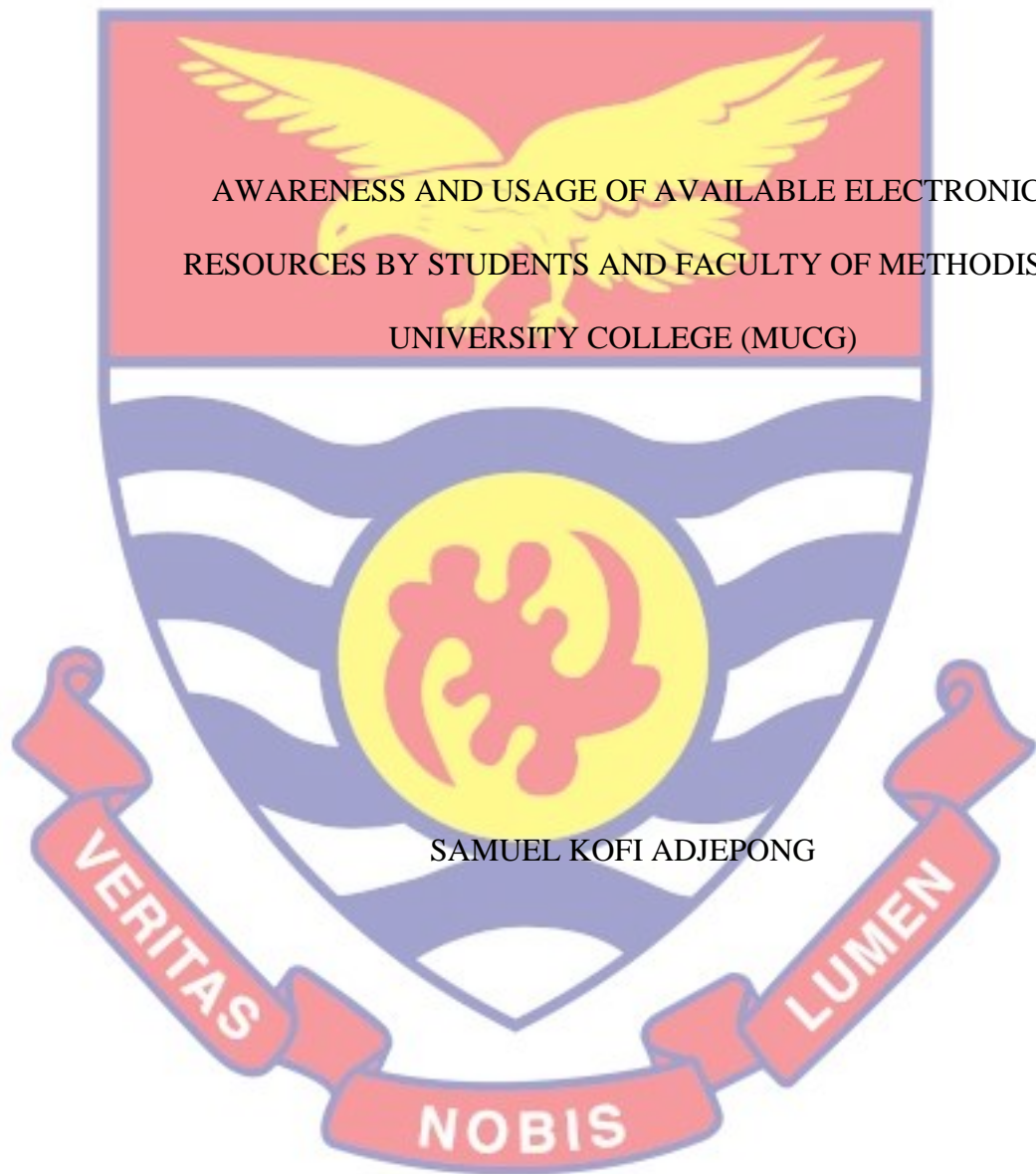


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AWARENESS AND USAGE OF AVAILABLE ELECTRONIC  
RESOURCES BY STUDENTS AND FACULTY OF METHODIST  
UNIVERSITY COLLEGE (MUCG)

BY  
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of the College of Education Studies, University of Cape Coast, in partial  
fulfilment of the requirements for award of Master of Philosophy degree in  
Administration in Higher Education

MARCH 2022

## DECLARATION

### Candidate's Declaration

I hereby declare that this thesis is the result of my own original research and that no part of it has been presented for another degree in this university or elsewhere.

Candidate's Signature: ..... Date: .....

Name: Samuel Kofi Adjepong

### Supervisors' Declaration

We hereby declare that the preparation and presentation of the thesis were supervised in accordance with the guidelines on supervision of thesis laid down by the University of Cape Coast.

Principal Supervisor's Signature: ..... Date: .....

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Co-Supervisor's Signature: ..... Date: .....

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## ABSTRACT

This research explored the awareness and usage of available electronic resources by students and faculty of Methodist University College (MUCG), Accra, Ghana. The study adopted the exploratory sequential mixed methods design. The study used the proportionate stratified sampling approach to select 347 students from a population of 3000 students at the University. Also, the census technique was used in selecting 50 faculty members. The data from the observation guide was analysed thematically while data from the questionnaires were analysed using descriptive statistics in the form of frequency tables, means and standard deviations. The findings of the study revealed that students and faculty were aware of some of the electronic resources (Sage Journals, OPAC local, OPAC Public, AGORA, HINARI, Emerald, JSTOR, Taylor & Francis) at MUCG library. Again, majority of students and faculty revealed that they used the electronic resources they were aware of to complete their assignment, write project works, prepare teaching and learning materials, prepare assignments for students and for writing project proposals. However, comparing the electronic resources students and faculty were aware of and the actual electronic resources available at the MUCG library revealed that they were not aware of a greater number of electronic resources, hence it was concluded that students and faculty were not fully aware of available electronic resources and that the use of the electronic resources they were aware of helped them to achieve their core mandate of teaching, learning and research. It was therefore recommended that the MUCG library organises more training programs for both students and faculty to make them fully aware of the available resources in order for them to effectively and efficiently use them to support the teaching and learning process.

**KEY WORDS**

Access

Availability

Awareness

Electronic Resources (ERs)

Faculty

Students



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## DEDICATION

To my parents, siblings and nephew





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## LIST OF ACRONYMS

CARLIGH	Consortium of Academic and Research Libraries Ghana
CD ROM	Compact Disc Read-Only Memory
CDSL	Committee on Development in the Science of Learning
ERs	Electronic Resources

FAO	Food and Agriculture Organisation
GIMPA	Ghana Institute for Management and Public Administration
ICT	Information and Communication Technology
IEPA	Institute for Educational Planning and Administration
IITA	International Institute of Tropical Agriculture

KNUST	Kwame Nkrumah University of Science and Technology
MUCG	Methodist University College, Ghana
NASA	National Aeronautics and Space Administration
NCES	National Centre for Educational Statistics
NGO	Non-governmental Organisation
NUC	National University Commission
OECD	Organisation for Economic Co-operation and Development
OPAC	Online Public Access Catalogue
SDI	Selective Dissemination of Information
SPSS	Statistical Package for the Social Sciences
USIS	United States Information Services
WHO	World Health Organisation

## CHAPTER ONE

### INTRODUCTION

The role Electronic Resources (ERs) play in research, teaching and learning process in educational institutions cannot be underestimated. ERs provide faculty and students with up-to-date and relevant information needed to conduct research, prepare lecture notes, seminar or workshop materials, complete assignments and project work or thesis and this ensures that the goals and objectives of educational institutions are achieved. Ensuring that there are open and accessible electronic services to faculty and students requires the provision of high-speed internet, constant electricity, enough access points, and adequate computers at the library. There should also be the needed training required by faculty and students so as to access electronic resources to ensure the smooth running of the teaching and learning process and research activities. This research therefore sought to explore the awareness and usage of available electronic resources by faculty and students of Methodist University College, Ghana (MUCG). This study is underpinned by the Technology Acceptance Model (TAM) and the Theory of Reasoned Action (TAR) which states that there are numerous factors that influence a person's decision regarding the use of a new technology and the time of using it. The TAR again suggests that a person would only use a particular technology after assessing it Perceived Usefulness (PU) as well as the Perceived Ease of Use (PEU). Thus, a person would only use a specific technology if it would boost his or her learning process.

## Background to the Study

Library resources perform an essential function in promoting teaching, learning and research agenda of every tertiary institution across the globe. The role of the traditional library has been to gather, analyse, store, and disseminate data for the purposes of reading, teaching, and consultation (Appleton, 2006).

The resources from these traditional libraries, have been the most commonly recognized medium for delivering library services and information to meet the demands of library clients, usually in print form (Hewitson, 2002). These traditional library resources are now getting swapped out by digital or ERs that cater to the demands of researchers and information seekers.

In this context, Dahi (2006) argued that growing prices and stagnant budgets in an era of innovative information technologies, libraries that cling to traditional service models cannot thrive. Dahi goes on to explain that libraries need to keep up with advancement in information technology and advanced communication at a time when information is in high demand, so as to be able to make available services that today's population both demands and requires.

In agreement with Rosenberg (2006), the convergence of ICTs appears to have a substantial influence on how information resources are generated, managed, and consumed; as a result, libraries must plan for and implement systems that will profit from this expansion. The evolving academic landscape, together with the acceptance of the importance of e-resources in libraries, has resulted in a transformation involving improvements in electronic systems and connectivity, as well as electronic learning, necessitating innovations to library service provision in order to improve higher education quality (Bhat & Mudhol, 2014).



The modification in traditional library distribution services, from paper to ERs, has occurred quite rapidly, according to Appleton (2006), and libraries and information service have experienced major changes in order to accurately provide ERs to the academic institution. E-resources contribute positively to this generation's academic library and meet the particular needs of students, faculty and academic researchers more efficiently (Appleton, 2006). In addition, Dadzie (2005) indicated that ERs have the capacity to raise the educational experiences of learners. Similarly, Ani and Ahiauzu (2008) noted that, in addition to contributing to the progress of digital content, the change from printed materials to ERs has equipped patrons with easy tools and techniques for information access and recovery. For example, some of the tools made available to users include computers and internet connectivity and some of the applications include online search engines and portals.

ERs, as a notion, are those electronic information resources that individuals may access digitally from within the library or remotely via a computer network (Graham, 2003). An ER, according to A.L.A. (2005), as referenced in Sharma (2009), is a product (data and/or program) transmitted by an electronic system for processing. This information can incorporate the usage of a remote connected device directly to a computerized device (e.g., a CD-ROM) or a computer network connection (e.g., Internet). The definition of ERs consists of texts, audio, images, graphics and animations that can be accessed through communications technology (Graham, 2003). Realistically, they must provide users with access, through electronic means, to ERs. This description, though sometimes encompasses ERs such as stand-alone individual computer (PC) databases, CD-ROM details would not be available over the Internet or

other platforms. Tammaro (2004) observed that blogs, online databases, e-journals, e-books, CD-ROMs, audio visuals, multimedia, among others are ERs.

Because they are easily accessible on the internet and virtually desktop delivery of materials cuts time and expense on real library trips, e-resources answer the distinct requirements of students, professors, and researchers far faster and at considerably lower prices than low-cost borrowing or buying (Ankrah & Acheampong, 2017). In addition, ERs have the ability to expand learning opportunities for students, as the electronic media is interactive and multimedia elements offer more learning experiences than print materials. Electronic training materials significantly improve teaching opportunities by giving students different activities and making classes even more interactive, stimulating and lively (Ankrah & Acheampong, 2017). E-resources also enable students to provide and receive immediate real-time feedback and develop their capacity to more accurately and simply understand concepts by offering or hyperlinking a large number of supportive and complementary resources for the courses in order for the students to freely connect, explore and learn different content without experiencing significant trouble accessing and understanding it (Ankrah & Acheampong, 2017). Examples of these e-resources include electronic journals, articles, publications and databases. The benefits of these ERs can be maximised by users if they are aware of its existence and are able to easily access and use them.

Several studies (Chandrakumar, 2009; Nelson, 2014; Hiller, 2002; Boukacem-Zeghmouri & Schöpfel, 2008; Ibrahim, 2004 and Research Information Network, 2009) on awareness levels, access and usage of ERs was carried out with the aim of finding out how these e-resources benefit users. For

instance, studies conducted by Boukacem-Zeghmouri and Schöpfel (2008) and Research Information Network (2009) on the usage of technological resources and knowledge of them in African universities disclosed that e-resource was a commonly accepted tool for academic work. These studies further disclosed that the usage of e-resource amongst university staff and students was common because of the easy access to e-resources.

Similarly, a study that was undertaken by Borrenge, Anglada, Barrios and Cornellas (2007), revealed that overwhelming number of the teaching and research staff of Catalan Universities had heard about the collection of e-resources in their various institution. More so, the study revealed a high preference for the e-resource at the detriment of the traditional print resources. This according to Borrenge et al. (2007) was as a result of some features that the e-resources had over the traditional print resources. These features included: multi - media integration; enhanced access to information in terms of comfort, speed and selection of materials; hyperlinks; expanded access for concurrent and remote users (Asamoah-Hassan & Frempong, 2008; Borroengo et al. 2007; Manda, 2005).

Despite the revelations made regarding the access to and use of e-resources discussed in preceding paragraphs, It is significant to mention that accessing and using e-resources has been fraught with difficulties. Findings from studies (Omotayo, 2010; Manda, 2005; Chisenga, 2006; Oduwole & Akpati, 2003; Nunoo, 2012) have identified some barriers that hinder the understanding, access and utilization of these resources in universities. For instance, studies conducted by Omotayo (2010), and Nunoo, (2012) on the awareness, access to and use of e-resources in tertiary educational

establishments concluded that inadequate end-user training, attitudes of service providers, delays in delivery of information requested, and poor research skills as notable influencing variables in the utilization of e-resources. In addition, factors such as slow connectivity, limited access to connectivity points, inadequate electricity supply, and budget cuts were identified as factors that hindered faculty and students from accessing ERs (Oduwole and Akpati, 2003).

Kwafoa, Osman and Afful-Arthur (2014) also revealed, in research they undertook on the access and usage of e-resources at a Ghanaian tertiary institution that, lack of strategic planning, absence of awareness of the availability of these databases, lack of awareness that the libraries subscribed to these databases impacted on the level of e-resource awareness in universities. Regarding the issue of access to ERs, factors including a lack of appropriate or sustainable funding and a lack of utilization of the internet to provide customers with information services constituted a problem (Chisenga, 2006). In comparison, the lack of standardized user training in new ICT services and the limited number of terminals available for use of e-resources presented a challenge to the usage of e-resources (Dadzie, 2005).

Ghanaian universities are not left out regarding the issue of awareness, access to and usage of e-resources as well as its associated challenges. (Nunoo, 2012). Several initiatives have been put in place by both public and privately-owned universities in Ghana to improve access to and usage of e-resources, as well as to mitigate related challenges. A research conducted by Nunoo (2012) at KNUST, on the access to and usage of e-resources showed that the majority of KNUST students and faculty were aware of the availability of e-resources and thus, highly used these resources. Yet, the study also showed that the

efficient use of these e-resource at KNUST was marred by issues of slow Internet speed and the campus's frequent electrical power disruptions. This situation was similar to situations in other universities in Ghana.

A related study by Amankwah (2014) on the awareness, access to and usage of e-resources by students at the Ghana Institute for Management and Public Administration (GIMPA) also showed that students utilised ERs in their fields of study to finish assignments, write research plans, update lesson notes, for research, and update oneself on recent knowledge. However, the study also described insufficient library computers, weak internet connectivity, power outages, and inadequate search skills as stumbling blocks to the access and usage of GIMPA's ERs. The two researches reviewed were conducted in public universities. One can wonder what the situation is in private universities which are still "crawling" and struggling to meet up with acceptable standards of tertiary education in the country. With the immense advantages the use of e-resources purports to bring to students and faculty of tertiary institutions, the awareness, access to and usage of e-resources cannot be underrated.

In light of this, this study is being conducted explicitly with the intention to explore the views of students and faculty on the awareness and usage of available ERs at Ghanaian private universities specifically, the Methodist University College, Ghana (MUCG). The MUCG was built in 2000. As an affiliate of the University of Ghana, the Methodist University College, Ghana was established with one of its core mandates being to promote and improve academic excellence through research by providing facilities for learning such as a well-stocked library. The library helps the University College to achieve its goal of promoting and developing academic excellence through the provision

of relevant and current information to faculty and students needed for their research work.

The Methodist University Library was founded in 2000 with the main purpose of maximising and enriching the organisation's teaching, learning and research endeavours by providing both students and faculty with easy access to comprehensive and appropriate information resources. The library opened having an original collection of six thousand (6000) book volumes and thirteen (13) serial titles with a seating capacity of forty (40) at the time and an employee size of four (4). The university library now boasts of a staff strength of sixteen (16), with the library actually holding a book collection of 34,177 books, 226 serial titles, 4,178 dissertations, 766 pamphlets / reports, 8 daily / weekly newspapers and 32 internet records, suggesting a substantial improvement of the infrastructures and resources of the library. The goal of management is to provide the library with modern resources and sufficient library management personnel to ensure that the institution can compete with other universities in Ghana and globally.

It is worth remembering, however, that the mission of university authority to make its library compete internationally can only be accomplished when university students and faculty are supplied with the e-resources they need to ensure successful teaching, learning and research. The provision and usage of e-resources is only achieved through awareness and access to these e-resources by students and faculty. The researcher therefore sought to examine the awareness and usage of available e-resources by faculty and students of the Methodist University College, Ghana based on this assumption.

## Statement of the Problem

The Methodist University College, Ghana was established with the objective of fostering and developing academic success, spiritual growth, morals and contribution to the Ghanaian society. In order to do this, the university management tried to transmit knowledge and skills in specialities related to nation-wide growth in the sense of universal expansion in general. Again, on the basis of Christian values, the University College was founded with the main objective of ensuring the student's all-round growth mentally, physically and spiritually.

The management of MUCG sought to achieve this through the promotion of research and the progression of knowledge emphasising on the hands-on application to social, cultural, economic, scientific and technological issues. In addition, the University College aims to offer students with the finest academic, professional and hands-on training in addition to the growth of an entrepreneurial and innovative mentality.

In a recent conversation the researcher had with the acting Registrar of MUCG, he stated that the university authorities have and will continue to invest heavily in providing the needed facilities to guarantee that everything including teaching and learning activities runs smoothly. He also said the library which helps promote teaching and learning has expanded its resources and services including the delivery of ERs with the aim of providing the relevant educational materials to both faculty and students to ensure the highest standard in the course of teaching and learning and to help churn out students with high intellectual capabilities, students who will fit in all spheres of the economy and students who will be global citizens.

However, some anecdotal information gathered on the campus of MUCG revealed that students and faculty were not aware of the availability of ERs at the university library hence did not use these ERs after the upgrading of the library's facilities and resources. Further investigation is therefore needed to ascertain if indeed ERs were available at the MUCG library, students and faculty were aware of the availability of these ERs, whether they had access to these ERs and whether these ERs were used by Methodist University College faculty and students to support teaching, learning and research, and the difficulties they encounter in accessing and using these ERs. Finding answers to these questions would ensure that students and faculty derive the full benefits of using ERs in the teaching, learning and research process when management of MUCG make relevant ERs available, ensure easy access to them and resolve the hindrances faced by students as well as faculty in accessing these ERs.

### **Purpose of the Study**

The study aimed to explore the awareness and usage of available ERs by faculty and students of Methodist University College and the challenges they faced in using these ERs.

### **Research Questions**

The following research questions were framed to guide the research:

1. What electronic resources are available for use by students and faculty of Methodist University College?
2. What electronic resources available at the Methodist University College library are faculty and students aware of?
3. In what ways are electronics resources at the Methodist University College accessed by students and faculty?



4. In what ways do faculty and students at the Methodist University College use electronic resources to support teaching and learning?
5. What challenges do faculty and students at the Methodist University College face in their attempt to have access to and usage of electronic resources?

### **Significance of the Study**

The results and recommendations of this study would be disseminated through presentations at conferences and workshops, and publications in peer reviewed journals. The findings from this research would bring to the attention of library administration the issues experienced by faculty and students in relation to the usage of ERs which prevents the smooth running of the teaching and learning process. This would enable library management to put in place measures to help minimise or alleviate these challenges.

Also, findings from the study would be helpful to the library management of the Methodist University College to take data driven decisions regarding the ERs needed by faculty and students and how to ensure that access to these ERs by faculty and students is made simple and less cumbersome.

Lastly, findings from this study would contribute to providing additional knowledge and set the stage for more research in this field regarding the awareness and usage of available ERs by faculty and students in tertiary education institutions.

### **Delimitations**

The scope of the research was confined to the awareness of and usage of accessible ERs by faculty and students of Methodist University College. Again, the research was delimited to faculty and students located at the University's

campuses in Dansoman and Tema. Lastly, the study was delimited to the views of only degree and postgraduate students and faculty at the Methodist University College.

### Limitations

The following limitations were encountered over the course of the research. First and foremost, the study population being faculty and students at the University's campus in Dansoman and Tema, meant that the findings of the analysis could not be applied to the University College's other campus in Wenchi in the Bono region. Finally, using the questionnaire, predetermined questions prevented participants from including information related to the research in their answers even though spaces were provided for them to write any additional information they felt would benefit the study.

### Definition of Terms

In this study, the ensuing terms and phrases are operationalised:

*Awareness* in this study refers to one's perception of and not simply utilizing the nature of anything (information sources).

*Access* in this study refers to the action or method of opening or retrieving stored data.

*Usage/Use* in this study refers to the capacity or power to use something

*Computer Technology* refers to the internet connectivity, computers and the search engines that make access to electronic resources possible.

*Faculty* is an individual at a tertiary institution who is qualified to teach.

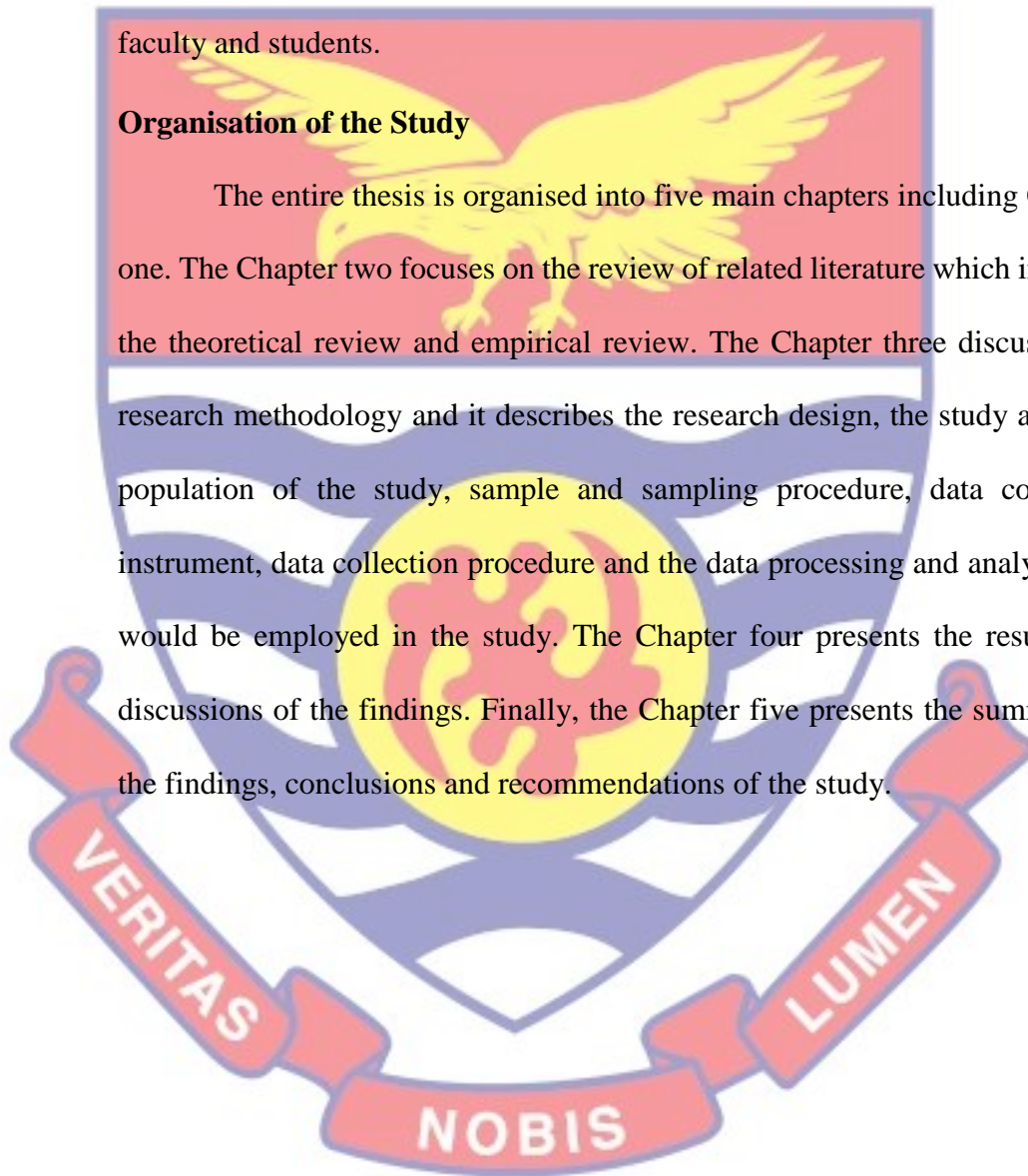
*Electronic Database* refers to a web-accessible set of electronic journals.

*Electronic Journal* is a digital edition of a print journal, or a journal-like electronic publication, with or without a paper form, reachable through the Internet, by e-mail or through any other means of accessing the cyberspace.

*Library* generally refers to a building containing an organized array of published books and journals and other resources for reading that can be consulted by faculty and students.

### **Organisation of the Study**

The entire thesis is organised into five main chapters including Chapter one. The Chapter two focuses on the review of related literature which included the theoretical review and empirical review. The Chapter three discusses the research methodology and it describes the research design, the study area, the population of the study, sample and sampling procedure, data collection instrument, data collection procedure and the data processing and analysis that would be employed in the study. The Chapter four presents the results and discussions of the findings. Finally, the Chapter five presents the summary of the findings, conclusions and recommendations of the study.



## CHAPTER TWO

### LITERATURE REVIEW

#### Introduction

This segment examined the setting for the study by reviewing relevant topics and the theoretical framework that underpins the study's goal and research questions. Part of the goal of the literature review was to set the stage for making comparisons, distinctions, and/or inferences derived from the results of previous studies. It not only clarified the situation at hand, but it also identified some of the factors that impact staff and student knowledge of and use of ERs. Additionally, it assisted the researcher in deciding on the study's methodology. There does not appear to be much study directed on the awareness and usage of ERs by faculty and students of Methodist University College, Ghana (MUCG). As a direct consequence, research on the awareness and usage of the internet by graduate students in other areas both within and without Ghana and other important information relevant to the subject were reviewed to place the work in the appropriate context.

#### Theoretical Framework

For the purpose of this study, Davis's Technology Acceptance Model (TAM) formed the theoretical framework of the study and this is concisely explained below.

#### Technology Acceptance Model (TAM)

TAM was propounded by Davis (1989) to determine the perception of ERs for their inclusion in teaching and learning among university students. Huang and Liaw (2005) claimed that the purpose of Davis's classic TAM is to clarify the usage of a particular system by individuals in an organisation. Tsai

and Su (2007) contended that the TAM has turned into a significant research model to evaluate the variables of recognition and use of information technology among students, which was the most widely used model. Correspondingly, Raaij and Schepers (2008) stated that TAM is a commonly adopted theory to clarify the acceptance of information technology by individuals amid several models in the literature on the information system.

As per Davis (1989), once students are prepared for a new software package, TAM indicates that various factors affect their decision about the procedure and the time it is used. Bagozzi et al., (1992) claimed that TAM forecasts a person's obligation to perform and that the person will be able to work deprived of restriction; however, there will be many restrictions in the real world, such as limited skills, time limits, administrative or ecological constraints, or unconscious behaviours, restricting the liberty to work.

According to Fishbein and Ajzen (1975), the implementation of the Theory of Rational Action (TRA) led to the Davis' (1989) Technology Acceptance Model that established two doctrines, such as Perceived Usefulness (PU) and Perceived Ease of Use (PEU). Davis (1989) defined PU as the extent to which the individual thinks that using a specific method will improve his or her learning experience. In addition, he also described PEU as the extent to which someone believes that it would be unproblematic to use a specific system. Indeed, a great number of TAM researches have revealed that perceived usefulness is a resilient variable in the behaviour of customer reception, execution, and practice (Venkatesh, Morris, Davis & Davis, 2003), where actual skilled consumers may vary with respect to acceptance from other technology consumers (Chau & Hau, 2002).

Positive attitudes regarding technology use are influenced by a positive view of technology acceptance and to Allport (1935, p. 810), an individual's attitude is a mental and neurological state of readiness that develops through time and has a directional or dynamic influence on all objects and events with which it is related. Davis, Bagozzi, and Warshaw (1989) hypothesized that the intermediating variables of attitude and intention compute system practice by calculating utility and simplicity of use. The direct impact of perceived ease of use and utility on attitudes indirectly mediated through them, perceived ease of use and perceived utility have also affected the desire to use and usage.

Some researchers (Taylor & Todd, 2007; Thompson, Compeau, & Higgins, 2006) assume that adoption of technology is further complicated than formerly thought of, and have explored extra factors that stimulate acceptance. TAM contains two main and influential notions, according to Thompson et al. (2006): parsimony and instrumental determinants. TAM's ungenerousness makes it easy to relate to a range of circumstances, although its thinness is also regarded as a basic constraint (Shen, Hiltz & Bieber, 2009). Once more, although these basic principles have served the technology acceptance stream well, Thompson et al. (2006) asserted that technology adoption is influenced by more than just perceived ease of use and utility, especially with advanced technologies.

TAM is an essential theoretical insight to understanding how to utilize the information system and the acceptance of information system behaviours, according to Malhotra and Galletta (2015). They indicated that perhaps the Theory of Reasoned Action (TRA) upon which TAM was formulated is a social psychology framework examined globally that deals with the predictors of

actions purposely planned. According to TRA, the outcome of a particular action by a person is resolved by his or her Behavioural Intention (BI) to conduct the actions, and BI is collectively resolved by the person's attitude (A) and subjective norm (SN) of the person regarding the actions specifically. TAM adopts TRA as a philosophical model for the formation of causal links between two main construct sets: (1) Perceived Usefulness (PU) and Perceived Ease of Use (PEU) and (2) Attitude of the User (A), Behavioural Intentions (BI) and the Exact Behaviour of Computer Use (EBCU).

Malhotra and Gallettra (2015) noticed that throughout the business world, as pertains to Methodist University College, the determination of an organisation on the use of modern information technology, including the Internet is mostly taken by senior executives at a high level of management. In this situation, the senior executives of MUCG frequently do not include individual end users in the framework of such decisions. Users of technology, exempted from the decision-making process do not directly contribute towards the use of modern information systems. Users can also lack a detailed comprehension of the current information systems' functions, leading to less than efficient usage of the features that come with the systems. In such cases, students and faculty always behave in accordance with the orders of the top executives, because the behaviour of faculty and students is not obtained from the recognition or idealisation of the use of new technology. Malhotra and Gallettra (2015), however, indicate that social factors that trigger a sense of compliance seem to adversely impact the behaviour of faculty and students towards the use of the new technology. Consequently, the involvement of faculty and students in the Perceived Usefulness (PU) Behavioural Purpose (B)

Actual Attitudes Towards the Use (A) Psychological Attachment Perceived Ease of Use (PEU) use of the new technologies and their improved understanding of the system's strengths would generate internalisation and understanding that would have a positive influence on their action in the direction of the utilisation of the system.

For the purpose of this study, Davis's TAM model offers an ideal hypothetical foundation for comprehending ER awareness and utilization, which is a type of new technology. Specifically, applicable to this study are the 4 elements (i.e., perceived usefulness, behavioural purpose, actual attitudes towards the use, psychological attachment and perceived ease of use) which gives an insight into how faculty and students choose which e - resources to adopt for teaching, learning, and research purposes. The model, in other words, gives a framework for understanding how teachers and students accomplish their teaching, learning, and study goals by selecting and using relevant ERs after knowing of its availability. Thus, faculty and students consider ERs as relevant when they are able to determine that it use brings enormous benefits regarding their teaching, learning and research goals.

### **Historical Background of Electronic Information Resources**

Aina, Mutula and Tihamiyu (2008) suggested in tracing the roots of ERs that, the cornerstone for ERs may have been established in 1945 once Vannerar Bush envisaged an automated system which would store information such as books, personal files and articles. Douglas Englebert also speculated in 1950 that computers can be used to optimise symbol-handling activities and thereby allow users think about more complicated issues quickly and effectively.



Similarly, Hawthorne (2008) suggested that libraries' search of ERs was motivated by library science's basic tenets. Ranganathan's five library science guidelines describe the inspiration behind libraries' decision to include ERs into their services and collections. The rules reviewed: resources are to be used, each individual is his or her resource, each resource is his or her consumer, save the person's time, and the library is a rising species (Ranganathan, 1963). This is paraphrased to suit ERs better.

Hartley (2003) also noted that during the 1960s, electronic information resources began with prototype computer systems produced for storing and retrieving bibliographic information. Big bibliographic repositories were accessible on magnetic disks by the end of the 1970s. The availability of machine-readable data culminated in the advent of interactive computing and communication applications during the 1970s and 1980s, which allowed the advent of the online data sector. Academic libraries started transferring from card catalogues to Online Public Access Catalogues (OPAC) in the 1980s. This has helped end-users to collect more information in repositories. The CD-ROMs appeared around the same time as information delivery systems with OPACs. The quest for electronic information resources has been made possible by both OPACs and CD-ROMs.

Okori (2005) stated that important advances and milestones from the use of automated systems in educational and research libraries were reported in Nigeria even though efforts by Nigerian libraries in the early 1970s and 1980s to modify their activities were futile. Certain achievements have only been reported by some foreign owned or funded libraries, such as the International Institute of Tropical Agriculture (IITA) Library, Ibadan, British Council

Library, Ibadan, United States Information Services (USIS) Library and a few additions. Idowu and Mabawonkwu (2006) and Rosenberg (2006) in a research to determine the current state of digital libraries in African institutions, found out that libraries only began providing access to CD-ROMs in the 1990s in the African region. Provided by the prospect that the World Bank project presented in the 1994-95, Bozimo (2007) observed that the National University Commission (NUC) assisted in the automation activities in the Nigerian University libraries. This earlier attempt of automating the libraries failed due to lack of trained manpower and poor funding. In 2004, some university libraries adopted the use of Alice for Windows. Again, plans were far advanced for some of these libraries to shift to a further class software program called the VTLS (Bozimo, 2007).

Thus, from literature, it is obvious that ERs emerged as a result of the development of automated systems to store information and also as a result of the desire of libraries to make information readily available to those who needed them.

### **The Concept of Electronic Information Resources**

Electronic resources, as a notion, describe those electronic information resources that are accessed digitally by consumers from within the library or external to the library through a computer system (Shim & McClure, 2002). Reitz (2004) described an ER as a resource comprising information and/or computer programmes encrypted to be interpreted and manipulated by a computer by means of an external system directly linked to a mainframe, like a drive on CD-ROM, or distantly linked through a system like the web. The component comprises programs for apps, digital texts, bibliographic databases,

academic libraries, websites, e-books, e-journal collections, etc. ERs are not readily open to the public, but generally require licencing and verification.

Electronic information resources are defined by IFLA (2012) as those materials which need computer accessibility namely via a desktop computer, supercomputer, or smart phone. They may be accessible from anywhere through the web or nearby and certain commonly found forms are e-journals, e-books, complete transcript (accumulated) repositories, indexing and abstracting records, citation repositories (bibliographies, glossaries, manuals, encyclopaedias, etc.) numerical and quantitative folders, e-images, e-audio pictorial services. From literature, ERs can simply be described as those resources that can only be accessed using technological systems like computers, phones among others

### **Types of Electronic Information Resources**

Information is the foundation on which every society's survival depends. It remains the key ingredients in policymaking and helps to reduce the level of doubt. Information and its application date back to the dawn of time. Undeniably, communication cannot be possible without information. The acceptance of technology has contributed to the abundance of information resources that are accessible electronically. CD-ROM databases, electronic mails, e-books, e-journals, articles, journals, theses, dissertations, newspaper, OPAC and web surfing are all ERs that are probably to be the alternative to print news (Oduwole & Akpati, 2003). Access to electronic books and journals, as well as databases and search engines, has been made accessible via the internet, which is the most renowned of these sources. These are all examples of electronic sources. The majority of these ERs are utilized for reading and

research. Certain ERs are closed-access, which means that the institution must pay an access fee in order for its students to have access to the online resources (Oduwole & Akpati, 2003).

### **Electronic Journals**

They are digital editions of print journals, or journal-like, non-print, digital publication, which is accessible over the internet, through e-mail, or through other avenues of online connectivity. According to AACR2 (2008), a journal is a publishing in any format in which pieces are released one after the other containing numeric or sequential classifications and intended for indefinite continuation. Reitz (2004) also identified an electronic journal as a website that is graphically based on an established text journal (e.g., Library Journal) or allows access to the online journal that does not have a print equivalent (Electronic Journal of Differential Equations). The fast-growing cost of membership to paper journals has caused many libraries to seek electronic substitutes.

Thus, electronic journals are print journals in digital form which is accessed through the web or through the use of a computer.

### **Electronic Information Database**

Gray (1976), defined a database as a structured set of information or data that is typically accessible in computer readable format. Generally, they are made available for use by on-line or off-line search services. These search services have computers and software that facilitate retrospective search of one or more databases in order to locate information or references in answer to a specific query. Some databases are defined by the type of information they hold, for instance, words, figures or content. Word-oriented database provides the raw

data in word or text, while numerical databases also known as databanks include figures, symbols, sequence, tables and graphs. As stated by Wright (1990), the development of database can be traced to when computers first came into use. According to him, experimental databases were created to explore their potential for storing and searching for data at very high speed. The medium on which databases were stored was the magnetic tapes, usually searched sequentially.

By 1960s, magnetic disc was used for random access of data. Accordingly, Giovannetti and Meissonnier (1987) reported that the National Aeronautics and Space Administration (NASA) and the Defence Department, USA between 1963 and 1965 pioneered the production of the first databases. The National Science Foundation also funded the production of databases in Chemistry, engineering and physics by not-for-profit organizations. Database processing during this period was done in the batch mode. That is, retrieval questions were collected from many users into one batch and then matched against a database all at one time in a sequential search. The service offered by the centres was called selective dissemination of information (SDI). It was provided for users whose interest profiles were maintained by the information centre.

From the literature, it is realised that electronic information databases which are data sets in digital formats became very popular with the advent of computers and other software that made it easy for information to be stored and later retrieved for use.

## OPAC (Online Public Access Catalogue)

During the late 1970s and early 1980s, library OPACs first appeared and has progressed through many phases of change and growth. The OPAC's fundamental aim was to create a library collections database that included online catalogues to support users quickly locate and discover resources. In view of current technology, the importance of OPAC has begun to be challenged. “At one point in time, the electronic catalogue was among the vanguard of online service technology. In fact, the OPAC was probably the inspiration for many of the cutting-edge services we find on the Internet today” (Fox 2007, p. 242). An OPAC (Library Index) is an online repository of information maintained by a library or a group of libraries. It is a free digital library catalogue that's open to the public. Many OPACs are open to users all around the world via the Internet. To find books and other content physically stored at a library, users scan a library catalogue mainly.

Taken together, OPAC is the collection of content or information by a library or community of libraries that is accessed by the use of a computer using the internet.

### Electronic Books

An E-Book is based on the emulation in an electronic format of the basic characteristics of traditional books. A specific article or a multi-volume collection of books in a digital composition may take the form of an e-book that enables reading on different forms of monitors, tablets, and individual computers (Umar, 2015). An electronic book, according to Reitz (2002), is a book written or typed on a keyboard, or transformed by scanning or some other operation, from print to digital (machine-readable) form, for showing on a

computer screen. An e-book can be downloaded at any period, wherever through the Internet, permitting access to the information through no device but a personal computer, and copyright protection is also assured irrespective of whether the information is viewed via the Internet or via a portable reader that enables offline access to the book.

It has been observed that in the 21st century, students lay more emphasis on using electronic books rather than the hard copy or print (Umar, 2015). And this occurred as a result of the benefits that electronic books had over the printed version, including quick fast access to the information; accessibility on demand; cannot be lost, stolen or damaged; search capabilities within a book and across a set of books; links to other tools, including dictionaries and thesauri; no requirements for physical space; no requirements for devices to access the materials; accessibility to material using well-known web browsers; personalised search interfaces; easily moved; and accessibility from any location (Umar, 2015).

Thus, books that are saved in a digital format are known as electronic books and are accessed by the use of a computer through the internet and can be downloaded or retrieved anywhere at any time.

#### **CD-ROM Databases**

A laser-read (also called optically read) data storage system is a compact disc (CD) on which audio, video or textual content can be preserved (Rouse & Sullivan, 2017). The CD-ROM (Compact Disk Read-Only Memory), used to store computer text programme, is one of the applications for CDs that are essential for information dissemination. Usually, up to 250,000 A4 typewritten pages (550-600 megabytes) can be contained on a CD-ROM in digital form on

a disc of just 4.7 inches (11.98cm) in size (Rouse & Sullivan, 2017). The whole of the Encyclopaedia Britannica corresponds to this storage space. The record is a sort of Plexiglas and aluminium sandwich. Scratches or blows, fingerprints, extreme temperature conditions, or dust, a distinctive African concern, are practically impossible to harm it. When the disc is made, the data is permanently stored. The record is not influenced by a magnetic field or electromagnetic waves. Once burned in, the consumer cannot modify the details. If power cuts occur, no information is lost. Texts, figures, graphs and digital images can be recorded on CD-ROM (Rouse & Sullivan 2017).

In library and information systems, CD-ROM innovation has influenced a share of debate. This is attributed to its immense benefits. A CD-ROM study of European libraries by Nelson (1990) sees Europe as the quickest increasing CD-ROM market. He estimates that universities account for 80% of CD-ROM operators universally. Wright (1990) summed up the outlook of CD-ROM as follows: CD-ROM may well demonstrate to be singularly the most successful aspects of developing countries' use of information technology. It does not rely on costly facilities like telephone grids or massive computer systems. In the United States and Europe, the compact disc has found its way into libraries, so it is imperative for the emerging countries to retain this interesting project as well. CD-ROM database services are also not new to African university libraries.

The CD-ROM services at the University of Ibadan and the University of Agriculture Abeokuta were described by Mosuro (1996) and Oduwole and Akpati (2003) in Nigeria; Nawe and Nwakilama (1994), Solange (1995) and Kiondo (1997) of Southern Africa also explain the perspective of the University



of Dar es Salaam in the provision of CD-ROM services. From the literature, a CD-ROM database can be described as a system in which data or information is stored on a compact disc (CD) for use at a later date without the fear of losing one's data or information.

### Online Databases

It was widely pointed out by Giovannetti and Meissonnier (1987) that bibliographic databases (on-line or CDROM) emerged as a spinoff of the digitization of published abstract journals, and that the publication of most foreign organisations such as FAO, WHO, CAB International, etc. constitutes valuable knowledge for the 1972 on-line files. In line with the above, Gray (1976) described the Online Database as a collection of bibliographic data saved on a computer or central computer, and by the use of soft wares, historical search is made feasible from a remote computer terminal. Many people can search the record at the same time via time-sharing. Distance, thus is no barrier. The procedure according to him was to type on the terminal keyboard a request for a search on a particular topic. The machine replies immediately by displaying a list of citations. If these citations were not exactly what are required, the search request can be modified and a new list obtained.

One of the first organizations to make use of on-line information database as pointed out by Alan (1984) was the US National Library of Medicine. This was followed in the mid 1960's and beyond by a number of groups who set up databases and On-line facilities. Examples are the Lockheed and SDC (System Development Corporation) BRS (Bibliographic Retrieval Service) BLAISE (British Library Automated Information Services) Info line and ESA (European Space Agency). Online search techniques can be carried

out by either author, title of publication, subject area or keyword. Any of these methods will display the relevant information a user can choose from. Thus, an online database can be referred to as the collection of bibliographic information which stored digitally or with the aid of a computer and accessed using the internet.

### **Digital Libraries**

A digital library, according to Aina (2004), is an electronic library that replaces print books with electronic information and services. According to IFLA (2012), a digital library is an online collection of quality-assured digital items that are produced or compiled and handled in accordance with globally agreed collection creation principles and made available in a clear and sustainable way, backed by services required to enable users to obtain and use resources. A digital library, with related resources, is a managed collection of content wherein the material is kept in electronic forms and available over a network (Arms, 2000). According to Trivedi (2010), a digital library refers to the electronic provision of digital documents related to online resources, based on the tasks of a conventional library that allows its database to be accessed worldwide through the internet. As a result, a digital library is mostly made up of digital resources and services that are stored and processed on digital devices and then sent across computer networks.

A digital library, according to Ojedokun (2007), is described as containing internet electronic databases, www, CD-ROMs and proprietary services such as Dialog, Info America, etc. Therefore, instead of building and combining human resources and information technology tools, a digital library is seen as a collection of full-text and bibliographic data sources, it is also seen

as a gathering of digital representations of data material, along with hardware, software, and employees to assist the work of a conventional library in addition to professional activities such as searching, browsing and navigation. The benefits of a digital library are numerous. These include: accessibility; availability; search ability; research ability; text, picture, sound and video integration; infinite computer ability to store a large amount of information; abundance of easy information that is directly appropriate to all subjects; many users can access information from multiple locations concurrently from a solitary electronic site; and duplicates of information sent with intense speed (Neal, 1999; Sloane, 1997).

The National Library of Medicine in Bethesda, United States, with its ground-breaking application of computer-controlled picture arrangement or computer formatting in the creation of Index Medicus in 1964, may be said to have begun the development of digital libraries. In the progression from printing on paper to computer electronics, this was a transformative stage (Neal, 1999; Sloane, 1997). The way libraries work as information, including full-text, can now be downloaded twenty-four hours a day from laboratories, offices and homes, has radically changed digital resources. There is a transformation of conventional print collections into flexible ERs. A growing preponderance of libraries across the globe developed interest in digital library projects in the early 1990s, and support for digital library studies grew significantly to millions of dollars (Neal, 1999; Sloane, 1997).

Digital library research and expansion became strongly dependent on fully integrated digital systems at the beginning of the century. The importance of digital libraries is also being discussed in reference to virtual learning

environments (Neal, 1999; Sloane, 1997). Such research activities and developments are increasing the development of digital content stores, resulting in an abundance of new information services that are readily available and useable by great sections of the world's populace. It is becoming progressively apparent that all media will turn out to be digital, satisfying Lancaster's prophecy that print-on-paper will inevitably hand over to electronics, somewhat entirely, whether we like it or not. The cost of obtaining information is expected to drop with the removal of printing and delivery of analogue items. For textbooks, inventory, storage, and returns are said to be 45% of the bill.

From the literature, a digital library is a library in which all resources available at the library are in digital format and these resources are accessed electronically using a computer over a network.

### **Availability and Awareness of Electronic Resources in Higher Educational Institutions**

Strategic planning, organization, and administration, according to Bosu (2000), entails the efficient management of facilities and resources. As per Bosu (2000), technical facilities at institutions of higher learning must first be made accessible before they can be used. The availability of Internet facilities denotes whether or not the Internet is available for students to utilize. According to Bosu (2000), educational technology is all about the appropriate kind of accessibility to utilize or the capacity to reach or obtain the available technology for usage, in this case, the Internet. The issue is thus whether a certain technology is accessible to learners and adaptable enough for the target demographic. Accessibility becomes a criterion for determining whether or not to use technology.

Educational technology services, such as the Internet, available and accessible in higher education institutions can be analysed from three key points of view, according to Bosu (2000). First, it may be seen as a course of study that is available and accessible. Second, it may be viewed as a helpful method for educators and educational administrators to use when dealing with educational issues. The third point of view is the accessibility and availability of various sorts of technical equipment and facilities (Bosu, 2000).

Again, according to Lawason (2005), it is critical for students to acquire some fundamental information technology skills in order to profit from the ever-increasing inventive features of e-resources. This will facilitate and increase their capacities. This, he argued, would go a long way toward putting them (students) in a better position in a technology-driven climate where conventional libraries are taking a backseat, resulting in improved learning methodologies.

In addition, Adeniran (2013) conducted a research that observed certain e-resource collections in the University of Redeemer Library, including: online sources, online databases, CD-ROM, OPAC and e-journals. Bassi (2011) investigated gender disparities in the usage of ERs in Adamawa State University Libraries, Nigeria and the outcome revealed that the internet stands out as the utmost commonly utilised e-resource in the three libraries depicting 392(41.5%), whereas e-books and e-journals follow with 165(17.23%) and 125(13.09%) as a portal to other e-resources, E-theses and essays that have a regularity of 18(1.88%) are the least responses, which may be due to a limited number of postgraduate students in this research.

Again, to assess the existing published and digital resources at the Babcock University Library, a research by Aina, Mutula and Tiamiyu (2008) disclosed that the university library was equipped with both current print and ERs, which greatly facilitated and promoted teaching and research at the university. From the report, examples of some of the ER databases subscribed

to by Babcock University library include: Academic Journal, AJOL, BOOKBOON, Dissertation and Theses, HINARI, EBSCO host, SAGE etc. According to Aina, Mutula and Tiamiyu (2008), awareness of both students and faculty of the ERs the library had and sufficient information and knowledge of ways to access and use the e-resources the library had subscribed to contributed positively to research, teaching and learning. They are encouraged to use them as the need emerges once customers of a library have sufficient information about the kind of resources available at the library.

Graduate students are extremely devoted consumers of electronic information resources for their academic studies and research, according to Liu (2006). Studies by Abubakar and Adetimirin (2015), Swamy and Kiranmai (2013) and Sinha (2011) demonstrated that the internet, databases, e-journals and online catalogues (OPACs) are the primary digital sources for academic and research purposes when it comes to graduate students.

In addition, Sukula (2010) noted that databases, e-journals, e-books, e-news, e-image, collection of e-music and sound, data/GIS, educational commons, e-reference, and topic guides are all examples of e-resources used in tertiary institution libraries. It should be noted that the advent of electronic information resources has greatly changed the handling and organisation of information in educational settings in Nigeria, exclusively in institution libraries

(Ani & Ahiauzu, 2008). The method in which information is provided to university groups has undergone substantial changes as a result of these significant disparities. Egberongbe (2011) clarified that in Nigeria, a range of ingenuities have been placed in position for ERs. This is intended to assist a variety of academic institutions in the creation, training and utilization of ERs.

The Morlenson Centre for International Library Services for example, works as a representative of the MacArthur Foundation to assist certain nominated university library grant holders.

Concerns about whether instructors and learners have enough and easy access to computers and their components, much less the software required in the sense of their everyday research, collaboration, teaching and learner's assessment, are central to the availability claim (Fabry & Higgs, 1997). In addition, learners and teachers ought to trust these facilities, which also depends on the reliance or degree of the facilities to which instructors and students are assured of having access at all anticipated periods and use them certainly to enhance their scholarly work (Means & Haertel, 2004).

Successful incorporation of ERs in schools entailed the networking of an entire organisation to guarantee access to rich digital and studying resources through the institution's intranet and the internet anywhere learners and faculty are in or out of organisation. In most subjects around the school, computer labs (resource centres) and lecture room computers ought to be adequate in quantity to provide complete access for learners and teachers. A broad variety of outlying and far-off operational devices are offered and unified into the syllabus, including video-conferencing. There are readily accessible great and slight community demonstration facilities (School Net Africa, 2004). In spite of the

aforementioned condition, most African establishments encounter obstacles to the fruitful incorporation of ERs in the teaching and learning process; restricted set-up relative to acceptable structural standards of laboratories and resultant access to ERs by learners (Singh, 2002).

Numerous profitable and scholarly educational multimedia creators have concentrated mainly on access to and display of knowledge (Singh, 2002). It is simple to see, however that interactive program has enormous ability to increase the vibrancy with which data may be portrayed, as well as the convenience with which it can be retrieved. The main difficulties in studying are not always the inadequacy of information or resources. With that information, the issue has extra to do (Schank & Kass, 2014).

ICT accessibility and use enable learners to investigate the real world more thoroughly (Grégoire, Bracewell & Laferrière, 2014). Outside the classroom, they can access information sources more readily and may examine and evaluate such data with the use of tools. Information can be retrieved using internet platforms or data sorting systems (Riel, 1998). They can get feedback and improve their comprehension thanks to innovations and develop current data and move from institute to non-institute environments (Committee on Learning Science Development, 2000). Owing to technical difficulties and the volume of materials to be covered, all of which can now be addressed with ERs, this has been problematic to offer in schools in the old days. It enlarges and deepens what can be learned (Grégoire et al., 2014).

A survey was conducted by the US National Centre for Education Statistics (NCES, 2010) to observe the evolving trend in computer and Internet access at US institutions. Benchmarks such as the student-to-computer ratio and



the number of Internet connections at universities and lecture rooms were investigated. The study's purpose was to identify university internet connectivity, including lecture hall internet access and types of internet connections, computer and internet access for students, including student-to-computer ratios, and student-loaned laptop computers. Furthermore, the research looked at how internet connectivity may be used to create diverse teaching and learning experiences. Details on key metrics of university Internet accessibility was requested by the Internet access survey. Universities were questioned if they had internet access and the amount of lecture theatres that had access to the Internet on at least one device and the kinds of Internet connections they had. Information on the number of internet access lecture halls was also put together with statistics on the total number of university lecture theatres to measure the proportion of internet access lecture halls. The results of the research exposed that almost 100% of colleges in the United States had connection to the Internet. This was contrary to the 35% Internet access stated by NCES (2006).

No major variations in university Internet connectivity were found in 2005 with respect to any university features. This was consistent with details stated by NCES (2006). Since 2015, there have been almost no discrepancies in university access to the Internet according to university features (Parsad & Jones 2005). Constant progress has been made by public universities in improving Internet connectivity in lecture halls. The survey found that compared with 3% in 1994, 94% of state university lecture halls had Internet connectivity. The number of lecture theatres with Internet connectivity ranged from 88% to 98% across university features.

The use of the conventional library is gradually becoming a distant memory, according to Bamigboye and Agboola (2011), as majority of graduates take advantage of low-cost, recent information accessible through the internet. In a poll done by Bamigboye and Agboola (2011), 300 participants were randomly chosen from the University of Ibadan and the University of Lagos. To gather data from the respondents, a questionnaire was used. This includes staff from academics, non-teaching staff, and graduate students. A total of 280 participants correctly answered the questionnaire, reflecting a return rate of 93.3%. The outcomes of the research confirmed that the mass of participants found that the university's internet was accessible from many locations on campus. The teaching, non-teaching staff, and graduate students utilized the internet for teaching, learning, study, research, and decision-making. Teachers motivated learners to apply the internet to search for materials and resources. The objective of the university was to provide acceptable and unhindered internet access on both campuses. There were also privately managed cybercafés located near the campuses. Furthermore, the study showed that the libraries studied lived up to the standard of their users particularly in providing access to the internet and other e-resources but does not imply that they do not have deficiencies.

The MacArthur Foundation, USA, gave the University of Ibadan a virtual library, and Mobile Telecommunication Nigeria (MTN) gave the University of Lagos a virtual library, enabling these university libraries to serve users effectively. The research recommends that universities must have a consistent supply of electricity to ensure that universities' internet services can be consistent and dependable.

Bamigboye and Agboola (2011) also argued that through Public Private Partnership (PPP), universities should partner with NGOs to give them lots of virtual libraries. In addition, librarians should train users to navigate to the Internet and the library's e-resources. Government support for universities should be raised so that users can access the full service of the Internet. Ugah (2008) opined that information sources are readily available and accessible at the Michael Okpara University of Agriculture, Nigeria, and the use of library facilities. Ugah (2008) distributed 200 questionnaires to the university's graduate students out of which 168 respondents returned the questionnaire, offering an 84% return rate. The study's findings indicated that information sources were not readily available, and that there was a link between information source availability and library service use. The application of library services relied on each variable for about 80%. Furthermore, the results revealed that outlets of information such as the Internet are not readily available and that there was a major gap between connection to the Internet and the usage of the library. The Internet's accessibility accounted for 79.8% of library use, while the availability of resources accounted for 81.0 percent. Almost all of the postgraduates admitted that sources of information such as the internet were difficult to get by, which contributed to their dissatisfaction with the university's library services.

A research undertaken at IIT Roorkee, India by Tyagi (2011) on the degree of awareness and use of electronic journals suggested that consumers had information of electronic journal availability, but several of them used e-resources as a supplementary means of using information. This research concluded that practically all customers were mindful of the library's digital

journal collection and had used them for a variety of reasons.

A study by Ahmad and Panda (2013) to assess if university lecturers were aware of the library's repositories and other e-resources internal and external of the library and to attain full use of them revealed that most lecturers were aware of the e-resources and used them. Some deficiency of awareness and use of library-specific resources such as e-theses, patents and CD-ROM repositories were also verified in the report. Most lecturers were also found to agree that e-resources were very beneficial and imperative to their job.

In a research by Borrenco et al. (2007) at the Catalan University in Spain on awareness levels of ERs by students, 95.3% of respondents reported their awareness of the presence of electronic journals in the university, with 52% using them in their academic pursuits. At the University of Madra, similar study conducted on teacher and student knowledge of and usage of ERs by Chandrakumar (2009) and Tezpur University by Saikia & Gohain (2013) in India also revealed greater awareness and use among teaching staff and researchers.

Even though the level of awareness was high, in the surveys done by Chandrakumar (2009), Borrenco et al. (2007), studies on demographic profile across academic disciplines showed more science sponsored electronic journals rather than humanities and social sciences. Borrenco et al (2007), further state that there had been proof that a large percentage of teaching and research staff were aware of the collection of ERs in their institutions and that the electronic format was a required choice to the disadvantage of the paper form, especially in the advanced world.

Furthermore, Swain and Panda (2009) and Madhusudhan's (2010) study on the utilization of ERs in India by undergraduate, postgraduate and professional librarians revealed that Google was the greatest dominant search engine for electronically locating information.

Similarly, a research on the accessibility to and use of library resources by postgraduate students at the Nigeria State University of Technology was carried out by Oyewusi and Oyeboade (2009). To reflect the least number of students visiting the library on a monthly basis, a total of 600 participants were chosen. Using an identifying number for each library user, the questionnaire was randomly distributed to library patrons during the survey period. With the exception of CD-ROMs, other electronic sources, such as electronic books, electronic journals, and the Internet, were not available to participants, according to the study's findings.

The findings of Oyewusi and Oyeboade (2009) support Ugah's (2008) assertion that information sources were scarce at the Michael Okpara University of Agriculture in Nigeria, and that there was a link between the availability of information sources and the use of library services. Ifeoma (2012) researched the influence of the internet on final-year graduate students at the University of Covenant in Ota, Nigeria. The goal of the study was to see how much Internet access and use Covenant University's final-year graduate students had. The resolve of this research was also to determine the students most widely used search engines and ultimately to discover the influence on the study and use of the Internet on the research work of Covenant University's last year students.

From the literature, it is obvious that making e-resources available for use by students and faculty required effective planning, organisation and

administration of resources and the provision of internet facilities. Again, the availability of e-resources at an institution's library does not guarantee its use if students and faculty are not aware of its existence. Also, there is also the need for students and faculty to have some basic level of technological skills after awareness has been created to enable them access the e-resources when needed.

Studies (Aina, Mutula and Tiamiyu, 2008, Swamy and Kiranmai, 2013, Liu, 2006) revealed the availability of e-resources at all the universities they studied even though the usage of the various resources available varied from one university to the other. This perhaps maybe as result of the various programs of study being pursued and taught by the students and faculty who participated in the studies.

### **Factors that Affect the Availability of Electronic Resources in Higher Educational Institutions**

Although environmental issues such as competition pressure, government assistance, the help of internet vendors and perceived socio-economic factors are identified by Macharia and Nyakwende (2009) as the problems that have an impact on embracing and circulation of the Internet in a higher learning institution. Likewise, according to Bosu (2000), the technological presence of a higher learning institution is substantially determined by a variety of external and internal forces, such as political weight, economic status, and user attitudes. The availability and usage of technological resources in a university, such as the Internet, may be modified by political power (Bosu, 2000). He believes that what is utilized in the university is controlled by a certain party, such as the government or the university authorities.

Khati (1999) agreed with Bosu (2000) that partisan power can decide the availability and usage of technology in institutions of higher education. Khati (1999) clarifies that in socio-economically and educationally less developed countries, higher educational institutions founded, sustained and funded by the government have been subjected to a great deal of examination and oversight. Khati (1999) also argued that the government also regulates universities established by acts voted for by parliament and funded by government funds, both monetarily and politically.

Khati (1999) further claimed that in addition to choosing the university's executive director, the government regulates the university's organisational and decision-making capacity, thereby encouraging the use of technological facilities. In 2012, the Ghanaian government, for example, pushed the use of ERs by offering laptops to learners and instructors from basic through higher education levels through the Ministry of Education. Some teachers and students at various levels of education in Ghana who have never owned or operated a computer may now do so to some extent.

Livingston (2000), claimed that there were certain points of view that endorsed the practise of government influence over the organisational and policy-making dealings of establishments of higher education. Such understandings are founded on the assertion that organisations with some form of partisan influence will move further effortlessly towards achieving their objectives. Livingston (2000) assigned political power to two sources of the university's decision-making procedure: political leaders and the government. The former is made up of elected representatives, educated politicians and education boards, and the latter is made up of national and homegrown

government bodies. The former has the authority and control to establish official priorities, strategies, and general strategies, while the latter affects the organisations' financial and human resources.

The structure of a university organization gives the top executive significantly more decision-making power (Bergquist, 2002). Internally, it is centralized, but externally, it is tightly controlled. Macharia and Nyakwende (2009) show that the reasoning for government assistance for technology dissemination is based on market and broad malfunction implications.

Governments are also encouraging, according to the OECD (as reported in Macharia & Nyakwende, 2009) the dissemination of technology to boost public investment returns and improve institutional and industrial efficiency. Initiatives for the dissemination of government technology in OECD nations have changed from programmes for the transmission of precise innovations personified in apparatus and associated expertise to enhance the capacity of institutions and businesses, particularly minor and medium-sized businesses, to consume innovation and to enhance productivity.

The results of Macharia and Nyakwende (2009) indicated that there are different forms of potential government funding that can be given at the level of the environmental context, like tax breaks for ERs and first-class charges for institutions of advanced education for Internet bandwidth. Furthermore, the results indicated that offering these forms of help would lead to higher use of the Internet and more successful studying by learners. Appropriate government assistance included both the required strategies and regulations to deliver students with sufficient ERs to access the internet and a welcoming macro atmosphere or community that supported the use of the Internet as part of



tertiary education. When a new technology is implemented on a large scale, according to Thomas and Kobayashi (1987), as recounted in Bosu (2000), the underlying objective is frequently political.

While previous governments in Ghana have recognised the need to incorporate brand-new technology into the education of essential skills providers in disciplines such as teaching, engineering, medicine, and accounting for accelerated social and economic growth, according to Akora (2011), they also expressed dissatisfaction with the expense of delivering higher education and their failure to serve as the only financiers of higher education institutions due to monetary restrictions, as well as the fact that other important areas of the economy needed to be addressed.

Following that, Akora (2011) reiterated that Ghana's government has indicated expressly that it does not want to be the exclusive investor in higher education. The government's position places a significant financial strain on higher education institutions to offer cutting-edge facilities that facilitate teaching, learning, and research while also keeping up with changing higher education delivery patterns.

According to Akora (2011), low-income countries like Ghana are still attempting to transition from "upper class" to "mainstream" higher education enrollment while simultaneously attempting to become more economically competitive in the global market. Again, he claimed that such countries are often under pressure to meet the increased demand for higher education internet infrastructure. Governments are frequently forced to implement austerity measures in their respective countries when the global economic situation worsens. The withdrawal of utility subsidies and substantial reductions in

subsidies to state institutions, particularly institutions of higher learning, are common examples of measure of spending cuts. As a result of all of these austerity measures, higher educational institutions are receiving dramatically decreased financing, and government financial support for technological integration is rapidly dwindling. This has an impact on the availability and use of Internet resources in higher education institutions.

The availability and use of e-resources in institutions of higher learning can be disputed, based on the findings of the literature, is only possible when there is commitment or the political will by governments of the various countries to invest heavily in the technological infrastructure needed to set them up. Thus, when a government of a country decides not to prioritise the funding of technology infrastructure in higher education institutions, there is no way ERs would be available at such educational institutions hence its usage by students and faculty would also be affected. On the other hand, if governments commit every resource at their disposal to the development of technology infrastructure in higher education institutions, then ERs would be available affecting its awareness and usage.

#### **Access to Electronic Resources in Universities**

A research on internet access and usage among medical undergraduate and postgraduate students of the Medical College in Medhya Pradesh in India was conducted by Chhari and Chakole (2015). The goal of the study was to find out how medical students access and utilize the internet. Out of the 507 undergraduate and 127 graduate students, the cross-sectional study revealed that 76% of undergraduate students and 93% of graduate students who received the survey questionnaire submitted it.

The great majority of participants (87%) reported to have internet user abilities and awareness, according to Chhari and Chakole (2015). When asked if they own a computer, nearly 365 (72%) of the respondents said yes. A closer examination of the data revealed that postgraduates (89%) possessed personal computers compared to undergraduates (67%) who did not. When asked what their primary reason for using the internet is, undergraduates (74%) listed email/chatting as their primary reason, while postgraduates (60%) cited dissertation work as their primary reason. The students (89%) selected slower internet speed as the most significant issue they encounter while on the internet. The research showed that most of the medical students in this investigation had sufficient internet access and used it for both personal and educational purposes. Furthermore, the research revealed that sufficient education ought to be provided to graduate students to enable them to learn the skills required to retrieve useful information from specialized medical databases and the internet itself. Students should be encouraged to double-check information by comparing it to current evidence.

Bola, Olaniyi, and Oyekorke (2012) studied how easy it was for graduate students at the University of Lagos in Nigeria to access and use the internet. The descriptive study set out to determine how accessible online resources were to university personnel and students, as well as how internet access points influenced their utilization, variables that motivated the use of the internet, as well as what the University of Lagos graduate students used the internet for. Bola et al. (2012) provided questionnaires to 200 respondents from the institution's faculty of education who were chosen at random. According to the findings, post graduate students did not have as much access to the internet as

employees did (27.7% and 62.4%, respectively). Furthermore, 47.9% agreed to use the cybercafé for internet access, according to the findings of the survey.

Also, 53.1 % and 50.2 % concurred that their key driving factors for surfing the internet were closeness to cybercafé and effective knowledge from the internet. About the use of the internet, the scrutiny revealed that 71.0 %, 31.8 %, 39.3 %, 47.4 %, 18.5% and 39.3 % concurred, overall, that they used the internet for course registering, evaluation of admission, collection of existing literature information, understanding and upgrade of knowledge, exchanging emails, access to social media among others. The researchers therefore proposed that because the internet is utilized in many aspects of human life, including education, finance, medicine, and other fields, educational institutions should have adequate resources to make the internet more accessible to users.

According to Cobblah (2014), the consortium or bundle access had been the most acceptable access model to many institutions because institutions got more information for their little budget available and were also able to achieve a better cooperation between libraries. This model also helped the consortium to get funding from external institutions. From the consumer's perspective, many organisations offered connectivity by a gateway – an interface designed to link to various publishers of journals without the end-user having to move through publishers - by offering the opportunity to both browse and search by keywords, titles, abstracts, authors' names, journal titles, etc. Some of these organisations offered advanced searching, including natural language searching and concept searching.

Davis (2004) also revealed that most of these systems take a simple approach to indexing based on retrieving words by article titles, abstracts, journal titles and publishers' names. Selected articles were either downloaded onto the users' desktop, hand-held devices such as iPads, mobile phones, or delivered by fax or e-mail. It was interesting to note that end-users did not only rely on the gateway for information; many used generic web search engines, mainly Google.

Agaba (2014) provided an evaluation of the use of electronic information services from Makerere University by academic personnel and university graduate students. The research required participants to provide explanations why they use the internet and the advantages of using the internet were linked to this. Study results showed that 72 (91.1 %) said that their studies have improved by the internet and they typically use it for research. This included retrieving recent reviews of literature, personal studies, and exposure to the academic world's new research developments. For instructional purposes, 43 (54.4 %) used the internet, while 33 (41.8 %) used it for planning presentations and conference articles. Others listed the availability of books, the ease of communication and the acquisition of knowledge through courses and programs as the benefits of utilizing the internet.

Bhatti and Mohammed (2014) investigated graduate students at Pakistan's Nishter Medical College's comprehension of internet use. The study focused on postgraduate students at Nishter Medical College (NMC) in terms of internet use, motivations for using the internet, and challenges encountered when using the internet. It also explained how postgraduate students supplement their learning by using numerous health-related websites and databases. The

research was focused on a systematic analysis of literature and a pre-tested questionnaire administered among 210 graduate students. The success rate (80 % of total) was really satisfying. The results confirmed that many of the respondents used the internet. Furthermore, the outcome proposed that participants always used the internet for educational reasons. They also utilized it for research, to get up-to-date information, to get health information, and to have fun. They also used the Pubmed database and MedScape, and sometimes PakMediNet. The participants specified that they still utilise the internet for intentions of instruction (mean= 4.52). They said that they used it for up-to-date knowledge, they often use it for research, to obtain information about their wellbeing and recreational activities. Furthermore, they reported that they occasionally use it to browse the internet for general information, such as sports information and news, and that the internet service on their campus was satisfactory.

In addition, the questionnaire included a list of search engines and the postgraduate students were requested to rank the use of these search engines in searching for important information. The findings revealed that the Google search engine was first graded (mean=2.61) and used to look for data on a regular basis. The search engine Yahoo placed second (mean=1.93) and was used to search for information on a weekly basis. Lalacos.com (mean=1.00) was the lowest ranking search engine application. Also, the research revealed that the issues encountered by postgraduate students include challenges in locating authentic information on the internet, slow internet speed, and costly internet subscription of the latest article. The participants also mentioned internet unavailability and load shedding in their departments as major issues they face.

Owing to a complete lack of search abilities, shortage of time, and even the necessary information is not easy to access to some degree, are also problems they faced. The research concluded that postgraduate students need awareness, orientation and training to use various databases to search for academic data.

Larbi (2008) explored the usage of information and communication technology facilities by workers at the University of Cape Coast. Among other items, his observations were that, while information and communication technology infrastructure were highly available at the University of Cape Coast, limited computers were linked to the internet, hence internet access was minimal. Individuals who required internet connection had to get it from somewhere else, such as a commercial cybercafé near the institution. E-mail was also discovered to be the most widely utilized software program in the survey. E-mail was utilized to interact with co-workers and many others on campus.

Larbi (2008) deduced that the difficulties found with internet usage at the University of Cape Coast, such as slow internet speeds and power outages, are comparable to those faced by graduate students in India (Charri & Chakole, 2015) and in Pakistan (Bhatti & Mohammed, 2014), participants said load shedding was one of the biggest challenges they faced when it came to using the internet.

Larbi (2008) went on to say that when it came to collaborative academic and collaborative research, internet utilization was low. This assumption contrasts sharply with that of Pakistani medical students, who heavily rely on the internet for research. In particular, Larbi asserted that internet use at the

University of Cape Coast was poor. Kwafoa, et al. (2014) noted that ERs are not generally accessible for unauthorised use.

At Ashesi University College, Dadzie (2005) explored the access and use of ERs. The research showed that while the overall use of computers for information access was grand owing to the state-of-the-art IT facilities of the university that let students interact appropriately between themselves and their instructors, the use of academic databases was very poor. The lack of awareness of the nature of these library services was due to this.

Research by Ajuwon (2003), analysing health science students' use of ERs at the Ibadan University College Hospital also showed that the use of the database was weak. This stood owing to a shortage of awareness, the inaccessibility to technology, the deficiency of suitable instruction and the high cost of providing the internet. For most institutions in Ghana, financing has been a big obstacle to the growth and delivery of the internet. The issue of financing, according to Ikem and Ajala (2000), is the key restriction of the implementation of ERs in libraries. They were of the opinion that the question of financing is more than just the purchase of hardware and software, but in order to maintain it, upgrading and servicing are very important.

Israel's B.Ed. students' attitude to computers was examined by Mizrachi and Shoham (2004). Text processing, accompanied by games, spreadsheets, the internet and coding, was the primary computer use. In reference to computer behaviours, no major variations were noted in gender, age and year of learning classes. Greater computer use, on the other hand, leads to more positive opinions toward computers.



548 students from health schools in Iran were studied by Ghabili and Alizadeh (2008). A greater number of participants were acquainted with electronic health education resources, 72.3% had a personal computer, 91.6% were using the internet, and 78.8% had an e-mail address. Uribe and Marino (2006) examined 162 learners at the School of Dentistry, University of Valparaiso, Chile, to study the usage of ERs among respondents. The research showed that there was accessibility to a computer for all the participants. Also, the research found that 96.4 % used the internet. Most of the learners had residential internet access (73.4 %). E-mail (92.2 %) and search engines (88.3 %) were the most commonly used internet pages accessed by participants on a roughly regular basis. Nevertheless, few participants (21.1%) used the internet for their research to check for dental details.

In addition to the above, Smith and Oosthuizen (2006) at two South African universities examined the behaviour of first year students regarding computers. The findings demonstrated a better knowledge of the benefits of computers, fewer anxieties about the computer's domination, and a more reasonable attitude toward computers. According to the findings, less time should be spent on the curriculum in order to encourage students to comprehend the benefits of computers and, more importantly, the internet, as well as to dispel fears about computer technology. Gay (2006) looked at management students at the University of the West Indies in Barbados. In their educational climate, the participants primarily expressed favourable perceptions in the direction of the use of computers and more specifically, the internet. Learners (92%) were more inspired to use computers to type homework, 95% of them indicated they use the internet to help them with their academics, email teachers' questions

(90%) and 68% distance education from home. In terms of gender and age, there was no substantial difference in the attitudes of the participants towards internet usage.

In addition, 174 male and female students from the School of Education at the University of Guam were examined by Inoue (2007). The study showed that the behaviour of learners to information technology were substantially positive. The research concluded that there were no gaps between women and men and among various academic status groups in students' discernment of computer technology involvements. This supported the results of the research by Gay (2006), which showed that the participants primarily conveyed favourable feelings when it comes to the usage of the internet. It is also worth noting that neither study found any differences in gender views about the internet. I am also interested in exploring gender gaps between faculty and students at MUCG while using the internet. Gay and Inoue can also be verified or refuted by the results of my analysis.

Divaris, Polychronopoulou and Mattheos (2007) examined the disposition of Greek postgraduate learners regarding the internet, the results showed favourable attitudes of participants towards the need and significance of the internet for the practising dentist as well as the relevance of ERs in the dental curriculum for academic complement. 2/3 of the Greek postgraduate dental students concurred on the assertions of internet behaviours from the report, while there was no unfavourable reaction.

In tertiary education students in Singapore, Teo and Lee (2008) noticed a very substantial level of favourable internet behaviours. The research additionally specified that there stood no major gender alteration in computer

attitudes, while male students displayed more optimistic computer attitudes than female student peers. In computer behaviours, there were also substantial variations between participants who individually own home computers and participants who do not. Learners who possess home computers have also reported a significantly lower degree of computer discomfort than those who do not.

The use of electronic technology among British students was assessed by Conole (2008). This study found that British students were learning to maintain their learning in a dynamic, fast changing environment that included a wide range of ERs. According to Conole (2008) possession of personal computers among British students is high and the students have been trained by school authorities to be able to extract information by electronic means. The evidence showed that students used technology to help every facet of their studying procedures; interacting with instructors and other learners; maintaining their institution records up-to-date; discovering and handling academic materials; reviewing information and conducting assignments and presentations. 800 students from Tabriz University of Medical Sciences in Iran were examined by Ghabili and Alizadeh (2008). The research found that computers were used for less than an hour a week by around 45% of graduate medical students.

Internet communication (80%) was the most influential use of computers. Nonetheless, a third of the 320 individuals who used the internet did it for fun resolves. Furthermore, around 35% indicated they regularly connected to the internet to respond to e-mails, and 5% said they read digital newspapers, according to the study. Also, 32 % of the participants described the internet as

a significant resource for looking for medical papers. Almost 40% indicated that when they were surfing the internet, they visited medical sites. From 1986 to 2005, Popovich, Gullekson, Morris and Morse (2008) contrasted behaviours regarding internet use by graduates. The research found that over the past two decades, the value and use of the internet has increased significantly. In their behaviours towards the internet and the amount of time spent online, males and females no longer register significant variations.

From the literature, the majority of students and staff who took part in the numerous research at their separate institutions said that they were aware of the availability of e-resources at their libraries and that they accessed these e-resources for both personal and academic reasons. This was mainly due to the availability of internet on the various campuses of the universities, thus enabling students and faculty to achieve their core mandates. However, other studies brought to the fore some of the factors that hindered access to e-resources by students and faculty. Some of the factors included slow internet speed, unavailability of internet access and power supply interruptions. These hindrances were perhaps because of inadequate investments in the needed infrastructure in these universities thereby affecting access and thus prevented students and faculty from achieving their core mandates.

### **The Use of Electronic Resources in Universities**

Bola, Olaniyi, and Oyekorke (2012) claim that university education was designed to build a full intellectual competence of autonomous learning and research. Prior to the use of ICT for information gathering, management, and distribution, university research, teaching, and learning were confined to information on the basis of resources made accessible to the library of students'

institutions or by extension, on the basis of inter-lending materials. Per globalisation through the internet, nevertheless, according to Carbo (2003), the globe was diminishing, resulting in the longevity of information. It was also possible to construct digital services, and information could be shared swiftly. The method of gathering and sharing knowledge for higher education had moved from physically accessible prints to virtual reality e-materials.

As a consequence, Agboola (1993) stressed that any effort at an effective educational communication could only be accomplished through the usage of the internet, which supplied real-time and space-based information. Diem (2007) illustrated that four key performance measures could assess the result of technology development: profitability, competitive position, benefit (or stable national budget) and the relevance of postsecondary education in this period cannot be overstated in terms of production (efficiency). In addition to developing and disseminating information, tertiary educational institutions applied knowledge to societal and economic problems. In addition, they organised research in an innovation environment that could confirm the three essential study success factors: efficiency, relevance and longevity, and the internet played a deciding role in all these functioning and performances.

Over the last few decades, university libraries have increased in their efforts to continue to play an important role in supporting higher education and research, according to Kwafoa, et al. (2014). With the invention of the internet and the worldwide web, electronic platforms for both learners and university administrators had become a widely accepted learning resource. In the way modern companies and organisations worked, technical advancements had introduced profound changes, and university libraries were the same

everywhere in that regard. The manner universities collected, stored, organised, extracted and shared information had been affected by the internet (Sharma, 2009). Electronic libraries had become indispensable to the whole development of any institution owing to modern storing media and novel platforms for distributing information (Tomescu, 2009). Owing to its ability to offer goods and services to a wide intended market regardless of their territorial position, the internet had significantly influenced scholarly interaction (Egberongbe, 2011).

The internet had become extremely valuable in ensuring successful information retrieval and distribution, as reported by Sharma (2009), which had become of paramount significance to current higher education. The conventional library had been transformed by new technologies into computerised, electronic, interactive and digital libraries (Saeed & Sheikh, 2011). Some conventional university libraries had now been converted into integrated libraries that stored the majority of their resources in both paper and digital forms. In order to satisfy the needs of its consumers, these libraries sought to balance the constraints of both traditional and electronic libraries.

As Wu (2005) justifiably stated, libraries could not oppose relevant information as knowledge brokers because of their distribution template, but instead must try to exploit their strong points and give awareness to users about their weak points. ERs were very important resources that complemented print-based resources, according to Dadzie (2005). In particular, postgraduate students and distance students who may have had restricted access to library resources in old-style formats have also admitted to it been very supportive (Egberongbe, 2011; Sharma, 2009).

In addition, a study by Ansari and Zuberi (2010) to examine the use of ERs by faculty at the University of Karachi to determine the purpose and ability of use indicated that ERs were the best way for educators to have latest and up-to-date information and were mostly used for research and lesson planning. That being said, they noted that rates of use were limited due to networking difficulties and inadequate training. Again, the study findings of Ansari and Zuberi (2010) revealed that despite the acceptance of ERs by majority of the academics, they still regarded some ERs especially e-journals as less reliable and only considered those published by authentic organisations or websites as being authentic and reliable even though the researchers however did not provide any clues as to which organisations or websites the respondents considered authentic, or what qualified an organisation or website as one.

It was clear that MUCG paid for the subscription to these databases with considerable amounts of money yearly. But the funding of these electronic databases was usually considered minimal, since most students and faculty either did not know or were not enthused about the availability of electronic databases in the library. In addition, Kwafoa et al. (2014) pointed out that several researchers have widely recognised the importance and relevance of ERs such as the internet for teaching and learning.

Journals played an important role in academic communities, according to Schaffner (1994), as they fulfilled the ultimate objective of building a common knowledge base, transmitting information, verifying research quality, awarding incentives, and developing scientific communities. Several educational institutions in Ghana had been actively developing extensive online full-text journal collections and were continuing to expand accessibility to

different online repositories. By CARLIGH, most of these educational organisations were able to sign up at much cheaper rates to online journals and databases compared to individual subscriptions.

As a result of these findings in the literature about the use of ERs in higher education institutions, it could be argued generally that e-resources supported students and faculty in their teaching, learning and research activities. Again, the use of e-resources had led to the distribution of relevant information and research findings among scholars which has resulted in the ability to verify research quality and the building of a common knowledge base. However, despite the use of e-resources by students and faculty in most higher education institutions, its use in some higher education institutions were limited due to networking difficulties and inadequate training maybe due to the availability of the required infrastructure and human resources to solve some of the technical challenges faced.

### **Challenges Faced with the Usage of Electronic Resources in Universities**

The use of ERs among administrators and graduates at the University of Cape Coast was examined by Kwafoa, et al. (2014). The survey's outcome showed that 19.31% of participants described a lack of proper instruction in using the internet as a significant obstacle facing them in accessing learning resources online. Although, 35.92% listed the sluggish nature of the internet at the University of Cape Coast as a significant difficulty they encountered in using the internet, 8.45% of participants described the absence of information about tools and techniques used at the University of Cape Coast to search and retrieve e-resources as their key obstacle in using the internet. Kwafoa et al (2014) rightly called for an intensification of awareness-raising and education



at the University of Cape Coast on the accessibility, affordability and use of online academic databases.

Also, another research by Singh (2002) on the problems faced by libraries in higher institutions in the end-user distribution of ERs indicated that regardless of the benefits of ERs on education in the field of science and teaching and learning, most institutions in Africa encountered obstacles to the successful integration of ERs in teaching and learning. A number of the roadblocks were a lack of infrastructure in terms of acceptable laboratory physical conditions and learners' eventual access to technological resources.

Likewise, Agaba, Kigongo-Bukenya and Nyumba (2005) investigated Makerere University's academic staff's use of electronic information resources. The research described the inadequacy of internet skills, inadequate infrastructure and slow speed, bandwidth efficiency or accessibility as the key problems facing ER consumers. Agaba et al (2005) specifically mentioned that it is not only important to make people aware but also upgrade the current internet facilities in order to make the internet more dependable and user-friendly in order to induce increased usage of ERs.

Chhari and Chakole (2015) indicated that the main problem encountered when browsing the web was found to be the slow speed of the internet, both among undergraduates (66%) and postgraduates (37%). The increased cost and poor software development of the computers were other factors. A research conducted by Bhatti and Mohammed (2014) disclosed that postgraduate students faced issues such as difficulty accessing reliable information on the internet and slow internet speeds. The outcome also revealed that it was costly to subscribe to the newest journal on the internet. Furthermore, the participants

referred to internet unavailability in their department and power outages as main challenges. Due to a lack of online search skills, a lack of time, and the fact that vital information was frequently not available on the internet to some degree were also some of the difficulties encountered.

An evaluation of the usage of electronic information services at Makerere University was made by Agaba (2014). Deficiency of existing infrastructure, slow speed or weak bandwidth, inadequate awareness creation or restricted advertising, inadequate ICT, the study identified as factors influencing the utilization of electronic information services at Makerere University. Other variables summed up in the study were the siting of certain faculties. For instance, veterinary and human medicine faculties and others farther from the University Library; shortage of agreed timelines for computer laboratories; resource centralization; inadequate time; database insignificance; restricted database subscription; inaccurate information labelling; library choice for inexpensive electronic information resources; poor access to databases using passwords; limited use of floppy disk to retrieve information; and briefness of information.

Ray and Day (1998) and Borgman (1997) suggested that in order to make use of the growing diversity of ERs, students must learn and practice the skills necessary to harness them. Dutton (1990) indicated that the abilities needed to optimise the capacity of ERs for searching for published information are far higher than those needed. Such abilities comprised awareness of the database layout and the guidelines that the seeker must insert into the computer, and also an appreciation of the manner in which guidelines are connected to each other. Furthermore, Ray and Day (1998) found that in order to easily

identify and recover information was a convenient ability valuable for imminent career, besides allowing ERs to be used positively and efficiently while at a tertiary institution.

An important research by Ali (2005) in India on the use of ERs by undergraduate, postgraduate students and other university staff revealed that the most frequently used search facilities were Boolean operators and truncation. In addition, the key factors that deterred people from using electronic information services were the absence of printing facilities, terminals, and skilled personnel. The research also discovered that when searching e-resources, about 60% of users encountered challenges. A research by Oduwole and Akpati (2003) to examine the accessibility and retrieving of electronic information at the University of Agriculture Library, Abeokuta, Nigeria also found out that despite high demand, limited power supply, limited terminals available for use were the restrictions that inhibited accessing and retrieval of electronic information resources by both faculty and students at the institution.

Agaba et al (2007), found that the lack of facilities was another challenge faced by users of electronic services, resulting in library congestion. Ibrahim (2004) stated that the irrelevance of search results from databases was among the reasons that could hamper the usage of ERs. Similarly, the quality and verification of ER content and the accessibility of library websites too were some of the challenges. Ashcroft and Watts (2005) claimed that there was a weak computer communication system that could be perceived as bad connectivity, resulting in limited usage of such resources. Similarly, Tenopir (2003) posited that despite the fact that the benefits surpassed the apparent drawbacks or concerns as use grew and more resources became accessible,

consumers still complained about the pain of reading from a screen or low visual quality. This was supported by Palmer and Sandler (2003) who noted that users of ERs preferred reading from paper printouts.

The least listed variables were irresponsibility, unwillingness to print from the library, and the university's minimal resources to provide the appropriate infrastructure for each department. As the primary concern faced by users, the insufficiency of equipment for use was reported, contributing to congestion. Weak computer networking systems and bad bandwidth had been described as huge problems that contributed to unfavourable university usage of internet resources.

Agaba (2014) concluded that the usage of electronic information resources was hampered by a range of reasons and issues. He claimed also that looking at other surveys revealed that such difficulties were destined to occur, particularly in developing countries where the procurement of many of these internet resources depended entirely on the sponsorship of donors. From the literature, it can be argued that even though e-resources played a very important role in the dissemination of relevant information and research findings as well as the fact that its use by students and faculty promoted knowledge transfer, certain factors resulted in its frequent use despite the constant demand for them. Some of these factors included limited power supply, poor internet connectivity, inadequate training, absence of printing facilities and skilled personnel. Thus, some educational institutions still struggled in securing the needed funds to invest in the relevant infrastructure required to make e-resources easily accessible for use by students and faculty. These factors resulted in a decrease in the demand for e-resources as well as its use.

## Chapter Summary

Ever since the introduction of prototype computer systems set up during the 1960s for the storage and retrieval of bibliographic data, electronic information resources have been commonly used in academic institutions. An educational institution uses ERs to manage the retrieval and storage of information needed for the smooth running of the teaching, learning and research process to ensure its goals and objectives are achieved. In meeting its educational targets, the institutions library has effective roles to play. This chapter explored the historical context of electronic information resources, the concept of electronic information resources, the types of electronic information resources, the availability and awareness of ERs in tertiary institutions, reasons influencing the availability of ERs in tertiary institutions, accessibility to ERs in tertiary institutions, tertiary institution's use of ERs, the difficulties encountered regarding the use of internet in tertiary institutions and the upgrades that can be implemented. Overviews of the TAM and the TRA have also been presented. This chapter revealed that ERs could only be accessed and used in educational institutions when there were strong internet connections, access points and computers.

As humans, we only make use of technology after we have considered its perceived usefulness (PU) and the perceived ease of use (PEU) of such technology correspondingly. Thus, a person's good insight of technology acceptance leads to such a person showing positive attitudes towards the use of such technology.

Additionally, there were several categories of electronic information resources which could be accessed and used by faculty and students in

educational institutions. Numerous studies conducted by researchers focused on the access to and use of ERs by staff and students in educational organisations. However, this study sought to ascertain the awareness and usage of ERs by faculty and students of MUCG to promote the smooth running of the teaching, learning and research process. This was with the aim of finding out whether the situation at MUCG was different or supported the empirical researches in this chapter.



## CHAPTER THREE

### RESEARCH METHODS

#### Introduction

This chapter explains how the study was carried out using a methodological strategy. The research design, study area, population, sample and sampling technique, data gathering instrument(s), data collection procedures, and data analysis were all covered in this chapter.

#### Research Design

The exploratory sequential mixed methods design was used in the study. A series of methods is used by researchers in this design to sequentially collect qualitative data followed then by quantitative data, analyse the qualitative data sets first before analysing the quantitative data sets. According to Creswell and Clark (2014), the intention or reason for adopting this mixed method design is for the quantitative data to build on the results of the qualitative data thus the choice of the qualitative research aspect of exploratory sequential mixed methods design aids in a better understanding of the quantitative research elements in order to generate a thorough and legitimate knowledge of the awareness and use of accessible ERs by MUCG students and teachers.

The quantitative component of an exploratory sequential mixed methods design was favoured because it did not only help to identify important issues when needed or to test the validity of qualitative findings on a wider population but also ensured the development of sound quantitative instruments and to a large extent the active engagement of the population under research in the refinement of research instruments and measurements, hence boosting the

ecological validity of these instruments and methods (Andrew & Halcomb, 2009).

The exploratory sequential mixed methods approach used in this study aligns with pragmatism's philosophical principles. Pragmatic researchers recognize that there are many different ways to see the world and conduct research, that no single point of view can ever present the full picture, and that there may be multiple realities. As per Sandelowski (2000), mixed methods research, which combines data gathered from many approaches, produces research claims that are stronger and have the ability to persuade policymakers.

As a result, qualitative information in the form of revelations from an observation guide was elicited for analysis. The data collected helped in understanding the problem under investigation and to also know the areas and themes to further seek information on. The quantitative data produced from self-administered questionnaires distributed to MUCG students and teachers on the study's objective was supplemented by the analysis of quantitative data derived from self-administered questionnaires on the study's purpose. The quantitative data helped to explain the areas and themes derived from the qualitative data for better understanding of the problem. Thus, the exploratory sequential mixed methods approach was chosen since, in addition to assisting in ensuring and assuring the objectives of confirmation, its application clearly ensures that the study's conclusions are not based on rumours but rather on evidence acquired.

### **Study Area**

The MUCG, which is the site of the research was founded in the year 2000. The University sits on a twenty-hectare campus situated to the southerly end of the Wesley Grammar School Complex at Dansoman, under the



jurisdiction of the Ablekuma West District Assembly in the Greater Accra region. There are two additional campuses at Tema in the Greater Accra Region and Wenchi in the Bono Region. MUCG was given authorisation by the National Accreditation Board in August 2000. The MUCG is affiliated to the University of Ghana (Methodist University College, 2019). This affiliation to the University of Ghana was accepted in October 2002. The University College was established with the aim of promoting and developing academic excellence, religiousness, principles and service in the Ghanaian society. They aimed to accomplish this by imparting knowledge and skills in fields related to nation-wide growth in the sense of overall global development, while ensuring the student's overall emotional, physical and spiritual development on the basis of Christian values (Methodist University College, 2019).

According to the management of the University, these objectives could only be accomplished if the management of the University provides facilities for research, teaching and learning in similar branches of knowledge as the University College might wish to promote. This according to the University management would encourage students to gain the benefit of a liberal education, taking into an account the desires of the nation's workforce; promoting the development of knowledge and its real-world application to social, cultural, economic, scientific and technological issues by research and other means.

Again, they aimed at improving the capacity of students to think objectively and aspire to achieve the maximum principled, social standards and exceptional appealing sensitivity; creating opportunities for eligible applicants to undertake university education regardless of their race, gender or religion. This the management sought to achieve by providing students with the finest

educational, professional and real-world training, as well as the advancement of the spirit of entrepreneurship and innovation; encouraging students to recognise the significance of being industrious and the decency of work. Stimulating curiosity in students and the recognition of African values and custom by the students especially through teaching and research; and encouraging them to succumb their existence completely to God so that their existence represents Christian ideals, morals and beliefs, as well as neighbourly love, integrity, modesty, and nation allegiance are also goals the management sought to attain (Methodist University College, 2019).

At MUCG, management believes that ordinary people have great potentials, and each day they strive to build opportunities to fulfil that potential. With this purpose, MUCG graduates are pursued across the country and beyond with business owners acknowledging that candidates are not only academically well trained, but have also learned how to work efficiently, think logically, resolve issues, cooperate, and create a change in their own lives and in others (Methodist University College, 2019).

The University College has five (5) Faculties. According to the Methodist University College Basic Statistics (2019), these include the Faculty of Business Administration, Faculty of Arts and General Studies, Faculty of Social Studies, Faculty of Informatics and Mathematical Sciences and the Faculty of Applied Sciences. The University College can boast of over twenty-five (25) programmes for undergraduate, graduate and professional study. The University College can boast of 340 staff and 3,000 students.

## Population

Ofori and Dampson (2011) define population in a study as mainly the universe of units from which the sample is to be chosen. Again, population is a term used to describe a large group of people that meet a chosen set of criteria which is usually stated in theoretical terms are selected (Neuman, 2003). The population for the research included faculty and students of the MUCG. The total population of students at MUCG is 3,000 while the total number of staff both teaching and non-teaching staff is 340. Out of the number of staff 58 are teaching staff and 282 are non-teaching staff. For the purposes of this research, the teaching staff was primarily employed in this study because they had the requisite knowledge and information on the awareness and usage of available ERs at the MUCG. Thus, in all, 3058 respondents constituted the population for this study as they were the ones who could provide adequate information regarding the problem under investigation. The breakdown of the students and faculty population are shown in Table 1.

**Table 1: Distribution of the Study Population across all Levels and Faculty**

Level of Students	Population
Level 100	558
Level 200	440
Level 300	375
Level 400	322
Level 600	620
Level 650	685
Faculty of MUCG	58
Total	3058

Source: MUCG Website (2019)

## Sampling Procedure

Sample simply refers to the practice of learning about a study population based on a component taken from it (Cohen, Manion & Marrison 2013; Nsowah-Nuamah, 2005). Sampling in research is very important because it specifies how participants in a research are chosen and to whom the study's findings are applied and generalized.

Taking into consideration the overall purpose, research questions posed, research design selected for this study, the sample size of 405 was calculated using the sample size determination table developed by Krejcie and Morgan (1970). There were 347 students who took part in the survey, as well as 58 teachers who participated.

The sample of student respondents was selected from a population of 3000 carefully chosen using the sample size determination table by Krejcie and Morgan (1970) predicated on a 05 error margin and a 95% level of confidence. According to Krejcie and Morgan, a sample of 341 respondents is estimated for a population of 3000 respondents. However, in order to ensure the research's dependability, the researcher felt it was necessary to expand the sample size from 341 to 347 in order to account for the possibility of some respondents failing to complete the questionnaire. The estimated sample size was considered large and appropriate for the research. The larger the sample size, the lower the risk of generalizing findings to the entire population (Saunders et al, 2009).

The proportional stratified sampling approach was used in the first phase to choose participants based on their proportion in each level. Prior to selecting the sample, the researcher have the option of dividing the population into two or more important and substantial strata based on one or two numbers of

characteristics using the stratified sampling process, which is a variation of random sampling (Alston & Bowles 2003). Stratified sampling also deals with either taking equivalent numbers from each stratum or choose in proportion to the population's stratum scale (Ary, Jacobs & Sorensen, 2010). As a result of the students grouped into levels and programmes, the proportionate stratified sampling was used. The sample of 347 respondents was derived proportionately to the population of respondents in each of the levels. This approach ensured the unbiased representation of students at all the levels. The second phase employed the use of the simple random sampling approach to choose the needed stratified sample size for students from all levels. This approach produced a total of 347 respondents.

Because the population was relatively large and comparable in the features under study, a simple random sampling technique was chosen to allow the selection of a characteristic group of each section of the population. The formula consisted of the total number of students at each level divided by the institution's entire target population and multiplied by the sample size. For example, the overall number of students in level 100 was 558, the total student population was 3000 and the desired sample was 347. Therefore, the number of level 100 students for the study was  $558 \div 3000 \times 347 = 64.5$ . Thus, a total of 65 students were chosen from all the level 100 students. The same formula was used to choose the other students from the various levels. So, the number of level 200 students selected was  $440 \div 3000 \times 347 = 51$ . Consequently, a total of 51 students were chosen from the level 200 student population. For level 300 students, it was  $375 \div 3000 \times 347 = 43.3$ . Therefore, the total level 300 students

selected was 43. This formula was recurring for all the other students selected from the various levels.

The grouping of respondents into various strata for a study guarantees that the sample correctly imitates the larger population based on the standards used for the separation while the simple random sampling technique guarantees that each participant of the larger populace has a chance of being chosen to avoid bias and unwanted effects. According to Sarantakos (1998), this procedure is used since it affords all the units in the populace an impartial chance of being represented in the research. Using the simple random sampling approach afforded me the opportunity to get the true representation of the respondents across all the levels without any form of bias. This approach also increased the degree of representativeness and subsequent generalisation of the research results over the whole populace. Accordingly, the data collected from the study helped in generalising the findings over the entire population since the respondents chosen had the desired features and also considerable information on the issue being studied.

The lottery method associated with the simple random sampling technique was adopted to randomly pick the respondents. In using the lottery method of sampling, the researcher established a sampling frame which comprised an alphabetical list of names of students in the various programmes based on their level. The names listed in the sampling frame were then assigned with numbers. These numbers were then written on sheets of paper and these papers folded. They were then put in a small container, mixed carefully and the numbered papers randomly picked without replacing the picked papers. The number on a paper chosen was recorded to match to a student name on the list.

This procedure was repeated till the desirable number of participants was chosen. This approach was continually done at all the levels to choose the 347 respondents and to certify that all students at the respective levels had an equal opportunity of being chosen. The choice of the sample size was proportional to the entire number of students at every level.

On the part of the members of the teaching staff, the census survey was employed. A census is a means of gathering and recording information on all members of the population in a systematic manner (Fowler, 2013). Due to the nature of the study, the census was considered suitable for the research considering the number of faculty at the two campuses of MUCG. The total number of teaching staff was 58; thus, they were all employed for this research. Even though the study envisaged using the entire 58 teaching staff in the study, due to some unforeseen circumstances encountered by some of the teaching staff, only 50 teaching staff participated in the study. Three (3) faculty members were on an official assignment outside the Greater Accra Region with two (2) other faculty members on sick leave. The remaining three (3) faculty members did not take part in the research study as a result of personal problems they did not want the researcher to know about. The distribution of the sample of students and faculty is shown in Table 2.

**Table 2: Distribution of Sample of Students and Faculty across the levels**

Level of Students	Sample
Level 100	65
Level 200	51
Level 300	43
Level 400	37
Level 600	72
Level 650	79
Faculty of MUCG	50
Total	397

Source: Field Survey, Adjepong (2020)

### Data Collection Instruments

The data collection was done employing an observation guide and a self-administered questionnaire. The observation guide contained three columns. The first column contained the research question for which answers were being sought. The second column included a list of ERs which the researcher wanted to know if they were available at the MUCG library with the third column having empty spaces where the researcher could write notes regarding the items being observed. The purpose of this guide was to help the researcher ascertain whether there were ERs available at the MUCG library.

The questionnaire, on the contrary, contained closed-ended questions. According to Maxwell (2013) studies that attempt to explain why a phenomenon happens are by their very nature highly organized, necessitating the use of structured primary data gathering methods. Questionnaires were the research instruments that were employed for data collection. A questionnaire is a formalised set of questions given to respondents to collect data (Malhotra & Birks, 2007). Questionnaire surveys are maybe the most commonly used data collection procedure in research and can be employed to estimate problems that



are essential to the administration and growth of business organisations (Malhotra & Birks, 2007). The closed-ended questions needed participants to select from a specified array of answers and encourage participants to analyse every potential answer independently of the additional option. The closed-ended items use checklist-a list of actions, attributes or other identities examined by the researcher-and Likert scale-which is extra helpful when conduct, disposition or further variables of interest that is being studied ought to be measured in a range (Leedy & Ormrod, 2010). The use of questionnaires rather than interview methods has significant benefits (McColl, 2007). It makes data collection easy and facilitates data processing although it is time consuming (Patten, 2014).

The questionnaires were made up seven sections: Section A, B, C, D, E, F, G. Section A consisted of personal and demographic information on gender, position and academic qualification. Section B aimed at finding out the availability of e-resources, and Section C assessed the awareness of faculty and students regarding the availability of e-resources at MUCG. Section D wanted to find out the kind of training programs organised for faculty and students on the access of e-resources at MUCG. Section E aimed to find out how faculty and students accessed e-resources while Section F assessed the use of e-resources by faculty and students at MUCG. Lastly, Section G examined the challenges faced by faculty and students in the access and use of e-resources. Section D, E, and F used a four-point Likert scale using answers extending from strongly disagree (1) to strongly agree (4) that elicited respondents' opinions on the awareness, and usage of available e-resources at MUCG. The Likert scale is among the most commonly used procedures to measure behaviours and views (Ary et al, 2002).

When examining an instrument, reliability and validity are two important factors to examine. Validity, according to Pallant (2001), describes a criterion that accurately represents the notion it is supposed to measure. Validity is also defined by Mugenda and Mugenda (2003) as the precision and purposefulness of generalizations that are based on study data. To ensure face, content and construct validity, a staff and principal supervisor from the IEPA of the University of Cape Coast were approached to review the items to see if the contents in the questionnaires were correct and observation guide measured the intended content. This is in agreement with what Borg and Gall (1989) stated about an instrument's content validity that is strengthened by expert judgement.

The face validity of the questionnaires in this study was also improved because of the pre-testing that was done. The goal of doing a pre-test was to ensure that the questionnaires utilized were clear and adequate, and that any question that needed to be changed was changed to improve the quality of the research instrument. To ensure reliability of the instrument, I pre-tested the questionnaires using fifteen (15) lecturers and fifteen (15) students at Valley View University in the Greater Accra Region. The pre-testing sought to address the of question whether the questionnaire reliably measures whatever it is supposed to measure. Furthermore, members who answered the questionnaires were informed to cite the parts of the questions that they thought was irrelevant. This enabled the content of the questionnaires to be re-analysed to remove the unnecessary questions. All these were done to help me test the reliability and validity of the study instruments.

After pre-testing the questionnaire to ascertain the consistency of the instrument, the data collected were analysed and the Cronbach's alpha realised

for every Likert scale item. The reliability co-efficient for items in section D, E, and F were .756, .760 and .798 respectively (see Appendix E). However, the overall reliability co-efficient for all the items in sections D, E and F was .771 indicating that the internal consistency in the Likert scale items was very high. These reliability values, as per Cohen, Manion and Morrison (2007), show that

the reliability is adequate as a result, the conclusion that the instrument was reliable enough to be employed in the main study was reached.

### **Data Collection Procedure**

An introductory letter from IEPA was obtained to seek for authorisation from the Registrar, Dean of Students, Heads of Faculties and Departments and Senior Librarian of MUCG to undertake the study. The purpose of this introductory letter was to solicit collaboration and to develop a connection between the researcher and the responders, who were the study's primary participants.

Prior to the day of observation at the MUCG library, I had a meeting with the Senior Librarian to agree on an appropriate day and time to undertake the observation. During the day of observation, the Senior Librarian took me round the library with my observation guide in hand showing me the ERs available. I made notes in my guide while touring the library which helped me to gather adequate information regarding the ERs at the library. Also, before the circulation of the questionnaires to respondents, the purpose of the study was initially communicated to the participants. The participants were also assured of secrecy and anonymity of their answers. Questionnaires were distributed to respondents (both students and teaching staff) by the researcher. In all, 347 students responded to the self-administered questionnaire with 50 faculty

members also responding to the self-administered questionnaire out of the 58 faculty members contacted.

### **Data Processing and Analysis**

According to Cohen et al. (2007), data analysis encompasses arranging, accounting for, and explaining the data; which indicates making sense of the information with respect to participants' definitions of the situation, recognising sequence in themes, classifications and commonalities. In this study, research question one was thematically analysed with descriptive statistics adopted to analyse research questions two to five that were formulated to direct the research. Descriptive statistics was used because it enabled me to analyse and describe the data for the purpose of addressing each precise research question in the research (Pallant, 2005). The analysis process involved collecting the instrument to be checked with corresponding questionnaire numbers to see whether the participants answered all of the questions.

Then, the test items were coded. Thirdly, after coding, the information was then entered into the Statistical Package for the Social Sciences (SPSS) version 23.0 for the data to be analysed. Descriptive statistics specifically pie chart, means, frequency tables, bar graph and standard deviations were employed to analyse the data collected. This was due to the fact that according to Boone and Boone (2012), descriptive statistics are appropriate for analysing the responses to items on Likert scale questionnaire particularly using the mean to measure for the central tendency and standard deviations for variability. Table 3 shows the research questions and the statistical tools employed in analysing them.

**Table 3: Research Questions and How they were Analysed**

<b>Research Questions</b>	<b>Analysis Done</b>
What electronic resources are available for use by students and faculty of Methodist University College?	Thematic Analysis
What electronic resources available at the Methodist University College library are faculty and students aware of?	Frequency table was determined using the SPSS
In what ways are electronics resources at the Methodist University College accessed by students and faculty?	Means and standard deviations were determined using the SPSS
In what ways do faculty and students at the Methodist University College use electronic resources to support teaching and learning?	Means and standard deviations were determined using the SPSS
What challenges do faculty and students at the Methodist University College face in their attempt to have access to and usage of electronic resources?	Frequency table was determined using the SPSS

Field Survey, Adjepong (2020)

The decision rule for using the means and standard deviation in the analysis was that a mean of 3.5–4.0 was regarded as strongly agree, a mean of 2.5–3.4 was perceived as agree, and a mean of 1.5–2.4 and 0.1–1.4 was perceived as disagree and strongly disagree, respectively. In general, agree and strongly agree were grouped together as agree, whereas disagree and strongly disagree were grouped together as disagree.

Also, in using the standard deviation for the analysis, the decision rule that was followed was a standard deviation of 1 or greater than 1 was declared as responses diverged considerably from each other while a standard deviation of less than 1 meant the responses did not diverge considerably from each other. The summary of these rules is shown in Table 4 and 5.

**Table 4: Decision Rule for Means Values**

Means	Scale
4.0-3.5	Strongly Agree
3.4-2.5	Agree
2.4-1.5	Disagree
1.4-1.0	Strongly Disagree

Source: Field Survey, Adjepong (2020)

**Table 5: Decision Rule for Standard Deviation Values**

Standard Deviation Values	Interpretation
1 or greater than 1	Answers diverge considerably from each other
Less than 1	Answers do not diverge considerably from each other

Source: Field survey, Adjepong (2020)

### Chapter Summary

This chapter outlined the methodological strategy that was used to ensure that the research conclusions were well-supported by the data presented in the study. The study employed the exploratory sequential mixed methods design which helped to collect qualitative data followed by quantitative data. The chapter also captured the study area, population for the study, sampling procedure, data collection instruments, data collection procedure, data processing and analysis. The population of the research constituted 58 faculty and 347 undergraduate and postgraduate students of the Methodist University College but only 50 faculty members participated in the study. A sample of 397 participants was carefully chosen for this research using proportionate stratified

sampling technique and census. Finally, the qualitative data gathered was thematically analysed while the quantitative data was coded and analysed using descriptive statistics namely: means, frequency tables, and standard deviation.



## CHAPTER FOUR

### RESULTS AND DISCUSSION

#### Introduction

This chapter covers the data analysis and discussion of the study's findings. The study gathered information to examine faculty and student awareness and use of available ERs at Methodist University College (MUCG) in Accra. The first section of this chapter presented and discussed information regarding the demographic characteristics of the research participants. Following that, a sequential presentation and discussion of the primary findings that came from the study questions posed follows.

#### Demographic Characteristics of Respondents

This section specifically deals with the presentation and discussion of the demographic data of both students and faculty of Methodist University College who partook in the study. Altogether, 397 respondents participated in the research. The number comprised 347 students and 50 faculty members. Figure 1 and 2 presents the gender distribution of the students who answered the self-administered questionnaires and the faculty members who also responded to the self-administered questionnaires separately.



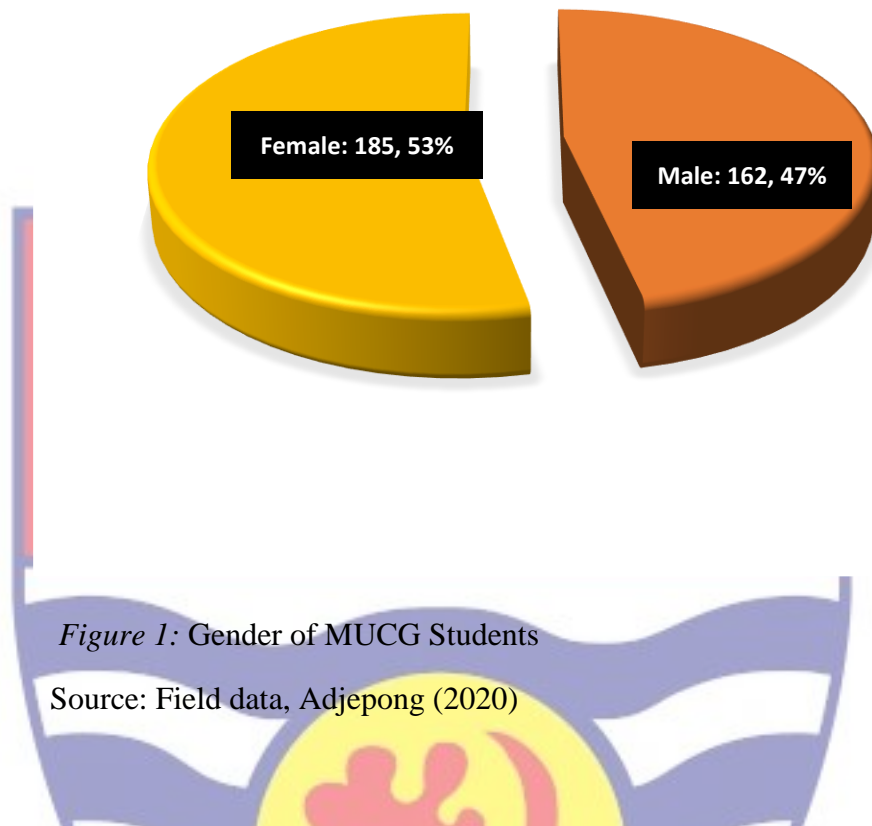


Figure 1: Gender of MUCG Students

Source: Field data, Adjepong (2020)

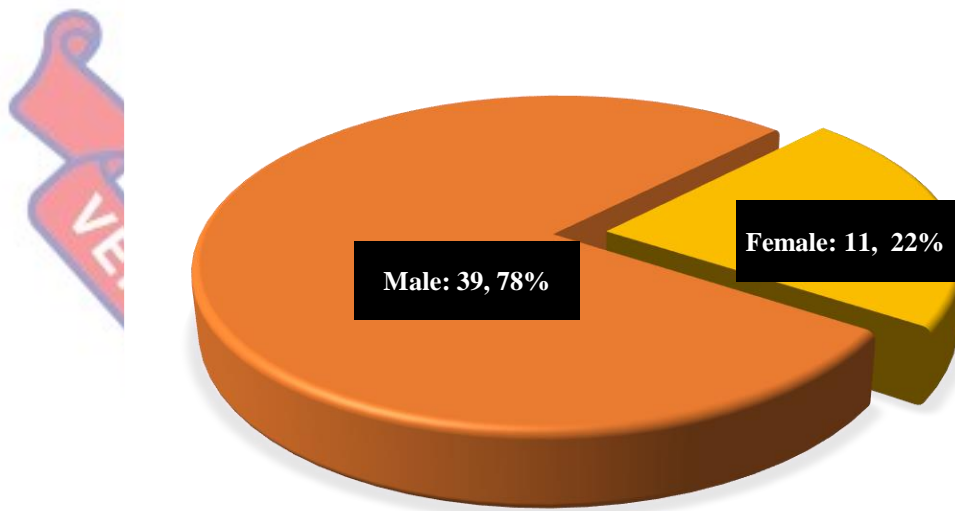


Figure 2: Gender of MUCG Faculty

Source: Field data, Adjepong (2020)

It is noticeable from Figure 1 that the involvement of females was higher (n=185, 53%) than their male counterpart (n=162, 47%) and this was very refreshing. This is an indication that Methodist University College is admitting more females with the aim of training them to become change agents in their immediate community and the country at large and also to help bridge the gap when it comes to males and females accessing tertiary education. However, from Figure 2, the majority (n=39, 78%) of the faculty members involved in the study were males with only a few being females (n=11, 22%). This is due to the fact that there are more males than females applying to the University College on a regular basis for appointment as teaching staff.

Figure 3 shows the age distribution of students of MUCG who participated in the study.

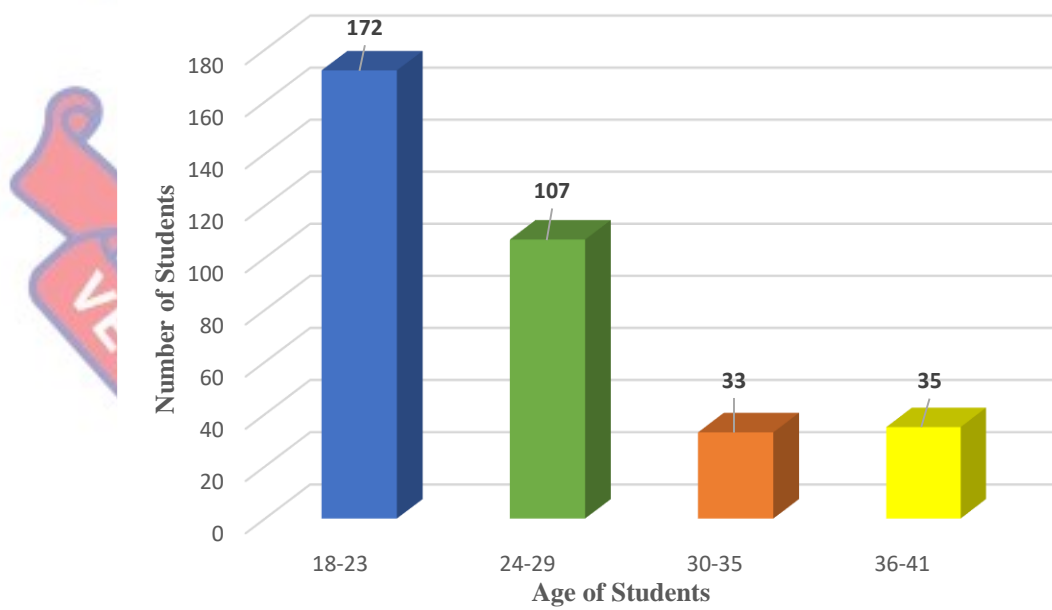


Figure 3: Age of MUCG Students

Source: Field data, Adjepong (2020)

Figure 3 indicates that, the majority (n= 172, 50%) of the students who were engaged in the study were between the ages 18-23, with those between the ages 24-29 (n=107, 31%) second highest. The age range with the least students was 30-35 (n=33, 9%). This is perhaps because students who seek for admission at MUCG are mostly interested in pursuing degree (undergraduate) programs than master's programs since it is normally between age 18-23 that graduates from Senior High School seek admission into universities.

### **Findings and Discussion of the Research Questions Posed**

This part focuses on the findings for the five research questions that were asked, as well as their respective discussions. Each study topic is detailed before its corresponding concerns emerge from the data collection, for the sake of precision and conciseness.

#### **1. What electronic resources are available for use by students and faculty of Methodist University College?**

The focus of this research was to find out what ERs were accessible for use by students and faculty of MUCG. To find answers to this research question, an observation guide was used to solicit for information. The information solicited using the observation guide was analysed using the thematic approach. The themes derived from the analysis of the observation guide are presented in Table

6

**Table 6: Electronic resources available for use in the MUCG library**

ONLINE DATABASE	OFFLINE DATABASE	E-BOOKS	OTHERS
AGORA	The Essential Electronic Agricultural Library (TEEAL)	Oxford Dictionary Online	OPAC local
American Institute of Physics Journals	Social Science Library	Oxford Dictionary of National Biography	OPAC public
America National Biography Online	MUCG Institutional Repository	Oxford Medicine Online	
American Physical Society		Oxford References	
British Institute of Radiology Journal		Oxford Quick References	
Cambridge University Press		Oxford Biblical Studies Online	
Cochrane Library		Oxford Journals	
CREDO Reference		Oxford International Law & Domestic Courts	
Duke University Press		Oxford Grove Art Online	
EBSCO host		Oxford Grove Music Online	
Edinburg University Press Journal		Oxford Scholarship online	
Edward Elgar Publishing			
Emerald			
Euclid Maths & Statistics Online			
Geological Society			
HINARI			
HST-Library in a digital Age			
HST Biomedical			
IMF e-library			
Institute of Physics			
Intellect Journal Collections			
Journal TOCS Premium			

**Table 6 continued**

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JSTOR  
Liebert Online  
New England Journal of  
Medicine online  
OARE Science  
OSA Journals  
Policy Press  
Project MUSE online  
Royal Society Journals  
online  
Royal Society of  
Chemistry  
Royal College of  
Physicians  
Sage Journals  
Sage Research Methods  
  
Society for Industrial  
and Applied  
Mathematics Journal  
Taylor & Francis  
University of Chicago  
Press  
Wiley-Inter science  
World bank e-library

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Source: Field data, Adjepong (2020)

From Table 6, the narration from the table is that the MUCG library has ERs available for use by faculty and students which includes but not limited to Oxford Dictionary Online, University of Chicago Press, Taylor & Francis, AGORA, JSTOR, Emerald, HINARI, Duke University Press, MUCG Institutional Repository, OPAC local, OPAC public among others. The inference that can therefore be made from this finding is that the MUCG library indeed has in stock up to date ERs of various kinds which is available for use by both students and faculty to support teaching, learning and research. The result of the research corroborates findings of studies conducted by (Adeniran, 2013; Aina, Mutula & Tiamiyu, 2008) on some of the e-resource collection in Redeemer's University Library and Babcock University Library respectively.

The results of these researches revealed that some of the ERs at these universities included: Internet source, Academic Journal, AJOL, BOOKBOON, Dissertation and Theses, HINARI, EBSCO host, SAGE, Online Databases, CD-ROM, OPAC (Online Public Access Catalogue), E-Journals among others. These studies also reiterated that these forms of ERs were most common in universities and other institutions of higher learning. The results again revealed that these libraries were equipped with both current print and ERs and these facilitated and supported teaching, learning and research immensely at the universities under consideration. Conclusion can hence be drawn from the finding of the study that, the Methodist University College specifically the library like any other tertiary institution library has available ERs needed to facilitate teaching and learning and that these ERs are not in its entirety different from what is available in other universities across the globe.

## **2. What electronic resources available at the Methodist University College library are faculty and students aware of?**

A critical aspect regarding the access to and usage of ERs to positively promote research and teaching and learning according to literature (Aina, et al., 2008) is the awareness of both students and faculty of the ERs the library has and adequate information and knowledge of how to access and use the e-resources the library has subscribed to. To them, whenever library customers have enough knowledge about the resources available, they are more likely to use them when the need arises. Participants were requested to specify which ERs they were aware were supplied by the university's library, in keeping with this assumption. The data collected and analysed from section c of the students' questionnaire (see Appendix B) is represented in Table 7.

**Table 7: Electronic resources students are aware is provided by the library**

Items	Responses
	N
OPAC local	194
OPAC public	178
Sage Journals	176
Emerald	137
JSTOR	134
D Space	121
Edinburg University Press Journal	113
EBSCO host	112
Taylor & Francis	111
CD-ROM	101
Oxford Journals	88
Euclid Maths & Statistics Online	85
Sage Research Methods	75
Edward Elgar Publishing	69
OARE Science	62
AGORA	30
HINARI	29

N-347 Source: Field data, Adjepong (2020)

From Table 7, the top three ERs students are aware is available in the MUCG library are: OPAC local (n=194), OPAC public (n=178) and Sage Journals (n=176) whereas the three lowest ERs available in the MUCG library included: OARE Science (n=62), AGORA (n=30) and HINARI (n=29). This is a clear indication that learners are aware of the availability of ERs at the MUCG library. Finding to this question item from section c of faculty's questionnaire (see Appendix C) is shown in Table 8.

**Table 8: Electronic resources faculty are aware is provided by the library**

Items	Responses N
JSTOR	41
Emerald	36
Sage Journals	34
Taylor & Francis	32
OPAC local	18
OPAC public	13
CD-ROM	13
Sage Research Methods	12
EBSCO host	8
OARE Science	6
D Space	5
Euclid Maths & Science Online	2

N-50 Source: Field data, Adjepong (2020)

Table 8 reveals that, the three topmost ERs faculty are aware is available in the MUCG library are: JSTOR (n=41), Emerald (n=36) and Sage Journals (n=34) while the three bottommost electronic resources available in the MUCG library were: EBSCO host (n=8), OARE Science (n=6) and D Space (n=5). Despite the differences in the ERs in Tables 7 and 8, the overall implication of this finding for the research is that students and faculty of Methodist University College affirm their awareness of the availability of ERs in their institution specifically the library. The finding also affirms students' and faculty's agreement to the fact that OPAC local, SAGE Journals, OPAC public, JSTOR and Emerald are the most common ERs they are aware is available to students and faculty at the university.

However, it is worth noting that when you compare the ERs students and faculty claim they are aware is available at the MUCG library to the actual ERs being provided, it will not be wrong to say that what students and faculty



are aware to be available at the library is only a small fraction of the entire ER collection at the MUCG library. Inference can thus be made that the level of awareness of faculty and students regarding ERs available at the MUCG library is relatively low. This finding therefore does not corroborate findings from studies by (Chandrakumar, 2009 and Saikia, 2007) on the level of awareness and use of ERs at the University of Madra and Tezpur University in India respectively which revealed high awareness levels and usage of ERs by both faculty, students and researchers. It can therefore be concluded that faculty and students at Methodist University College even though are somewhat aware of the availability of ERs at the university library, their level of awareness is surprisingly low.

The research additionally found out from respondents who indicated how they were made aware of the availability of these ERs at the MUCG library and the result from students is shown in Table 9.

**Table 9: How students were made aware of the availability of electronic resources at the library**

Items	Responses
	N
Colleagues	157
Library's website	108
Library seminar/workshops	104
Posters on library notice board	101
Library staff	43
Library brochure	43

N-347 Source: Field data, Adjepong (2020)

It can be realised from Table 9 that, a greater number of students were made aware of the availability of ERs at the university library through their colleagues or friends (n=157), followed by through the library's website

(n=108), library seminar/workshop (n=104), posters on the library notice board (n=101), library staff (n=43) and lastly through the library brochure (n=43).

The finding on the item from faculty is presented in Table 10.

**Table 10: How faculty were made aware of the availability of electronic resources at the library**

Items	Responses
	N
Colleagues	41
Library staff	19
Library's website	14
Library brochure	11
N-50 Source: Field data, Adjepong (2020)	

From Table 10, it is apparent that the number one means through which faculty were made aware concerning the availability of ERs at the university library was from colleagues (n=41), followed closely by library staff (n=19), library's website (n=14) and then through library brochure (n=11). This finding is perhaps an indication that the university library ought to do more to be visible to both students and faculty through the organising of more seminars/workshops in order for them to know the various additions to the ERs already available at the library. If this is done, then the awareness levels of students and faculty concerning ERs will be high leading to its increased usage as posited by Aina et al. (2008). Thus, it is only when students and faculty are completely aware of all ERs provided and available at the MUCG library that they can fully benefit from it use to achieve their core mandate. Hence, it is imperative for the management of the library to do everything possible to create more awareness regarding all the ERs provided and available for use by faculty and students to enable them fully benefit from it use.

### 3. In what ways are electronics resources at the Methodist University

#### College accessed by students and faculty?

This research question wanted to explore the ways through which faculty and students of MUCG accessed ERs at the library. Understandings from the self-administered questionnaires are employed to answer this question in Table 11.

**Table 11: Ways students access electronic resources at the library**

Items	Mean	Standard Deviation	Decision
I access e-resources through common search engines like google, yahoo, etc.	2.93	1.122	Strongly Agree
I access e-resources through the library's electronic system	2.45	1.112	Strongly Agree
I access e-resources through the library's internet access point	2.45	1.137	Strongly Agree
I access e-resources through other avenues	2.29	1.082	Strongly Disagree
I access e-resources through the library's paid subscription	1.97	1.096	Strongly Disagree

N-347

Source: Field data, Adjepong (2020)

It is apparent from Table 11 that, the preponderance of participants (students) agreed to accessing ERs at the library through common search engines like google and yahoo (M=2.93, SD=1.22), through the library's electronic system (M=2.45, SD=1.112) and through the library's internet access point (M=2.43, SD=1.137). However, the respondents disagreed to accessing ERs at the library through the library's paid subscription (M=1.97, SD=1.09) and through other avenues (M=2.29, SD=1.082).

The finding on the item from the perspective of faculty is offered in Table 12.

**Table 12: Ways faculty access electronic resources at the library**

Items	Mean	Standard Deviation	Decision
I access e-resources through common search engines like google, yahoo, etc.	3.80	.404	Strongly Agree
I access e-resources through other avenues	3.52	.505	Strongly Agree
I access e-resources through the library's internet access point	2.68	.978	Agree
I access e-resources through the library's paid subscription	2.60	.808	Agree
I access e-resources through the library's electronic system	2.18	1.024	Strongly Disagree

N-50 Source: Field data, Adjepong (2020)

Again, from Table 12, an overwhelming number of respondents (faculty) agreed to accessing ERs at the library through common search engines like google or yahoo (M=3.80, SD=.404), through the library's internet access point (M=2.68, SD=.978), through the library's paid subscription (M=2.06, SD=.808) and through other avenues (M=3.52, SD=.505). On the other hand, respondents disagreed to accessing ERs at the library through the library's electronic system (M=2.18, SD=1.024). This outcome is consistent with the findings by Bhatti and Mohammed (2014), which studied the experience of postgraduate students at Pakistan's Nishter Medical College using the internet. The research revealed that the google search engine ranked first (mean=2.61) with yahoo search engine ranked second (mean=1.93) as the search engines used both daily and weekly for seeking information. Inference can therefore be made from this finding that both faculty and students use common search engines like google and yahoo more than through the other avenues when accessing ERs. This

perhaps is because using the common search engines was easy and convenient and they always want to access these ERs from the comfort of their hostels or offices without having to move to the library.

**4. In what ways do faculty and students at the Methodist University College use electronic resources to support teaching and learning?**

In order to assess the ways faculty and students use ERs to aid teaching and learning, a Likert scale questionnaire item was established and used. The finding to the item from students is presented in Table 13.

**Table 13: Students' use of electronic resources**

Items	Mean	Standard Deviation	Decision
conducting research	3.31	.613	Strongly Agree
completing my assignment	3.21	.635	Strongly Agree
writing my project work	3.10	.758	Strongly Agree
updating my notes	2.71	.731	Strongly Agree
writing articles for publication	2.35	.687	Strongly Disagree
using it for other purpose than my academics	2.20	1.039	Strongly Disagree

N-347 Source: Field data, Adjepong (2020)

It is realised from Table 13 that, a higher number of the respondents (students) concurred to most of the statements on how they used ERs. For instance, respondents overwhelmingly agreed to using ERs to complete their assignments (M=3.21, SD=.635), conducting research (M=3.31, SD=.613), using it to write project work/thesis (M=3.10, SD=.758) and for updating their notes (M=2.71, SD=.731). However, the respondents disagreed to the statements that they used ERs to write articles for publication (M=2.35, SD=.687) and using it for other purposes than academics (M=2.20, SD=1.039).

It is worth noticing that all the uses of ERs agreed to by students is in tandem with their quest to obtain academic certification from their institution.

The result on the item regarding the use of ERs by faculty is presented in Table 14.

**Table 14: Faculty’s use of electronic resources**

Items	Mean	Standard Deviation	Decision
preparing teaching & lecture materials	3.82	.388	Strongly Agree
writing articles for publication	3.72	.454	Strongly Agree
Preparing assignments for students	3.62	.490	Strongly Agree
writing project proposals	3.34	.479	Strongly Agree
preparing seminar/conference papers	3.30	.909	Strongly Agree
N-50	Source: Field data, Adjepong (2020)		

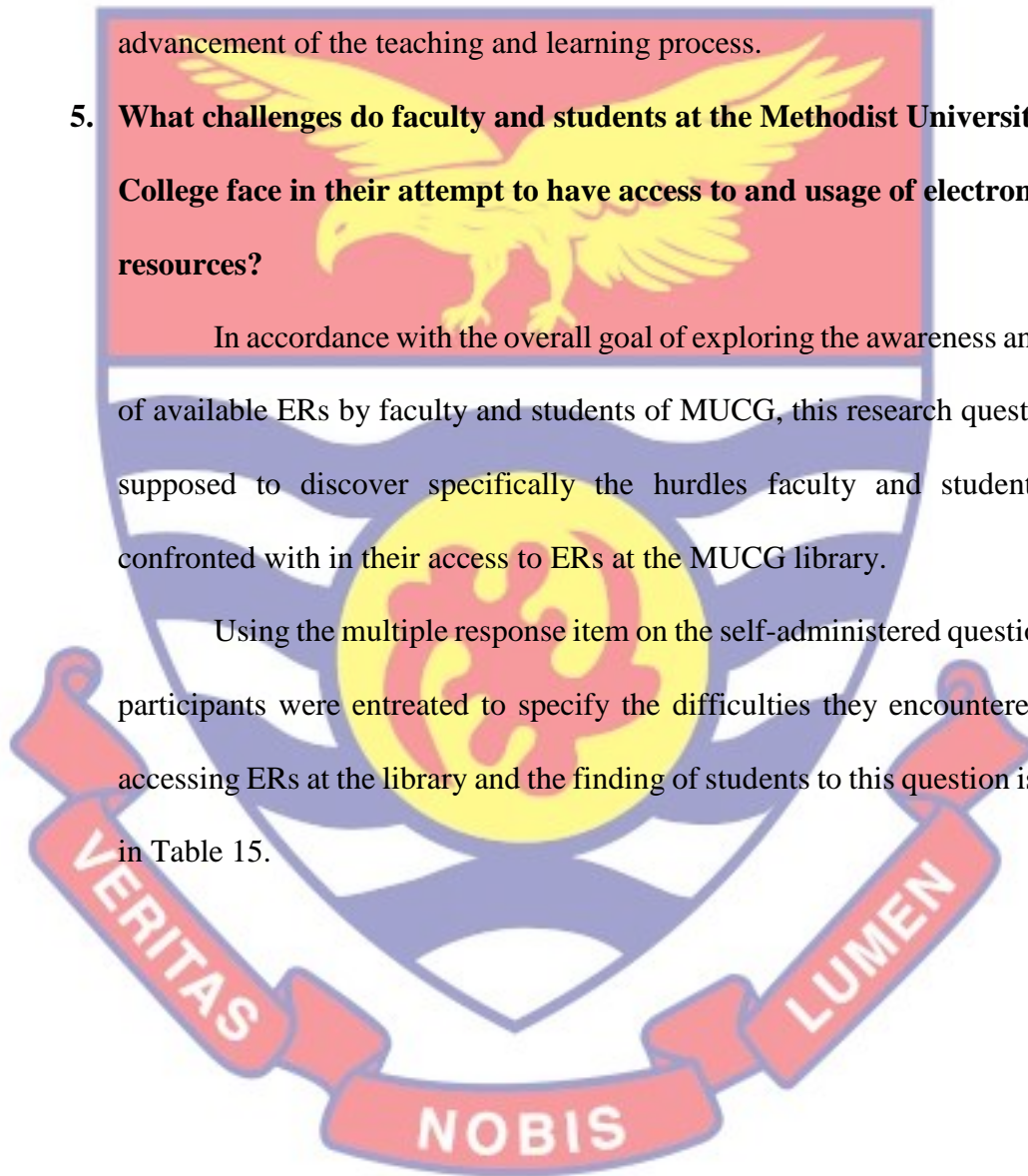
Again, from Table 14, it is seen that every participant (faculty) agreed to the assertions on how they used ERs. Respondents strongly agreed to using ERs for writing articles for publication (M=3.72, SD=.454), preparing teaching/lecture materials (M=3.82, SD=.388), preparing assignments for students (M=3.62, SD=.490), writing project proposals (M=3.34, SD=.479) and lastly for preparing seminar/conference papers (M=3.30, SD=.909). This is not surprising because faculty in tertiary institutions aside from their academic responsibilities are expected to publish articles in their field of expertise to ensure career progression. Also, they are engaged in other sectors of the economy hence they take on other responsibilities beyond their scholarly work.

The outcome of this research confirms what literature (for example Bhukuvhani, Chiparausha and Zuvalinyenga, 2012; Brown, Lund and Walton 2007) state that ERs was used by faculty and students to gather current information to aid in their teaching, learning and research. It can thus be concluded that faculty and students of MUCG use ERs to promote the advancement of the teaching and learning process.

**5. What challenges do faculty and students at the Methodist University College face in their attempt to have access to and usage of electronic resources?**

In accordance with the overall goal of exploring the awareness and usage of available ERs by faculty and students of MUCG, this research question was supposed to discover specifically the hurdles faculty and students were confronted with in their access to ERs at the MUCG library.

Using the multiple response item on the self-administered questionnaire, participants were entreated to specify the difficulties they encountered while accessing ERs at the library and the finding of students to this question is shown in Table 15.



**Table 15: Challenges faced by students when accessing electronic resources**

Items	Responses
	N
Inadequate computers in the library	253
Lack of technical support to solve access problems	244
Inadequate staff to assist users	241
Off-campus access problems	229
Lack of information on how to use e-resources	222
Poor internet connectivity	217
Limited subscribed titles	211
Limited access to computer terminal	188
Insufficient search skills	181
Incessant power outages	158
Virus attacks	128

N-347 Source: Field data, Adjepong (2020)

From Table 15, it is seen that most of the participants indicated that the three major challenges they faced when accessing ERs was the issue of inadequate computers in the library (n=253), followed by the absence of technical assistance to solve access problems (n=244) and inadequate staff to assist users (n=241). Also, the three least challenges they faced were insufficient search skills (n=181), incessant power outages (n=158) and virus attacks (n=128).

The finding of faculty regarding the challenges faced when accessing ERs at the MUCG library is offered in Table 16.



**Table 16: Challenges faced by faculty when accessing electronic resources**

Items	Responses
	N
Poor internet connectivity	34
Lack of information on how to use e-resources	30
Off-campus access problems	29
Incessant power outages	22
Inadequate staff to assist users	22
Inadequate computers in the library	20
Lack of technical support to solve access problems	15
Limited access to computer terminal	15
Insufficient search skills	11
Virus attacks	11
Limited subscribed titles	8

N=50 Source: Field data, Adjepong (2020)

Table 16 reveals that, the three topmost challenges faced by faculty when accessing ERs included poor internet connectivity (n=34), lack of information on how to use e-resources (n=30) and off-campus access problems (n=29). However, the three least challenges they faced when accessing ERs were insufficient search skills (n=11), followed by virus attacks (n=11) and limited subscribed titles (n=8). From the tables above, it is seen that what students considered as their most important challenges differed from what faculty indicated to as their most important challenges and this perhaps is due to the fact that faculty members had their own personal computers either in their offices or at home hence did not have to depend on the computers at the library unlike some students who needed to utilize library computers to access electronic materials. Again, since students are provided residential

accommodation on campus or its immediate surroundings, off-campus access problems were not a major challenge unlike faculty who are located several kilometres away from campus hence experience poor internet connectivity and access challenges.

Lastly, the challenge of not having sufficient amount of information on how to take advantage of ERs by faculty is perhaps as a result of the inconsistent nature of seminars/workshops organised to refresh the knowledge of faculty regarding access to ERs at the library and how to use them unlike the yearly orientations organised for students to update them on the library's ERs, as well as how to access and use them efficiently. Despite the differences in challenges between students and faculty, the results is consistent with the findings of previous studies by (Agaba, 2014 ; Kwafoa et al., 2014; Bola, Olaniyi & Oyekorke, 2012), which brought to the fore a lack of clear instructions on how to use the internet, the sluggish nature of the internet, the lack of knowledge about the tools and strategies used to find and get e-resources, inadequacy of the existing facilities and poor sensitisation or limited publicity were some of the major challenges students and faculty in most tertiary institutions faced in order to access and use ERs. Thus, inference can therefore be made that students and faculty of MUCG are not being able to have quick access to ERs hence their ability to effectively and efficiently use these resources to promote the smooth running of the teaching and learning process is curtailed.

## CHAPTER FIVE

### SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

#### Introduction

This chapter summarizes the study, emphasizes major findings, draws conclusions, and offers recommendations for future decision-making. This chapter also includes a proposal for future study.

#### Summary

The overall goal of the research was to explore the awareness and usage of available ERs by students and faculty of MUCG. The study was relevant due to inadequate empirical study on the awareness and usage of available ERs by students and faculty of MUCG and how the use of ERs supported the smooth running of the teaching, learning and research process at the MUCG. Understanding the issues associated with the awareness and use of available ERs by students and faculty is very important in assisting management of MUCG to fully appreciate the enormous role the use of available ERs by students and faculty play in the teaching and learning process and find those challenges that inhibit the easy access to and usage of available ERs that may lead to the institution of measures to minimise or eradicate the challenges identified in order to guarantee that students admitted in subsequent years, faculty that would remain at the university and faculty employed later enjoy easy access to the ERs for its effective and efficient use to promote a smooth teaching, learning and research process.

Bearing in mind the nature of the issue under examination and the main respondents (i.e., students and faculty) involved, the exploratory sequential mixed methods design was adopted. The design was used since it allowed the

researcher to analyse qualitative data followed by quantitative data, and after describe and interpret data regarding the awareness and usage of available ERs. The research population comprised 3,000 MUCG students and 58 faculty members. Students were sampled using a proportionate stratified sampling strategy, whereas faculty members were sampled using a census approach to research, in which all persons in the study population were approached for data for the study. Overall, data was collected from 347 students and 50 faculty members. The qualitative data from the observation guide was thematically analysed with the quantitative data from the self-administered questionnaires analysed using descriptive statistics in the form of pie charts, bar charts, frequency tables, mean and standard deviations to ensure strong statistical inferences could be made. The core results that stemmed from the analysis of the qualitative and quantitative data are summarised as the key results.

The key findings obtained from the research are categorized according to the research questions addressed.

**1. What electronic resources are available for use by students and faculty of Methodist University College?**

The results regarding research question one reveal that:

- a. the Methodist University library provides a variety of up-to-date ERs to the University community (students and faculty).

**2. What electronic resources available at the Methodist University College library are faculty and students aware of?**

With respect to research question 2, data analysed propose that:

- a. the three top electronic resources students are aware is available at the MUCG library are: OPAC local, OPAC public and Sage journal while that of faculty are: JSTOR, Emerald and Sage journal.
- b. the level of awareness of learners and faculty regarding the availability of electronic resources at the MUCG library is significantly low.
- c. the three major ways students became aware of available ERs provided by the library are: through colleagues, the library's website and library seminar/workshop while that of faculty are: through colleagues, library staff and the library's website.

**3. In what ways are electronics resources at the Methodist University College accessed by students and faculty?**

The finding with respect to research question 3 indicate that:

- a. the three major ways students accessed ERs are: through common search engines like google, yahoo, through the library's electronic system and through the library's internet access point.
- b. the three major ways faculty accessed ERs are: through common search engines like google, yahoo, through other avenues and through the library's internet access point.

**4. In what ways do faculty and students at the Methodist University College use electronic resources to support teaching and learning?**

With respect to research question 4, data analysed indicate that:

- a. students used ERs to:
  - complete their assignment
  - conduct research
  - write their project work

- updating their notes
- b. greater number of students (n=193, 55.7%) did not use ERs to write articles for publication and for other things outside their academics (n=195, 56.2%)
- c. faculty used ERs to:
  - write articles for publication
  - prepare teaching/lecture materials
  - preparing assignments for students
  - write project proposals
  - prepare seminar/conference papers

**5. What challenges do faculty and students at the Methodist University College face in their attempt to have access to and usage of electronic resources?**

Findings from requestion five reveal that:

- a. the three major challenges students encounter when accessing ERs are: insufficient computers in the library, absence of technical support to solve access problems and inadequate staff to assist users.
- b. the three topmost challenges that faculty face when accessing ERs are: poor internet connectivity, absence of information on ways to use e-resources and off-campus access problems.

**Conclusions**

The following conclusions are reached as a result of the study's primary findings:

First, considering the finding that the MUCG library has available in its possession up-to-date ERs, it can thus be concluded that the MUCG has

provided and continues to provide appropriate ERs to both students and faculty to aid the university's teaching, learning, and research processes.

Second, the findings show that the three major ERs available at the MUCG according to students are: OPAC local, OPAC public and Sage Journals while that of faculty are: JSTOR, Emerald and Sage Journals. These ERs are in line with what literature (Adeniran, 2013; Bassi, 2011 & Aina et al, 2008) claim ought to be available in every tertiary institution. It can thus be concluded that, the MUCG library has in stock relevant, popular and current ERs for use by students and faculty.

Third, regarding the finding that students and faculty are familiar with some of the MUCG library's ERs, it can then be concluded that the MUCG library has not been educating students and faculty about all the ERs they have hence the reason why the ERs offered and given by the MUCG library are not well known by students and faculty.

Fourth, considering the finding that a larger number of students and faculty were well-versed with the available electronic materials at the MUCG library by their colleagues, it can be concluded that the library's organisation of training programs has not been encouraging.

Again, the finding signifying that the three major ways MUCG students access ERs are through: common search engines like google, yahoo, the library's electronic system and through the library's internet access point and this is no surprise as literature supports this finding. It can therefore be concluded that students are not fully benefitting from the ERs since they may not have full access to some of the electronic needed to promote their academic work.

Also, considering the finding that generally faculty of MUCG access ERs via popular search engines like google, yahoo, through other avenues and through the library's internet access point. It can be concluded that faculty are not fully benefitting from the ERs since it is possible that they won't be able to get access to all the ERs, they need to ensure a smooth teaching and research process.

Sixth, in line with the finding that students used ERs to complete their assignment, conduct research, write their project work and for updating their notes, it is possible to deduce that, students used ERs to accomplish their core mandate of learning and research.

Again, regarding the finding that revealed that generally, a greater number of students (n=193, 55.7%) did not use ERs to write articles for publication and for other purposes than their academics (n=195, 56.2%). This suggests that postgraduate students of MUCG are not able to write articles for publication, hence it can be concluded that MUCG is not going the extra mile to prepare postgraduate students with the needed skills and techniques when it comes to article writing.

Also, in line with the finding that revealed that faculty used ERs to write articles for publication; prepare teaching/lecture materials; prepare assignments for students; write project proposals and to prepare seminar/conference papers, conclusion can therefore be drawn that faculty was generally using ERs to achieve their core mandate of teaching, and research at MUCG.

Considering the finding revealing that the three major challenges students encounter when accessing ERs are: the library has insufficient computers, lack of relevant assistance in resolving issues related to access and



inadequate staff to assist users are in line with what literature claims to be the challenges confronting tertiary institutions. Thus, conclusion can be drawn that perhaps the MUCG library is not living up to the expectation of ensuring the easy access to and use of ERs by students

Lastly, the finding that disclosed that the three topmost challenges that faculty faced when accessing ERs are: poor internet connectivity, absence of information on ways to use e-resources and off-campus access problems. It can therefore be concluded that the university management as well as the library management are not investing in material and human resources which perhaps prevented faculty from achieving all their set goals regarding the teaching, learning and research process.

### **Recommendations**

Bearing in mind the research results and the inferences drawn, the resulting recommendations are given to guarantee that the findings of this study inure to the benefit of all associated with MUCG:

1. It is irrefutable that the MUCG library has relevant and up-to-date electronic materials available for students and teachers to utilize. Yet, students and faculty are not aware of all the ERs provided and available for use at the MUCG library. Also, a greater number of faculty and students were made aware of these ERs through their colleagues rather than from the library. It is therefore recommended that the MUCG continue to provide current ERs for use by students and faculty and also organise more training seminars for students and faculty to enable them know all the ERs provided and available at the MUCG library. This will help to promote the smooth running of the teaching, learning and research process through the effective and efficient use of these resources.

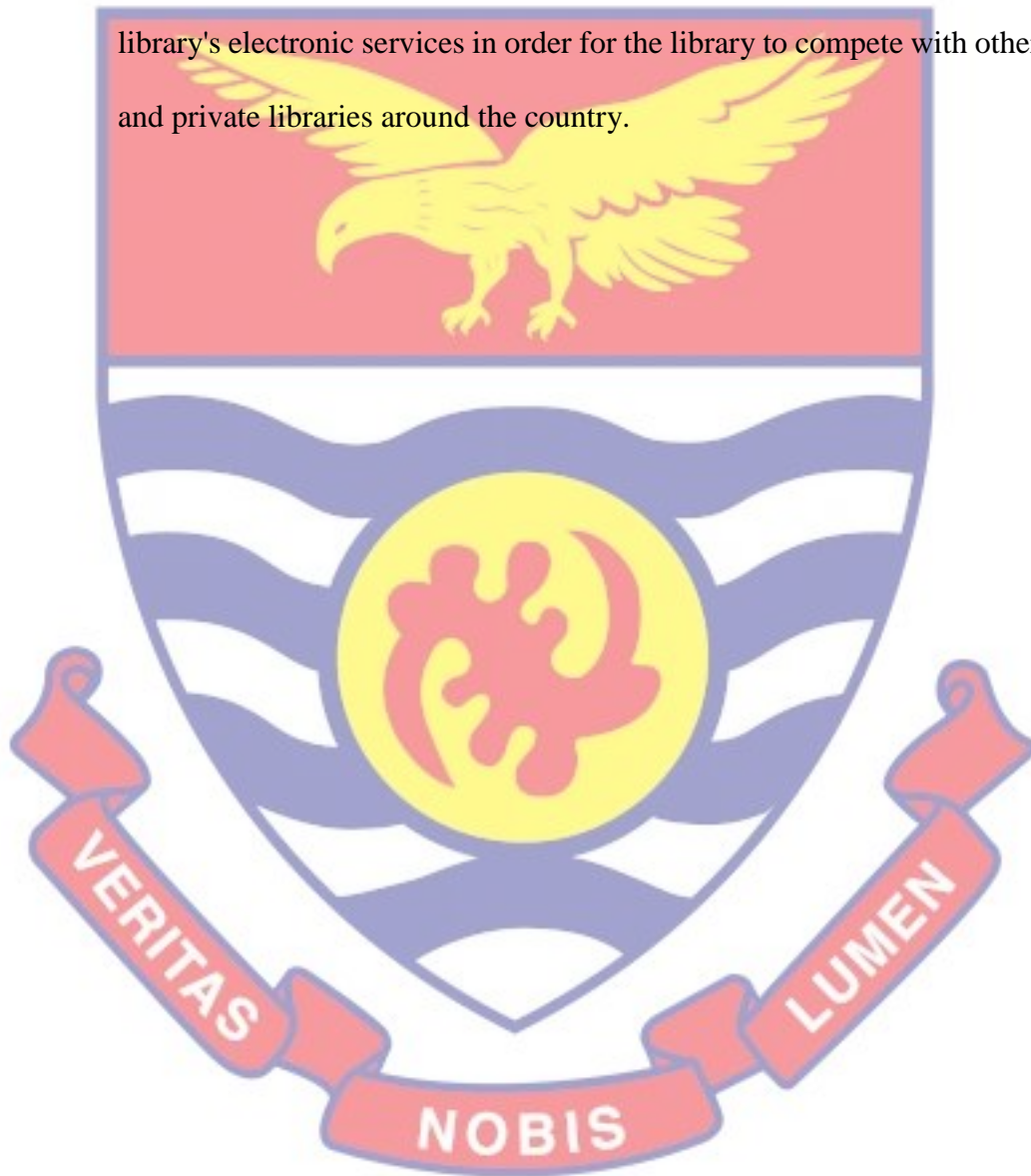
2. Grounded on the fact that majority of faculty and students access ERs through common search engines like google and yahoo, it is recommended that the MUCG library makes the conscious effort to improve its access terminals and introduce students and faculty to the library's electronic system. This would ensure that faculty and students have uninterrupted access to all the ERs at the library which would ensure that they fully benefit from these ERs.

3. It is a fact that generally, faculty and students use ERs to promote the smooth running of the teaching, learning and research process. However, looking at the evidence that postgraduate students usually did not use ERs to write articles for publication considering that they access tertiary education with the goal of developing their full potential, it is recommended that the MUCG library together with faculty institute a training program to teach students the skills and techniques of writing articles. Also, it is recommended that students and faculty continue to use ERs to achieve other mandates too.

4. Concerning the fact that mostly both faculty and students faced challenges when accessing ERs at the MUCG library, it is recommended that the university management as well as the library management invest in human as well as material resources such as purchase more computers, employ more library staff, improve internet connectivity and where needed provide students and faculty with MiFi's to help solve the many challenges students and faculty are confronted with in their quest to access and use ERs. This will, for a long time to come, advance the teaching, learning and research process leading to the overall development of learners.

### Suggestions for Future Research

This study has provided insight into MUCG students' and faculty's knowledge of and use of accessible ERs, as well as actions management and the library should take to guarantee simple access to and use of ERs. Additional research is needed to determine how satisfied students and teachers are with the library's electronic services in order for the library to compete with other public and private libraries around the country.



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APPENDICES

APPENDIX A: Consent Form for Respondents of the Research

UNIVERSITY OF CAPE COAST

COLLEGE OF EDUCATION STUDIES

INSTITUTE FOR EDUCATIONAL PLANNING AND

ADMINISTRATION

QUESTIONNAIRE FOR MUCG STUDENTS

This study is about assessing the awareness and usage of available electronic resources by faculty and learners of Methodist University College, Ghana. I would be very grateful if you would participate in this study by responding to these questions. You are assured that any information provided will be treated as confidential. Thank you for agreeing to participate in the study.

**Please respond to the following questions by ticking [√] where appropriate or writing in the space provided.**

**SECTION A (Demographic Data)**

1. Gender

Male  Female

2. Age

18 – 23  24 – 29  30 – 35  36 – 41  42 – 47   
48 and above

3. Program of Study.....

4. Faculty/Department.....

5. Level of Study: a) Undergraduate ( ) b) Postgraduate ( )

**SECTION B (Availability of E-resources)**

6. Indicate the type of e-resources available in the University's Library? (Tick all that apply)

- a. CD-ROM
- b. Academic Database
- c. Online Public Access Catalogue (OPAC) Public
- d. D Space
- e. Online Public Access Catalogue (OPAC) Local
- f. Other(s): Please specify .....

**SECTION C (Awareness of Electronic Resources)**

7. Which of the following electronic resources are you aware is provided by the University Library? (Please tick all that apply)

- a. CD ROM ( )
- b. OPAC local ( )
- c. OPAC Public ( )
- d. D Space ( )
- e. AGORA ( )
- f. EBSCO host ( )
- g. Emerald ( )
- h. HINARI ( )
- i. JSTOR ( )
- j. OARE Science ( )
- k. Other(s): Please Specify.....
- l. Sage Journals ( )
- m. Taylor & Francis ( )
- n. Euclid Maths & Statistics Online ( )
- o. Edward Elgar Publishing ( )
- p. Edinburg University Press Journal ( )
- q. Sage Research Methods ( )
- r. Oxford Journals ( )

8. How did you get to know of the availability these electronic resources at the library?

(Please tick all that apply)

- a. Library's website
- b. Library staff
- c. Library brochure
- d. Colleagues
- e. Library seminar/workshops
- f. Posters on Library Notice Boards
- g. Other(s): Please specify.....

9. To what extent do you agree that the library's advertising of e-resources has been satisfactory?

- a. Strongly Disagree
- b. Disagree
- c. Agree
- d. Strongly Agree

**SECTION D (Training on the Access and Use of E-resources)**

10. The library has organised training on the access to and usage of e-resources.

- a. Strongly Disagree
- b. Disagree
- c. Agree
- d. Strongly Agree

11. What type of training method was used by the library?

- a. Face to face/one-on-one
- b. Group training
- c. Online training
- d. Practical training from the computer lab
- e. Other(s): Please specify.....

12. How often are these training programs organised by the library?

- a. Very often
- b. Often
- c. Quite Often
- d. Not Often

13. How would you rate the general effectiveness of the training?

- a. Very Effective
- b. Effective
- c. Fairly Effective
- d. Not Effective

14. How would you rate the adequacy of the training in equipping you with the necessary search skills?

- a. Very Adequate ( ) b. Adequate ( ) c. Fairly Adequate ( ) d. Not Adequate ( )

**SECTION E (Access of Electronic Resources)**

15. Which location do you have constant access to the internet? (Tick all that apply)

- a. Hostel  e. Library's Electronic Resource lab   
 b. Internet Café  f. Other(s) Please specify.....  
 c. Faculty Computer Lab   
 d. Home

16. What is the level of your computer skills?

- a. Advanced  b. Intermediate  c. Beginner  d. None

17. Where do you access the e-resources? (Please tick as apply)

- a. Campus  b. Off campus  c. Both on and off campus

18. How would you compare on campus and off campus access?

Location	Excellent	Very good	Good	Fair	Poor
Campus					
Off campus					

To what extent do you agree with the following statements. SD- (Strongly Disagree), D-(Disagree), A-(Agree), SA-(Strongly Agree)

		SD	D	A	SA
19.	I access e-resources through the library's electronic system				
20.	I access e-resources through common search engines like google, yahoo, etc.				
21.	I access e-resources through the library's internet access point				

22.	I access e-resources through the library's paid subscription				
23.	I access e-resources through other avenues				

24. What electronic devices do you use to access the e-resources? (Please tick all that apply)

- a. Desk top computer ( ) d. Mobile phone ( )  
 b. Lap top ( ) e. Other (s): Please specify.....  
 c. Tablet ( )

**SECTION F (Use of E-Resources)**

25. How often do you use these e-resources?

Electronic resources	Not at all	Daily	Weekly	Monthly	Yearly
CD-ROM					
OPAC local					
OPAC Public					
DSPACE					
AGORA					
EBSCO host					
Emerald					
HINARI					
JSTOR					
OARE Science					
Sage Journals					
Taylor & Francis					
Euclid Maths & Statistics Online					
Edward Elgar Publishing					
Edinburg University Press Journal					
Sage Research Methods					
Oxford Journals					

Other(s): Please Specify.....

I use electronic resources for the purpose of:

	Use of E-resources	SD	D	A	SA
26.	completing my assignment				
27.	conducting research				
28.	writing my project work				
29.	updating my notes				
30.	writing articles for publication				
31.	using it other things outside my academics				

**SECTION F (Challenges in the access and usage of E-resources)**

32. Which of these problems do you encounter when accessing e-resources? (Please tick all that apply)

- a. Inadequate computers in the library
- b. Lack of information on how to use e-resources
- c. Insufficient search skills
- d. Poor internet connectivity
- e. Limited access to computer terminal
- f. Limited subscribed titles
- g. Incessant power outages
- h. Virus attacks
- i. Inadequate staff to assist users
- j. Off-campus access problems
- k. Lack of technical support to solve access problems
- l. Other(s): Please specify.....

APPENDIX C: Self-Administered Questionnaire for MUCG Faculty

UNIVERSITY OF CAPE COAST

COLLEGE OF EDUCATION STUDIES

INSTITUTE FOR EDUCATIONAL PLANNING AND

ADMINISTRATION

QUESTIONNAIRE MUCG FACULTY

This study is about assessing the awareness and usage of available electronic resources by faculty and learners of Methodist University College, Ghana. I would be very grateful if you would participate in this study by responding to these questions. You are assured that any information provided will be treated as confidential. Thank you for agreeing to participate in the study.

**Please respond to the following questions by ticking [✓] appropriate boxes or writing in the space provided.**

**SECTION A (Demographics of Respondents)**

1. Faculty/Department: .....
2. Gender: Male  Female
3. Number of years in the University
  - i. Less than one year
  - ii. 1 – 5 years
  - iii. 6 – 10 years
  - iv. 11 – 15 years
  - v. 16 –20years
4. Highest educational qualifications
  - i. Doctorate, PhD
  - ii. Master's Degree
  - iii. Degree
  - iv. Other(s)
5. Designation
  - i. Professor
  - ii. Assoc. Professor
  - iii. Snr. Lecturer
  - iv. Lecturer
  - v. Other

**SECTION B (Availability of E-resources)**

6. Indicate the type of e-resources available in the University's Library? (Tick all that apply)

- a. CD-ROM
- b. Academic Database
- c. Online Public Access Catalogue (OPAC) Public
- d. D Space
- e. Online Public Access Catalogue (OPAC) local
- f. Other(s): Please specify.....

**SECTION C (Awareness of E-resources)**

7. Which of the following electronic resources are you aware is provided by the University Library? (Please tick all that apply)

- a) CD ROM ( )
- b) OPAC local ( )
- c) OPAC Public ( )
- d) D Space ( )
- e) AGORA ( )
- f) EBSCO host ( )
- g) Emerald ( )
- h) HINARI ( )
- i) JSTOR ( )
- j) OARE Science ( )
- k) Other(s): Please specify.....
- l) Sage Journals ( )
- m) Taylor & Francis ( )
- n) Euclid Maths & Statistics Online ( )
- o) Edward Elgar Publishing ( )
- p) Edinburg University Press Journal ( )
- q) Sage Research Methods ( )
- r) Oxford Journals ( )



8. How did you get to know of the availability of these electronic resources at the library? (Please tick all that apply)

- a) Library's website
- b) Library staff
- c) Library brochure
- d) Colleagues
- e) Library seminars/workshops
- f) Posters on Library Notice Boards
- e) Other (s) specify.....

9. To what extent do you agree that the library's advertising of e-resources has been satisfactory?

- a) Strongly Disagree ( ) b) Disagree ( ) c) Agree ( ) d) Strongly Agree ( )

**SECTION D (Training on the Access and use of E-resources)**

10. The library has organised training on the access to and usage of e-resources.

- a. Strongly Disagree ( ) b. Disagree ( ) c. Agree ( ) d. Strongly Agree ( )

11. What type of training method was used by the library?

- a. Face to face/ one-on-one ( ) d. Practical training from the computer lab ( )
- b. Group training ( ) e. Other (s): Please specify.....
- c. Online training ( )

12. How often are these training programs organised by the library?

- a. Very often ( ) b. Often ( ) c. Quite ( ) d. Not Often ( )

13. How would you rate the general effectiveness of the training?

- a. Very Effective ( ) b. Effective ( ) c. Fairly Effective ( ) d. Not Effective ( )

14. How would you rate the adequacy of the training in equipping you with the necessary search skills?

- a. Very Adequate ( ) b. Adequate ( ) c. Fairly Adequate ( ) d. Not Adequate ( )

**SECTION E (Access of E-resources)**

15. Which location do you have constant access to the internet? (Tick all that apply)

- a) Office  e) Library’s Electronic Resource lab   
 b) Home  f) Other(s): Please specify.....  
 c) Internet Café   
 d) Faculty Computer Lab

16. What is the level of your computer skills?

- a) Advanced  b) Intermediate  c) Beginner  d) None

17. Where do you have easy access to e-resources? (Please tick as apply)

- a) Campus  b) Off campus  c) Both on and off campus

18. How would you compare on campus and off campus access?

Location	Excellent	Very good	Good	Fair	Poor
Campus					
Off campus					

To what extent do you agree with the following statements? SD- (Strongly Disagree), D-(Disagree), A-(Agree), SA- (Strongly Agree)

	Access of E-resources	SD	D	A	SA
19.	I access e-resources through the library’s electronic system				
20.	I access e-resources through common search engines like google, yahoo, etc.				
21.	I access e-resources through the library’s internet access point				
22.	I access e-resources through the library’s paid subscription				
23.	I access e-resources through other avenues				

24. What electronic device do you use to access the e-resources? (Please tick all that apply)

- a) Desk top computer ( ) b) Lap top ( ) c) Tablet ( ) d) Mobile phone ( )  
 e) Other(s): Please specify.....

**SECTION F (Use of E-Resources)**

25. How often do you use these electronic resources?

Electronic resources	Not at all	Daily	Weekly	Monthly	Yearly
CD-ROM					
OPAC local					
OPAC Public					
DSPACE					
AGORA					
EBSCO host					
Emerald					
HINARI					
JSTOR					
OARE Science					
Sage Journals					
Taylor & Francis					
Euclid Maths & Statistics Online					
Edward Elgar Publishing					
Edinburg University Press Journal					
Sage Research Methods					
Oxford Journals					

Other(s): Please specify.....

I use electronic resources for the purpose of:

	Use of E-resources	SD	D	A	SA
26.	writing articles for publication				
27.	preparing teaching/lecture materials				
28.	preparing assignments for students				
29.	writing project proposal				
30.	preparing seminar/conference papers				

**SECTION G (Challenges in the access and use of E-resources)**

31. Which of these problems do you encounter when accessing e-resources? (Please tick all that apply)

- a) Inadequate computers in the library
- b) Lack of information on how to use e-resources
- c) Insufficient search skills
- d) Poor internet connectivity
- e) Limited access to computer terminal
- f) Limited subscribed titles
- g) Incessant power outages
- h) Virus attacks
- i) Inadequate staff to assist users
- j) Off-campus access problems
- k) Lack of technical support to solve access problems
- l) Other(s): Please specify.....

**APPENDIX D: Letter of Introduction from IEPA/UCC**



**UNIVERSITY OF CAPE COAST**  
**COLLEGE OF EDUCATION STUDIES**  
**SCHOOL OF EDUCATIONAL DEVELOPMENT & OUTREACH**  
**INSTITUTE FOR EDUCATIONAL PLANNING AND ADMINISTRATION**

Tel. No.: 03320-91478  
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University Post Office  
Cape Coast  
Ghana

7<sup>th</sup> June 2019

Our Ref: IEPA/144/Vol. 1/297

The Human Resource Manager  
Methodist University College  
Dansoman - Accra

Dear Sir,

**LETTER OF INTRODUCTION**

The bearer of this letter **Mr. Samuel Kofi Adjepong** is an M.Phil. student of the Institute for Educational Planning and Administration (IEPA) of the University of Cape Coast. He requires some data/information from you/your outfit for the purpose of writing his thesis titled, **“Awareness, Access and Usage of Electronic Resources by Faculty and Students of Methodist University College, Ghana”** as a requirement for M.Phil. degree.

Kindly give the necessary assistance that **Mr. Adjepong** requires to enable him gather the information he needs.

While anticipating your co-operation, we thank you for any help that you may be able to give him.

Thank you.

Yours faithfully,

Alberta A. K. Owusu (Mrs.)  
ASSISTANT REGISTRAR  
**FOR: DIRECTOR**

**INSTITUTE FOR EDUCATIONAL  
PLANNING & ADMINISTRATION  
UNIVERSITY OF CAPE COAST  
CAPE COAST**

## APPENDIX E: Reliability Test

### Items in Section D

Case Processing Summary

		N	%
Cases	Valid	30	100.0
	Excluded <sup>a</sup>	0	0
	Total	30	100.0

Reliability Statistics

Cronbach's	N of Items
Alpha	
<b>.756</b>	5

### Items in Section E

Case Processing Summary

		N	%
Cases	Valid	30	100.0
	Excluded <sup>a</sup>	0	.0
	Total	30	100.0

Reliability Statistics

Cronbach's	N of Items
Alpha	
<b>.760</b>	6

Items in Section F

Case Processing Summary

	N	%
Valid	30	100.0
Cases Excluded <sup>a</sup>	0	.0
Total	30	100.0

Reliability Statistics

Cronbach's	N of Items
Alpha	
<b>.798</b>	<b>17</b>

Overall Reliability Score for all Likert Scale Items

Case Processing Summary

	N	%
Valid	30	100.0
Cases Excluded <sup>a</sup>	0	.0
Total	30	100.0

Reliability Statistics

Cronbach's	N of Items
Alpha	
<b>.771</b>	<b>28</b>

**APPENDIX F: Observation Guide**  
**UNIVERSITY OF CAPE COAST**  
**COLLEGE OF EDUCATION STUDIES**  
**INSTITUTE FOR EDUCATIONAL PLANNING AND**  
**ADMINISTRATION**

**OBSERVATION GUIDE FOR MUCG LIBRARY**

QUESTION	ITEM	FIELD NOTES
What electronic resources are available for use by students and faculty of MUCG?	AGORA	
	American Institute of Physics Journals	
	American National Biography Online	
	American Physical Society	
	British Institute of Radiology Journal	
	Cambridge University Press	
	Cochrane Library	
	CREDO Reference	
	Duke University Press	
	EBSCO host	
	Edinburg University Press Journal	
	Edward Elgar Publishing	
	Emerald	
	Euclid Maths & Statistics Online	
	Geological Society	



	HINARI	
	HST-Library in a Digital Age	
	HST Biomedical	
	IMF e-library	
	Institute of Physics	
	Intellect Journal Collections	
	Journal TOCS Premium	
	JSTOR	
	Liebert Online	
	New England Journal of Medicine Online	
	OARE Science	
	OSA Journals	
	Policy Press	
	Project MUSE Online	
	Royal Society of Chemistry	
	Royal Society Journals Online	
	Royal College of Physicians	
	Sage Journals	
	Sage Research Methods	
	Society for Industrial and Applied Mathematics Journal	
	Taylor & Francis	
	University of Chicago Press	
	Wiley-Inter Science	

	World bank e-library	
	The Essential Electronic Agricultural Library (TEEAL)	
	Social Science Library	
	MUCG Institutional Repository	
	Oxford Dictionary Online	
	Oxford Dictionary of National Biography	
	Oxford Medicine Online	
	Oxford References	
	Oxford Quick References	
	Oxford Biblical Studies Online	
	Oxford Journals	
	Oxford International Law & Domestic Courts	
	Oxford Grove Art Online	
	Oxford Grove Music Online	
	Oxford Scholarship Online	
	OPAC local	
	OPAC public	

