Academic discipline as predictor of electronic information resources use by undergraduates of public universities in Southwestern Nigeria

Bilikis Adefunke Babarinde, *PhD*
Department of Library, Archival and Information Studies
University of Ibadan, Nigeria
E-mail: babarindefunke3@gmail.com

Abstract
The importance of electronic information resources (EIRs) for academic activities has been widely acknowledged. Despite its overwhelming benefits, reports have shown that undergraduates of public universities in Southwestern Nigeria exhibit low use of EIRs and this adversely affects their studies. Studies concentrated more on ICT literacy skills than academic discipline (AD) as a factor that influences electronic information resources (EIRs) use. The study, therefore, was carried out to examine academic discipline as a predictor of electronic information resources (EIRs) use by undergraduates of public universities in southwestern Nigeria. The survey design of the correlational type was adopted. The multi-stage sampling procedure was used. Five states (Oyo, Ogun, Osun, Ekiti and Lagos) were purposively selected in southwestern Nigeria. The purposive sampling technique was used to select eight public universities with four common academic faculties (science, engineering/technology, arts/humanities and social science) in the selected states. The proportionate to size sampling technique was used to select 1378 undergraduates across the faculties. Data were analysed using descriptive statistics and Pearson product moment correlation. Findings from the study revealed the distribution of academic disciplines of undergraduates according to Biglan model as: hard pure (20.0%), hard applied (23.6%), soft pure (29.9%) and soft applied (24.6%). The EIRs were prominently used for classwork/assignment, project writing, knowledge update, group/individual practical works and tutorials. The frequency of use of electronic information resources by undergraduates in universities in Southwestern Nigeria is high (Weighted mean = 3.41). A majority of the undergraduates accessed e-databases, web 2.0, e-books, library website, the internet and e-mail both at home and campus environment. The study also revealed that academic discipline significantly predicted electronic information resources use by undergraduates in universities in Southwestern, Nigeria(F=8.088, P < .001). Based on the findings of the study, it was recommended that institutional policies supporting the use of electronic information resources for academic activities across various academic disciplines by undergraduates of public universities in Southwestern Nigeria, should be implemented.

Keywords: Academic discipline, electronic information resources, soft pure, hard applied, undergraduates

Introduction
Universities are tertiary institutions established to provide facilities for teaching, learning, research and community services. They offer both undergraduate and postgraduate programmes such as bachelor, master and doctoral degrees. These universities are categorised according to ownership structure namely federal, state and private. Ownership structure basically refers to the line of authority, control and operation that must be duly observed. In relation to public universities, there are two categories which include federal and state universities. However, for universities to achieve their primary objectives irrespective of their ownership, libraries are established to support teaching, learning and research activities with the provision of information resources of all kinds (print, non-print and electronic).

At the centre of every teaching, learning or research is a library and at the heart of every library is a thriving information community. The library provides resources and services that benefit the entire community at large: teachers, staff, administration, as well as students

Todd and Gordon (2012). University libraries assist the universities in the performance of their functions by acquiring all the relevant information resources necessary for sustaining learning and research functions in the universities. In other words, university libraries encourage teaching, research and conservation of knowledge, thereby supporting in achieving the objectives of the universities.

Information is the pivot on which the survival of any society revolves. It remains the major ingredient in decision-making; thereby, reducing the degree of uncertainty. Information and its use are as old as humans. Indeed, without information there cannot be communication. It is a vital ingredient for the success of every student in all tertiary institutions. This is because it is mainly through access to and use of information that true knowledge can be acquired in a teaching and learning environment. University libraries are known for acquisition, preservation and dissemination of relevant information resources in order to support teaching and learning process.

Electronic information resources (EIRs) have gradually taken a central position in library collections all over the world. With the growing popularity of digital libraries, electronic information resources now form the major part of many library collections. With the emergence of new technologies, electronic information resources are becoming more and more important to the academic community, hence, the awareness of these resources is of paramount importance to library development in the 21st century (Velmurugan, 2013; Akpojotor, 2016). The use of electronic information resources has created new opportunities as well as new challenges for library professionals as they try to adopt new techniques and approaches for managing their electronic collections

and providing dynamic library services using a whole range of new technologies. The users, on their part, also try to cope with the changing situations by making diversified use of electronic information resources, although, many users are still skeptical about the real potentials of electronic information resources. Besides, the adoption of e-resources and digital technologies has not been similar in all parts of the world while the developed countries are making significant advances in this regard many developing countries still lag behind.

According to Kwafoa, Imoro and Afful-Arthur (2014), the electronic information resources such as e-journals, e-books and full-text databases have emerged since 1990 as important sources of information with the intent of facilitating information retrieval from any location and time. The authors noted that electronic information resources remain invaluable resources designed to complement print-based resources; and have proven to be very helpful to students and lecturers alike. Adeniran (2013) defines Electronic information resources (EIRs) as materials stored digitally and made accessible through computer networks. Basically, EIRs are in the form of e-books, e-journals, articles, newspapers, theses, dissertations, databases, and CD-ROMs.

Izuagbe, Hamzat and Joseph (2016) noted that electronic information resources include scholarly and academic journals, electronic databases, online library catalogues, grey literature and other relevant scholarly materials in all fields of knowledge that are now accessible on the Internet. They further observed that the commonest characteristic of these resources is that they are electronic in nature and could be accessed through online or offline platform. Electronic resources of the library could be accessed even without physical

visit to the library. The types of libraries required in Nigerian academic institutions in this information-driven 21st Century are those that will provide up-to-date information resources in both print and electronic media in order to support teaching and learning. The electronic libraries are also supposed to place at the disposal of undergraduate srelevant information in both remote and immediate databases all over the world that would enable them to undertake in-depth and effective learning.

The Internet, which is the most prominent of EIRs has made possible, access to electronic books and journals; various databases and search engines. All these resources constitute electronic information resources (EIRs). Electronic information resources are accessed electronic ally and they cover varied subjects. Gakibayo, Odongo and Obura (2013), citing Ray and Day (1998) aver that a large number of students leave institutions without necessary skills to cope within the information driven society. Electronic information resources allow people to search for relevant articles in a subject area. The resources include electronic journals, online databases (Agora, Jstor, Ebscohost, Ajol, Hinari), electronic books, locally loaded database, websites, CD-ROM, electronic text, e-abstracting and indexing databases such as MEDLINE, E-news, E-images and E-music. These electronic resources are used mainly for reading and research purposes. Some of the electronic resources are in closed-access. The institution concerned pay for access fee to enable their students gain access to the online resources.

Owolabi (2016) highlight the purposes of electronic information resources to include academic purpose (course work, complete assignments, research purposes, source for materials for project writing and personal purpose).

Clayton (2017) highlights the benefits of use of electronic information resources by undergraduates. The benefits are; access to a wider range of information, faster access to information, access to current up-to-date information, easier access to information and improved academic performance as a result of access to quality information.

According to Madhusudhan (2010), „the frequency of use of e-resources is the most important and basic aspect related to the appraisal of the usefulness of e-resources". In his efforts at finding out about the frequency of use of electronic information resources, Madhusudhan (2010) discovered that 62 percent of the respondents made use of electronic resources daily, 18 per cent occasionally and 16 percent used them two or three times a week, only four percent used the e-resources once a week and none of the respondents reported using e-resources for at least, once a month. The frequency of use of e-resources by scholars depends on the nature of a library‟s e-collections, organisation, maintenance and services. It was also revealed at the time of the study that the access to scholarly e-journals (intranet only) was free. That gave the respondents the latest up-to-date literature in their relevant fields, hence, the main reason for daily use of e-resources by research scholars.

One of the significant contributions of electronic information resources is that they are used by students, scholars and researchers from diverse academic disciplines. The extent to which electronic information resources are used by undergraduates is attributed to some factors, one of which is academic discipline. According to Krishnan (2009), the term, „academic discipline‟ is concerned with a form of specific and rigorous scientific training designed with the aim of turning out thoroughly-bred practitioners in various fields of human endeavour. The term,

„academic discipline" is a branch of knowledge which focuses mainly on a self-imposed limited field of knowledge (Paleeri, 2015). It is a vast accumulation of knowledge which interests the recipient. An academic discipline or a field of study is a branch of knowledge that is taught and researched as part of higher education.

A discipline may have branches, and these are often called sub-disciplines. However, Taylor, Dekkers, and Marshall (2003) note that there is no consensus on how some academic disciplines should be classified (for example, whether anthropology and linguistics are disciplines of the social sciences or within the humanities). More generally, the proper criteria for organising knowledge into disciplines are also open to debate. Biglan (1973) provides an overview of academic disciplines to include soft pure (English Language, history and philosophy), soft applied (economics, psychology and sociology), hard pure (chemistry, physics and mathematics) and hard applied (electrical and electronic s engineering; civil engineering as well as mechanical engineering) ones.

Report of the American Academy of Arts and Science"s Commission on the humanities and social sciences to the United States Congress (2013) states that the humanities include the study of language, literature, history, jurisprudence, philosophy, comparative religion, ethics, while the arts are disciplines of memory and imagination, focusing on human state of existence. For instance, the humanities, as academic disciplines entail the understanding of human culture. The humanities use methods that are primarily critical, or speculative, and have a significant historical element-as distinguished from the mainly empirical approaches of the natural sciences. The humanities include ancient and modern languages, literature, philosophy, religion, visual and performing arts, such as music and theatre arts.

The social sciences examine society and how people interact and develop as a cultural group. They are research-driven disciplines which study human society and individual relationships in and with society. The field includes study areas such as sociology, psychology, anthropology, economics, geography and political science. Studies in the social sciences equip students with cross-cultural awareness, social research skills, critical thinking, and communication skills. Social sciences graduates provide knowledge and skills on how to identify and analyse social concerns and develop positions and proposals on social issues. Students examine contemporary problems and get involved in intellectual debate to flourish. They are encouraged to question and challenge assumptions to comprehend the world more deeply. Degrees in economics, psychology, geography and others stimulate students" intellectual curiosity and allow them to broaden their perspective.

Science and technology courses teach students how to look for answers; understand how things work, cure diseases, explore new frontiers in space, create new medicines and solve the problem of climate change. Science is the systematic way of acquiring knowledge through observation and experimentation, whereas, technology is the practical application of science. Technology is used to design devices that are used to improve the quality of human life. Courses in science and technology discipline are engineering (mechanical, civil, electrical electronic s, metallurgy and so on), biochemistry, mathematics, physics, botany among others.

Despite the benefits of electronic information resources, it has been observed that their use is not as high as expected

among undergraduates in Nigerian universities most especially in public universities. It is on this note that this study investigated academic discipline as a predictor of electronic information resources use by undergraduates of public universities, in Southwestern Nigeria.

Statement of the problem

The term, „academic discipline" is a branch of knowledge which focuses mainly on a self-imposed limited field of knowledge (Paleeri, 2015). It is a vast accumulation of knowledge which interests the recipient. An academic discipline or a field of study is a branch of knowledge that is taught and researched as part of higher education. A discipline may have branches, and these are often called sub-disciplines. However, Taylor, Dekkers, and Marshall (2003) note that there is no consensus on how some academic disciplines should be classified (for example, whether anthropology and linguistics are disciplines of the social sciences or within the humanities. Biglan (1973) however provides an overview of academic disciplines to include soft pure (English Language, history and philosophy), soft applied (economics, psychology and sociology), hard pure (chemistry, physics and mathematics) and hard applied (electrical and electronic s engineering; civil engineering as well as mechanical engineering) ones.

Academic discipline could be identified as one of the variables that affect libraries" electronic information resources use by students. Scholars generally have found that there is a relationship between academic discipline and library use. Some disciplines motivate students to use the library resources more than others. Similarly, Kerins, Madden and Fulton (2004) argued that engineers prefer using the Internet or electronic resources more than

library print resources in information searching.

Despite the overwhelming need to use electronic information resources due to its numerous benefits, preliminary investigations indicated that undergraduates in public universities in Southwestern Nigeria appear to have seemingly lukewarm attitude towards the use of electronic information resources. It is against this backdrop that this study examined how academic discipline predicted the use of electronic information resources use by undergraduates of public universities in Southwestern Nigeria.

Objective of the study

The main objective of the study was to determine the extent to which academic discipline predicts the use of electronic information resources by undergraduates in universities in Southwestern, Nigeria. The specific objectives of the study were to:

1. identify the distribution of undergraduates according to academic disciplines by undergraduates of public universities in Southwestern Nigeria
2. determine the purpose of use of electronic information resources by undergraduates of public universities in Southwestern Nigeria
3. ascertain the frequency of use of electronic information resources by undergraduates of public universities in Southwestern Nigeria
4. find out the point of access to electronic information resources by the undergraduates in universities in Southwestern Nigeria
5. establish the relationship that exist between academic discipline and use of electronic information resources by the undergraduates of public universities in Southwestern Nigeria.

Research question

The study has provided answers to the following research questions:

1. What is the distribution of undergraduates in universities in Southwestern Nigeria?
2. For what purpose do undergraduates use electronic information resources in public universities in Southwestern Nigeria?
3. What is the frequency of use of electronic information resources by undergraduates of public universities in Southwestern Nigeria?
4. What is the point of access to electronic information resources by the undergraduates of public universities in Southwestern Nigeria?
5. What is the relationship between academic discipline and use of electronic information resources by the undergraduates of public universities in Southwestern Nigeria?

Hypothesis

The study tested the following null hypothesis at 0.05 level of significance:

H_0: There is no significant relationship between academic discipline and use of electronic information resources by undergraduates of public universities in Southwestern Nigeria.

Literature review

Academic disciplines serve as the integral components of the intellectual activities of tertiary institutions of learning. It represents the pivot upon which teaching and learning hinge. Academic disciplines have a body of accumulated specialised knowledge, referring to their object of research, which is specific to them and not generally shared with another discipline (Krishnan, 2009). Academic discipline is a branch of knowledge which incorporates expertise, people, projects, communities, challenges, studies, inquiry, and research areas that are strongly associated with a given scholastic subject area or department (Ziman, 2000). However, some researchers believe that academic disciplines may be replaced by what is known as mode or "post-academic science", which involves the acquisition of cross-disciplinary knowledge through collaboration of specialists from various academic disciplines (Gibbons, Camille, Helga, Schwartzman, Scott and Trow, 1994).

Biglan (1973) maintains that there are three dimensions whereby academic disciplines can be classified. The classification includes "hard: soft" (the degree to which a paradigm exists), "pure: applied" (the degree of concern with application) and "life: non-life" (the degree of concern with living systems). The work of Biglan (1973), which highlights the distinctions between four types of discipline properties, serves as a paradigm to illustrate an epistemological understanding of the disciplines. He identifies the following: „hard pure" disciplines: (e.g. mathematics, physics, astronomy), „hard applied" disciplines (e.g. engineering, economics, computer science) „soft pure" disciplines (e.g. literature, history, philosophy) and „soft applied" (e.g. education, social care, foreign languages).

Biglan (1973) derives his taxonomy of academic disciplines based on the responses of faculty from a large, public university and a private liberal arts college regarding their perceptions of the similarity of subject matter areas. His taxonomy identifies three dimensions to academic disciplines which are the degree to which a paradigm exists (paradigmatic or pre-

paradigmatic, alternatively referred to hard versus soft disciplines), the extent to which the subject matter is practically applied (pure versus applied) and involvement with living or organic matter (life versus nonlife systems). The natural and physical sciences are considered to possess more clearly delineated paradigms and are in the "hard" category. Those having less-developed paradigms and low consensus on knowledge bases and modes of inquiry (e.g. the social sciences and humanities) are considered "soft." Applied fields tend to be concerned with application of knowledge, such as Law, Education, and Engineering. Pure fields are those that are viewed as less concerned with practical application, such as mathematics, history, and philosophy. Life systems include such fields as biology and agriculture, while languages and mathematics exemplify non-life disciplines.

Olle and Boraggo (2010) explain that while some academic disciplines, particularly science and vocational subjects such as social work are notable for the practical requirements involved in their study, studies such as chemistry and biology are identified with laboratory-based experiments. Studies have shown that there is relationship between academic discipline and use of electronic resources. For example, Kerins, Madden and Fulton (2004) reported that engineers prefer using internet or electronic resources more than library resources in information searching. They further stated that law students use the library resources more than the engineering students since their programme center on items such as reading lists, textbooks and course packs. The study revealed that law students expressed enthusiasm for, but in many cases, a lack of confidence in their ability to use electronic resources effectively. The study also revealed that the law students tended to display poor judgment in their choice of electronic

resources when attempting to match information needs.

The study of the use of ICT and e-resources or disparity in use of e-resources across academic disciplines has been ongoing since evolution of the information age in view of its impact on the society particularly in the universities. Historically, the use of computers and later on the Internet was usually associated with scientists. But with tremendous improvement in the technicalities in access and use of information technology or the ICT, ICT facilities and e-resources are now accessed and used across all disciplines/fields of specialization. According to Hartley (2007), the need to study the pattern and nature of access and use of ICTs and electronic resources across academic disciplines is immensely beneficial in designing information systems to support academic activities in regard to disciplines/fields of specialization around the world.

In view of the perceived benefits of electronic information resources across academic disciplines, scholars have had vested interest in investigating the extent of accessibility and utilization of these resources in different disciplines/fields of specialization in the universities around the world, especially within the past two decades (Adams and Bonk, 1995; Al-Shanbari and Meadows, 1995; Ehiklamenor, 2003a; Elam, 2007; Hartley, 2007; Heterick, 2002; Jankowska, 2004; Kaur and Verma, 2009; Park, 2010; Philip, 1995; Popoola, 2008; Rolinson, Meadows and Smith, 1995; Selwyn, 2008; Tahir, Mahmood and Shafique, 2010). In conclusion, the study made advocacy for the need to address the digital divide that exist among the art historians in respect to the use of e-resources in their research work.

Tenopir *et al*., (2008) in a survey of the use of electronic resources by academic

staff in Australia, Finland, and the U.S. found significant variation between the use of e-resources and disciplines. The findings revealed that, in Finland, academic staff in medicine use e-resources than other disciplines, with significant variation when compared with social sciences and humanities. Similar results were obtained in the U.S. as medical sciences lead in the use of e-resources with score of 20.9%, science 16.5%, engineering 14.4%, social sciences 11.3% and humanities 7.0% respectively. It was observed that while academics in medical disciplines reportedly make significant use of electronic resources across the three countries; e-resources were significantly less used by the humanists throughout the three countries. This was basically attributed to two reasons; one, greater number of journals in science, technology, medicine, and social science are available in electronic form than do journals in humanities. Secondly, characteristically, humanities scholars relatively read fewer journal articles even in print than their counterparts in other disciplines. King *et al.*, (2009) in a survey of information-seeking behavior of academic staff in five universities in the U.S. also reported that differences in disciplines affect the use of electronic resources by academic staff.

Popoola (2008) in his review reported that CD-ROM databases are being used more by social scientists than the scientists and humanists in Nigerian universities. This was explained to be due to the fact that wide range of information in the social science is available in CD-ROM databases. Nwagwu, Adekannbi and Bello (2009) observed a variation in Internet use by disciplines among the students of the University of Ibadan, Nigeria. The findings of the study indicated that science students are the dominant users of the Internet especially for academic purposes in the university. He attributed this to inequitable distribution of Internet access in the university.

Mahajan (2006) to explore the use of the Internet by academic staff at the Panjab University, Chandigarh, India, it was found that all the scientists in the survey were using the Internet in their research unlike their counterparts in social sciences (70%) and humanities (20%). This was attributed to variations in the electronic information environments across the three disciplines, as most respondents from the Science and Social sciences" disciplines were making use of the internet from their departments more than those in humanities. In terms of electronic journals, similar patterns were obtained as all the respondents in the Sciences were accessing and using electronic journals and other e-resources on the Internet more than their counterparts in Social sciences (40%) and Humanities (5%).The cause of academic disciplines in universities can hardly be advanced without the existence of academic libraries which are stocked with adequate information resources on the diverse disciplines.

In a study on how students perceive, use and manage digital information resources at the National University of Taiwan, Wu and Chen (2012) discover that the pattern of usage varied according to the subject background of the respondents. They concluded that Humanities students found the e-resources less important than the students of other disciplines. Talja and Maula (2003) and Atakan et al. (2008) make the similar assertions that disciplinary differences can actually influence the usage of databases.

Thanuskodi (2011) showed that the researchers in sciences are more positive about the use of internet and its impact on their educational experience. All of them (100%) have a positive attitude toward the internet and feel comfortable gaining information through it for academic and

personal purposes. About 60% of researchers in social sciences also agree with the importance of internet's information resources. 80 % of the internet use is for academic purposes by the researchers in science, whereas only 45% in social sciences use it for academic purposes.

Methods

The survey design of the correlational type was adopted. The multi-stage sampling procedure was used. Five states (Oyo, Ogun,Osun, Ekiti and Lagos) were purposively selected in southwestern Nigeria. The purposive sampling technique was used to select eight public universities with four common academic faculties (science, engineering/technology, arts/humanities and social science) in the selected states. The proportionate to size sampling technique was used to select 1378 undergraduates across the faculties.

Results

The results are presented according to the research questions and hypothesis.

Research question 1: What is the distribution of undergraduates in universities in Southwestern Nigeria?

In order to identify the academic discipline of undergraduates according to Biglan classification of public universities in Southwestern Nigeria, respondents were asked to indicate their academic disciplines. The result is presented in Tables 1.

Table 1: Distribution of Undergraduates based on Biglan Dimensions

Biglan Dimension	Academic Discipline	Freq.	%	Row Total
Hard Pure	Chemistry	141	12.0	234 (20.0)
	Physics	93	7.9	
Hard Applied	Electrical Engineering	169	14.4	277 (23.6)
	Mechanical Engineering	108	9.2	
Soft Pure	Economics	178	15.2	351 (29.9)
	Sociology	173	14.7	
Soft Applied	English	191	16.3	289 (24.6)
	History	98	8.4	

Table 1 reveals the distribution of undergraduates in Southwestern universities according to Biglan dimension. The table shows that soft pure disciplines have more students (29.9%) followed by soft applied (24.6%), followed by hard applied (23.6%) and hard pure hard the lowest number of undergraduate students (20.0%). This means that there were more undergraduates who enrolled for courses in soft pure disciplines such as economics and sociology than hard pure and hard applied courses. The reason for this could be attributed to the fact that most undergraduates tend to avoid mathematics-related disciplines.

Research question 2: For what purpose do undergraduates use electronic information resources in public universities in Southwestern Nigeria?

In order to provide answer to this research question, respondents were asked to indicate how true each of the statements on purpose of use of electronic information resources was. The results are presented in Tables 2.

Table 2: Mean and standard deviation scores showing undergraduates purpose of use of electronic information resources

Item: I use for:	Internet	e-mail	Web 2.0	Search engines	On-line databases	OPAC	Mean	SD
Classwork/Assignment	812(69.2%)	109(9.3%)	53(4.5%)	106(9.0%)	60(5.1%)	33(2.9%)	1.59	0.876
Group/individual practicals	597(50.9%)	252(21.5%)	155(13.2%)	110(9.4%)	55(4.7%)	4(0.3%)	1.77	0.781
Tutorials	574(48.9%)	133(11.3%)	179(15.2%)	167(14.2%)	101(8.6%)	19(1.6%)	2.16	0.810
Examination preparation	559(47.7%)	170(14.5%)	108(9.1%)	156(13.3%)	106(9.0%)	74(6.3%)	2.10	0.877
Project	624(53.2%)	83(7.1%)	181(15.4%)	187(15.2%	82(7.0%)	16(1.4%)	2.13	1.008
Knowledge update	660(56.3%)	178(15.2%)	76(6.5%)	179(15.3%)	56(4.8%)	24(2.0%)	1.94	0.898
Leisure	561(47.8%)	109(9.3%)	251(21.4%)	200(17.1%)	38(3.2%)	14(1.2%)	2.01	0.788
Personal development	536(45.7%)	147(12.5%)	215(18.3%)	201(17.1%)	43(3.7%)	31(2.6%)	2.04	0.767
Writing term paper	402(34.3%)	288(24.5%)	146(12.4%)	241(20.5%)	85(7.2%)	11(0.9%)	1.59	0.780
Research	560(47.7%)	173(14.7%)	111(9.5%)	216(18.4%)	106(9.0%)	7(0.6%)	2.16	0.899

The result in Table 2 reveals that 812(69.2%) of the respondents used Internet for classwork/assignments, 109(9.3%) used e-mail for the same purpose while only a few 33(2.9%) of the undergraduates used OPAC for classwork/assignment. This means that majority of the undergraduates in the study used the internet for classwork and assignments. Also, the result indicated that 660(56.3%) of the respondents claimed that they used internet for knowledge update, 178(15.2%) used e-mail to update knowledge 179(15.3%) used search engines to update their knowledge. Another purpose for which majority of the respondents used electronic information resources is for research project as indicated by 624(53.2%) who claimed that they used the Internet for project writing, 181(15.4%) claimed they used web 2.0 for project while 187(15.2%) used search engines for their project.

Research question 3: What is the frequency of use of electronic information resources by undergraduates of public universities in Southwestern Nigeria?

Result on the frequency of use of electronic information resources by undergraduates of Public universities in Southwestern Nigeria is presented in Table 3.

Table 3 revealed that 881(75,1%) of the respondents used the internet daily, 154(13.1%) used the internet weekly, 120(10.2%) bi-monthly, 10(0.9%) quarterly and only 8(0.7%) claimed they never used the internet frequently. The mean score recorded for the internet was 4.61 and standard deviation is 0.783. E-mail is the second most frequently used electronic resources with a mean score of 4.02 (SD=1.168). specifically, 521(44.4%) of the respondents claimed that they used e-mail daily, 352(30.0%) weekly, 183(15.6%) Bi-monthly while 59(5.0%) claimed they never used e-mail. Other types of e-resources frequently used by undergraduates in universities in Southwestern Nigeria are e-books (mean=3.50, SD=1.415), e-journals (mean=3.36, SD=1.379), library website (mean=3.33, SD=1.563), web 2.0 (mean=2.97, SD= 1.528) among others. The weighted mean is 3.41 which, according to the decision rule, is higher than the criteria mean. This means that the frequency of use of electronic information resources by undergraduates in universities in Southwestern Nigeria is high.

Table 3: Undergraduates' frequency of use of electronic information resources

Item:	Daily		Weekly		Bi-monthly		Quarterly		Never		Mean	SD
I use:	N	%	N	%	N	%	N	%	N	%		
The Internet	881	75.1	154	13.1	120	10.2	10	0.9	8	0.7	4.61	0.783
OPAC	247	21.1	321	27.4	199	17.0	120	10.2	286	24.4	3.04	1.571
E-journals	279	23.8	329	28.0	302	25.7	127	10.8	136	11.6	3.36	1.379
e-mail	521	44.4	352	30.0	183	15.6	58	4.9	59	5.0	4.02	1.168
Library website	363	30.9	276	23.5	193	16.5	152	13.0	189	16.1	3.33	1.563
e-books	364	31.0	285	24.3	293	25.0	103	8.8	128	10.9	3.50	1.415
Web 2.0	241	20.5	233	19.9	287	24.5	190	16.2	222	18.9	2.97	1.528
e-databases	221	18.8	263	22.4	263	22.4	218	18.6	208	17.7	2.99	1.475
e-conference	165	14.1	231	19.7	341	29.1	168	14.4	268	22.8	2.83	1.412
e-group discussion	307	26.2	251	21.4	293	25.0	180	15.4	142	12.1	3.30	1.402
Search engines	449	38.3	248	21.1	228	19.1	160	13.6	88	7.5	3.62	1.441
CD ROM	265	22.6	228	19.4	297	25.3	239	20.4	144	12.3	3.16	1.392
Multimedia resources	394	33.6	339	28.9	219	18.7	119	10.1	102	8.7	3.66	1.337

Table 4: Point of accessing electronic information resources by the undergraduates

Item: I use:	Home	Library	Cybercafé	Campus environment	Classroom	Mean
e-databases	245(20.9%)	217(18.5%)	285(24.3%)	395(36.1%)	31(2.6%)	2.41
Web 2.0	384(32.7%)	217(18.5%)	285(24.3%)	256(21.8%)	31(2.6%)	2.31
e-books	329(28.0%)	293(25.0%)	137(11.7%)	388(27.1%)	26(2.2%)	2.30
Library website	238(220.3%)	525(44.8%)	167(14.2%)	224(19.1%)	19(1.6%)	2.18
The Internet	698(59.5%)	177(15.1%)	100(8.5%)	179(15.3%)	19(1.6%)	2.11
E-journals	300(25.6%)	352(30.0%)	188(16.0%)	315(26.9%)	18(1.5%)	2.05
e-mail	468(39.9%)	240(20.5%)	163(13.9%)	285(24.2%)	17(1.4%)	2.00
e-conference	331(28.2%)	312(26.6%)	179(15.3%)	291(24.8%)	60(5.1%)	1.97
OPAC	272(23.2%)	557(47.4%)	133(11.3%)	185(15.8%)	26(2.2%)	1.93
Multimedia resources	420(35.8%)	372(31.7%)	192(16.4%)	172(14.7%)	19(1.6%)	1.93
CD ROM	350(29.8%)	254(21.7%)	274(23.4%)	276(37.0%)	19(1.6%)	1.91
e-group discussion	328(28.0%)	376(32.1%)	156(13.3%)	165(14.1%)	148(12.6%)	1.79

Research question 4: What is the point of access to electronic information resources by the undergraduates of public universities in Southwestern Nigeria?

The data that address this question are presented in Table 4.

Table 4 shows that undergraduates in Southwestern Nigeria access the following EIRs in the Library: The internet (Mean =2.11), OPAC (Mean = 1.93), E-journal (Mean = 2.05), email (Mean = 2.00), library website (Mean = 2.18), e-book (Mean = 2.30), web 2.0 (Mean = 2.31), e-database (Mean = 2.41), e-conference (Mean = 1.97), e-group discussion (Mean = 1.79), CD ROM (Mean = 1.91) and multimedia resources (Mean = 1.93). this means that majority of the undergraduates in Universities in Southwestern Nigeria accessed e-databases, web 2.0, e-books, library website, the internet and e-mail both at home and campus environment.

Research question 5: What is the relationship between academic discipline and use of electronic information resources by the undergraduates of public universities in Southwestern Nigeria?

Table 5 addresses this research question

Table 5: Relationship between academic discipline and use of electronic information resources by the undergraduates of public universities in Southwestern, Nigeria

R	R Square	Adjusted R Square	Std. Error of the Estimate
.164a	.027	.024	10.155

ANOVAa

Model	Sum of Squares	Df	Mean Square	F	Sig.
Regression	3336.106	4	834.027	8.088	.000b
Residual	120345.344	1167	103.124		
Total	123681.450	1171			

Table 5 shows the regression analysis of electronic information resources use on academic discipline. The dependent variable (electronic information resources use) was regressed on the independent (predicting) variable (academic discipline) to test the H_0. The result showed that academic discipline significantly predicted electronic information resources use (F=8.088, P < .001). Also, the R^2=.027 depicts that the model accounts for 2.7% change of variance in the dependent variable (electronic information resources use).

Discussion
This section discusses the findings as revealed in the previous sectionbased on the literature. The findings are presented according to the objectivesof the study.

Research question one determines the academic disciplines of undergraduates in universities in Southwestern, Nigeria. The finding revealed that soft pure academic disciplines which are otherwise known as social sciences such as Economics and Sociology had the highest number of undergraduate students while hard pure academic (Science) disciplines such as Chemistry and Physics had the lowest number of undergraduate students in universities in Southwestern, Nigeria. The fact that there were more undergraduates in the soft pure academic disciplines as indicated in this finding could probably be attributed to the fact expressed by Roger (2002) that the social sciences were set up and prospered because of the political need of getting more information on the population, which could be used for more effective government and which helped to stabilise emerging political and societal structures.

The finding of research question two indicated that the undergraduates in universities in Southwestern Nigeria utilised electronic information resources for classroom/assignment, group/individual practicals, tutorials; preparation for exams, project, knowledge update, leisure, personal development, writing term paper and research. This result is an indication that electronic information resources are very relevant for academic activities of undergraduates in universities in Southwestern Nigeria. This is evident in the various purposes for which the students utilized electronic information resources for their academic activities.

This finding supports the assertion of Byamugisha, (2010), Velmurugan (2013)

and Akpojotor (2016) that electronic information resources are becoming more and more important for the academic community and an awareness of these resources is of paramount importance to library development in the 21st century. Also, Dadzie (2005), MawereandSai, (2018) stated that electronic resources are invaluable research tools which complement the print-based resources in a traditional library setting. Similarly, this finding corroborates Mostafa (2013) that an increasing number of users are becoming dependent on e-resources for study and research purposes.

Results of the findings on frequency of use of electronic information resources by undergraduate students in universities in Southwestern Nigeria, revealed that the internet, e-mail, e-book, search engine and multimedia resources were respectively the most frequently used EIR by undergraduates in universities in Southwestern Nigeria, as each of these EIR were used at least on weekly basis. On the other hand, the frequency of use of EIR such as e-group discussion, e-journal, OPAC and CD ROM was low. Frequency of EIR usage is an important measurement to establish where e-resources are frequently used. The findings on undergraduates students" usage patterns of EIRs suggest that some of the e-resources are more frequently used than others.

The results showed that the frequently used e-resources include e-journals and e-books, e-newspapers and e-reference sources. Results also indicated that some of the electronic information resources are not frequently used by undergraduates students. These include CD-ROMs, e-tutorials, e-bibliographic databases, online catalogues, e-maps, and online databases. This finding supports the finding of the previous studies by Bankole, Ajiboye and Otunla (2015) that more than 90 percent of the undergraduates in Federal University of Agriculture, Abeokuta, Ogun State, Nigeria were frequent users of electronic information resources. It was also reported that internet search engines, e-lecture notes and e-books as the major e-resources being used for completing class assignments, to obtain course-related materials and to keep abreast of latest development in their field. In addition, the study supports the findings by Mostafa (2013), Owolabi, Idowu, Okocha and Ogundare (2016) that electronic information resources electronic information resources such as hat the Internet services, e-mail services, online databases, electronic databases and cybercafes were often used by the undergraduates in the University of Ibadan.

Results on point of access of electronic information resources showed that most of the undergraduate students in universities in Southwestern Nigeria accessed the electronic information resources such as the internet, OPAC, E-journal, email, library website, e-book, web 2.0, e-database, e-conference, e-group discussion, CD ROM and multimedia resources through the library and campus environment respectively. Only a few accessed EIR at home and a significant few through Cyber café. This finding is in tune with the results of the findings by Kwadzo (2015), Liyi (2011) and Rioux (2014), Quadri, Adetimirin and Idowu (2014),who conducted a study on the availability and utilisation of electronic resources by undergraduates in selected private university libraries in Nigeria. The findings revealed that the Internet was readily available in Babcock (83.5%) and Redeemer"s (92.8%) while other e-resources were not readily available. Most of the respondents in Babcock (64.0%) and Redeemer"s (89.1%) used the e-resources for assignment and research/project. This finding lends credence to the assertion by Obura and Magara (2008)

that that the major objective of the adoption of electronic information resources is the facilitation of access to information resources through the internet, as well as the timely dissemination of both local and international research output.

On the other hand, the study disagrees with the findings of the study by Bankole, Ajiboye and Otunla (2015) and Jara, Clasing, González, Montenegro et al. (2017) that the access points reported by the study were home/hostels and university e-learning centres. In the same view the study is a sharp contrasts with the Jagboro"s (2003) study that students access electronic resources from cybercafés owing to proximity to users.

There is a significant relationship between academic discipline and use of electronic information resources by undergraduates of public universities in Southwestern Nigeria. Whilst academic disciplines such as soft pure and hard pure exhibited a significant relationship with the use of EIR; hard applied and soft applied exhibited no significant relationship with the use of electronic information resources by undergraduates in universities in Southwestern, Nigeria. This finding agrees with earlier studies by Ndonoshiho (2010) and Islam (2010) that many electronic resources are substantially under-utilised by undergraduate nursing students of the University of Namibia"s Northern Campus.

In view of the perceived benefits of electronic information resources across academic disciplines, scholars have had vested interest in investigating the extent of accessibility and utilization of these resources in different disciplines/fields of specialization in the universities around the world, especially within the past two decades (Adams and Bonk, 1995; Al-Shanbari and Meadows, 1995; Ehiklamenor, 2003; Elam, 2007; Hartley, 2007; Heterick, 2002; Jankowska, 2004; Kaur and Verma,

2009; Park, 2010; Philip, 1995; Popoola, 2008; Rolinson, Meadows and Smith, 1995; Selwyn, 2008; Tahir, Mahmood and Shafique, 2010). In conclusion, the study made advocacy for the need to address the digital divide that exist among the art historians in respect to the use of e-resources in their research work.

Conclusion
The study established that there is a significant relationship between academic discipline and use of Electronic information resources by undergraduates in universities in Southwestern Nigeria. It also showed that some of the electronic information resources were more frequently utilised than others by the undergraduates. The study revealed that Soft pure academic disciplines such as Economics and Sociology had the highest number of undergraduate students while hard pure academic disciplines such as Chemistry and Physics had the lowest number of undergraduate students in universities in Southwestern Nigeria. The study also revealed that undergraduates utilise Electronic information resources for the following purposes: assignment, group/individual practical, tutorials, preparation for exams, project, knowledge update, leisure, personal development, writing term paper and research.

Based on the findings of this study, the researcher therefore recommends the following:

1. There is need to encourage prospective undergraduate students to embrace other academic disciplines such as soft applied and hard pure disciplines so that those disciplines would have as many number of students as there are in the other disciplines. This could be achieved through the introduction of career counseling units in the admission departments of

universities in SouthwesternNigeria by the management of each universities such that qualified undergraduates would be properly guided to enroll for courses under soft applied and hard pure academic disciplines.

2. There should be adequate provision of electronic information resources in the library collection across disciplines such that students of every academic discipline would have the opportunity of accessing and using the resources to meet their diverse information needs. To achieve this, library management should evaluate periodically through the faculty the needs assessment so as to be able to determine which type of electronic information resources needed by various academic disciplines in the universities.

3. University library managements should introduce new course for enhanced and continuous library user education geared towards empowering students to be sufficiently acquainted with information sources needed for academic enhancement, as well as facilitate mutual collaboration between lecturers and librarians, thereby ensuring integrated mode of lecture delivery and unhindered information access.

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