements, value for money and archival privileges.

Due to the technicalities and challenges involved in acquiring, processing and accessing e-books, Beisler and Kurt (2012: 99-100) showed how their library had moved from its conventional operation to digitized extendable service inculcating e-resources and metadata onto the technical services division of the library.

Library collections today consist of printed material, electronic resources, subscription databases and open-access resources. The 21st century library user expects access to library resources and services through a single access point. Managing both electronic and traditional resources is becoming very daunting to library managers considering skewed budget, expertise needed and technical issues. Kahle (2017: 28) identified three major corporations, namely Google, Amazon and the Internet Archive, have digitised materials at a very large scale in order for customers to search and buy resources. The millions of archived books have the advance for libraries that many can be downloaded in an open-access domain.

Yaya and Adeeko (2016: 1595) defined digitization as "the process of conversion of analogue educational resources present in the library into digital format for the purpose of extending access and, where appropriate, to assist with preservation" and "also referred to as the management of new materials created in digital formats". Rafiq and Ameen (2013: 37-38) that "digitization enables the creation of digital libraries by converting analogue contents into digital formats". They further explained that university libraries stored huge amounts of valuable information resources in print and therefore digitization had become imperative for libraries around the globe. Converting print collections into digital content and providing access via OPACs promoted remote access as well. According to Obahiagbon and Otabor (2012: 82), the lack of library automation affected Physical

Science students, especially undergraduate students, in utilizing the academic library, generally stunted their studies.

Strieb and Blixrud (2014: 599-602) assert that license terms have become a concern in library practice and values, unlike print purchases, and have considerably challenged interlibrary loans. Their 2012 survey of 125 research libraries revealed that subscriptions from seven different publishers and issues of non-disclosure of license terms with vendors and publishers.

Eisenhauer (2019) defines information architecture as "the art and science of organizing and labelling websites, intranets, online communities and software to support usability". This implies that librarians are people who structure and reorganize information in the library portal to help patrons locate and use the resources optimally. In a contrary view, Dresselhaus (2012: 177) argues that both Utah State University Eastern and Northern libraries should prioritize their collections and resources to meet the curriculum demands of users. When negotiating with publishers and vendors, librarians should consider e-journals and other e-resources in high demand by users or for interlibrary loans as well as library collection policies and demands.

Anie (2015: 208) listed challenges confronting Internet access in Africa ranging from lack of enough skilled manpower, inadequate competition in the communication industry, an absence of defined regulations, the high cost of satellite Internet hardware, limited funding from the government and inadequate power supply. He further noted that Internet access was grossly inadequate in academic communities and suggested that improved Internet access be would feasible only when sufficient funds were granted from African regions (Anie, 2015: 205). The current trend in Internet access is wireless access with LANs at designated points for uninterrupted access everywhere on campus.

Chandel and Saikia (2012: 149) have observed that one of the issues facing academic libraries is the e-resources collection development policies towards licences, management, maintenance and archiving, considering the quality of e-resources is more difficult compared to printed resources because of the complexity surrounding e-resources generally. In this regard, Nwosu and Udo-Anyanwu (2015: 131) opine that collection development should be well conceived among libraries as encompassing selection, acquisition, user studies, stock evaluation, weeding and library cooperation. This aspect is in consonance with the American Library Association (ALA, 2013) recommendation that library collection development incorporates the coordination of selection, collection evaluation, planning for resource-sharing, collection maintenance and weeding activities.

In a related study, Patel (2016: 63) enumerates steps involved in the collection development process, which include analysing the information need of library users, formulation and implementation of a selection policy to suit the objectives of the library, acquisition programmes to ensure a balanced collection, resource sharing and de-selection policies and practices. The study further expatiates on the parameters for evaluating e-resources from content, conditions of access, updatability, the convenience of cataloguing, longevity, the convenience of use, statistics of use, technical characteristics and quality of service factors of value added with a structure of price formation. Taking into consideration users' preferences, library collections have changed to a virtual structure where the reader depends more on online resources for availability, convenience and fastness.

In a related study, Ajayi, Shorunke, and Aboyade (2014: 188) enumerate that e-resources are

primarily made available for educational purposes. Students and academics who have security access codes may put some resources in closed access mode since the university has paid for the subscription and they are only accessible. The study concludes that factors hindering the effective use of e-resources in Nigeria higher institutions are lack of strategic planning, knowledgeable work force, Internet access, inconsistent training, insufficient funding, inadequate computers and unreliable electricity supply.

Mojapelo and Dube (2014) examined information access in some high school libraries in the Limpopo Province in South Africa. Their survey showed that lack of access to information resources by teachers and learners in the province hindered vibrant and active school libraries from realizing their objectives. They suggested that the use of e-resources by students and academics around the world, as argued in the aforementioned studies as a new trend, could not be overemphasized. More so, the use and application of e-resources should be commensurate with the investments in acquiring and funding them (Abubakar & Chollom, 2017: 22).

The study by Makgahlela and Bopape (2014) on the use of e-resources by the postgraduate students at the Delta State University, Nigeria, revealed that, although the postgraduate students had access to e-resources, lack of searching skills, erratic power supply, inadequate space in the library and low bandwidth subscription proved to inhibit their utilization thereof. The researchers recommended proactive measures like the collaboration between faculties and faculty librarians to provide orientation and training and to create more awareness. The library was also advised to install generators to support electricity supply, to install an independent Internet server to supply uninterrupted Internet connection and to create an institutional repository for open access.

Zinn and Langdown (2011: 104-105) studied e-book usage among South African academic librarians. They used a Web-based questionnaire distributed on the Library and Information Association of South Africa mailing list. The outcome of the research showed that e-books adoption was a gradual trend among academic librarians in South Africa, and that librarians preferred both printed and electronic resources. They enumerated factors hindering sufficient e-book availability to be the high cost of subscribing to e-books and insufficient e-books in most disciplines. The cost of equipment to read e-books, the unreliability of Internet access and the lack of training in using e-books were identified as the major factors for ineffective utilization thereof.

Zhu (2011: 51) discussed the national site licensing of e-resources model that is used in academic institutions involving government and large-scale collaborations in America. The paper revealed that the consortia should solve many problems associated with the complexity of licensing as compared to negotiating with publishers and vendors on the individual or collaborative framework. As noted by the author, site licensing emanated from the software industry, but it reserved the legal backing to produce copies of software to some locations for educational or corporate purposes. The concept of licensing is not new to libraries. It was adopted since the 1980s when libraries leased and contracted computer equipment and accessories. Fortunately, this concept grew to information resources in electronic formats where publishers and vendors used it often in the 1990s (Zhu, 2011: 52). Therefore, librarians are advised to come to terms with electronic resource vendors and publishers to reduce challenges facing licensing agreements. There is a whole lot of considerations to harness the information providers and the institution partnership to help remove access complicity and licence issues.

2.3 Awareness and utilization of e-resources

Adeniji, Babalola, and Ajayi (2015: 57-60) examined the awareness and utilization of e-resources by librarians of the Olabisi Onabanjo University Ogun State in Nigeria. The library had CD-ROM resources, e-books, e-journals, e-magazines, an OPAC, Internet and e-mail facilities. This investigation revealed that Internet and e-mail facilities were the most used e-resources by the librarians. The e-resources were used for multipurpose reasons from in-house official duties to information services for their clientele.

In a related study, Dolo-Ndlwana (2013: 5-6) examined the use and value of library e-resources by academics and postgraduate students at the Cape Peninsula University of Technology, South Africa. The study revealed that, although the university had significantly invested in e-resources and related computer-based technology to ensure 24/7 accessibility both on and off campus, e-resources were generally under-utilized by students.

Similarly, the study by Badenhorst (2015) revealed that, despite continued training, the utilization of e-books was under-utilized. Although 67% of students were aware of e-books, only 63% of them used e-books and 57% preferred using both printed and e-books. Possible constraints identified were the use of technology, lack of devices to access e-books, inadequate digital literacy, lack of infrastructure and access restriction to e-books. Schaub (2016) stated that 92% of college students in the United States, Slovakia, Japan and Germany overwhelmingly indicated preference to reading printed books to e-books. Perhaps due to, as Orgem (2012: 33) established, that an important factor that might motivate a library patron is the ease of use of library resources.

A survey by Joshua (2014: 10) unfolded that students at the University of the Philippines, Diliman, were barely utilizing e-resources due to inadequate awareness and training. While the study pointed to the fact that students used both printed and electronic formats, they strongly affirmed that if enough e-resources were provided, they would like to migrate to electronic information retrieval.

This corresponds with findings from the survey by Du Plessis and Wiese (2014: 17) of South African students' acceptance and use of e-textbooks which concludes that most students prefer both printed and e-textbooks. Although the study has revealed that 82% of students rarely use e-textbooks, the majority of the students prefer e-textbooks if these were sufficient and provided.

Both Nisha and Ali (2012), Kwafoa, Osman, and Afful-Arthur (2014) reported that over 90% of library users were aware of databases at the Indian Institute of Technology, Delhi, the Delhi University and the University of the Cape Coast, Ghana respectively. Users, if properly trained and provided with adequate e-resources, using a "Google-like" portal access approach should ultimately affect their evaluation rating of the library system. Based on this, libraries are encouraged to take a periodic assessment of the utilization frequency of users in their domain. Akin to this assertion, the study by Owolabi et al. (2016: 33) indicated that the undergraduate students of the University of Ibadan derived satisfaction from the use of e-resources of the university library.

More recent studies on e-resource utilization all concluded that, although most respondents had access to current and up-to-date e-resources, utilization was hampered by low bandwidth, lack of

skills, unreliable Internet access, insufficient workstations, irrelevant information in databases and budgetary constraints (Adeleke & Nwalo, 2017: 56; Ahmed & Al-Reyaee, 2017: 6, 7, 11, 12, 14; Aravind, 2017: 85, 86, 88; Chimwaza, 2017: 37; Madondo, Sithole, & Chisita, 2017: 6; Odunlade, 2017: 1, 3; Owolabi et al., 2016: 31, 34; Patel & Patel, 2017: 61; Sajane, 2017: 65).

Based on the findings by these studies, the fact that the 21st century user prefers online information (Kumah, 2015: 2), supported by Kahn and Underwood (2013), predict that "with a change in the way libraries operate comes the need for librarians to be willing and able to change as well".

According to NASIG (2013: 1-3), a core competency for e-resource librarians is an in-depth understanding of the components of the life cycle of e- resources (Fig. 1) to intermediate between users of e-resources, to organize information more effectively and to sustain the core values of acquiring, accessing, administering, supporting and evaluating resources.

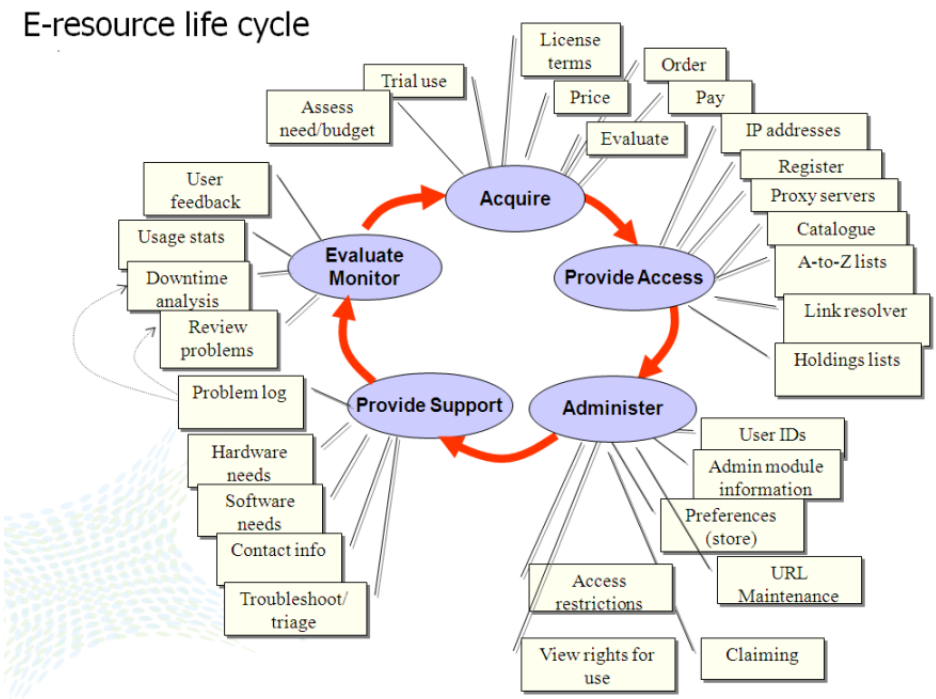

Fig. 1. E-resources lifecycle (Pesch, 2009)

The above Fig. 1 on e-resources lifecycle denotes that librarians must be proactive and be able to evaluate, acquire, access, administer and support e-resources to their users (particularly students and academics) in a more efficient manner, otherwise, these e-resources if at all supplied would be underutilized or users would not be aware if they are provided for the use.

3. Theoretical and Conceptual Frameworks of the study

3.1 Technology Acceptance Model (TAM)

Davis (1989: 320) opined that TAM seeks to "provide better measures for predicting and explaining [the] use" of ICT in universities. This perspective is similar to that of Saadé, Nebebe, and Mak (2009: 109), perceived usefulness as the degree to which academics and students believe that access and utilization of e-resources will enhance or increase their productivity in their studies and research at university level. In this study, perceived ease of use is explained as the degree to which academic members and students believe that access and utilization of electronic resources will be free from effort. Although scholars have observed that perceived usefulness has a more significant influence on the use of ICT (e-resources) than perceived ease of use (Tibenderana & Ogao, 2008: 394).

3.2 Diffusion of Innovation theory (DoI)

The DoI has been developed by Rogers in 1962. He defines diffusion of innovation as "the process by which an innovation is communicated through certain channels over time among the members of a social system" (Rogers, 2003: 5).

Chang (2010) describes DoI as a theory that assists the adoption process of an innovation by modelling its entire life cycle to the aspects of communications and human information interactions. Therefore, the diffusion theory offers valuable insights on the interface design that supports e-resource usage and access. It also provides an evaluation of e-resources and portal acceptance, and offer information required for decision-making to help the university authority take proactive measures to boost access and use of e-resources.

Many disciplines ranging from political science, public health, communications, history, economics, technology and education view Rogers' theory as a widely applied theoretical framework in the aspect of technology diffusion and adoption (Dooley, 1999; Stuart, 2000). Research has shown that Rogers' diffusion of innovations theory is the most widely applied and appropriate model for investigating the adoption of technology in higher education and educational environments (Medun, 2001; Parisot, 1995).

3.3 Conceptual Framework

The conceptual framework of this study combines insights from the TAM and DoI discussed in the preceding section. The composition of the conceptual framework ranges from input, process and output levels. This is explained in Fig. 2.

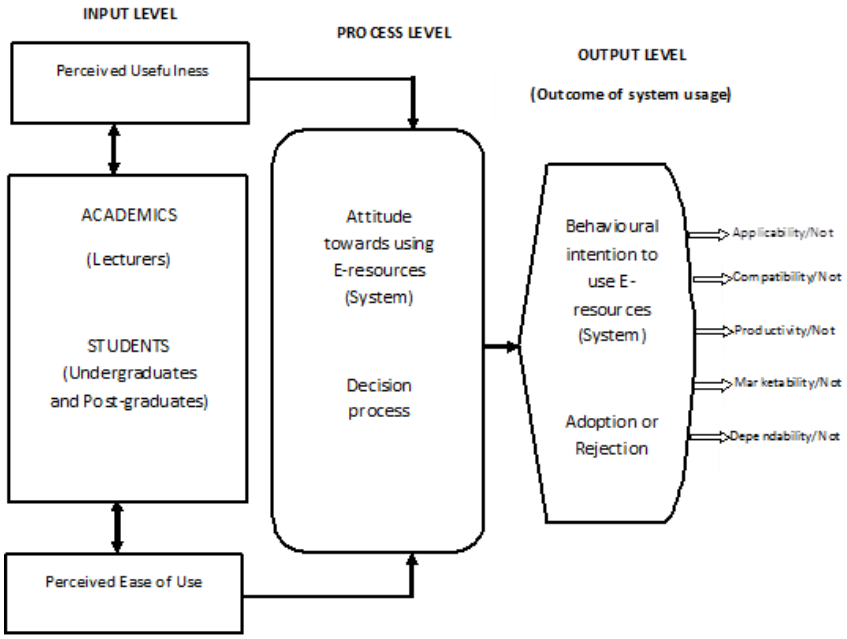

Fig. 2. Conceptual framework

3.3.1 Input

The conceptual framework is systematized in such a way that input entails the perceived usefulness and perceived ease of use, which contain the main actors of the study. This section is where decisions and learning are carried out to the next level. For instance, academics and students interact a lot through lectures, teachings, assignments, seminars and research. Many more activities take place within this level, like proceedings of the Senate, which constitute merely all academics, and the university authority evolves here.

3.3.2 Academics

This implies all academic staff of the university, in other words, full-time, part-time as well as those on sabbatical leave. From the input level, the study will try to determine their reactions, evaluation and application of e-resources. It will look at how much is being committed from their part in terms of usage and collaborations.

3.3.3 Students

This implies all undergraduate and postgraduate students of the university. Their degree of access and utilization of the e-resources will be evaluated. They have to portray their views towards the applicability of e-resources of the university main library. Their satisfaction as users with the current

e-resources collection and how they would like the e-resources managed for maximum dissemination will be determined.

3.3.4 Process level

At this level, both academics and students' perceived usefulness and ease of use of e-resources will be evaluated. The attitudinal reaction towards the usage of e-resources will be ascertained. Whatever is processed here at this level will determine the outcome level which is culminated at the end.

3.3.5 Output level

This level summarizes the actions at the process level. The behavioural intention of use of the system (e-resources) is shown here. Elements like applicability or not, compatibility or not, productivity or not, marketability or not, and dependability or not are all seen here. This is an important level since it gives a pivotal sense and/or result of the variables being applied.

4. Methodology

This study adopts the survey method, specifically descriptive research design. Questionnaire from academics and students were used to elicit information. These were questions asked on access to the Internet on campus, rating of Internet connection and response rate, e-resources familiarity, frequently used e-resources, training on how to use e-resources, and satisfaction/impact of e-resources. The questionnaire was designed in Google form and was made up of both open-ended and close-ended questions. Using the Statistical Package for Social Science (SPSS Version 24.0.0.0), data collected were then analysed in cognisant of the aims and objectives of the research. These afterwards yielded results that helped understand that helped understand the dilemma of utilizing library e-resources. Respondents of the questionnaire were undergraduate and post graduate students from the six different schools in MAUTech, Yola and academic staff from same schools.

According to the Raosoft sample size calculator, for a population size of 12 223 with a 5% margin of error and a 95% confidence level, a sample size of 377 is needed. To allow for questionnaires not to be returned, a sample is to be large enough and accurate (Neuman, 2006: 241), 1 223 questionnaires were distributed to students in all six schools.

For the population of 617 academics with a 5% margin of error and a 95% confidence level, a sample size of 237 is needed. To allow for non-responses, 479 questionnaires were distributed to academics in all six schools. To ensure that both undergraduate and postgraduate students as well as all the schools were represented, 204 questionnaires were randomly distributed in each school ensuring that students from levels 1 to 5 were targeted. The total number of questionnaires was 1 223 divided by six schools which resulted in 204 questionnaires for each school since the subpopulation of each school was uncertain. Thirty-one questionnaires were distributed to academics in each school.

5. Results

The findings of the study are presented following themes as stated from the outset:

- Academics and students Internet access in Library and MAUTech
- Students and academics familiarity with e-resources
- Academics and students satisfaction/Impact of e-resources

5.1 Academics and students Internet access in Library and MAUTech

Questionnaire related to Academics and students Internet access in Library and MAUTech sought to determine whether students had sufficient access to the Internet on campus, including the residences. Fig. 3 presents results of the 894 students who responded. According to the report on Number of internet users in Nigeria (Clement, 2019), 113.3 million Nigerians are using the Internet. This is from the population of about 200 million people. Compared to previous years 2018 (92.3 million), 2017 (72.4 million), this proved that Internet access in Nigeria is growing exponentially. It is, however, worrisome that 70% of students residing on campus indicated that they did not have sufficient access to the Internet.

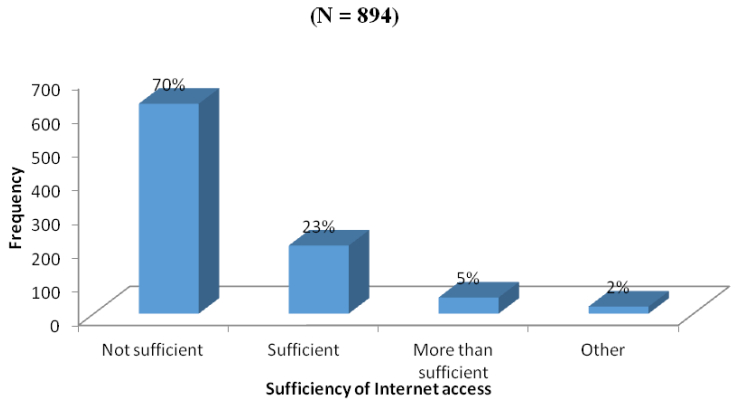

Fig. 3. Internet access on campus (Students)

One possible explanation for this could be that the bandwidth strength of the network used. Only 23% of students indicated sufficient access to the Internet, perhaps through modems and smart-phones (mobile access), while as few as 5% indicated more than enough access. The 21 respondents (2%) indicated by choosing the 'other' option explained that they accessed the Internet through other means, mainly shared mobile Internet and cybercafés. For students to perform well academically, 24/7 access to Wi-Fi and full Internet connection should be provided, as these facilities enhance productivity and academic proficiency. Comparing this result with the academics it shows similar assertion. Fig. 4 indicates that academics rated the Internet access on campus as insufficient, as access was rated inadequate by 56 in the university quarters, 55 in the university library, and 51 in offices.

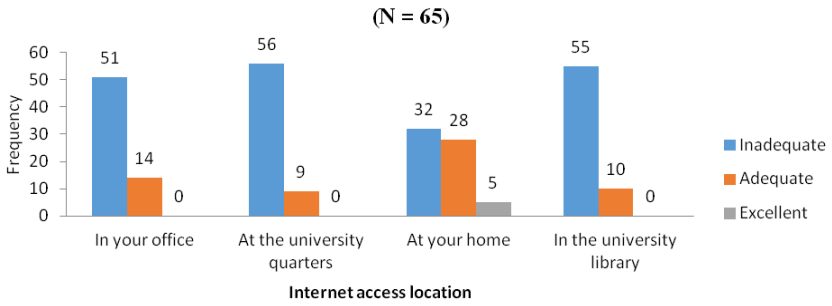

Fig. 4. Internet access (Academics)

5.2 Students and academics familiarity with e-resources

An open-ended question which requested students to state with which e-resources they were familiar with was administered. Since only nineteen students responded, no generalization could be made. The nineteen responses are reflected in Table 1 and show that students have been most familiar with the university website, other websites, e-books and e-documents.

Table 1. Familiarity with e-resources (Students) N = 19

Responses	Score
Website (MAUTECH), MAUTECH portal, website	3
E-books	3
E-documents (projects, dissertations, theses)	3
E-journals	2
Wikipedia, encyclopaedias	2
Google Books	1
Databases	1
E-newspapers	1
Ask.com	1
E-dictionaries	1
E-materials (slides, memos, letters)	1
Total	19

For academics, the same question was asked to determine to what degree academics were familiar with and have adopted e-resources. Respondents were requested to select all the e-resources they were familiar with. Fig. 5 provides details of the 366 responses on the e-resources with which academics were most familiar were e-journals (63%), followed by e-books (57%) and e-newspapers (52%). The findings indicated that academics were not familiar with Libguides, repositories, Indexing and abstracting databases. Perhaps this could be due to lack of awareness and/or training. It is therefore safe to conclude that most academics were to a certain extent familiar with e-resources in MAUTech.

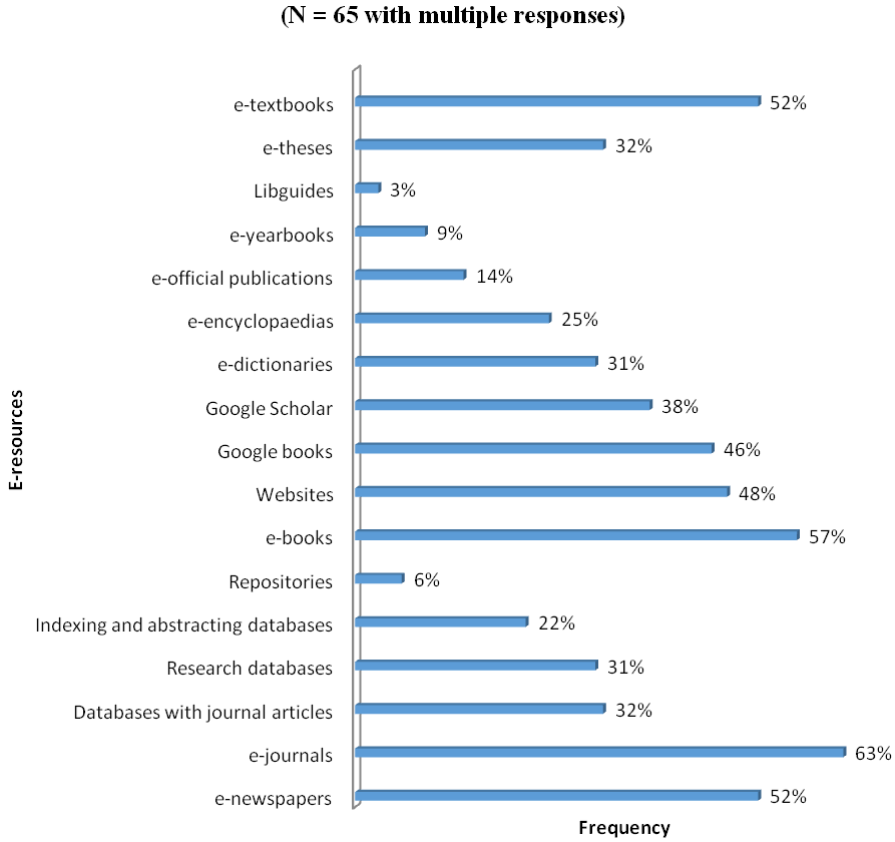

Fig. 5. Familiarity with e-resources (Academics)

5.3 Academics and students satisfaction/Impact of e-resources

Determining the impact of e-resources on respondents is crucial because research and academic pursuits in the universities generally depend on e-resources utilization, considering the numerous benefits of e-resources over conventional sources of information such as the convenience of accessing resources, portability, timeliness of searching and sending articles, and the high level of interactivity. Table 2 presents the impact of e-resources used by the respondents. The variation in totals for each e-resource is perhaps due to respondents responding only to the e-resources known to them.

Results presented in Table 2 show that most students (24.8%) acknowledge that by using e-resources it is “easier to find relevant information”, especially, e-newspapers due to ease of access to handheld devices. The impact of e-resources is also reflected by 21.8% of students indicating that “e-resources have broadened the focus of their studies/research” and by 19.7% that “e-resources made it easier for them to keep up to date with developments in their discipline”. These findings indicate that students find it easy to search for e-resources. The findings further indicate that 501 students are either not aware of or are not utilizing e-resources, pointing perhaps to the need of awareness

campaigns or training needed. In general, the results are indicative that e-resources have made information retrieval easier and broadened research activities at the university. This finding corresponds with the results reported in other studies on e-resources utilization (Ahmed & Al-Reyaee, 2017: 6, 7, 11, 12, 14; Aravind, 2017: 85, 86, 88; Odunlade, 2017: 1, 3; Owolabi et al., 2016: 30; Patel & Patel, 2017: 61). 'Other' connotes other reasons for e-resource impact beside the ones mentioned earlier, such as access, search ability, speed, interaction and flexibility.

Table 2. Impact of e-resources (Students)

Resources	Easy to find relevant information	Easy to keep up to date with developments in my discipline	Broadened the focus of my studies/ research	Reduced my study time	Reduced time spent browsing for information	Not applicable	Other	Total
E-newspapers	451 (60.4%)	107 (14.3%)	86 (11.5%)	50 (6.7%)	29 (3.9%)	12 (1.6%)	12 (1.6%)	747
E-journals	112 (26.2%)	120 (28.0%)	114 (26.6%)	20 (4.7%)	32 (7.5%)	23 (5.4%)	7 (1.6%)	428
Databases with journal articles	101 (20.9%)	103 (21.3%)	130 (26.9%)	78 (16.1%)	32 (6.6%)	26 (5.4%)	14 (2.9%)	484
Research databases	107 (19.5%)	132 (24.1%)	131 (23.9%)	73 (13.3%)	69 (12.6%)	25 (4.6%)	11 (2.0%)	548
Indexing and abstracting databases	107 (16.6%)	170 (26.4%)	173 (26.9%)	83 (12.9%)	64 (9.9%)	29 (4.5%)	18 (2.8%)	644
Repositories	106 (19.9%)	115 (21.5%)	118 (22.1%)	89 (16.7%)	43 (8.1%)	46 (8.6%)	17 (3.2%)	534
E-books	104 (20.1%)	101 (19.5%)	124 (23.9%)	86 (16.6%)	47 (9.1%)	32 (6.2%)	23 (4.4%)	517
E-dissertations/ theses	89 (15.2%)	135 (22.9%)	140 (23.9%)	94 (16.0%)	56 (9.5%)	45 (7.7%)	28 (4.8%)	587
E-dictionaries	103 (19.6%)	89 (16.9%)	129 (24.6%)	100 (19.0%)	61 (11.6%)	25 (4.8%)	18 (3.4%)	525
E-encyclopaedias	90 (17.4%)	90 (17.4%)	118 (22.9%)	80 (15.5%)	84 (16.3%)	36 (6.9%)	18 (3.5%)	516
E-governmental publications	114 (19.6%)	103 (17.7%)	154 (26.5%)	88 (15.1%)	52 (8.9%)	45 (7.7%)	25 (4.3%)	581
E-yearbooks	95 (18.1%)	98 (18.7%)	104 (19.9%)	81 (15.5%)	62 (11.9%)	49 (9.4%)	34 (6.5%)	523
Libguides	89 (18.7%)	81 (16.9%)	84 (17.6%)	84 (17.6%)	51 (10.7%)	51 (10.7)	37 (7.8%)	477
E-textbooks	264 (38.9%)	94 (13.9%)	93 (13.7%)	40 (5.9%)	52 (7.7%)	57 (8.4%)	78 (11.5%)	678
Total	1932 (24.8%)	1538 (19.7%)	1698 (21.8%)	1046 (13.4%)	734 (9.4%)	501 (6.4%)	340 (4.4%)	7789 (100%)

For academics, the same question sought to find out how e-resources listed had impacted on academics' research and teaching responsibilities. Table 3 presents the responses of the academics under the following themes: easy to find relevant information, easy to keep up to date with developments by discipline, broadens the focus of my studies/research, reduces my study time, reduces time spent browsing for information, not applicable and other.

Prominent high scores were recorded for Libguides under "Other" (73%), indexing databases (73%), e-government publications (68%) and e-yearbooks (65%). Very low rating falls under "reduces time spent browsing for information" between 0 to 2% only for the entire resource category. A careful perusal of these e-resources indicated that e-resources did not impact on research and teaching of academics; rather, they used "other" reasons for research and teaching in the university.

Table 3. Impact of e-resources (Academics) N = 65

Resources	Easy to find	Easy to keep up to date	Broaden focus	Reduce focus	Reduce time	Not applicable	Other	Total
E-newspapers	15 (23%)	5 (1%)	1 (2%)	2 (3%)	1 (2%)	4 (6%)	37 (56%)	65 (100%)
E-journals	12 (18%)	10 (15%)	8 (12%)	8 (12%)	3 (5%)	0	31 (48%)	65 (100%)
Databases with journal articles	10 (15%)	8 (12%)	8 (12%)	2 (3%)	1 (2%)	1 (2%)	35 (54%)	65 (100%)
Research databases	8 (12%)	9 (14%)	4 (6%)	1 (2%)	0	1 (2%)	42 (64%)	65 (100%)
Indexing databases	6 (9%)	4 (6%)	4 (6%)	1 (2%)	1 (2%)	1 (2%)	48 (73%)	65 (100%)
Repositories	5 (8%)	7 (11%)	2 (3%)	2 (3%)	0	3 (5%)	46 (70%)	65 (100%)
E-books	12 (18%)	6 (9%)	8 (12%)	2 (3%)	0	1 (2%)	36 (56%)	65 (100%)
E- dissertations/ Theses	8 (12%)	6 (9%)	10 (15%)	1 (2%)	0	1 (2%)	39 (60%)	65 (100%)
E-dictionaries	12 (18%)	3 (5%)	5 (8%)	1 (2%)	1 (2%)	2 (3%)	41 (62%)	65 (100%)
E-encyclopedias	12 (18%)	3 (5%)	4 (6%)	3 (5%)	1 (2%)	1 (2%)	41 (62%)	65 (100%)
E-governmental publications	5 (8%)	5 (8%)	5 (8%)	2 (3%)	1 (2%)	2 (3%)	45 (68%)	65 (100%)
e-year books	7 (11%)	4 (6%)	5 (8%)	1 (2%)	0	5 (8%)	43 (65%)	65 (100%)
Libguides	3 (5%)	4 (6%)	5 (8%)	0	0	5 (8%)	48 (73%)	65 (100%)

6. Discussion

The findings on Internet access on campus indicated 23% of students who accessed the Internet on campus and academic rating on Internet access was insufficient. This outcome confirms Anie (2015), Agyekum and Ossom (2015), stating that the utilization of e-resources was hampered by access complications and slow/poor Internet connectivity. According to the Diffusion of Innovation theory (DoI), an innovation regarding e-resources have been established in Ibrahim Babangida Library, MAUTech, Yola, but unfortunately, the channels in which to reliably transmit the information has been hampered with challenges.

The findings regarding students and academics familiarity with e-resources showed that students were merely familiar with websites, e-books, and e-documents only, whereas, academics were only acquainted with e-journals (63%), e-books (57%), and e-newspapers (52%), although, most academics were not familiar with Libguides, repositories, indexing, and abstracting databases. These are akin with the studies of Quadri, Adetimirin, and Idowu (2014), who stressed that Babcock and Redeemers private universities students used often e-resources for assignments, research, and projects. Edem and Egbe (2016) showed how post-graduate students of Calabar, Nigeria are familiar with e-resources and are using them to get information from different subject areas. These facts agreed with the Conceptual framework of this study that academics and students perceived usefulness and perceived ease of use of e-resources will affect their attitudes and decision process on the utilization of e-resources.

Findings regarding the satisfaction and impact of e-resources to academics and students indicated that some students found it easy to search for e-resources, unfortunately, many (501 students) are not aware or are not utilizing e-resources which consequently did not impact them. They rather craved for more awareness and training. On the contrary, e-resources did not in any way impact academics of MAUTech, Yola, hence, they are not satisfied nor impacted. This necessitates NASIG (2013) on core competency for e-resources that librarians are to understand the elements of the life cycle of e-resources and provide users organized and efficient e-resources. In support of this, Nisha and Ali (2012), Kwafoa, Osman, and Afful-Arthur (2014) confirmed that 90% of library users were aware of databases at the Indian Institute of Technology, Delhi, the Delhi University and the University of the Cape Coast, Ghana. Why? Because the librarians there know well the concepts of the life cycle of e-resources. These research studies agreed with the conceptual framework of this research that if students and academics are impacted as well as satisfied with the provision and application of e-resources, it will affect their behaviour which will result in enhanced applicability, compatibility, productivity, marketability and dependability of e-resources utilization process.

7. Conclusion

This study sets out to determine the extent of e-resource utilization at MAUTech, how students and academics used e-resources and print resources provided by the library, having noted that students and academics are the primary recipients of e-resources provided by the university.

Findings reflected insufficient and unreliable Internet access on campus, limited information literacy

education. Students and academics are merely familiar with e-resources, but the impact of e-resources was rated low towards research and teaching. The study recommends, amongst others, information literacy education for students and academics, subscription to full-text databases, provision of sufficient and free Internet access and more e-resources. With these factors being addressed, academics and students should seamlessly have access to Internet in the library and the university, with orientation and training, they should familiarise themselves with e-resources which will impact research ranking of the university.

8. Recommendations

Based on the findings in this scholarly article, the study provides the following recommendations to foster efficient provision and utilization of e-resources by students and academics at MAUTech, Yola.

a) Orientation and training: Library orientation should be provided to all incoming students and academics. Awareness and orientation programmes should constantly be announced by the library.
b) Funding and documented library policy: The MAUTech management should support the acquisition of e-resources financially, especially proprietary (purchase from vendors) e-resources, to meet the needs of the university community by covering all science-based subject resources.
c) The Collection Development Division of the library should develop an acquisition policy to ensure the purchase and subscription of relevant and current e-resources covering all disciplines of the curriculum NASIG (2013) on core competency for e-resources.
d) Internet access and subscription of databases: Stable free Wi-Fi with fast response time should be provided on campus – including residences - 24/7 to facilitate searching for information resources without costs. This should resolve insufficient Internet access challenges being faced.
e) Students' utilization of e-newspapers and e-textbooks should be supplemented with e-journals, e-theses and e-dissertations as well as indexing and abstracting databases with full-text journal articles from accredited journals. Science-based databases like American Association of Petroleum Geologists, American Chemical Society, African Journal Archive, Access Pharmacy, BioMed Central, and Premier should be considered for subscription.

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