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Demographic Factors and Electronic Resources/Services Use: Evidence from Adeleke University

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ABSTRACT

Information behaviour studies indicate that undergraduates tend to use e-resources/services (ERS) as information sources. This study examines the influence of demographic factors on ERS use among undergraduates of Adeleke University in Nigeria. A field survey methodology was used for the study and 352 undergraduates from six academic faculties served as the respondents. Data were collected by the use of a questionnaire. The findings revealed that undergraduates used varying levels of ten categories of ERS predominantly for academic purposes. The results indicated by non-parametric tests demonstrated that the frequency levels of ERS use for academic information by undergraduates had no significant difference with student's status (finalist and non-finalist) and gender. But, a statistical difference existed between frequency levels of ERS use for academic information, and age group and academic faculty. The study concluded that disciplinary-oriented ERS must be provided for undergraduates to address faculty information needs for disciplinary research.

Keywords: Adeleke University, Demographic factors, Electronic resources/services, Electronic resources/services utilisation, Undergraduates, Nigeria.

I. Introduction

Electronic resources/services (hereinafter ERS) heralded digital library technology where information becomes unhindered breaking the conventional brick-and-mortar and person-to-person information provision for various clientele undertakings. The implication is seen in many information behaviour studies pointing to undergraduates using more of e-resources as information sources creating diverse electronic information services in obtaining information for academic activities (Adeyalo & Ogunniyi, 2020; Howlader & Islam, 2019; Okoh & Ijiekhuamhen, 2014; Oyadeyi, 2014; Tilahun & Natarajan, 2016). However, despite ERS ground-breaking features, they have often been generalised in terms of utilisation by undergraduates engaging them for academic activities leaving library and information professionals with an information-source-delivery dilemma.

Many local and foreign studies in this well researched field have been carried out, but the results have been limited and defined by the factors of age, gender, academic semesters, ERS types, purposes, disciplines, institutions and so on. Conceivably, in Nigeria and many parts of the world where private and public universities are increasing by the day, another variability factor sets in – private and public undergraduates' difference that may assuredly account for ERS needs and utilisation among these groups. For instance, studies on undergraduates' information seeking behaviour have associated some of these information-delivery factors to providing solutions to information problems such as lack of awareness of library resources/services, dearth of information literacy instruction in universities, and the absence of well-planned information systems aimed at providing ERS if well understood (Ferdows & Ahmed, 2015; Joo & Choi, 2015).

This study maintains that well-planned information systems poised to provide the right ERS will reliably revolve around demographic factors towards addressing timely and specific undergraduates' information needs. Not

surprising, Howlader & Islam (2019) emphasised that for university libraries to remain relevant to undergraduates, and be effective information service providers; broader understanding of the information behaviour of undergraduates in terms of the utilisation of ERS becomes a necessity. Understanding this standpoint may better equip the management of institutions, academic libraries, library and information professionals and other service providers to help offer appropriate and needed ERS to undergraduates. The present study adopts a survey research strategy to clarify the influence of demographic factors on the utilisation of ERS by undergraduates of Adeleke University (a private-owned university in a developing country – Nigeria) towards sufficiently providing for their specific ERS requirements to satisfy deep-seated information needs that have not been covered by earlier studies.

II. Statement of the Problem

Before this research, so many previous studies in Nigeria and different parts of the world had descriptively talked about ERS exploitation by undergraduates, superficially explaining answers to questions on ERS types, purposes, awareness, frequency of use, opportunities, satisfaction, and challenges, and many of them are institutionally oriented (Adedokun & Fawole, 2018; Ajibola, 2019; Ankrah & Acheampong, 2017; Girakaduwa, 2019; Madondo et al., 2017; Salman et al., 2020; Quadri et al., 2014; Ruzegea & Msonde, 2021). The closest study to the present study is Ruzegea & Msonde (2021), but it examined the predicting factors (gender, age, experience, information literacy, education level) for effective e-resources usage of both medical undergraduates and postgraduates. Ajayi et al. (2014) also looked at variables defining e-resources in relation to reading culture without separating Adeleke University undergraduates and postgraduates (the study institution). The question to ask is that are these earlier studies sufficient to address ERS use by undergraduates of different faculties of a private university with accompanying demographic variations? Obviously, more studies are needed to bridge these research gaps.

It is pertinent to highlight that in our days of shrinking academic library budget, available library funds must be judiciously spent to address distinctive concerns and not general issues as previous studies have identified. Subjects beyond ERS types, purposes, and frequency of use (though also determined in this study) must be investigated. Olatokun (2009) mentioned that even with individuals being able to use ICTs (like ERS) - there are socio-demographic (individual) dissimilarities in using technologies such as ERS in the direction of gender, age, etc. Hence, specifics on undergraduates with the statistical determination of significance of frequency levels in using ERS vis-à-vis academic level, age, gender and student's status must be determined. Apparently, these findings will help in the concentrated efforts of library and information professionals and universities' managements (in terms of funds prudence) towards sufficient information-need provision for undergraduates. Therefore, the study aimed at providing answers to the research questions in the following section.

III. Research Questions

The research questions are:

1. What are the ERS used by undergraduates in Adeleke University?
2. What are the purposes of using ERS by undergraduates in Adeleke University?
3. What is the frequency of using ERS to obtain academic information among undergraduates in Adeleke University?
4. Do non-finalist and finalist undergraduates differ in terms of their frequency levels in using ERS to obtain academic information in Adeleke University?
5. Do males and females differ in terms of their frequency levels in using ERS to obtain academic information in Adeleke University?
6. Is there a difference in frequency levels of using ERS to obtain academic information across the academic faculties in Adeleke University?
7. Is there a difference in frequency levels of using ERS to obtain academic information across the age groups in Adeleke University?

IV. Literature Review

Use of ERS by undergraduates

Beyond the boundary of Nigeria, Madondo et al. (2017) sought to evaluate the use of e-resources (databases) by undergraduates at Africa University in Zimbabwe. The usage percentage of Emerald was 30% of the respondents, Ebrary (25%), and Taylor and Francis (20%). Databases such as JSTOR and EBSCO all recorded much lower usage. Apart from these e-databases, undergraduates also used the digital library (AUDil) [containing the institutional repository], Google, and Wikipedia. Girakaduwa (2019) generally identified the ERS used by respondents who were majorly undergraduates of a government university in Sri Lanka. The ERS included library website and OPAC (both tied at 60.9% usage by the respondents), followed by downloading of past examination papers (57.8 %), repository and e-journal (46%), e-mail services (39.1%), databases (34.9 %) and Facebook chatting service (28.4%). Ndinoshiho (2010) studied the use of e-services by nursing undergraduates of a Namibian university and discovered that the majority of the students made the maximum use of the internet. The OPAC was reasonably used while e-databases were significantly under-exploited.

Adeniran (2013) revealed of undergraduates in a Nigerian private university that they used the internet, which was the foremost frequently used e-resource by 73.2% of the respondents. This was followed by e-journals (5.7%), OPAC (3.3%), and CD-ROM (2.4%). Despite e-journal, OPAC and CD-ROM being indicated as regularly used, they were poorly used from the study statistics.

Similarly, in a study on the utilisation of library e-resources in selected private universities in Nigeria, Quadri et al. (2014) reported that internet use was high (over 60% of the respondents). E-journals were used in the range of half of the respondents. Other utilised e-resources included online databases, e-books, OPAC and CD-ROM, and they were poorly used. Likewise, Salman et al. (2020) considered another Nigerian private university and found that internet, e-journals, e-databases, and e-books were consistently used as e-resources by undergraduates. However, there was low usage of OPAC, e-dictionaries and CD-ROM. Ajayi et al. (2014) identified that the e-resources that were well utilised by the students included e-news, e-journal and e-book while those that were not well utilised comprised CD-ROM, databases and e-reference.

For public state universities in Nigeria - Toyo (2017) discovered that 100% of undergraduates made use of websites and internet. Other e-resources that were highly used included e-discussions (99.2%), e-news (98.3%), e-magazines (94.2%), e-journals (91.7%), CD-ROM (82.6%) and e-books (79.3%). However, online databases recorded relatively low use (56.2%) when compared to other e-resources, and e-data archives were also poorly used by 24% of the respondents. Correspondingly, Alegbeleye et al. (2019) revealed that the most used e-resources by undergraduates were internet search engines. In another study, Ajibola (2019) examined the e-library services use of undergraduates. The survey pointed that 52% of the respondents frequently consulted the internet services provided by the e-library of the university. E-books were used by 20.8% of the undergraduates while e-journals were used by only 2.7%.

For federal universities - Adedokun and Fawole (2018) showed that the majority of their study undergraduates (86%) used e-mail. This was followed by e-news (85%), e-books (80%), CD-ROM (72%), e-journals (67%), and e-references (61%). The least used was online databases by 57% of the respondents. Daramola (2016) indicated that out of the nine e-resources utilised by undergraduates, over 90.0% of the respondents utilised e-journals (the highest). This was followed by e-mail (84.4%), e-newspapers (63.9%), and e-books (62.2%). Those that were poorly used included e-magazines (27.8%), e-bibliographic databases (16.7%), e-manuscripts (13.6%), e-data archives (6.67%) and e-thesis (5.5%). Comparably, Bankole et al. (2015) found that undergraduates utilised nine different categories of e-resources. The majority (92.4%) used internet search engines, followed by e-lecture notes (73.5%) and e-books (41.8%). The e-resources that were poorly used included e-databases, e-newspapers, e-journals, e-theses and e-dissertations, e-conference proceedings, and Nigerian Universities Commission Virtual Library.

Alhassan and Macaulay (2015) studied the e-resources use of undergraduates of two public universities in Nigeria – one is controlled by the state government and the other regulated by the federal government. The e-resources that were practically used by the undergraduates of these two institutions included: internet services (47.7%), e-books (43.8%), email services (41.5%), e-journals (23.8%) and online databases (20.8%).

Frequency of use of ERS by undergraduates

In Ghana, Ankrah and Acheampong (2017) reported that most undergraduates (representing 30.6%) used e-resources weekly. In spite of that, results showed that 21.5% of the students used university's e-resources on grounds that were distinct from provided possible answers. These answers included: for a specific period of time, once in a while, five times in a week, and just once for an assignment. In Tanzania, Ruzegea and Msonde (2021) reported that 53% of the researched undergraduates used online journals and e-books on a weekly basis.

In Nigeria - Adedokun and Fawole (2020) demonstrated that undergraduates did not use e-references, e-journals, and online databases frequently, rather e-mail and e-news were relatively frequently used than these academic resources. Ajibola (2019) also revealed that 34.7% of undergraduates used e-library services on frequent bases and 15.9% never used it. Besides, Alhassan and Macaulay (2015) mentioned that 32.3% of undergraduates made use of e-resources daily, 30% weekly, and 26.2% monthly. The survey also demonstrated that CD-ROM and OPAC were infrequently used by the respondents.

For undergraduates in private universities - Adeniran (2013) indicated that 73.2% of the undergraduates used the internet regularly. Despite the fact that e-journals and OPAC were expected to be constant strategic ERS to undergraduates' information seeking and use, very low percentages used e-journals and OPAC regularly. Equally, Quadri et al. (2014) reported that the daily, weekly and monthly frequency of utilisation of CD-ROM, OPAC and online databases by undergraduates of two private universities were very low. Worthy of note was the relatively high percentage of undergraduates that had never used OPAC. In Adeleke University, Ajayi et al. (2014) demonstrated that over two-third of the students utilised e-resources very often. They showed that close to one-fifth of the respondents rarely utilised e-resources while just fairly above one-tenth of the respondents never used e-resources.

Purposes of using ERS by undergraduates

Outside Nigeria - Girakaduwa (2019) reported that two-third of the respondents in his study who were undergraduates used e-resources for the purposes of: awareness (62.7%), enhancing subject knowledge (56.9%), preparing for examination (44%), research (34.9%), writing assignment (30.7%), and improving lecture notes (28.7%). Comparably, Ndinoshiho (2010) revealed that nursing undergraduates used e-information resources for a variety of purposes including obtaining academic information and current awareness. Additionally, Howlader and Islam (2019) revealed that undergraduates in Bangladesh used library information resources/services to seek academic information. In an Indian university, academic and learning purposes were also emphasized as information behaviour that undergraduates exhibited as

they sought, assessed, selected and used information (Singh et al., 2015).

In Nigerian public universities - Adeyalo and Ogunniyi (2020) stated that undergraduates majorly used e-resources to attend to academic development, knowledge updating and preparing for examinations. In a similar way, Alhassan and Macaulay (2015) showed that most undergraduates (94.6%) used e-resources to source information for project writing, followed by academic purposes/course work (87.7%) and personal purposes and research purposes (each indicated by 75.4% of the respondents). Other purposes were: assignments (73.9%), communicating with friends and colleagues (88.5%), and online application/registration (63.9%). Daramola (2016) showed that class assignments and access of e-mail (both tied at 82.2%), were the first purposes why students consulted e-resources. These were followed by leisure (55.6%), news/information (32.2%) and research purposes (31.1%). Similarly, Alegbeleye et al. (2019) discovered that undergraduates mostly used e-resources for completing class assignments. Sahabi et al. (2020) mentioned research/writing project as the topmost reason for undergraduates' use of e-resources. Omosekejimi et al. (2015) showed that 100% of undergraduates agreed to using e-resources to acquire information for assignment and also for e-mail purpose. However, 98% of the respondents used e-resources for research purposes. Further, 94% used e-resources for news acquisition and 91% indicated complementing classroom teachings/lectures. In using e-library services, Ajibola (2019) uncovered that over a quarter of the undergraduates (27.7%) employed it in sourcing current resources for assignments/continuous assessment/examination and to read mails while 17.3% used it to search for research project materials. Other purposes included: preparing notes for course work and browsing the internet for increased knowledge in an area of study (10.7%), and seminars and/or term papers presentation (9.7%). Likewise, Bankole et al. (2015) reported that the majority of undergraduates (72.4%) used e-resources to complete class assignments, followed by 60.6% that used them to obtain course related information/study materials. Others purposes were: updating knowledge/keeping abreast of latest development (43.5%), research purposes (38.4%), leisure (15.3%), and entertainment (8.8%). As regards Adedokun and Fawole (2018), they discovered that students used e-resources for different purposes in the following ascending order: collaboration and communication, staying informed, classwork/assignment and project/research.

In Nigerian private universities - Adeniran (2013) identified that undergraduates used e-resources for the following purposes in decreasing order: for assignment, research, current awareness, news, and e-mail with each of use for assignment and research having one-fifth of the responses. Identically, Quadri et al. (2014) reported that the foremost purpose for the use of e-resources by undergraduates of two private universities was assignment while the least was seminar.

Socio-demographic factors as determinants of information resources use

Agboola and Bamigboye (2011) explored undergraduates' academic level of study and use of library information resources by studying a state university and two federal universities in Southwestern part of Nigeria. The results showed that there was no significant relationship between students' level of study and library information resources use in the two federal universities while there was significant relationship between students' level of study and library information resources use in the state university. It was confirmed for the state university that the use of library information resources by the respondents increased as they go higher in academic level.

Ama-Abasi and Undie (2021) studied students' demographic variables as determinants of the utilisation of information resources among undergraduates of universities in South-South Nigeria. The study did not specify the information resources that were used by the undergraduates. However, in relation to demographic variables, the study found that gender and age did not significantly influence undergraduates' utilisation of information resources, but revealed that academic level of students significantly influenced the utilisation of library information resources. The result revealed that first year students and third year students utilised library information resources than final year students.

Baro and Endouware (2011) descriptively demonstrated that male medical undergraduates used online e-resources to retrieve materials on medical literature more than their female counterparts. Ruzegea and Msonde (2021) examined the predicting factors affecting the usage of e-resources by medical undergraduates and postgraduates. The factors included gender, age, experience, information literacy, and education level. The study found that gender and age influenced the use of e-resources while individual experiences, information literacy competence and education level were predictors of e-resources usage among students.

V. Methodology

The study was conducted in the Southwestern region of Nigeria, specifically Adeleke University, located in Ede, a town in Osun State, Nigeria. The university was selected in view of proximity, fund availability and the existence of basic academic faculties.

Data used for the study were mainly primary and were obtained from the undergraduates using a questionnaire during the 2020/2021 academic season. The study was carried out approximately a month towards the end of the second semester. This was done to ensure that the first year students had spent up to six months and acclimatised with the ERS in the university library. Many contemporary studies in Nigeria and many parts of the world as reviewed previously from the available literature consider the internet as an ERS. However, the researchers see the internet as a conveyer of ERS and not necessarily one, since it will store diverse functional ERS and will also enable users to access them even remotely (Anyim, 2018;

Ekere et al., 2016; Onwuchekwa & Jegede, 2011). This perspective aided the grouping of ERS in the study.

The sampling methods used for the study were stratified sampling and purposive sampling. The statistics on total population were obtained from the university admissions office and faculty officers of the different faculties at Adeleke University (Table 1). The university evidently comprised six faculties – Faculty of Business and Social Sciences (hereinafter FBSS), Faculty of Science (hereinafter FOS), Faculty of Art (hereinafter FOA), Faculty of Basic Medical Sciences (hereinafter FBMS), Faculty of Engineering (hereinafter FOE), and Faculty of Law (hereinafter FOL). These represented six undergraduate subgroups that are expected to make use of the university library's ERS. Ten percent of the number of students in each faculty was taken as representative samples (Table 2). The 10% criterion states that sample sizes should be no more than 10% of the population (Lindstrom, 2010; Singh & Masuku, 2014). The total of these samples constituted the final sample size. Purposive sampling was used to ensure that the final sample size was attained allowing for all intended respondents to be covered.

For the research instrument - questionnaire, it was developed using information from various studies. It was administered by the researchers with the assistance of six research assistants at the library and at different points in the six different faculties. Two experts with extensive working experience in ERS evaluated a draft of the questionnaire to determine whether it measured the intended variables. The suggestions received were integrated into the questionnaire. After the modification of the questionnaire, it was pilot tested on thirty undergraduates (five from each faculty) who were not part of the study. It was found that the research instrument was too long to easily complete, and the language used was difficult for students to understand. The researchers amended the questionnaire and simplified the language accordingly. The final version of the questionnaire was administered on 352 undergraduates. Respondents were requested to complete the questionnaire and to make them available after one week. The collection process of the questionnaire was facilitated by the assistance of library personnel (who were also initially used to confirm ERS types), class representatives and also with the researchers and research assistants collecting from the students' hostels. Though, some students submitted within a day. Eventually, 341 copies of the questionnaire were valid for analysis – a response rate of 96.9%.

During the process of conducting this research, respondents were asked to participate in this research on a voluntary basis. The information provided by the respondents was kept secured and confidential. The respondents signed the consent forms before the commencement of the study and their names remained anonymous making certain ethical adherence. Data on demographic characteristics, usage of basic ERS that the university library provided, purposes of using ERS, and frequency of using ERS by undergraduates were collected and analysed. In a bid to analyse non-finalist and finalist undergraduates' difference in frequency levels in using ERS to obtain academic information, the level of study data were regrouped. Part of the fourth year respondents and all the fifth year respondents fell into the finalist group. The collected data were analysed with the aid of SPSS version 15. A number of tools and tests were used for this study. The cross-tabulation tool was used to investigate relationships within the data that might not be readily noticeable when analysing total survey responses. Descriptive statistics were also engaged to get the frequency and percentage of the questions asked. As a final point, non-parametric tests - Mann-Whitney U-test and Kruskal-Wallis H-test were performed to examine the undergraduates' demographic factors and frequency levels of using ERS to obtain academic information. Non-parametric tests were carried out due to the ordinal nature of the data obtained through Likert-type scale.

TABLE I.
STUDY POPULATION

Faculties	No of Students
FBSS	732
FOS	749
FOA	185
FBMS	769
FOE	38
FOL	4
Total	695

TABLE II.
SAMPLE SIZE

Faculties	No of Students
FBSS	73
FOS	75
FOA	19
FBMS	77
FOE	38
FOL	70
Total	352

*Sample size derived from the total of 10% of the population of each faculty

VI. Results

Respondents' demographics

The respondents were asked questions related to their gender, age, level of study, and faculty. The results showed that of the 341 respondents, the majority - 178 (52.2%) were female (Table 3). Table 3 also shows that 88.6% (the majority) of the respondents were between 18 and 25 years of age. Data on the level of study of the respondents indicated that 39.3% (the majority) were in year two (Table 3). Table 3 also indicates that the majority of the surveyed undergraduates were in FBMS (22%).

TABLE III.
RESPONDENTS BY DEMOGRAPHIC CHARACTERISTICS

	F	%
Gender		
Male	163	47.8
Female	178	52.2
Total	341	100.0
Age		
18 – 25	302	88.6
26 – 30	27	7.9
31 – 35	12	3.5
Total	341	100.0
Level of study		
100	23	6.7
200	134	39.3
300	33	9.7
400	75	22.0
500	76	22.3
Total	341	100.0
Faculty		
FBSS	71	20.8
FOS	74	21.7
FBMS	75	22.0
FOL	66	19.4
FOA	19	5.6
FOE	36	10.6
Total	341	100.0

ERS usage by undergraduates

Respondents were asked about the ERS that they used in the last three months for their student activities. The essence of the three-month benchmark is to ensure the currency of the results obtained in the study. Multiple responses were allowed. The majority (167; 49.0%) indicated that they used e-books. The least used ERS was interlibrary loan (13; 3.8%). Table 4 illustrates the responses on the ERS used by the undergraduates. Table 4 shows that ERS were without exception poorly used.

The researchers also tried to find out whether there was any relationship between the demographic factors (gender, age, level of study, faculty) and use of different ERS by undergraduates. The results are presented in Table 5.

The study found that there was a statistically reliable significant difference between the use of e-journals by the respondents and demographic factors - gender ($\chi2$ = 11.972, sig = .001*), age ($\chi2$ = 36.188, sig =.000*), level of study ($\chi2$ = 102.072, sig =.000*), and faculty ($\chi2$ = 38.084, sig =.000*) [Table 5].

The study found that there was a statistically reliable significant difference between the use of e-books by the respondents and demographic factors - gender ($\chi2$ = 5.358, sig =.021*), level of study ($\chi2$ = 42.258, sig =.000*), and faculty ($\chi2$ = 13.644, sig =.018*) [Table 5].

The study found that there was a statistically reliable significant difference between the use of e-dictionaries/e-encyclopaedias by the respondents and demographic factors - age ($\chi2$ = 7.904, sig =.019*), level of study ($\chi2$ = 36.330, sig =.000*), and faculty ($\chi2$ = 23.539, sig =.000*) [Table 5].

The study found that there was a statistically reliable significant difference between the use of official publications by the respondents and demographic factors - age ($\chi2$ = 8.885, sig =.012*), and level of study ($\chi2$ = 17.368, sig =.002*) [Table 5].

The study found that there was a statistically reliable significant difference between the use of online newspapers by the respondents and demographic factors - age ($\chi2$ = 29.608, sig =.000*), and level of study ($\chi2$ = 30.755, sig =.000*) [Table 5].

The study found that there was a statistically reliable significant difference between the use of referencing sources by the respondents and demographic factors - level of study ($\chi2$ = 27.025, sig =.000*) and faculty ($\chi2$ = 25.407, sig =.000*) [Table 5].

The study found that there was a statistically reliable significant difference between the use of virtual/digital library by the respondents and demographic factor - faculty ($\chi2$ = 12.176, sig =.032*) [Table 5].

The study found that there was a statistically reliable significant difference between the use of interlibrary loan by the respondents and demographic factor - age ($\chi2$ = 10.444, sig =.005*) [Table 5].

The study found that there was a statistically reliable significant difference between the use of virtual meetings/trainings by the respondents and demographic factors - gender ($\chi2$ = 4.041, sig =.044*), age ($\chi2$ = 32.491, sig =.000*), and level of study ($\chi2$ = 29.497, sig =.000*) [Table 5].

TABLE IV.
ERS USED BY UNDERGRADUATES

ERS	F	%
E-journals		
E-books		
E-dictionaries/e-encyclopaedias		
Official publications		
Online newspapers		
Referencing resources		
Video, image & sound resources		
Virtual/Digital Library		
Interlibrary loan		
Virtual meetings/trainings		

*multiple responses received

TABLE V.
ERS USED BY UNDERGRADUATES AND DEMOGRAPHIC FACTORS

ERS	$\chi2$ & Sig (Gender)	$\chi2$ & Sig (Age)	$\chi2$ & Sig (Level)	$\chi2$ & Sig (Faculty)
EJ	11.972,001*	36.188,000*	102.072,000*	38.084,000*
EB	5.358, .021*	5.516, 063	42.258,000*	13.644,018*
EDE	.000, 1.000	7.904, 019*	36.330,000*	23.539,000*
OP	.007, .934	8.885, 012*	17.368,002*	8.672,123
ON	3.365, .067	29.608,000*	30.755,000*	8.477,132
RS	.000, 1.000	3.243,198	27.025,000*	25.407,000*
VISR	1.989, .158	2.914,233	2.633,621	7.832,166
VDL	.883, .347	1.433,488	4.313,365	12.176,032*
IL	.163, .686	10.444,005*	4.193,380	8.087,152
VMT	4.041, .044*	32.491,000*	29.497,000*	3.900,564

Note: *significant difference (at the 0.05 alpha level), e-journals=EJ, e-books=EB, e-dictionaries/e-encyclopaedias=EDE, official publications=OP, online newspapers=ON, referencing sources=RS,

video, image and sound resources=VISR, virtual/digital library=VDL, interlibrary loan=IL, virtual meetings/trainings=VMT

Purposes of using ERS

The study further sought to find out the purposes why undergraduates used ERS. The purposes of updating knowledge and attending to class work were tied in the 1st place (341; 100%). The least purposes were attending seminars, conferences and workshops (162; 47.5%). Table 6 presents the purposes of using ERS.

TABLE VI.
PURPOSES OF USING ERS

Purposes	F	%
For updating knowledge	341	100.0
For attending to class work	341	100.0
For research	169	49.6
For attending seminars, conferences & workshops	162	47.5

*multiple responses received

Frequency of using ERS to obtain academic information

Since 100% of the respondents stated that they used ERS for updating knowledge and attending to class work (academic-oriented purposes), the study sought to find out the frequency with which the respondents used ERS to obtain academic information. In detail, Table 7 shows the frequency of using ERS to obtain academic information on a five-point Likert scale ranging from 'never' to 'always'. The highest number of respondents ticked often (112; 32.8%) and the least was never (27; 7.9%).

TABLE VII.
FREQUENCY OF USING ERS TO OBTAIN ACADEMIC INFORMATION

Frequency	F	%
Never	27	7.9
Rarel	34	10.0
Sometimes	91	26.7
Often	112	32.8
Always	77	22.6
Total	341	100.0

Non-finalist and finalist undergraduates difference in frequency levels in using ERS to obtain academic information

The summary of the non-finalist and finalist undergraduates' difference in frequency levels in using ERS to obtain academic information is presented in Table 8. The Mann-Whitney U-test found that the non-finalist respondents' (Mdn = 4) self-reported frequency levels in using ERS to obtain academic information were higher than the finalist respondents (Mdn = 3). The Mann-Whitney U-test also revealed no significant difference in the frequency levels of the use of ERS by non-finalists and finalists (p= .33). An effect size statistics (r) was determined. This was done using the statistical formula, r = z / square root of N where N = total number of cases to calculate an approximate value. Since z =.974 and N = 341; therefore the r value was .05. This is considered a very small effect size using Cohen (1988) criteria of .1=small effect, .3=medium effect, .5=large effect.

TABLE VIII.
ABRIDGED MANN-WHITNEY U-TEST FOR STUDENT LEVEL AND FREQUENCY OF USING ERS

	Student's level	N	Mean Rank	Mdn	Z	Sig.	V
Frequency of using ERS	Non-finalist	248	174.07	4	-.974	.330	10770
	Finalist	93	162.08	3			
	Total	341					

*student level-frequency of using ERS is statistically significant at p < 0.05.

Gender difference in frequency levels in using ERS to obtain academic information

The summary of the undergraduates' gender difference in frequency levels in using ERS to obtain academic information is presented in Table 9. The Mann-Whitney U-test found that the male respondents' (Mdn = 4) self-reported frequency levels in using ERS to obtain academic information were higher than the female respondents (Mdn = 3). The Mann-Whitney test also revealed no significant difference in the frequency levels of males and females (p= .26). An effect size statistics (r) was determined. The value of r was .06. With the use of Cohen (1988) criteria, it is considered a very small effect size.

TABLE IX.
ABRIDGED MANN-WHITNEY U-TEST FOR GENDER AND FREQUENCY OF USING ERS

	Gender	N	Mean Rank	Mdn	Z	Sig.	V
Frequency of using ERS	Male	163	177.06	4	-1.124	.261	13520
	Female	178	165.46	3			
	Total	341					

*gender-frequency of using ERS is statistically significant at p < 0.05.

Difference in frequency levels across the age levels

The Kruskal-Wallis H-test provided evidence of a difference between undergraduates' use of ERS for academic information across the different age groups. The significance level is .00, which is less than the alpha level of .05, therefore, the self-reported results in Table 10 suggest that there is a difference in frequency levels of ERS use across the different age groups (18-25, 26-30, and 31-35). An inspection of the mean ranks for the groups suggests that the older group (31-35) had the highest frequency of use of ERS, with the younger group reporting the lowest. Further, the older age group (31-35) recorded a higher median score of 5 than the other two age groups, which both recorded median values of 4.

Kruskal-Wallis H-test also revealed that there is a difference between at least one pair of groups formed on the basis of students' age group. Post hoc tests were carried out between the three pairs of groups. A statistically significant difference was found only between the students of age groups 18-25 and 31-35 (Mdn = 4 and 5

respectively). No differences were found between the other pairs of groups.

TABLE X.
ABRIDGED KRUSKAL-WALLIS H-TEST FOR DIFFERENCE IN FREQUENCY LEVEL OF ERS USAGE ACROSS AGE LEVELS

	Age Group	Mean Rank	Mdn	χ2	df	Sig.
Frequency of using ERS	18-25	163.82	4[b]	18.689	2	.00*
	26-30	207.20	4	3		
	31-35	270.33	5[b]			

*age levels-frequency of using ERS is statistically significant at $p < 0.05$, N=341

Note: b-b indicates between which two groups significant difference was found.

Difference in frequency levels across the academic faculties

The Kruskal-Wallis test provided evidence of a difference between undergraduates' use of ERS for academic information across the different academic faculties. Since the significance level is .03, which is less than the alpha level of .05, the self-reported results in Table 11 suggest that there is a difference in frequency levels of ERS usage across the different academic faculties. An inspection of the mean ranks for the faculties suggests that FOA had the highest frequency of use of ERS, with the other faculties reporting lower mean ranks. Further, FOA recorded a higher median score of 4 than the other five academic faculties, which all recorded median values of 3.

Kruskal-Wallis H-test revealed that there is a difference between at least one pair of groups formed on the basis of students' academic faculties. Post hoc tests were carried out between the fifteen pairs of groups. A statistically significant difference was found only between the FBSS and FOA students (Mdn = 3 and 4 respectively). No differences were found between the other pairs of groups.

TABLE XI.
ABRIDGED KRUSKAL-WALLIS H-TEST FOR DIFFERENCE IN FREQUENCY LEVEL OF ERS USAGE ACROSS ACADEMIC FACULTIES

	Academic faculties	Mean Rank	Mdn	χ2	df	Sig.
Frequency of using ERS	FBSS	147.73	3[b]	12.635	5	.03*
	FOS	172.99	3			
	FBMS	158.04	3			
	FOL	197.29	3			
	FOA	200.61	4[b]			
	FOE	175.99	3			

*academic faculties-frequency of using ERS is statistically significant at $p < 0.05$, N=341

Note: b-b indicates between which two groups significant difference was found.

VII. Discussion

The current study examines the self-reported responses of Adeleke University undergraduates on the influence of demographic factors on utilization of ERS for academic information. Other descriptive and preliminary results were obtained from the survey apart from the inferential statistics that was carried out to explain the demographic factors' influence on ERS utilisation. The descriptive and statistical inferences generated a copious set of results, which are limited by the size of the sample from the different faculties. It is unmistakable from the results that the undergraduates chiefly needed ERS for academic pursuits which are revealed in the foremost purposes for using ERS – updating knowledge and attending to classwork. This result is in agreement with previous Nigerian studies for both private and public universities (Adedokun & Fawole, 2018; Adeniran, 2013; Adeyalo & Ogunniyi, 2020; Ajibola, 2019; Alegbeleye et al., 2019; Alhassan & Macaulay, 2015; Bankole et al., 2015; Daramola, 2016; Omosekejimi et al., 2015; Sahabi et al., 2020; Quadri et al., 2014), and earlier foreign studies (Howlader & Islam, 2019; Ndinoshiho, 2010; Singh et al., 2015). All these studies affirmed students using various ERS for diverse academic purposes. This is not surprising as undergraduates are expected to pursue academic activities in both private and public universities.

The Adeleke University undergraduates use varying kinds of ERS, and at different levels. This is in line with the majority of the earlier studies covered in the literature review. However, the ERS are poorly used by the students with e-books being the most used by 49% of the respondents (Table 4). In support of this assertion from the present study, just 22.6% of the respondents attested to using ERS in obtaining academic information always (Table 7). This is rather contradictory considering the manner that 100% of the students affirmed using ERS for updating knowledge and attending to class work. Nevertheless, past studies corroborate the fact of poor usage of ERS by undergraduates (Adedokun & Fawole, 2018; Adeniran, 2013; Ajayi et al., 2014; Ankrah & Acheampong, 2017; Ajibola, 2019; Alhassan & Macaulay, 2017; Quadri et al., 2014). This observation can be linked to contemporary studies that have cited several drawbacks preventing ERS use such as undergraduates not visiting the library due to dissatisfaction with services, lack of assistance from library personnel, unawareness of ERS, poor information skills and competencies, irregular electricity supply and poor internet speed (Adedokun & Fawole, 2018; Ajayi et al., 2014; Alhassan & Macaulay, 2015; Ankrah & Acheampong, 2017; Ferdows & Ahmed, 2015; Howlader & Islam, 2019).

On the use of different ERS by undergraduates which is an important indicator of how these resources could be provided by the university library, the study showed varying significant relationship for the demographic factors. Regarding gender, the use of ERS is significant with respect to e-journals, e-books, and virtual meetings/trainings. These results are to some extent not in line with: Ama-Abasi and Undie (2021) that generalised that there was no significant influence of gender on undergraduates' utilisation of information resources (both print and e-resources); and Ruzegea and Msonde (2021) that generalised that gender didn't have any influence on the use of e-resources by both undergraduates and postgraduates. Our study brings up those ERS that are without bearing to gender and they include e-dictionaries/e-encyclopaedias, official publications, online

newspapers, referencing sources, video, image and sound resources, virtual/digital library, and interlibrary loan. This may not be unexpected as many undergraduates irrespective of the gender will always consult these mentioned ERS. With further analysis using Mann-Whitney U-test (Table 9), no statistically significant difference is found between how ERS is used by undergraduates to get academic information based on gender. A very small effect size is also reported. This means that the difference between gender and the use of ERS for academic information is negligible, even if a statistically significant difference exists. In large part, this study also contradicts Baro and Endouware (2011) that descriptively demonstrated that male undergraduates used online e-resources more than their female colleagues. Hence, ERS should commonly be provided to both male and female students without disposition to gender.

The use of certain ERS for academic information (such as e-dictionaries/e-encyclopaedias, official publications, online newspapers, interlibrary loans, and virtual meetings/trainings) is significant with respect to age. Our study, on one hand, to a large extent negates Ama-Abasi and Undie (2021), which generally found that age doesn't significantly influence undergraduates' utilisation of information resources. On the other hand, it partly supports Ruzegea and Msonde (2021), which showed that age influenced the use of e-resources by undergraduates. In our study, the ERS use with no connection to age is e-books; reference sources; video, image and sound resources; and virtual/digital library. A further analysis using Kruskal-Wallis H-test reveals that when age groups compare with ERS use for academic information; mean scores increase from the lower age group to the higher one. This implies that the higher the age group (the older the undergraduates), the more they will use ERS for academic information. With median comparison, statistically significant difference was found only between the age groups 18-25 and 31-35 (Table 10). This shows two extreme age groups in the study. This result might not be unconnected to Hatlevik et al. (2018), which demonstrates that with increasing age of undergraduates comes accumulative knowledge (improved information acquisition skills and self-efficacy) dependably enhancing students' use of ERS for academic information.

Further analysis using Mann-Whitney U-test shows that no statistical significant difference is found between frequency levels of the use of ERS for academic information and students' academic levels (Table 8). This study is partly similar to Agboola and Bamigboye (2011) that indicated no significant relationship between undergraduates' level of study and library information resources use in two federal universities, but found a significant relationship in a state university. Our study is also dissimilar from Ruzegea and Msonde (2021) who generally found educational level to be a predictor of e-resources usage among students. Further, this study negates Agboola and Bamigboye (2011) who found that the use of library information resources among undergraduates increased as they go higher in academic level. All these universities are actually public universities, and with the current study focusing on private university undergraduates, no significant relationship is found between ERS use for academic information and level of study. This result is not unconnected to students of different academic levels using ERS to seek for academic information in pursuit of academic activities as revealed in this study and the reviewed literature. Any success minded students, as most undergraduates are expected to be should exhibit this quality of information appetency notwithstanding the level of study.

Regarding academic faculties, the study found that ERS use for academic information that is significant includes the use of e-journals, e-books, e-dictionaries/e-encyclopaedias, referencing sources, and virtual meetings/trainings. This result is not surprising because undergraduates of different faculties, and understandably of different departments are expected to disciplinarily incline towards certain ERS. All the revealed statistically significant ERS are predictably discipline-tailored. A further analysis using Kruskal-Wallis H-test reveals that statistical significant difference is found only between the undergraduates of FBSS and FOA. This implies that the ERS needs of the undergraduates in these two faculties should be appropriately catered for particularly in terms of disciplinary focus. However, this result contradicts Collins and Stone (2014) and Jara et al. (2017) who revealed that undergraduates in the humanities and arts compared to other faculty students had the bottommost average number of using digital resources to attend to academic activities.

VIII. Conclusions and Recommendations

It is unequivocal those students at undergraduate levels utilize ERS and that they predominantly require ERS for their academic pursuits. For instance, undergraduates utilise varying kinds of ERS, at different levels as revealed in the ten categories of ERS itemised, and the foremost purposes for using ERS (updating knowledge and attending to classwork), which are academic related. However, the underutilisation of these ERS by the undergraduates shows that there should be a conscious institutional initiative by the institution's management and the library to encourage ERS utilisation. Is there any benefit derived from unused ERS in the library? The answer is NO. Marketing and/or public relations programmes aimed at promoting and sensitising ERS utilisation must be put in place.

The nonexistence of statistically significant difference between how ERS is used by undergraduates to get academic information based on gender shows that ERS should commonly be provided to both male and female students without disposition to gender. The study also indicates that the higher the age group (the older the undergraduates), the more they will use ERS for academic information. Besides, with median comparison, a statistically significant difference was found between the farthest age groups 18-25 and 31-35, this simply means that students of lower age group should be determinedly trained for them to know the value of academic information acquisition through ERS. The popular saying 'catch them

young' should come into play here, where undergraduates are trained from their early years in the university, especially as they are freshly admitted. This is expected to help in the design of workable information systems that will not only encourage the students to use ERS for academic purposes but also for research and for attending seminars, conferences, and workshops.

The use of ERS for academic information by the undergraduates of this private university shows no significant relationship with the level of study. It is a positive pointer. Students at different levels of study should be further assisted and inspired by way of calculated library programmes and outreach targeted at providing ERS remarkably in the form of e-books and e-journals tailored in the direction of course outline to boost academic performance. With respect to the relationship of ERS use for academic information and academic faculty, all the statistically revealed ERS use are unsurprisingly disciplinarily inclined. Hence, disciplinary-oriented ERS must be provided for undergraduates to address faculty information needs for disciplinary research. However, undergraduates in FBSS and FOA must be exceptionally provided for since further statistical test of significance dwell on ERS use by these two academic faculties.

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