

**Awareness and use of library electronic resources by faculty members of the Ghana
Communication Technology University: a case study of the Accra campus**

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A dissertation submitted in fulfilment of the requirements for the award of the degree of

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Faculty of Humanities

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Compulsory Declaration

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Dedication

"I can do all things through Christ which strengtheneth me."

Philippians 4:13 (Holy Bible, 2020)

Give thanks and praises unto God, Almighty.

This dissertation is dedicated to my Wife Joyce, my Children Jude, Jeslo and Philipa for your love, understanding and support throughout this academic journey.

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I like to first express my utmost gratitude to the Almighty God for taking me through this academic journey successfully. Praises be to HIS Holy Name.

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I am very grateful to my Wife, Children, and the Family at large for your encouragement, love and support you have all shown me.

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A very special appreciation to my adviser, counsellor, and inspirer Professor Emmanuel Adjei of the Information Studies Department, University of Ghana for all the advice and guidance you have given me throughout my education.

May the good Lord bless you all.

Abstract

In view of the application of information communication technologies in academic libraries as well as the importance of electronic resources to academic work, the objective of this study was to examine the level of awareness and the extent of use of library electronic resources by faculty members at the Ghana Communication Technology University (GCTU), Accra campus. In addressing this objective, the following critical questions were generated: What is the level of awareness of Accra campus faculty members of the GCTU Library's electronic resources? What is the extent of use by Accra campus faculty members of the GCTU Library's electronic resources? For what possible purposes would faculty members use the GCTU Library's electronic resources? What is the level of satisfaction by Accra campus faculty members in using the GCTU Library electronic resources? What are possible constraints faced by Accra campus faculty members in using the GCTU Library's electronic resources? The Technology Acceptance Model (TAM) was used to provide theoretical support for the study. Motivated by the pragmatic paradigm, the study used a convergent parallel mixed methods strategy to collect data, employing both quantitative and qualitative approaches. Adopting a single case study design, this study used GCTU, Accra campus as its case to respond to the critical questions. In addressing the study's objective, a descriptive survey and an interview research method were used to collect data from a census of 122 faculty members at the Accra campus and purposively selected library staff members, respectively. Data was collected by a face-to-face interaction through structured questionnaire delivery and collection and the conducting of semi-structured interviews. Data collected from the questionnaire and interviews was analyzed using *SPSS* and *NVivo*, respectively. The study found that most faculty members at GCTU Library are aware of e-resources such as Emerald, IEEE Xplore, JSTOR, and EBSCOhost, primarily used for research and publication. They prefer e-resources over printed equivalents due to their ease of use. However, constraints such as slow internet, information overload, and power outages hinder their use. The study recommends increased awareness, faculty training, and strengthening internet connectivity for optimal use of GCTU Library e-resources. This study has relevance and significance for LIS professional practice, disciplinary theory/knowledge growth, research methodology, and university policy development.

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List of abbreviations

ACI	Akrofi-Christaller Institute of Theology, Missions, and Culture
AJOL	African Journals Online
ASSA	Anatomy Society of Southern Africa
CAIN	The Machine-Readable Database of the National Agricultural Library
CARLIGH	Consortium of Academic and Research Libraries in Ghana
CD-ROM	Compact disk read-only memory
CHEMCON	Chemical Abstracts Service
CSIR	Centre for Scientific and Industrial Research
CSSR	Council of Social Science Research
CSUF	California State University, Fullerton
CT	Computerized tomography
DOAJ	Directory of Open Access Journal
DVD	Digital versatile disc
E-Book	Electronic book
E-Database	Electronic database
E-Journal	Electronic journal
E-Magazine	Electronic magazine
E-Manuscripts	Electronic manuscripts
E-Map	Electronic map
E-Newspaper	Electronic newspaper
E-Past Question	Electronic past examination question
E-Patent	Electronic patent
EPUB	Electronic Publication
E-Report	Electronic report
E-Resource	Electronic resource
E-Standard	Electronic standard
E-Theses	Electronic theses
ERIC	Educational Resources Information Center
FAQ	Frequently asked questions
FOCIS	Faculty of Computing and Information Systems

FOE	Faculty of Engineering
GCTU	Ghana Communication Technology University
GTEC	Ghana Tertiary Education Commission
PDF	Portable Document Format
GTUC	Ghana Technology University College
ICT	Information communication technology
IJ	Institute of Journalism
INASP	International Network for the Availability of Scientific Publications
IT	Information technology
JASA	Journal of the Acoustical Society of America
KJV	King James Version
LIS	Library and Information Science
LIS	Library and information services
LMS	Learning management system
MA	Master of Arts
MAUTech	Madibbo Adama University of Technology
MIS	Master of Information Systems
MPhil	Master of Philosophy
MRI	Magnetic resonance images
MUGG	Methodist University College of Ghana
NAB	National Accreditation Board
NASA	National Aeronautics and Space Administration
NASSDOC	National Social Science Documentation Centre
NLM	National Library of Medicine
NWU-VT	North-West University, Vaal Triangle Campus
OCLC	Online Computer Library Centre
OPAC	Online Public Access Catalogue
PDF	Portable document format
PhD	Doctor of Philosophy
SJSU	San Jose State University
SPSS	<i>Statistical Package for Social Sciences</i>
TAM	Technology Acceptance Model

TEEAL	The Essential Electronic Agriculture Library
TPB	Theory of Planned Behavior
TRA	Theory of Reasoned Action
UA	University of Alicante
UAE	United Arab Emirates
UCC	University of Cape Coast
UDS	University of Development Studies
UG	University of Ghana
UK	United Kingdom
UniMAC	University of Media, Arts and Communications
UPHSL	University of Perpetual Help System – Laguna
UPSA	University of Professional Studies, Accra
US	United States of America
UTAUT	Unified Theory of Acceptance and Use of Technology
VPN	Virtual Private Network
WICC	Wisconsin International University College

Chapter One: Introduction

1.1 Introduction and background of the study

The ubiquity of technology in the 21st Century has led to the widespread embracing of information and communication technology (ICT) in several aspects of life (Charles, Sasireka & Mary, 2022: 2). Library operations have seen substantial transformations in recent years, both in terms of the materials they acquire and the way they provide services. Consequently, academic library and information services have experienced substantial shift to successfully provide electronic resources to the scholarly community because of the evolution of conventional document distribution services from print to electronic formats (Appleton, 2006: 619; Acheampong, 2016: 1).

According to Budu (2015: 1) applications of ICT have significantly transformed all facets of human existence. The use of ICT in the production and dissemination of knowledge has facilitated a stronger connection between library users and knowledge. Efficient and user- friendly methods are employed regarding the acquisition, preservation, organization, access, retrieval, and consumption of information. Computer integration in information processing has introduced numerous products and services to users, thereby enhancing the competitiveness of libraries in effectively and economically addressing the advanced and varied requirements of its clientele (Budu, 2015: 1).

Electronic resources (e-resources), according to Humbhi et al. (2023: 109), refer to digital representations of information accessible via electronic means and a network of computers. E-resources encompass a wide range of formats such as electronic journals, databases, books, theses, library collections, written works, cartographic representations, periodicals, scholarly publications, bibliographic databases, websites, search engines, and other related technologies (Bentil, Liew & Chawner, 2022: 114).

E-resources are classified as information that can be obtained, retrieved, saved, and utilized by electronic methodologies. Access to information in electronic format is facilitated by computer systems, computer networks (internet), and storage media including compact disc read-only memory (CD-ROM) databases, portable storage devices, and other peripheral devices. The dissemination of electronic information resources is facilitated by CD-ROM databases,

electronic databases, electronic periodicals (e-journals), digital books (e-books), and online resources, among other examples (Atuase, 2016: 1).

Many scholars widely acknowledge the importance and relevance of electronic resources in the fields of teaching and learning, and/or research. The introduction of information and communication technologies, such as the internet and the web, has led to the widespread acceptance of electronic resources as a crucial intellectual resource for students and teachers. Academic libraries subscribe to e-resources in order to enhance their services to their users (Adanu, 2019; Okyere, 2020: 1). Electronic resources have demonstrated greater utility, particularly for faculty members and remote learners who may have restricted availability of library materials in conventional formats.

1.2 Ghana Communication Technology University (GCTU)

Ghana Communication Technology University (GCTU) is a technologically focused higher education institution dedicated to providing top-notch degrees in education. It was originally founded in November 2005 as the Ghana Telecom University, then it became the Ghana Technology University College (GTUC), and currently called the Ghana Communication Technology University. The GCTU received accreditation from the National Accreditation Board (NAB), now called the Ghana Tertiary Education Commission (GTEC), on 30 March 2006 and was formally established on 15 August 2006. It achieved full public university status on 13 August 2020 (Ghana Communication Technology University, 2024a). The University is administered by a university council, which is backed by the Vice-Chancellor (a council member), the Pro-Vice-Chancellor, the Registrar, the University Librarian, Deans of Faculties, and staff members (Ghana Communication Technology University, 2024a).

In addition to other international collaborations, GCTU has partnerships with Coventry University in the United Kingdom (UK), Anhalt University of Applied Sciences in Germany, and Ramaiah University of Applied Sciences in India. Through these collaborations, GCTU has strategically prioritized the idea of global education, an approach that has yielded numerous advantages for students, faculty members, and the institution (Ghana Communication Technology University, 2024a).

The university is actively aiming to develop a distinguished reputation as a frontrunner in both teaching excellence and technology, with the aim of establishing itself as a worldwide acknowledged hub for research and intellectual innovation (Ghana Communication Technology University, 2024a). Upon confirming its public status, the Ghana Communication Technology University Act, Act No. 1022 (2020) requires the institution to offer cutting-edge, technology-focused, and industry-relevant programmes in ICT and related fields to support the growth of students and the nation as a whole (Ghana Communication Technology University, 2024a). Presently, GCTU provides Certificate, Diploma, and Degree programmes across three main faculties: Engineering, Computing and Information Systems, and Business School. Moreover, the institution operates a graduate school that offers postgraduate degrees in Engineering, Business Administration, Management, and Information Communication Technology (Ghana Communication Technology University, 2024a).

At the university, more than 10,000 students are currently engaged in several academic programmes. According to GCTU, the university's courses and programmes are meticulously designed and instructed by experienced academics employing state-of-the-art training technology in an optimal learning environment (Ghana Communication Technology University, 2024a). This is to equip students for purposeful and fulfilling professions that are crucial for the economic development and social welfare of the nation. GCTU also has a staff strength of 568, including senior members (167 academics and 109 administrators), 123 senior staff (that is, those with no master's degree) and 169 junior staff (that is, those without a degree or diploma) (Ghana Communication Technology University, 2024b).

Out of the 16 regions in Ghana, GCTU has campuses across five (5) regions: Tesano (as the main campus) and Abeka (both in the Greater Accra Region), Kumasi (Ashanti Region), and learning centres in Ho (Volta Region), Koforidua (Eastern Region), Takoradi (Western Region) and Nungua (Greater Accra Region). The distinguishing hallmark of GCTU is its emphasis on equipping graduates for careers in ICT and telecommunications.

University Library, 2024).

The Library is a fully integrated library with a collection of over 4,000 volumes of books, academic journals (printed and online) and databases, magazines and video materials covering the subject areas of telecommunications, electronics, information technology (IT)/computer science, communications, management, general studies, and children's literature/fiction as well as reference materials in these subject areas (Ghana Communication Technology University Library, 2024).

The GCTU Library, being part of a technology-oriented institution, has a diverse array of electronic resources from unrestricted and open access electronic resources to subscription ones. The GCTU Library is a constituent of the Consortium of Academic and Research Libraries in Ghana (CARLIGH), accountable for the procurement of electronic resources on behalf of both public and private universities in Ghana. Through CARLIGH, many of these institutions can subscribe to online academic journals and databases at far lower costs compared to individual subscriptions.

The GCTU Library has an extensive collection of digital materials including electronic journals, electronic databases, electronic books, electronic past examination questions, an institutional repository, and a virtual classroom. Included among the academic online databases are: EBSCOhost, Emerald, JSTOR, Oxford Journals, SAGE, Taylor & Francis Online, Wiley Online Library, Credo Reference, IEEE, Research4Life, Project MUSE, Institutional Repository (DSpace), Remote X and so on. Library services provided include circulation services, reference services, referrals, and information dissemination, information technology support as well as internet access to its users. The Library is the repository of the university's archives, which consist of documentaries, photographs, and other pieces of historical significance to the institution. It also provides state-of-the-art seating space conducive for reading and studies for all users (Ghana Communication Technology University Library, 2024).

The Library has five branch libraries in all satellite campuses across the regions in Ghana (see Section 1.2) with its main library being in Accra, which was the research site for this study. The GCTU Library has qualified professionals headed by a university librarian and other senior members in charge of both technical and administrative units of the library. It has users that include students, faculty members, staff (technical and administrative) as well as researchers.

1.3 Research problem

In contemporary times, major emphasis has been placed, globally, on the provision of e- resources by academic libraries and their users; and this has driven universities to allocate resources towards these information resources to enhance accessibility and maximize user utilization (Akinola et al., 2018; Acheampong, Boakye & Agyekum, 2019; Adjepong, Boakye- Yiadom & Ntummy, 2022). Although, e-resources are of great importance in providing information for learning and research purposes, existing literature indicates that awareness and usage of e-resources do not meet the anticipated level and GCTU may not be an exception to this trend (Acheampong, 2016; Larson, 2017; Yusuf & Farouk, 2017; Adjepong, Boakye- Yiadom & Ntummy, 2022).

In this epoch of restricted funding and budget cuts for libraries, it is necessary for library users to optimize the utilization of electronic resources to justify the need for continued monetary allocation for such resources (Okyere, 2020: 6). This study was motivated by the researcher's quest to investigate the strengths and challenges of the GCTU Library during the emergence of the COVID-19 pandemic in 2020 when there was a total shut-down of face-to-face academic work in most universities in Ghana and all services were provided virtually or remotely. One of the recognized strengths was the GCTU Library's provision of and access to e-resources, which was already in place, although awareness and patronage were quite low in comparison to the investment made in subscription to e-resources. Further engagements by the researcher, who is currently a Junior Assistant Librarian at the Accra campus of GCTU, with faculty members suggest that some of them were unaware of the Library's electronic resources and this could perhaps be the reason for the difficulty/challenge of low usage of such resources. This also brought the realization that little, if any, research has been done to examine faculty members' (academics') awareness and use of electronic resources in GCTU. Hence the need for the study. A related study by Budu (2015) on private universities in Ghana which included GTUC (now GCTU, a public university) and the Akrofi-Christaller Institute of Theology, Missions, and Culture (ACI) focused on postgraduate students, and resonates the need to investigate academics' awareness and usage of electronic resources in support of academic work at GCTU.

Despite many subscriptions to electronic resources made by the GCTU Library, indications suggest that faculty members are still unaware of the existence of such resources and rely instead on search engines such as Google, Google Scholar, and other similar platforms, thus leaving unused these expensive resources with enormous benefits for academic work in the university. Kwadzo's (2015: 2) research on the awareness and utilization of electronic resources (databases) by graduate students in geography and resource development information studies at the University of Ghana, highlighted that despite the importance of e-databases and their availability for library clients, numerous studies have shown that usage falls short of expectations or is simply underutilized. Insufficient knowledge, availability, access, and effective use of electronic resources in the current era of information may probably lead to intellectual and maybe economic impoverishment (Akinola et al., 2018: 6).

It has been observed (Larson, 2017; Bentil, Liew & Chawner, 2022; Adjepong, Boakye- Yiadom & Ntummy, 2022) that most academics in Ghanaian universities faces a multitude of issues such as lack of awareness, exorbitant subscription fees, unstable power, internet access, and training, as well as poor searching skills regarding the utilization of electronic resources. Moreover, there has been no comprehensive study which has focused on faculty members at GCTU and their awareness and utilization of electronic resources offered by the Library. Hence, an inquiry was deemed necessary to address this problem/knowledge gap by investigating the level of awareness and the extent of use of library electronic resources among faculty members of the Ghana Communication Technology University, Accra campus.

1.4 Research objective

The objective of the study was to examine the level of awareness and extent of use of library electronic resources by faculty members at GCTU, Accra campus.

The study was informed by the Technology Acceptance Model (TAM) (Davis, 1989; Davis, Bagozzi & Warshaw, 1989) in addressing this objective and based on this, five critical questions were generated to guide the study.

1.5 Critical questions

The following critical questions were utilized to address the study's objective.

- 1.5.1** What is the level of awareness of Accra campus faculty members of the GCTU Library's electronic resources?
- 1.5.2** What is the extent of use by Accra campus faculty members of the GCTU Library's electronic resources?
- 1.5.3** For what possible purposes would faculty members use the GCTU Library's electronic resources?
- 1.5.4** What is the level of satisfaction by Accra campus faculty members in using the GCTU Library electronic resources?
- 1.5.5** What are possible constraints faced by Accra campus faculty members in using the GCTU Library's electronic resources?

1.6 Significance of the study

The study would be beneficial to three primary demographic groups within the university community: faculty members, library and information services (LIS) professionals, and university administrators and policy makers (Acheampong, 2016: 14; Thompson, Wellington & James, 2018: 82). The limited knowledge and fairly low utilization of electronic resources pose a significant financial burden on academic libraries. Atuase (2016: 18) posits that results of an examination of faculty members' knowledge and utilization of electronic resources, as in GCTU, would function as a point of reference in addressing relevant issues and the findings would help university libraries to identify the constraints encountered by users of e-resources. This study would also enable LIS professionals to become aware of the level of awareness and use of e-resources by faculty members for purposes of identifying strengths and weaknesses in their training and services to derive maximum benefits from these important library resources. The outcomes of the study would be useful to university administrators and policy makers and to justify continuous subscription to e-resources in support of teaching and learning, and/or research in the university. The findings of the study would contribute to the existing knowledge in the academic discipline of Library and Information Science (Atuase, 2016: 18), and also serve to identify gaps and areas for further studies in awareness creation and usage of electronic resources as a major resource in academic libraries globally. Lastly, the methodology adopted by the study to inquire into awareness and use of an academic library's e-resources could offer lessons to other similar studies. In short, the study has significance for LIS professional practice, disciplinary theory/knowledge growth and university policy development.

1.7 Overview of theoretical framework

Technology Acceptance Model (TAM) stood tall and appropriate for the study and was adopted in the investigation into the level of awareness and extent of use of library electronic resources by faculty members at the GCTU based on the stated objective and critical questions of the study. TAM has been used in many technologies and contexts, considering diverse control variables and subjects. This has convinced its supporters of its resilience and has positioned scholars in the Information Studies field to see TAM as a prominent theory in the field of information systems (Acheampong et al., 2020; Kuzilwa & Kuzilwa 2022). A mapping of the TAM qualities, Perceived Usefulness; Perceived Ease of Use; Attitude, Behavioral Intention, and Actual System Use, to the critical questions revealed that it was the most appropriate theory for the study. As a result, TAM was implemented and utilized to assess GCTU faculty's understanding and utilization of e-resources on the Accra campus.

1.8 Overview of research methodology

Motivated by a pragmatic worldview, the study adopted a convergent parallel mixed methods techniques to collect both quantitative and qualitative data using the GCTU, Accra campus as a single case study to answer the critical questions. To achieve the study's objective, a descriptive survey and interview research methods were used with a well-structured questionnaire and semi-structured interviews as the instruments for data collection. The study's population consisted of 122 censused faculty members (Directorate of Human Resource and Organization Development, GCTU, 2022) from the GCTU Accra campus, which included the faculties of Engineering (FOE), Computing and Information Systems (FOCIS), and the Business School, as well as purposefully selected GCTU Library staff. The researcher also conducted semi-structured interviews to obtain detailed data from relevant library heads, including the University Librarian, the E-resources Librarian, the Systems Librarian, and the Librarian in-charge of Acquisitions, Outreach, Training, Information Literacy, and Marketing at the GCTU main library on the Accra campus. The data was analyzed using descriptive statistics such as frequency and percentage distributions using the *Statistical Package for Social Sciences (SPSS)*, Version 28. The semi-structured interviews were also analyzed using *NVivo*, Version 12 according to themes related to the study's critical questions and then addressed by the researcher.

In ensuring reliability and validity, a pre-test of the questionnaire was administered to ten faculty members (Faculty of Journalism and Media Studies), as well as an interview with the E-resources Librarian at the Institute of Journalism (IJ), a Constituent Institute under the University of Media, Arts and Communications (UniMAC), Accra campus, to ensure reliability and validity. Similarly, the instruments were pre-tested and approved as veritable data gathering tools by the study's research supervisor, a Library and Information Science (LIS) expert.

1.9 Delimitations of the study

Delimitations refer to intentional restrictions imposed by the researchers themselves. They are not inherently positive or negative, but rather provide an explanation of the reasoning behind the study's focus, in relation to the research design and underlying philosophical framework (Theofanidis & Fountouki, 2019: 157). The study was confined to faculty members' awareness and use of library electronic resources in GCTU, Accra campus and covered all faculty members from Engineering (FOE), Computing and Information Systems (FOCIS) and the Business School. The study was limited to faculty members in Accra because it is the main campus with the greatest number of academic staff members and, secondarily, because of the distance challenge to conduct the study across all regions in Ghana even though there are other campuses in Ho, Koforidua, Kumasi, and Takoradi. In total, a population of 122 faculty members (academics/lecturers) were censused from the three faculties of the Accra campus. This was considered adequate for a master's level study to ascertain awareness and utilization of the GCTU Library's e-resources.

1.10 Organization of the research report

The research report is organized into five chapters. Chapter One focuses on an introduction consisting of the background (context) to the study (concept of electronic resources, GCTU and its library), problem statement, the objective and critical questions, significance of the study, an overview of the methodology and theoretical framework, delimitations as well as organization of the research report. Chapter Two details the TAM theoretical framework which guided the study and presented a comprehensive review of literature in relation to the stated objective and critical questions. The literature review cover relevant global scholarly literature as well as studies, on library electronic resources, from African and specifically Ghanaian perspectives. The third chapter explains the methodology adopted which focused on the pragmatic worldview or paradigm.

This chapter also elucidates the convergent parallel mixed methods research approach adopted, with GCTU as its case, and a census of the Accra campus faculty members and purposively selected library staff members as the study's population. Chapter Four focuses on the results of the research which was based on TAM and its main constructs. Finally, Chapter Five present discussions of the research's main findings, and from the discussions, conclusions are derived on the extent of awareness and utilization of library electronic resources by faculty members at the GCTU (Accra campus) and recommendations are made.

1.11 Chapter summary

This first chapter introduced the background of the study with the concept of library e-resources and the application of ICT into library functions and services. GCTU, the research case was also introduced as a public university mandated with ICT education and training in Ghana, touching on its library e-resources as the main focus. The chapter also articulated the problem for the study based on the level of knowledge and the extent of usage of library electronic resources by faculty members at the GCTU, Accra campus. The objective of the study as well as the critical questions were deliberated grounded in TAM, as well as the justification for the study. It further touched on the theoretical framework underpinning the study and the overview of the methodology. Finally, Chapter One explained the study's delimitations and its organization of chapters in the research report. The following chapter presents the theoretical framework that guided the investigation, as well as a review of pertinent literature.

Chapter Two: Theoretical Framework and Literature Review

2.1 Introduction

Grant and Osanloo (2016: 12) assert that, the theoretical framework is the basis upon which all knowledge for a research study is built (metaphorically and physically). It serves as a foundation or anchor for the literature study and, more crucially, the methodologies and analysis. On the other hand, the literature review is an essential feature of academic research. Fundamentally, knowledge progress must be based on previously completed work. We comprehend the breadth and depth of the existing body of work by studying relevant literature, and we identify gaps to investigate (Xiao & Watson, 2019: 93).

This chapter presents an overview of the Technology Acceptance Model (TAM), which served as the theoretical framework that guided the study, and presents a detailed evaluation of the literature in respect to the specified objective and critical questions of the study. It first identifies and explains the TAM which was adopted and guided the study based on its attributes. The subsequent section of this chapter delineates a review of the literature which includes important worldwide scholarly literature as well as works on library electronic resources from African and, in particular, Ghanaian perspectives. This focuses on a comprehensive review of the level of awareness and the extent of use of library electronic resources by faculty members, touching on the purpose of use as well as the satisfaction levels. The literature review is also extended to the constraints associated with the usage of library electronic resources by faculty members and in some instances, by students.

2.2 Theoretical framework

Numerous models have been employed by researchers to examine individuals' acceptance of information systems and technology, including the Theory of Planned Behavior (TPB), the Theory of Reasoned Action (TRA), the Technology Acceptance Model (TAM, TAM2), and the Unified Theory of Acceptance and Use of Technology (UTAUT). According to the Theory of Reasoned Action, individual behavior is driven by behavioral intentions, which arise from an individual's attitude towards the behavior and the subjective norms associated with its execution (Surendran, 2012: 175).

The Technology Acceptance Model (TAM) is derived from the Theory of Reasoned Action (TRA) and is employed to elucidate an individual's accepting behavior towards technology (Surendran, 2012: 175). According to Davis, Bagozzi and Warshaw (1989: 985), TAM was initially introduced by Davis in 1986 in his PhD thesis and serves as a modification of the Theory of Reasoned Action (TRA), specifically designed to explain user adoption of information technologies. The goal of TAM is to provide an explanation of the determinants of computer acceptance that is general, capable of explaining user behavior across a broad range of end-user computing technologies and user populations, while at the same time being both parsimonious and theoretically justified (Davis, Bagozzi & Warshaw, 1989: 985). The Technology Acceptance Model is a prominent study framework utilized to forecast individual users' utilization and acceptance of information systems and technology, having been extensively analyzed and validated through various studies.

To investigate the level of awareness and extent of use of the GCTU Library's subscribed e-resources by faculty members, the study adopted TAM as the most appropriate theory to study user acceptance of e-resources and explain it. The key objective of TAM is to illustrate the impact of external criteria on internal beliefs, attitudes, and intentions. The model is based on two key attributes, Perceived Usefulness (U) and Perceived Ease of Use (E), which are the primary beliefs influencing users' acceptance behaviors towards computers (Davis, Bagozzi & Warshaw, 1989: 985; Okyere, 2020: 9) - see Figure 2.1.

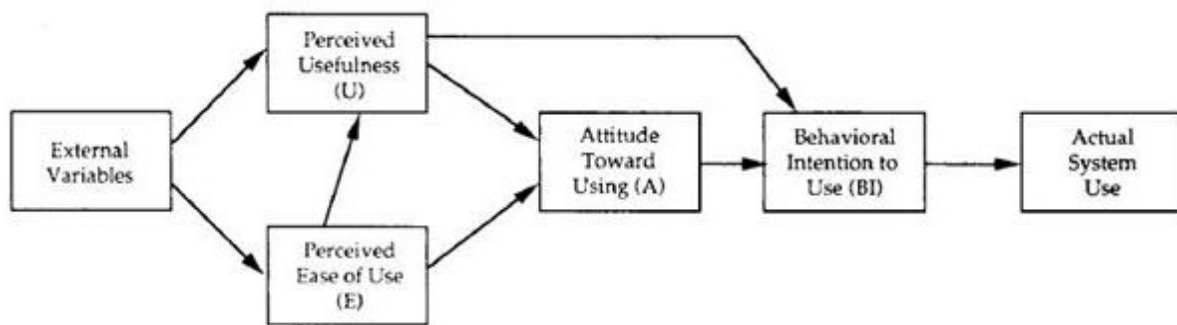


Figure 2.1: Technology Acceptance Model (Davis, Bagozzi & Warshaw, 1989: 985)

Perceived Usefulness (U) is defined as the extent to which an individual believes that utilizing a specific system would improve their job performance (Davis, Bagozzi & Warshaw, 1989: 320). In essence, this refers to the likelihood of positive feedback on users' performance when a system is perceived to be very useful (Okyere, 2020: 9).

Perceived Ease of Use (E), as articulated by Davis (1989), refers to the extent of effort which an individual perceives that utilizing a specific technology would require (Davis, Bagozzi & Warshaw, 1989: 320). This indicates that the user perceives the system as highly user-friendly. A system is more likely to gain acceptance when it is viewed as easier to use than other systems (Okyere, 2020: 9).

Attitude (A) is the inclination or reluctance of an individual to engage in a certain behavioral activity. The attitude of an individual significantly impacts their behavior towards the acceptance of technology (Davis, Bagozzi & Warshaw, 1989: 320; Okyere, 2020: 9).

Behavioral Intention (BI) refers to the perceived feasibility or subjective probability that an individual would participate in a specific behavior (Okyere, 2020: 10).

Actual System Use pertains to the diverse levels at which users of systems effectively utilize them. This is influenced by the behavioral intention one possesses towards using the system (Okyere, 2020: 10).

TAM has been widely used in studies to explain information system usage and has resulted in modifications to the original proposed model. Surendran (2012: 176) referred to a new model called combined TAM-TPB model which integrated the Technology Acceptance Model and the Theory of Planned Behavior that was proposed by Taylor and Todd (1995). Venkatesh and Davis (2000: 197) proposed a new version of TAM called TAM2 which added new variables on social influence processes and cognitive instrumental processes such as experience, voluntariness, subjective norm, image, job relevance, output quality, and result demonstrability to the existing model. Venkatesh et al. (2003) proposed the Unified Theory of Acceptance and Use of Technology (UTAUT) model (Surendran, 2012: 176).

TAM has been widely used to scrutinize individual technology acceptance behavior in various types of information systems (and hence its usefulness for this study). Surendran (2012: 176) referred to Moon and Kim (2001) who added a new variable, playfulness factors, to study the acceptance of the world wide web. Another study by Agarwal and Karahanna (2000: 674) also added cognitive absorption, playfulness, and self-efficacy to the TAM model. Chau and Hu (2001) conducted a comparative analysis of three models: the Technology Acceptance Model (TAM), the Theory of Planned Behavior (TPB), and a deconstructed TPB model, which was deemed possibly suitable for the professional healthcare context in Hong Kong. The findings demonstrated that the Technology Acceptance Model (TAM) outperformed the Theory of Planned Behavior (TPB) in elucidating physicians' intentions to utilize telemedicine technology (Chau & Hu, 2001: 713; Surendran, 2012: 176). Ervasti and Helaakoski (2010), who developed a model based on TAM and TPB to understand

mobile service adoption, claim that perceived usefulness is the strongest factor in adoption and conclude that there have been several studies which have been used to test the TAM model and results have shown it to be reliable. TAM has been applied to different technologies under different situations with different control factors and under different subjects, leading its proponents to believe in its robustness which makes researchers in the Information Studies field consider TAM as one of the significant theories in information systems (Thompson, Wellington & James 2018; Acheampong et al., 2020; Kuzilwa & Kuzilwa, 2022).

Consequently, in investigating the level of awareness and the extent of use of library e- resources by faculty members at the GCTU in the context of the objective and critical questions of the study, TAM stood tall and appropriate for the study, and was adopted in the investigation. Table 2.1 provides a mapping of TAM attributes to the study’s critical questions.

Table 2.1: Mapping TAM attributes to critical questions

Critical questions	TAM attributes
What is the level of faculty members’ awareness of e-resources?	Behavioral Intention
What is the extent of use of e-resources by faculty members?	Actual System Use
What is the possible purpose of use of e-resources?	Actual System Use
What is the level of satisfaction in usage of e-resources?	Perceived Usefulness; Perceived Ease of Use; Attitude
What are possible challenges in usage of e-resources?	Actual System Use

2.3 Literature review

A literature review offers a thorough survey of the literature on topics, theories, and methodologies, and synthesizes earlier research to increase the body of knowledge (Paul & Criado, 2020: 1). According to Newman and Gough (2020: 3), a literature review is an academic publication that presents an overview of the most recent data on a certain subject. Conducting a literature review assumes that knowledge is constantly expanding, allowing us to incorporate more contributions to existing work (Neuman, 2014; Okyere, 2020: 14).

A review of the literature seeks to glance through what has been researched and written on the area of study in order to first present previous works, identify gaps on the subject matter and then present an opportunity to occupy the niche (Paul & Criado, 2020: 1). In order to fully investigate and understand the research problem, the study drew on literature and theory related to the identified objective and critical questions, and in doing so cover themes and concepts on the concept of library e-resources, types of e-resources, level of awareness, extent of use, purpose and the level of satisfaction, as well as constraints associated in using e-resources by faculty members globally, including Africa and specifically Ghana.

2.3.1 Concept of electronic resources

Electronic resources according to Veer and Panda (2021), are simply the electronic representations of information. E-resources, the most recent innovation in ICT, are accessible in several formats (Humbhi et al., 2023: 109). These resources include electronic books, electronic publications, electronic journals, online learning tutors, online libraries, and online assessment examinations. This definition excludes electronic resources that do not necessitate a computer, such as music compact discs and video discs (Kenchakkanavar, 2014: 98).

The Library and Information Science Academic Blog (2023) defines an electronic resource as a resource necessitating computer access or any electronic product that provides a compilation of data, including text, full-text databases, electronic journals, image collections, multimedia products, and numerical, graphical, or time-based data, published as a commercially available title intended for marketing. It further delineates e-resources as information (often a file) that can be stored as an electrical signal, usually but not exclusively on a computer.

E-resources may be acquired, subscribed, organized, stored, accessed, retrieved, and disseminated electronically or online through computer networks and offer many advantages over hard copies in academic libraries. Users may access them remotely across distance and time with no physical presence within the library. E-resources offer simultaneous access to many users at the same time unlike physical copies of informational materials, such as books where one user is to use a copy at a particular time. The convenience of access by users also allows for a larger number of resources to be searched at a go and provides statistics for library management to determine the extent of usage in order to make justification for continuous subscription to and economical expenditure on the library budget. E-resources also provide multimedia (audio, video, and animation) contents which are not present in print formats and provides hyperlinks of related contents and articles to users. Lastly e-resources subscriptions allow for saving storage spaces within most libraries because all information is held electronically by the facilitation of the internet.

Aside from the many advantages offered by e-resources as compared to print formats, there are many challenges and constraints associated with their access and use. The need to have a continuous power source (electricity) and internet is a big blow to most developing countries such as Ghana. Training and searching skills in accessing e-resources is another challenge and users may need to be equipped with the needed expertise in order to use them. Lack of internet or unstable internet connectivity also impedes access and utilization of electronic resources. Above all these challenges, financial burden is huge challenge to most libraries as subscription to most African countries is a big problem where it sometimes may stop due to financial issues.

2.3.2 Types of e-resources in academic libraries

Electronic resources, according to Sebastian and Muthumari (2020: 3), are thought of as data miners that are optimized, restructured, and stored more frequently in cyberspace. They are processed by contemporary ICT equipment into their most tangible and compact form. Digital resources are frequently used to describe the different kinds of records that are made available to library users by computer-based information collecting systems. E-resources refer to technological resources that can be accessed electronically and digitally (Sebastian & Muthumari, 2020: 3). Library and information services provision in the 21st Century is fast changing with the infusion of information and communication technologies.

The swift advancement of electronic publication has expanded libraries' role beyond procuring printed books and periodicals to include the organization and provision of access to diverse learning resources in electronic format (Kenchakkanavar, 2014: 97). The incredible spread of electronic resources in the 21st Century has profoundly altered how students and academics around the world approach information seeking (Ternenge & Kashimana, 2019: 2) and the internet has facilitated and transformed the way library users read, study and research.

According to Kenchakkanavar (2014: 98), e-resources account for a sizable share of the worldwide literature and refer to information sources in electronic form. There are different types of e-resources which includes E-books, E-journals, databases, CDs/DVDs, E-conference proceedings, E-reports, E-maps, E-pictures/photographs, E-manuscripts, E-theses, E- newspapers, websites – listservs, newsgroups, subject gateways, USENET, FAQs, etc, (Kenchakkanavar, 2014: 98). There are many different sorts of electronic resources available in all libraries, but university libraries currently have the most subscription options. These are some of the types and descriptions of them.

E-books: Electronic books are electronic versions of print textbooks and fiction novels available in a variety of formats, including Adobe PDF, Microsoft Reader, Mobipocket, EPUB, Kindle, and iPad (Kenchakkanavar, 2014: 100). E-books are digital reproductions of books that occupy no physical space and thousands of titles may be stored on a compact memory card. These resources are increasingly prevalent in libraries and offer numerous advantages compared to traditional books (Nwagwu, 2015: 122) which conquers the barriers of time, space, price, and users.

E-journal: Electronic journals are generally publications or series that consist of a compilation of electronic articles authored by different individuals, typically in certain scientific fields (Atuase, 2016: 28). Professional organizations, societies, foundations, commercial publishers, or institutes are frequently responsible for its publication. This is now a very important information resource in every library and accessed through electronic means.

E-thesis: Electronic theses are electronic versions or digitized forms of projects works of PhD and master's dissertations which are published online.

E-newspaper: Commonly referred to as an online newspaper or web newspaper, it exists on the World Wide Web or the internet (Kenchakkanavar, 2014: 100).

E-past examination questions: These are electronic versions of past examination questions that can be accessed electronically and remotely. This allows for the upload of past examination questions onto institutional repositories where library users, especially students, can access and retrieve them in preparation for semester examinations.

There are other categories of electronic resources that include e-magazines, e-patents, e- standards, e-clipping and online databases.

Online databases: Online databases are a collection of related academic files or articles on a subject and come in different forms which are accessed digitally via a computer and internet connectivity. They are categorized into bibliographic, reference, statistical and full text databases. These databases are normally subscribed to, for free or may attach a fee to have access to these important academic resources. Other types of databases are image collection and multimedia products.

Online database systems emerged as a result of progress made in the applications of ICT, to information retrievals (Muthumari, 2013: 68; Okyere, 2020: 17). The origins may be traced back to the past fifty years with series of modifications and improvements. The development of online databases, as described by Muthumari (2013: 68), demonstrates that until the 1940s, information retrieval techniques were exclusively manual, such as indexes and catalogues. These manual systems consisted of pre-coordinate and non-manipulative retrieval instruments. However, a notable advancement occurred in the 1940s with the creation of post-coordinate and manipulating retrieval systems, which remained grounded on manual methods. These systems included the Peek-a-Boo or Optical Co-Incidence Systems established by Batten and Cordonnier, the Edge-Notched Cards System invented by Mooers, and Taube's Uniterm System (Muthumari, 2013: 68). These technologies were later replaced by computer-based alternatives.

Punched Card Data Processing was then introduced in the 1950s when various automated indexing systems were devised and which marked the initial computerized retrieval systems. This was followed by a period of information retrieval involving an offline, batch-processing, tape-oriented model which was developed in the 1960s (Muthumari, 2013: 69; Okyere, 2020: 18). This era witnessed the adoption of information retrieval techniques by information centres and governmental entities in the United States (US), comprising the National Aeronautics and Space Administration (NASA) and the National Library of Medicine (NLM).

From the 1970s, online databases gave rise to several categories of databases, including the MEDLINE services provided by the National Library of Medicine, the bibliographic services offered by OCLC (Online Computer Library Centre), and several other commercial services (Muthumari, 2013: 69; Okyere, 2020: 18). Further advancements occurred in 1975 with the creation of other online databases such as the Engineering Index (COMPENDEX), the National Technical Information Service, the Science Citation Index, the Chemical Abstracts Service (CHEMCON), ERIC (the Educational Resources Information Centre), and CAIN (the machine-readable database of the National Agricultural Library), enhancing access to extensive information databases (Muthumari, 2013: 69).

There was further improvement by the producers of databases and vendors with the introduction of new functionalities where, through licensing agreements, online service providers had access to the databases and organizations and libraries received access to the contents through subscription payment agreements. Another initiative, which began in 1992 was called Text Retrieval Conference. Supported by the US National Institute of Standards and Technology and the US Advanced Research Projects Agency, this initiative aimed to assist in the display and management of information (Chowdury, 2010).

Okyere (2020: 19) asserts that the situation in African universities made subscriptions and access to these databases a great challenge due to high costs involved. Adesoye and Amusa (2013: 4) explain that the International Network for the Availability of Scientific Publications (INASP) acquired subscriptions to pertinent databases and provided them to poor countries that were active participants in its collaboration, at affordable prices. The underlying rationale of these activities of INASP was to:

enhance the procurement of global information and knowledge for researchers in developing nations via the acquisition of full-text online journals, current awareness databases, and document delivery; augment access to research information from developing countries through the establishment of institutional, national, and regional online journal services, such as African Journals Online (AJOL); and deliver training in the utilization, assessment, and management of electronic information and communication technologies (Okyere, 2020: 19).

Katabalwa (2016: 447), described INASP as collaboratively engaged with 22 partner countries across Asia, Latin America, and Africa. Specifically, in Africa, INASP collaborates with 11 partner countries: Ethiopia, Ghana, Kenya, Lesotho, Malawi, Mozambique, Rwanda, Tanzania, Uganda, Zambia, and Zimbabwe. Registration in the majority of these nations was conducted within the framework of the consortium to assist with database acquisitions. INASP has subscriptions to several other databases in addition to the American Institute of Physics Journals, American Physical Society, Annual Reviews, American Chemical Society Journals and Magazines, ASA-Journal of the Acoustical Society of America (JASA), and ASABE Technical Information Library (Katabalwa, 2016: 448; Okyere, 2020: 20).

In order to fully investigate and understand the research problem, the study drew on the literature and theory related to the identified objective and the critical questions covering themes and concepts on knowledge and utilization of library electronic resources, particularly university digital databases used by faculty members globally, as well as in Africa, and including Ghana. Hence this section reviews literature on the following sub-themes:

2.3.2.1 Level of awareness of e-resources

Awareness is the knowledge about something that exists or the understanding of a situation or subject at the present time based on information or experience. According to Ansari (2020: 2), awareness can also be seen as knowledge or perception of a situation, facts, recognition, consciousness, realization, and acknowledgement of new development. It may also be characterized as awareness or comprehension of a circumstance, fact, consciousness, acknowledgement, realization, understanding, and recognition of concern and informed interest, or familiarity with a certain situation or development (Akpojotor, 2016: 3; Olajide & Adedokun, 2018: 3).

Due to the advantages users derive from using e-resources and the fact that ongoing awareness of them is crucial for academic work, e-resources have taken over as the most popular and preferred information source in most academic libraries. The researcher focused on studies that have investigated how well-informed faculty members are at utilizing electronic resources in universities in relation to the universal view that, the knowledge of a service is of utmost importance to effectively encourage its use. This could significantly increase the patronage of services that would have otherwise been underutilized or unused (Bentil, 2011: 88).

A survey study by Sohail and Ahmad (2017: 168) aimed at ascertaining the level of use of electronic resources and services by faculty members and students at Fiji National University. The study used a questionnaire which was distributed to both students and faculty members. The findings in relation to faculty's awareness of e-resources revealed that 47 (94%) faculty members were aware of the e-library, while all (100%) faculty members were aware of the Moodle online research tool, e-database, and online public access catalogue (OPAC). It was found that 48 (96%) faculty members were aware of e-books and 42 (84%) faculty members were aware of e-quick reference. The findings indicated that knowledge of e-resources was ranked highly among faculty members. This affirmed findings in a study by Msezane and Dlamini (2021: 8) at the University of Zululand in South Africa which focused on postgraduate students, using both questionnaires and interviews as its data collection instruments. The findings revealed the majority of the respondents, 35 (76%), were fully knowledgeable of the availability of the electronic resources subscribed to by the university library.

Salaz, Johnson & Pickles' (2018: 130) study, using phenomenography to understand the open access experiences and perceptions of faculty members, sought to identify and reveal the varying range of ways that a single sub-group of faculty members, who teach online, experience open access. Participants in the study all taught online programs bearing academic credit. Ten faculty members were interviewed from the UK, Australia, the US, and India. The results indicated that some faculty members who taught online are either unaware of or rely on subject-specific or commercial repositories to share their work instead of their institutional repositories. The results of the study were found to be congruent with those of Hahn and Wyatt's (2014) study, which discovered that faculty members are unaware of the institutional repositories at their own institutions. This ignorance can be reduced by providing new faculty members with onboarding and induction procedures, informational campaigns, training on how to use institutional repositories, and instruction on the legal rights and obligations related to self-archiving.

The findings of another study by Srinivasulu, Balu and Narendra (2019: 5) at the Vardhaman College of Engineering (Autonomous), Hyderabad, India on the awareness and usage of e-resources by faculty members revealed that 93.22% of the respondents indicated they knew of the electronic resources whereas 6.77% were unaware of them. The results indicated a favourable trend concerning the utilization of electronic resources by faculty members at Vardhaman College of Engineering (Autonomous), Hyderabad, as explained by the researchers (Srinivasulu, Balu & Narendra, 2019: 5).

This study also confirmed findings from a study by Thamaraiselvi, Lakshmi and Manthiramoorthi (2019: 5) where most of academics knew of e- resources in designated self-financing arts and scientific colleges in Chennai, India.

In Nigeria, Temboge and Yaji (2018: 55) investigated the extent and use of The Essential Electronic Agriculture Library (TEEAL) databases among faculty members at the Federal University (Kashere) and Federal College of Education, Technical (Gombe). The survey results suggested that the majority of faculty members (84.4% positive replies against 12% negative responses) were aware of the database (TEEAL), with 3.6% giving an ambivalent response about the database. This demonstrates that most faculty members were cognizant of, and knowledgeable about the TEEAL database's availability. The finding concurs with the research by Kwafoa, Imoro, and Afful-Arthur (2014: 7) in Ghana which also found that 92% of faculty members in the University of Education, Winneba were aware of the online databases subscribed to by the library.

However, the findings of Joshua and King (2020: 59) was different from the norm. Their study focused on the utilization of e-resources by academics and students at the central library, the Ibrahim Babangida Library at Madibbo Adama University of Technology (MAUTech), Yalo Adamawa State in Nigeria. The findings indicated that students exhibited the most familiarity with the university website, other websites, e-books, and electronic documents. The same inquiry was posed to ascertain the extent to which academics are acquainted with and have embraced e-resources. Respondents were asked to identify all e-resources they recognized, with data from 366 responses indicating that the most familiar e-resources among academics were e-journals (63%), followed by e-books (57%) and e-newspapers (52%). The results revealed that academics lacked familiarity with Libguides, repositories, and indexing and abstracting databases, potentially attributable to insufficient knowledge and/or training. Consequently, it is reasonable to assert that the majority of academics possessed a degree of familiarity with e-resources at MAUTech.

Another survey conducted by Olajide and Adedokun (2018) on the awareness and use of electronic information resources by faculty members at the Afe Babalola University in Nigeria, referred to Aniebiet (2009). Emwanta and Nwalo (2013) also explained that academic libraries performs a crucial function in assisting institutions of higher education in fulfilling their obligations by obtaining the essential information resources required to maintain the instruction and education, and/or investigation, and civic duties pertaining to their institutions. Their findings revealed that amongst the electronic resources available that academic members were unaware of, EBSCOhost (37.2%) ranked highest, succeeded by LexisNexis (34.9%), Compulaw (34.9%), Law Pavilion (33.7%), and Access Engineering, while email (2.3%) constituted the least recognized e-resource

among academic members (Olajide & Adedokun, 2018: 7).

Olajide and Adedokun (2018: 3), corroborated by Egberongbe (2011), articulated that electronic resources are becoming more vital to the scholarly community. Hence, knowledge of these information resources is essential to the advancement of libraries in the 21st Century. Nevertheless, in the era of digitalization, the process of accessing, storing, and distributing information relies on familiarity with the significant advancements made in technology (Tsakonas & Papatheodorou, 2006). Hence awareness of electronic resources is essential for faculty members to effectively use these assets in their academic work.

A further study in Nigeria conducted by Yusuf and Farouk (2017: 24) on the awareness, access, and use of academic databases by faculty members, used Bayero University Library as its case. Using a questionnaire with a sample size of 142 faculty members of the university, the study found that faculty members have an average degree of awareness regarding Elsevier Science Direct, African Digital Library, Nigerian Virtual Library, HINARI, JSTOR, EBSCOhost, AGORA, and Indiana University Press. However, their awareness of offline databases at the library is generally nonexistent.

In Ghana, a survey study by Larson (2017: 6) on faculty awareness and use of library subscribed online databases at the University of Education, Winneba asserted that user awareness of databases in higher educational institutions is crucial since successful utilization of these resources contributes to academic success. The findings of this study showed a significant indication exists, that most of the respondents, 91 (75.49%), knew of the databases subscribed to by the library, while only a minority, 11 (24.51%), did not. It is possible that the lecturers who were unaware of the databases, were fresh additions to the university. The study indicated a high level of awareness of databases among faculty members, demonstrating that many were cognizant of the library's subscribed databases.

In the same vein, Kwafua, Osman and Afful-Arthur (2014: 8) examined the awareness and use of electronic databases among faculty members at the University of Cape Coast. The study revealed that 92% of the faculty members were aware of the existence of online databases.

Furthermore, the findings of the study revealed that faculty members were familiar with the databases but was unaware that the university library subscribes to the databases on behalf of the university. BIONNE database was the least recognized database subscribed to by the library.

Acheampong's (2016) survey on students' use of electronic resources at the University of Professional Studies, Accra (UPSA) revealed that 91% of respondents exhibited awareness about the electronic resources, whereas 9% of respondents were unaware. The increased number suggested that the popularity of the e-resources was rising (Acheampong, 2016: 47).

A related study by Atuase (2016: 85) on utilization of electronic resources by postgraduate students at the University of Cape Coast also revealed that 185 (73%) of respondents possessed awareness of the accessible electronic resources at the university's library while 67 (27%) respondents indicated otherwise. This validates her claim that majority of postgraduate students were aware of the library's electronic resources.

A survey conducted by Dadzie (2005) yielded results contrary to this finding. The research conducted at Ashesi University campus in Ghana indicated that users were unaware of the databases subscribed to by the library for the campus, despite high levels of general computer usage through the advanced ICT infrastructure. The research indicated that the utilization of the databases was significantly minima which was attributed to a lack of awareness about them.

It is evident from studies reviewed in this section that awareness creation of e-resources among academics have at best, been average and that efforts need be intensified to create and publicize the availability of e-resources, to lead to higher patronage of these important resources towards effective and efficient academic work.

2.3.2.2 Extent of use of electronic resources

Electronic information resources have become indispensable resources in all libraries especially academic libraries because of the contributions it brings to bear in academic work. Different types of users in university settings, be it students, academics, administrators or researchers, consult online academic databases in one way or the other, but the extent or frequency of use may differ in various areas (Okyere, 2020). These differences emphasize the importance of investigating and identifying the rate of usage of library electronic resources, particularly online databases, in order to justify their continuous subscription in universities (Akinola et al., 2018).

Akinola et al. (2018: 11) found that postgraduate students at the University of Ibadan, Nigeria, occasionally utilized e-databases. The findings indicated that 8.1% used JSTOR on a daily basis, 6.9% used both AJOL and AGORA on a weekly basis, 9.6% used JSTOR on a monthly basis, and 26% used JSTOR sporadically. Conversely, 78.6% of the respondents reported never using AJOL. The study further suggested that occasional utilization of e-databases can be due to the prioritization of certain databases over others, resulting in their avoidance despite their potential to provide relevant information.

The findings of a case study conducted at Bayero University Library by Yusuf and Farouk (2017: 23) on the awareness, access, and use of academic databases by faculty members, showed more than half of the respondents, 57 (51.8%), indicated that they use EBSCOhost 'sometimes', while fewer than a quarter, 11 (10%), stated that they use EBSCOhost 'often'. In the same vein, 30 (27.3%) of the respondents 'rarely' use EBSCOhost and only 12 (10.9%) 'never use' EBSCOhost. Also, 68 (61.8%) of the respondents 'sometimes' use JSTOR and 30 (27.3%) 'always' use JSTOR whereas 7 (6.3%) and 5 (4.6%) 'rarely' and 'never' use JSTOR, respectively. The occasional use of e-databases is evident.

In India, Madhusudhan (2010: 504) conducted a study on the use of electronic resources by research scholars from Kurukshetra University, which demonstrated that electronic resources and services have emerged as the predominant instruments for research and academic endeavors. Acheampong (2016: 19), referring to Asamoah-Hassan (2003), explains that since the 1980s, public universities in Ghana have initiated computerization efforts and have achieved success in offering services including CD-ROMs, access to the internet, and access to databases with full-text articles and abstracts. Electronic resources are preferable to printed formats and were being effectively used in comparison to CD-ROM databases; and it was established that electronic information resources were used because they provide faster and more reliable information (Borrego et al., 2007; Swain & Panda, 2009; Kumar & Kumar, 2010; Acheampong, 2016).

Meeramani (2023: 9) also studied awareness and use of e-resources among the faculty members of JAIN University in India. The study aimed to assess the extent of e-resources utilization within the Faculties of Business, Computer Science, and Information Technology and concentrated on electronic resources accessible at the JAIN Learning Resource Centre in Bangalore. For assessing the frequency of e-resource usage among faculties, the results indicated that 31% of respondents utilize e-resources weekly for 5 to 6 hours, 23% for a minimum of 2 to 3 hours, 19% daily, 15% for 10 to 12 hours, and 12% for over 20 hours each week. This showed that most of the faculty members utilize e-resources weekly for informative and research objectives.

The utilization of e-resources allows faculty members and students to access digital information effectively and efficiently, aiding in investigation of issues, problem-solving, decision-making, product development, and the creation of innovative solutions to enhance learning and foster new understanding in educational contexts (Aramide & Bello, 2009: 30; Owolabi et al., 2012: 4). The employment of electronic resources by faculty members will facilitate their access to current information on multiple subjects and contribute to the cultivation of innovative thinking and learning abilities. Faculty members are motivated by electronic resources because they provide them the chance to send, obtain, download, and share material on a variety of subjects and may be accessed from a distance (Owolabi et al., 2012: 4).

Olajide and Adedokun's (2018: 7) survey on awareness and use of electronic information resources by faculty members of AFE Babalola University in Nigeria found that faculty members mostly use email (96.5%) followed by Learning Management System (LMS) (80%), and search engines (79%), with the least used e-resources being Lexis Nexis (5.8%) and EBSCOhost (5.8%). Open Yale (54%) topped the list of e-resources not used by faculty members followed by Directory of Open Access Journal (DOAJ) (48%), Annu Law Series (47%) and Stanford Courser (45%). However, with the frequency or extent of use of e-resources, email (81.4%) was used on a daily basis, internet (80%) and search engines (80%), with CD-ROMs least used. Online journals (34%) were used on a weekly basis.

In the US, Prelitz et al. (2023) investigated how streaming media can help ethnic studies faculty members achieve their educational objectives, how they find and use streaming media to fill curricular gaps, and how well current library resources meet their needs and values. The researchers conducted interviews with 13 ethnic studies faculty members on their campuses using an interview guide provided by Ithaka S+R and focused on how they accessed and used streaming media in their instruction.

The findings showed that faculty members stressed the relevance of video content to their pedagogical goals. The majority of interviewees reported using video as a central component of their pedagogy, with representative descriptions including, “All of my classes are built in one way or another around video content” (SJSU - 11), and “There's just no way to do it ... well without incorporating [streaming media]” (CSUF - 5) (Prelitz et al., 2023: 3).

In addition, Thompson, Wellington, and James (2018: 88) conducted a study to determine the extent of use of e-resources by faculty at the University of Technology in Jamaica. The study revealed that majority (67%) of the respondents of the study make use of e-journals. The study found that the respondents utilized e-resources for teaching and learning, and/or research objectives.

Mulla (2011: 4) conducted a survey of faculty members' usage of electronic resources at the HKBK College of Engineering, India and the results indicated that 16 (26.67%) of the 60- faculty member respondents utilize e-resources once a week, with 15 (25.00%) using it daily. It was also found that 18.33% of the faculty members utilize electronic resources occasionally while 5% never use e-resource at all.

The findings of Atuase's (2016) study noted that a substantial number of respondents, 57.9%, preferred to get information from other sources such as Google search, Google scholar, Yahoo, Wikipedia, and Amazon more than once a week, while 29% did it every day. Furthermore, 27% of respondents used Emerald databases more than once per week, and 19% accessed it on a daily basis. Additionally, 18% of them accessed information from EBSCOhost more than once each month, whereas 14% did not. Meanwhile, HINARI, Francis & Taylor, and SAGE databases had minimal patronage, with 24%, 21%, and 21% respondents, respectively, indicating that they rarely viewed them (Atuase, 2016: 96).

Electronic information resources have gradually emerged as an indispensable asset in education, significantly benefiting faculty members. Hence Owolabi et al. (2012: 4) assert that e-resources can favorably influence academic growth in Nigeria if utilized effectively, and they appeal that faculty members should endeavor to embrace this source of information in order for them to keep pace with the rest of the world in their areas of speciality.

The literature reviewed in this section indicated that library e-resources are productive tools for both academic staff and administrators as well as for university students; and accessibility and use of electronic resources will contribute to increased production and efficiency in university work and research output. The variations within the extent of utilization of electronic resources is an indication of the perceived usefulness and importance one places on these resources.

2.3.2.3 Purpose for e-resources use

Many academics in both public and private universities use electronic resources for various purposes ranging from teaching, preparing notes, learning, researching as well as for publications. For instance, faculty members at the Obafemi Awolowo University in Ile-Ife, Nigeria most often employed electronic resources for conducting literature searches in their study and for their professional development (Omotayo, 2010: 6; Adegboye, 2011: 4).

A survey by Mulla (2011) on the usage of e-resources by faculty members in HKBK College of Engineering in India revealed that majority of faculty members (100%) were using e-resources for accessing related facts within their specializations and for educating, following that, 58% used it for research purposes, and 57% used it for current and general information. Again, 48% of the faculty members used e-resources for subject updates and for general knowledge whilst communication was the purpose of use with the lowest score of 22% (Mulla, 2011: 4).

The study by Sebastian and Muthumari (2020: 16) indicated that medical students in India rely more on e-resources for higher studies (352 (100%)) than for the learning process (286 (81.20%)). The study revealed that respondents were far more specific about their future academic pursuits than about the acquisition of comprehensive knowledge on the area of research. A notable correlation existed between the awareness of e-resources and their intended use. Meeramani's (2023: 10) study revealed that 44% of faculty members utilized electronic resources for responsibilities related to research such as writing research papers, PhD proposal writings, article readings and others. The results also indicated that 17% of faculty members utilized e-resources for class instruction, 16% for personal knowledge enhancement, and 9% for overseeing students' research projects.

Haridasan and Khan (2009) averred that numerous researchers and academic members utilize electronic resources to conduct research studies. Extensive consensus among academics was that knowledge must be readily available through computer and internet platforms. Majority of users were content with the National Social Science Documentation Centre (NASSDOC) electronic resources accessible in the library of the Council of Social Science Research (CSSR) in India. However, Adegbore (2011) and Kumar and Kumar (2008) identified six justifications for utilizing electronic information sources. In a survey conducted by Kumar and Kumar (2008), users employed e-resources to provide back-ups to their research (70%) and teaching (59%). For project work, one-third of respondents used e-resources. Eighty percent (80%) of medical science users used electronic information sources for research, with engineering (67%) and management studies (55%) following closely behind (Kumar & Kumar, 2008: 686; Adegbore, 2011: 4).

In a further review, 53.6% of survey respondents indicated that they consulted electronic journals for research and teaching in Catalan universities (Borrego et al., 2007: 71; Adegbore, 2011: 5). Only 37.4% of respondents visited electronic journals for research, while 2.7% consulted them for teaching. Respondents in Exact and Natural Sciences and Engineering predominantly utilized journals for research, while those in Biomedicine use them for both teaching and research purposes. When the results were broken down by age, respondents under the age of 30 used electronic journals mostly for research, respondents 41-50 used them for both teaching and research, and respondents over 51 used them for both teaching and research or solely for teaching. Disaggregated by academic position, only the associate professors showed a high proportion of use for teaching (35.9%) (Borrego et al., 2007: 72; Adegbore, 2011: 5).

The findings of the Thamaraiselvi, Lakshmi and Manthiramoorthi (2019: 6) study of faculty awareness and impression of electronic resources at a few self-financing arts and science colleges in Chennai, India revealed that 131 (31.95%) of academics used electronic resources for instructing and developing educational resources for students, 114 (27.80%) used them to update knowledge in relevant subjects, 100 (24.39%) used e-resources to write books, articles, and research papers, and 11 (12.68%) used them for other purposes. As a result, it can be asserted that most of the respondents utilize electronic resources for teaching besides providing study materials for students, with only a few respondents utilizing electronic resources for other reasons. The research also corroborated the Bellary and Surve (2019: 5) study which showed that most (86%) of the lecturers accessed electronic resources for research and learning purposes.

In South Africa, a study conducted by Makate (2022: 48) aimed to investigate the utilization of library electronic resources by students at North-West University, Vaal Triangle Campus (NWU-VT). Makate employed a descriptive survey research design, and a sample size of 365 registered students at NWU-VTC, and a questionnaire was used for the collection of data. The findings revealed that approximately 93% of students utilized electronic resources for studies and tasks, with acquiring information 22 (7.3%) constituting the least common reason for students' utilization of e-resources. The majority of respondents utilized electronic resources for their studies and projects.

Another study, 'The ethical use of digital technology in teaching anatomy: a Southern African perspective' by Lottering et al. (2022) focused on a cohort of anatomists in Southern Africa. These anatomists were based at 15 (14 in SA and 1 in Namibia) health sciences institutions of which eight of the departments of anatomy host body donor programmes. The respondents for the study included members of the Anatomy Society of Southern Africa (ASSA) who were Professors, Associate Professors, Senior Lecturers, Lecturers, Associate Lecturers and postgraduate students (Teaching Assistants). Resources used by respondents for e-learning were photographs, videos, x-rays, magnetic resonance images (MRIs), computerized tomography (CT) scans and ultrasound images. The findings showed that 52% of respondents used digital photos of human remains from their department as part of their personal instruction; 10 respondents (42%) did not know where the human material used in their own instruction came from, accounting for 58% of those who were aware of this information. Two respondents stated that they did not use digital photos at all for teaching, while 41% stated that they used e-learning tools, but these did not include digital photographs taken using human remains collected by their department (Lottering et al., 2022: 3).

Explorative research by Adjepong, Boakye-Yaidom and Ntumy (2022: 13) on knowledge and utilization of accessible electronic resources by students and faculty members of the Methodist University College of Ghana (MUGG) in Ghana, revealed that respondents 'strongly agreed' with using electronic resources for writing articles for publication, preparing teaching/lecture materials, preparing assignments for students, writing project proposals, and lastly, for seminar and conference paper preparations.

Baayel and Asante (2019: 11) undertook a survey on faculty members' information-seeking behavior in an ICT environment at the Koforidua Technical University, and respondents were from the Faculty of Business and Management Studies at the university. According to the study's findings, 42 (43.7%) faculty members used e-resources to prepare their courses, 21 (21.9%) to write papers for publication, and 15 (15.6%) to compose PhD theses. Others looked for e-resources to perform literary searches 9 (9%), for self-improvement 5 (5%), for internet browsing for pleasure 2 (2%), and for other reasons 2 (2%). It was clear that respondents' primary reason for looking for electronic resources aimed to assist them in preparing teaching notes and writing research articles for presentation and publication.

It is evident from the literature reviewed in this section that faculty members and students use electronic resources for various reasons. Academics utilize electronic resources for the preparation of teaching materials, for writing of books, articles and other publications, to conduct literature searches, for knowledge acquisition and to pursue further studies. Students also use e-resources for assignments, literature searches and for knowledge acquisition.

2.3.2.4 Level of satisfaction in using e-resources

Satisfaction comes from the acceptance of a product, or a service rendered, and this assertion can also be correlated to the provision of e-resources to support library patrons in academic institutions. In order to ensure continuous acceptance of and satisfaction in using electronic resources, for both students and faculty members, there is the need to create visible awareness, and to orient, train and retrain users on usage (Acheampong, 2016: 90). This section reviews literature relating to studies on levels of satisfaction by faculty members in the utilization of electronic resources.

In assessing satisfaction or effect of electronic resources, Joshua and King's (2020: 60) study, on the use of electronic resources at the Modibbo Adama University of Technology (MAUTech) at Yola, Adamawa State (Nigeria), revealed that a majority of students (25%) agreed that accessing electronic resources facilitates the pursuit of relevant information particularly electronic newspapers owing to the accessibility of portable gadgets. The effect of electronic resources is too apparent in the fact that 22% of students said electronic resources have expanded the scope of their studies/research and 20% said electronic resources have facilitated their ability to remain current with advancements in their field. The findings suggest that students readily locate e-resources. The statistics also showed that 501 students are either unaware of or do not use e-resources, indicating the necessity for awareness programmes or training.

In general, the findings suggest that e-resources have facilitated information retrieval and diversified research activities at the university.

Based on a report on a biennial faculty survey, the article 'Faculty perceptions, use, and needs of library resource and services in a public research university' by Scoulas and De Groot (2023: 8) at the University of Illinois, Chicago Library in the US, revealed that despite a slight decline in satisfaction, the results showed that the majority of faculty members were satisfied with the overall quality of services and resources offered by the library. Some of these changes in satisfaction may have been influenced by the COVID-19 pandemic. The authors explain that perhaps the pandemic and increased reliance on virtual remote access to the library and staff contributed to the rating's decline.

Ansari and Zuberi's (2010: 5) research on the utilization of e-resources among faculty members at the University of Karachi, Pakistan revealed that most academic populations expressed a significant degree of satisfaction with the introduction and utilization of electronic resources. The results also indicated that faculty members were pleased with the existing electronic resources: more than three-fifths (66%) of the survey population were 'quite satisfied', while 31% were 'satisfied' (Ansari & Zuberi, 2010: 5).

Malabanan and Bayeng (2019: 205) explain that there was a reasonable level of satisfaction among the students and lecturers at University of Perpetual Help System – Laguna (UPHSL), Philippines concerning the utilization of EBSCOhost. The same study revealed that satisfaction and utilization levels were similar across gender, user type, and educational status. The research also revealed a notable correlation relating the degree of gratification and the extent of EBSCOhost consumption, meaning that as the level of customer fulfillment increases, so does the amount of utilization.

Borrego et al. (2007: 73) reflects on academics at Catalan universities and their future use of electronic journals, where 91.1% of the respondents thought that they would use these more in the next few years. Only 8.6% thought there would be no change in their use, and less than 1% thought they would use them less or quit using them. In all areas tested, the proportion of respondents who predicted they would utilize electronic journals more was about 90%.

To assess how using academic electronic books has affected both faculty members' views on using them and the academic achievement of students in higher education at the University of Ajman, United Arab Emirates (UAE), Alsalhi et al. (2020: 10) conducted a study using two approaches. The first approach was a quasi-empirical approach to determine the role of using electronic books in undergraduate students' achievement, and the other was the descriptive approach to determine viewpoints about the using academic electronic books in the university. The study's findings on the second question, which concerned the level of use of academic electronic books, revealed that adoption of these volumes was widespread. These results led to the conclusion that the majority of the faculty members at Ajman University support the continued use of academic electronic books and that they do not hesitate to do so in place of traditional printed academic books.

However, in Spain, Roig-Marin and Prieto (2021: 4) carried out a study on Bachelor of Arts in English Studies students at the University of Alicante (UA). The research concentrated on the student's perspective on digital resources at the UA. In general, students across all academic years were content with the materials provided for the study of Anglophone literatures (77.78% of second-year students, 77.27% of third-year students, and 83.33% of fourth-year students) and cultures (52.78% of second-year students, 70.45% of third-year students, and 83.33% of fourth-year students). In contrast, when studying literature versus culture, there was a marginally greater average degree of student satisfaction with their bibliographical needs (79.46% vs. 68.85%, respectively), which was statistically significant. Therefore, it is worth noting that 44.44% of second-year students believed there were insufficient resources available for the study of Anglophone cultures.

According to the findings of a study (Sohail and Ahmad, 2017: 168) on the utilization of electronic resources and services by lecturers and students at Fiji National University, it was revealed that respondents were quite satisfied with the information literacy training program and the electronic/virtual reference service. Respondents were pleased with internet-enabled workstations, current awareness services, and selective information delivery. Respondents provided no negative responses. The same findings were evident in the study by Thamaraiselvi, Lakshmi and Manthiramoorathi (2019: 4) where most of the academics were satisfied with the utilization of e-resources.

Budu (2015: 112) employed a seven-point Likert scale to quantitatively measure the degree of satisfaction among respondents in their utilization of e-resources. The findings showed that among the two universities in Ghana, Akrofi-Christaller Institute of Theology, Mission and Culture (ACI) and the Ghana Technology University College (now GCTU), 3 respondents (2.5%) and 23 respondents (19.2%) expressed 'completely satisfied', while 55 respondents (45.8%) expressed 'mostly satisfied' and 'somewhat satisfied', respectively. Additionally, 13 respondents (10.8%) were 'neither satisfied' nor 'dissatisfied', 16 respondents (13.3%) were 'somewhat dissatisfied', 7 respondents (5.8%) expressed 'mostly dissatisfied', and 3 respondents (2.5%) identified as 'completely dissatisfied'. The majority of respondents from the surveyed universities were clearly content with the existing condition of electronic information resources at their institutions.

User satisfaction is the ultimate goal of every library and its resources, including e-resources, and all efforts should be enhanced to attain this goal.

2.3.2.5 Constraints associated with the use of e-resources

Technology acceptance and usage have become a very important factor in all academic libraries and their universities, especially in this era of information explosion where no user, be it a student or an academic, can do without it. The need to integrate information technology into resources, is met with many constraints ranging from unstable power cuts, poor technological infrastructure and computer networks, poor and unstable internet links, information overload, and lack of searching skills among them. There are various barriers that hinder the utilization of electronic resources for research purposes (Madhusudhan, 2010; Acheampong, 2016).

The results from research by Thompson, Wellington, and James (2018: 90) at the Calvin McKain Library at the University of Technology, Jamaica, identified many constraints to the utilization of electronic resources. These constraints included such things as irrelevant response, computer access, diverts from standard responsibilities, insufficient competence, time-intensive and excessive information. Furthermore, it indicated that most of the participants specified the usage of electronic resources as time consuming (55%) and it was identified as the major hindrance.

Veer and Panda (2021) survey on utilization metrics of electronic resources during the epidemic period, which used the Chandigarh University Library' in Mohali, Punjab (India) as its case, indicated challenges encountered by library users (students, staff, and lecturers) while

accessing electronic resources available on the website of the university library. Even though e-resources are now a popular resource for universities and scholarly communities, most users reported having some difficulty using electronic resources. Among the 158 respondents, 25%

(39) had concerns with an abundance of material that is not clearly stated, while 23% (37) had difficulty locating relevant information. Ten percent (16) of the remaining library users experienced difficulties due to obsolete equipment, slow internet connectivity, and other challenges (Veer & Panda, 2021: 12).

In South Africa, Makate's (2022: 50) study pointed to numerous issues that students encountered while accessing e-resources, including impaired wireless internet access (Wi-Fi) and computer network performance (21.8%), lack of computer illiteracy (11.6%), downloading/retrieval/searching problems (30%), and reference issues (4.6%). The findings unequivocally indicated that while 32% of respondents had no trouble using the e-resources, 30% of respondents had problems with downloading, retrieval, and searching abilities, as well as slow Wi-Fi or network issues. The findings indicate that a considerable number of students had little trouble using electronic resources.

Again Ansari (2020) carried out research on the utilization and understanding of electronic resources among research academics in literature disciplines at Banaras Hindu University. According to the findings of the study, 79% of respondents exhibited deficiency in technical expertise, while 55% lack suitable infrastructure. In addition, 52.44% of respondents have issues with internet transfer rate, while 39% do not have access to sufficient electronic resources; 29% of respondents encountered challenges unnamed within our selections and chose others, explained Ansari (2020: 14).

In 2004, Chisenga conducted a study on the usage of ICTs in ten African Public Library Services. The results indicated that only a small number of libraries with internet access provided web-based information services to its users. The study identified four obstacles to the efficient delivery of e-resources in most libraries: insufficient strategic planning, inadequate or unreliable funding, limited usage of internet for information services, and infrequent training for users in new ICT services (Acheampong, 2016: 28). Related to this, a study conducted on the adoption of information and communication technologies (ICTs) by health science students at the University College Hospital in Ibadan, unveiled that 57% of the respondents lacked proficiency in computer usage. Their utilization of the database was subpar owing to lack of knowledge, limited availability of computers, inadequate training, and the exorbitant expenses associated with its provision (Ajuwon, 2003; Acheampong, 2016: 28).

A mixed method study by Bentil, Liew and Chawner (2022: 119), which investigated the management and use of electronic resources in academic libraries in Ghana, interviewed 24 library personnel, three executives from a library consortium and surveyed lecturers and graduate students in four universities. Among the challenges identified by the study were insufficient computers, and badly maintained infrastructure, which manifested in broken down computers, poor internet connectivity and lack of remote access (at the University of Cape Coast (UCC) and Wisconsin International University College (WICC)). Inadequate outreach and publicity by the library as well as insufficient user trainings on e-resources were identified from both the interview and the survey. The survey found that, on average, 57% of lecturers and 35% of graduate students from the chosen universities had taken part in training sessions on electronic resources provided by their libraries. Accordingly, the survey respondents highlighted that a major obstacle with utilizing e-resources of the library was the absence of effective searching abilities (Bentil, Liew & Chawner, 2022: 120).

Budu's (2015: 100) investigation into the utilization of electronic information resources for research and education by postgraduate students at GTUC (now GCTU) and ACI (as mentioned in Section 2.3.2.4), two private universities in Ghana, revealed the primary obstacle linked to the utilization of electronic information resource is sluggish internet connection. Budu (2015) further found recurrent power outages as another constraint with ACI and GTUC with 21 (17.6%) and 27 (23.3%) respective respondents. Other related constraints were characterized by insufficient search abilities, exorbitant internet expenses, restricted computer availability, and challenges in refining search queries to specific topics.

Some of the factors that were identified in a case study by Yebowaah and Plockey (2017: 25) at the University of Development Studies (UDS), Wa campus in Ghana, as being constraints associated with the utilization of e-resources in the library, were low internet speed, no/low bandwidth, inadequate computers and staff, library staff attitude, password problems and lack of assistance from librarians. The results revealed that the most (53%) of the respondents who were lecturers had problems with passwords and with the least mentioned challenge being library staff attitude (2%).

The three primary obstacles encountered by faculty members once accessing e-resources revealed in the study at the Methodist University College, Ghana (MUCG) by Adjepong, Boakye-Yiadom and Ntumy (2022: 14), were unstable internet connection, lack of guidance in utilizing electronic resources and remote access. The authors therefore concluded that there was lack of investment in materials and human resources by both library and university management which may have inhibited faculty members from fulfilling their mandate when it comes to teaching, learning, and/or conducting research.

An associated investigation by Kwafoa, Imoro, and Afful-Arthur (2014: 12) at the University of Cape Coast, Ghana found that the imposition of expensive internet charges, inadequate search techniques, sluggish internet speed, and inadequate instruction all impeded the use of electronic resources. This indicates the necessity to enhance library orientation and user education, together with regular workshops and seminars on the efficient usage of e-resources, including electronic journals in general (Budu, 2015: 101).

Ankamah, Gyesi and Amponsah's (2022: 12) study on the utilization of electronic resources in research and education within the health science libraries in Ghana, by examining user knowledge and perceptions, indicated that the primary obstacle in utilizing e-resources was 'high cost of personal internet data', accounting for 82 (82%) of respondents, and 'low internet bandwidth', representing 77% of respondents. Furthermore, 46 (46%) respondents indicated 'too much information (information overload)' while 43 (43%) respondents reported 'staying up-to-date with e-resources'. Furthermore, 30 (30%) and 25 (25%) respondents identified insufficient time and electronic resources with badly designed user interfaces as obstacles in utilizing electronic resources, respectively. The least significant obstacle faced by respondents, 15 (15%), in using e-resources was the development of expertise in doing so. Obviously, the findings indicated that the primary obstacles faced by respondents in using electronic resources were exorbitant expense of personal internet data and restricted internet bandwidth.

In an investigation by Owolabi et al. (2012: 8), which sought to determine the limitations on the utilization of e-resources, 158 (43.17%) respondents from the University of Ibadan, Nigeria indicated data transmission capacity problems. This response was additionally endorsed by respondents from Obafemi Awolowo University, Ile-Ife and from the Agricultural University in Abeokuta, both in Nigeria, with 153 (45%) and 99 (54%), respectively, also indicating bandwidth issues. The Olabisi Onabanjo University identified, in the same study, finances as a significant issue with the utilization of electronic information sources, with supporting statistics of 81 (47%).

Similarly, to examine the awareness and utilization of electronic resources by research scholars, Acheampong et al. (2020: 208) utilized a questionnaire to gather data from 103 scientists affiliated with designated institutes at the Council for Scientific and Industrial Research (CSIR) in Ghana. The analysis was conducted based on the greatest reaction to an item, and then categorized into four primary sections: information communication and technology (ICT) infrastructure, insufficient skills in information literacy, copyright concerns, payment systems, and electricity supply. The results revealed that 38% of participants identified insufficient ICT infrastructure in the Institute as their primary obstacle to accessing electronic materials. Additional obstacles included insufficient information literacy skills and an unreliable electricity supply. Additionally, 11% of respondents indicated that copyright concerns and fees for online content hindered their utilization of electronic resources. The current research would be useful in ascertaining if challenges such as these to the usage of e- resources, are still prevalent in Africa, specifically in Ghana.

In summary, the literature reviewed for the study focused on themes in relation to faculty members' cognizance and utilization of library e-resources within the framework of the research's objective and critical questions, as well as the theory guiding the research, from a global, African and Ghanaian perspectives.

2.4 Chapter summary

This chapter described the study's theoretical framework and reviewed literature associated with awareness and usage of library electronic resources globally. It first touched on the application of the Technology Acceptance Model (TAM) as the theoretical framework, its origin, and explained the attributes as well as some researchers who used and modified it by adding some variables. As a guiding theory to this study, the chapter also provided mapping of TAM attributes to the study's critical questions. E-resources is one of the principal resources in all university libraries and its usage comes with many benefits for academic work, especially teaching and learning, and/or research, as evident in the literature. Further, themes on literature reviewed included awareness and utilization of electronic resources by academics, the extent of usage of these resources, the purpose of use either for teaching or research, and also touched on satisfaction and challenges relevant with the use of e-resources in academic libraries from a global viewpoint, and then narrowing down to developing countries in Africa, and to Ghana specifically.

Evidence from the literature indicates that awareness has a significant effect on the availability and usage of e-resources in any library. Even though rated as a very important information resource by most research on academics' familiarity and utilization of electronic resources, patronage, especially in emerging nations like Ghana, is relatively low and average, and the literature indicates it is necessary to improve the level of awareness generation. Challenges identified in the literature deterring the utilization of electronic resources include insufficient research abilities, sluggish internet connectivity, recurrent power interruptions, lack of access to full text citations, need for training on e-resources, inadequate computers, poor technological infrastructure, being time consuming, information overload, and funding to acquire access to e-resources. Recommendations in the literature include increasing development of awareness, user education, procurement of standby power generating systems, and enhancement of institutional bandwidth. The following chapter examines the research approach used by this study to respond to the critical questions guiding it.

Chapter Three: Research Methodology

3.1 Introduction

This chapter describes the study's research paradigm, approach, design, and techniques and also discusses the validity and reliability of the data collection instruments, limitations of the study, ethical considerations as well as evaluates the methodologies used.

Research approaches according to Yin (2018: 16) is a mode of enquiry. Creswell and Creswell (2023) also assert that research approaches encompass the entire process of research, from overarching assumptions to specific methodologies for data collection, analysis, and interpretation. In a study, a decision needs to be made on the approach to be adopted. This selection should be guided by the research designs; and specific research methodologies of data collection, analysis, and interpretation, as well as the philosophical assumptions that the researcher brings to the study. These authors also posit that the selection of an approach depends on the nature of the research problem or subject to be tackled, the personal experiences of the researchers, and the intended audience of the study (Creswell & Creswell, 2023).

Creswell and Creswell (2023) categorize research approaches into three distinct types: quantitative, qualitative, and mixed methods. They also noted that a study can lean towards being predominantly qualitative or quantitative, or it can have a balance between the two. Mixed methods research is positioned in the middle of this continuum since it combines aspects of both qualitative and quantitative approaches. The differentiation between qualitative research and quantitative research according to Creswell and Creswell (2023) is commonly expressed in terms of employing words (qualitative) as opposed to numbers (quantitative), or more precisely, utilizing closed-ended questions and responses (quantitative hypotheses) or open-ended questions and responses (qualitative interview questions). From a pragmatic standpoint, a convergent parallel mixed methods approach was adopted for this study, using faculty members at GCTU Accra campus as a case study employing both a questionnaire and an interview as data collection instruments. Motivations for the methodology selections made for this study follow.

3.2 Research philosophy and paradigm

The social sciences according to Wisker (2008: 67) includes a variety of research paradigms, namely positivism, interpretivism, structuralism, postmodernism, poststructuralism and constructivism. A paradigm is a combination of fundamental assumptions about and particular methods of investigating the nature of things, their evolution, and their interrelationships or mutual influences (Acharyya & Bhattacharya, 2020: 12). In planning a study such as faculty's awareness and use of library e-resources in GCTU, the researcher needs to think through the philosophical worldview assumptions brought to the study, the research design that is related to this worldview, and the specific methods or procedures of research that translate the approach into practice. Creswell and Creswell (2023) identify four worldviews or beliefs: postpositivism, constructivism, transformative and pragmatism.

Postpositivists believe in a deterministic philosophy in which causes determine effects or outcomes, and the problems explored reflect the necessity to identify and assess the factors that impact results, such as those discovered in experiments (Creswell & Creswell, 2018: 44). Constructivism (or Interpretivism), on the other hand, stresses people's subjective experiences and proposes that we are actively engaged in the building and reconstruction of meanings through our daily interactions, which is referred to as the social construction of reality (Leavy, 2022: 13). Transformative (or Critical) paradigm arose during the 1980s and 1990s from individuals who felt that postpositivist assumptions imposed structural laws and theories that did not fit marginalized individuals in our society or issues of power and social justice, discrimination, and oppression that needed to be addressed (Creswell & Creswell, 2018: 46). This includes groups of researchers who are critical theorists; participatory action researchers; Marxists; feminists; racial and ethnic minorities; persons with disabilities; indigenous and postcolonial peoples; and members of the lesbian, gay, bisexual, transsexual, and queer communities (Creswell & Creswell, 2018: 46, 47). They further state that research in this paradigm contains an action agenda for reform that may change lives of the participants, the institutions in which individuals work or live, and the researcher's life.

Finally, the pragmatist worldview rejects any set of rules or theories, such as positivism, constructivism, or transformative, and suggests that different tools may be useful in different research contexts, and thus researchers value utility and what works in the context of a specific research question (Leavy, 2022: 14). The type of paradigm or worldview determines which research method and data collection instrument must be adopted such as with the examination of academics'

awareness and usage of library electronic resources in GCTU. The positivist paradigm aligns with and makes use of quantitative methods and statistical data whilst constructivism and transformative paradigms generally use qualitative methods and data. Pragmatism deploys more strength with the combination of both quantitative and qualitative methods to complement and ensure the neutralization of bias and weakness that comes with each method. This paradigm presents as appropriate for the field of Library and Information Science, as well as for this study to assess the degree of knowledge and utilization of library e- resources by faculty members at the GCTU, Accra campus.

For this study, the research adopted the pragmatism assumption or worldview, which was derived from the work of Peirce, James, Mead, and Dewey, as a philosophical underpinning for mixed methods studies that conveys its importance for focusing attention on the research problem in social science research, and then used pluralistic approaches to derive knowledge about the problem (Creswell & Creswell, 2018: 47, 48). The strength of the mixed-methods approach is that it is a complete methodological tool kit that integrates expertise across other methodologies (Molina-Azorin & Fetters, 2019: 279; Adu & Van der Walt, 2021: 583). It engages stakeholders and involves them in the creation of knowledge, and produces evidence that resonates, while simultaneously, the research is being disseminated, evaluated, and demonstrated to assess its effects. Pragmatism supports the utilization of quantitative and quantitative research methods in one study and turns a blind eye to paradigmatic stances (Ngulube & Ngulube, 2022: 3).

The study was grounded in the pragmatism worldview. This paradigm choice for the study was made based on the suitability of pragmatism as a philosophical foundation for mixed methods research and its efficacy in directing attention towards the research problem in social science research and thereafter employing diverse approaches to acquire knowledge about the problem (Tashakkori & Teddlie, 2010; Creswell & Creswell, 2018). The researcher drew on the pragmatism worldview or assumptions to investigate the level of awareness and the extent of use of the library's subscribed electronic resources by faculty members at the GCTU, Accra campus. This assumption was used to explain the main objective of the study and to address its critical questions (see Sections 1.4 and 1.5 of Chapter One).

3.3 Research approach and design

Early considerations of the benefits of mixed methods were based on the notion that all approaches have inherent biases and limitations. By gathering both quantitative and qualitative data, the shortcomings of each type of data were compensated for (Creswell & Creswell, 2018: 51). For the purposes of this study, a convergent parallel mixed methods approach was adopted to investigate the objective of the study. This type of mixed methods approach enables a researcher to converge or merge both quantitative and qualitative data to provide a very comprehensive analysis of the research problem. According to Creswell and Creswell (2018: 52), in this design an investigator typically collects both forms of data at roughly the same time and then integrates the information during the interpretation of the overall results.

A research design, according to Okyere (2020: 51), refers to set of strategies and processes used to determine the techniques of data collecting and analysis in a study. Cohen, Manion and Morrison (2018: 38) posit that a research design refers to the systematic plan for addressing a research problem by defining the approach, theories, techniques, necessary data, data collection instruments, data sources, analysis, and interpretation of the findings. Research designs are types of inquiries within quantitative, qualitative, and mixed methods approaches that provide specific direction for procedures in a research design (Creswell & Creswell, 2018: 49). The authors further explain that these designs have grown over the years as computer technology has advanced data analysis and the ability to analyze complex models, and as individuals have articulated new procedures for conducting social science research. A researcher does not only select either a quantitative, qualitative, or mixed methods approach to conduct research but also decides on the type of study (design) within these three choices.

3.3.1 Case study design

The convergent parallel mixed methods approach adopted for the study was facilitated by a case study design. A mixed methods case study design, according to Creswell and Plano Clark (2018: 186), is a type of research design in which the quantitative and qualitative data collection, results, and integration are used to provide in-depth evidence for a case (s) or to develop cases for comparative analysis. A case study is defined as “an empirical method that investigates a contemporary phenomenon (the ‘case’) in-depth within its real-world context, especially when the boundaries between phenomenon and context may not be clearly evident” (Yin, 2018: 45). The case may either be an individual, an organization (such as GCTU) or an activity that is bound by certain criteria.

Adopting a single case study design, the study used GCTU, Accra campus as its case to address the research problem. Diop and Liu (2020: 8) posit that a single case study is a case study based on a setting like a company and in this case GCTU represented that case. Case studies have benefits in terms of process and outcome which help to focus research within the confines of space and time for a specific case (Schoch, 2020: 246) and hence GCTU, Accra campus was adopted as a case for the study, from among other campuses of the University in other regions in Ghana.

3.4 Research methods

Mixed methods refer to a study designed to integrate both quantitative and qualitative data collecting and analysis methodologies at every stage of the research process (Cohen, Manion & Morrison, 2018: 31-32; Jacobs & Cornelius, 2022: 111). Ponce and Pagán-Maldonado (2015: 115) also posit that part of doing a mixed methodologies study is to amalgamate or deliberately merge quantitative and qualitative methodologies as elements of the research. The objective is to investigate the intricacies of the research problem to quantify its objective viewpoints and to comprehend or articulate their subjective components with utmost specificity and precision in relation to their manifestation or expression. Research methods include the techniques of data collection, analysis, and interpretation employed by a researcher in a study. This study was grounded in convergent parallel mixed methods research techniques for data collection, investigation and interpretation. This approach was chosen based on the researcher's affiliation as a staff member of the GCTU Library and to the faculty members, and assisting with the investigation and the understanding of academics' degree of understanding and scope of utilization of the subscribed library electronic resources for academic work and research.

For pragmatists, the world is not perceived as an absolute oneness. Mixed methods researchers aim to explore several methodologies for data collection and analysis instead of adhering to a single methodology (for example, quantitative or qualitative). In essence a descriptive survey and an interview research method were adopted to address the objective of the study. Surveys provide a quantitative or numerical description of trends, attitudes, or opinions of a population by studying a sample of that population (Creswell & Creswell, 2018: 49). Furthermore, it encompasses cross-sectional and longitudinal studies that employ questionnaires or structured interviews to gather data, with the aim of extrapolating findings from a sample to the entire population. A detailed and well-structured questionnaire was designed as the main instrument for data collection (see Appendix C) and was distributed to all faculty members at GCTU, Accra campus as the main respondents.

A semi-structured interview (see Appendix B) was also conducted by the researcher to solicit detailed data from some heads of units of the library including the University Librarian, the E-resources Librarian, the Systems Librarian, and the Librarian in-charge of outreach, training, information literacy and marketing at the GCTU main library at the Accra campus. The latter position, as declared, is occupied by the researcher of the study – see discussion on autoethnography in Section 3.4.2.

3.4.1 Population and sampling

Generally, a population is the aggregate of individuals who live in a particular area at a specific time. But in statistics, population refers to data on your study of interest (Ravikiran, 2023). It can be a target group of individuals, objects, events, or organizations one is interested in gaining information about or drawing conclusion on. Likewise, the population of a study is the main group of interest from whom a sample will be drawn to serve as respondents of the study. The targeted population of this study were all the faculty members numbering 122 (Ghana Communication Technology University, 2024b) of the Accra campus of GCTU, consisting of the faculties of Engineering (FOE), Computing and Information Systems (FOCIS) and the Business School as well as purposively selected library staff.

The rationale for selecting the faculty members from the Accra campus, which is the main campus of GCTU in Ghana, is that this campus has the largest number of faculty members compared to other regional campuses or learning centres at Ho, Koforidua, Kumasi, Takoradi and Nungua; and this would facilitate the generalization of findings. Also, all faculty members on the Accra campus are engaged in the teaching of students from diploma, bachelor's degree, master's level through to PhDs while those on other campuses are not. Proximity of the researcher (based on Accra campus) to the research site is another (albeit secondary) reason for the chosen population.

This study sought to investigate the level of awareness and the extent of use by faculty members of the GCTU Library's subscribed e-resources. As mentioned earlier, the library staff selected for the study included the University Librarian, the E-resources Librarian, the Systems Librarian, and the Librarian in-charge of outreach, training, information literacy and marketing. These library staff, at the time, were heads of units within the library, and were purposively selected based on their related roles, responsibilities and knowledge about e-resources and associated services.

Selecting a sample from a population is a process called sampling (Shukla, 2020: 6). It is the process by which a researcher selects some items from a larger population of interest for further in-depth analysis utilizing probabilistic and non-probabilistic methodologies (Mweshi & Sakyi, 2020: 180). In this study, however, a census was deemed appropriate and hence the selection of all 122 faculty members (see Table 3.1) on the Accra campus as the main respondents for the study. A census is a total count of a variable, not a statistical approximation (Bell et al., 2023: 2). These authors further emphasize that a census differs from methods that establish representative sub-groups (sample) that approximate the size of the entire population using sampling procedures. It involves the selection of the entire population in a study. A census was deemed appropriate for the study because of the manageable number of faculty members (122) at the GCTU, Accra campus and also to ensure a better return rate of responses (Bell et al., 2023: 3).

Table 3.1: Population of faculty members and purposive sample of library staff (GCTU, Accra campus)

Faculty	Number of faculty members (census)	Library staff	Number of purposively selected library staff members
Business School	61	University Librarian	1
Engineering	22	E-resources Librarian	1
Computing and Information Systems	39	Systems Librarian	1
		Outreach, Training, Information Literacy and Marketing Librarian	1
Total	122		4

Source: Ghana Communication Technology University (2024b)

Creswell and Plano Clark (2018) explain that purposive sampling refers to the process by which researchers deliberately choose (or recruit) people who have first-hand knowledge of the study's primary phenomenon or major idea. Hence purposive sampling was seen as suitable about the qualitative part of the mixed methods research and was used to purposefully select four (4) heads of units in the GCTU Library (see Table 3.1) for conducting semi-structured interviews relative to the critical questions of the study (Ponce & Pagán-Maldonado, 2015: 125). A researcher may employ homogenous sampling by selecting individuals who belong to a sub-group with distinguishing traits (Creswell & Plano Clark, 2018).

This purposive or homogenous selection is done because these library staff are knowledgeable and play various roles that oversee the rendering of e-resource services to all users including faculty members, and have a level of understanding of the subject of e-resources that positions them to provide detailed information relating to the critical questions guiding the study.

3.4.2 Instrumentation and data collection

Creswell and Creswell (2018: 52) posit that an investigator in a convergent parallel mixed methods study typically collects both forms of data at roughly the same time and then integrates the information in the interpretation of the overall results. In this convergent parallel mixed methods study, a systematic questionnaire and semi-structured interviews were used as the instruments for gathering data and were deemed appropriate because of the participants (census of academics and purposively selected library staff). The data were collected from the field (GCTU, Accra campus) in 2022, 2023 and 2024.

3.4.2.1 Structured questionnaire

A questionnaire is a sequence of questions typically presented on paper or in digital format. When meticulously designed and correctly managed, a questionnaire becomes a crucial tool for making assertions about certain groups of individuals or whole communities (Acheampong, 2016: 38). Such a questionnaire was distributed to faculty members to solicit responses based on the research objective and the critical questions of the study which covered level of awareness, extent of use, purpose of utilization, degree of contentment and the challenges involved with the use of electronic resources.

3.4.2.2 Semi-structured interviews

An interview according to Babbie (2021: 268) is a data-gathering interaction when one person (the interviewer) poses questions to another person (the respondent). Interviews can be conducted in person or over the phone. This method, according to DeJonckheere and Vaughn (2019: 1), enables the researcher to collect open-ended data, investigate participants' thoughts, feelings, and opinions about a certain topic. These authors also explain that semi-structured in- depth interviews are the most common qualitative data source and are extensively employed in qualitative research.

Semi-structured interviews, in this study, were conducted between the researcher and purposively selected library staff members using the same guiding constructs as those of the structured questionnaire. The interview commenced with an introduction and rationale for the research and the interviewee's consent was then sought with an anonymity assurance. The interview was based on the same critical questions relating to GCTU faculty members' degree of awareness of library's electronic resources, the extent of usage, purpose for usage, level of satisfaction of usage as well as the constraints encountered. Through the use of similar questions, it is meant that like topics are addressed in both qualitative and quantitative data gathering so that the two datasets may be easily compared or integrated, as explained Creswell and Plano Clark (2018). According to Acheampong (2016: 39), an interview schedule is a highly valuable and unparalleled source of information that should provide the researcher with an intimate inside perspective on the significance of e-resources in academic libraries. Qualitative interviewing is characterized as a comprehensive, semi-structured, or loosely organized method of interviewing, which is distinct from the traditional usage of open-ended questions seen in structured interview schedules like surveys (Adu & Van der Walt, 2021: 583). According to Raju (2014: 166-167), semi-structured interview provides the researcher with the opportunity to delve deeper in order to enhance the depth of the collected data, therefore guaranteeing two outcomes: the data is comprehensive and thorough, and it enables the researcher to offer further elucidation and explanation to the interviewee.

It was categorically declared earlier that the researcher, who was (at the time of the study) a GCTU Library staff member in charge of library outreach, training, information literacy and marketing used his own autoethnography (based on his knowledge and professional experiences in relation to the research objective) as an instrument to understand the research needs and requirements of GCTU faculty members and their awareness and use of e-resources.

3.4.2.3 Autoethnography

Autoethnography, according to Edwards (2021: 1), is a highly valued and frequently used research approach and practice in which the researcher is thoroughly involved in self- experience while watching, writing, journaling, and reflecting. One fundamental aspect of autoethnography involves the scientist or practitioner conducting narrative analysis that focuses on their own experiences and connections to certain phenomena (McIlveen, 2008: 13) and not just writing about oneself; is about being critical about personal experiences in the development of the research being undertaken or about experiences of the topic being investigated (Mendez, 2013: 281).

It must be emphasized that the researcher used his autoethnography (knowledge and experience) as the Librarian in-charge of Outreach, Training, Information Literacy and Marketing to respond to the critical questions underlying the study. The researcher conducted an interview as an interviewee, with a colleague librarian as the interviewer to elicit the researcher's responses emanating from his experience to the same questions within the interview schedule.

Autoethnography has numerous advantages, including giving rich data and ease of access to data because the researcher uses their own experiences as a source from which to explore a certain issue (Mendez, 2013: 282). An inherent constraint of researchers using their own autoethnography is the implicit exposure of their emotions and thoughts. This necessitates honesty and a readiness to reveal personal information. Moreover, autoethnographies present several ethical dilemmas that can be challenging for researchers to respond to, rendering them a complex approach to undertake (Mendez, 2013: 282). This limitation obliged the researcher, in the case of this study, to remain very ethical and objective, and to respond with honesty to the questions asked, and not display biases.

3.4.2.4 Pre-testing of instruments

Pre-testing data collection instruments is critical in order to detect and correct errors before a standardized set of procedures is developed (Wolf et al., 2016: 359; Adams, 2017: 36). In line with this, a pre-test of the questionnaire was administered to ten (10) faculty members (Faculty of Journalism & Media Studies) at the Institute of Journalism (IJ), a Constituent Institute under the University of Media, Arts and Communication (UniMAC) at the Dzorwulu campus in Accra. Out of the ten (10) questionnaires administered, six (6) were completed with commendations of the standard of questions. Similarly, the interview schedule was also pre-tested with the E-resources Librarian of the same institute (IJ) at the Ridge campus, Accra, where reviews and corrections were made before the main study. IJ was chosen as an appropriate site because it shares the same status as GCTU and subscribes to the same e-resources facilitated by the Consortium of Academic and Research Libraries in Ghana (CARLIGH). The two data collection instruments were also validated, as veritable tools for data collection, by the study's research supervisor who is an expert in the field of Library and Information Science.

3.4.2.5 Administration of instruments

Following protocols, 122 structured questionnaires (in printed form) were administered personally by the researcher to various academics' offices of the three faculties, the Business school, Engineering, and Computing and Information Systems, through their main faculty offices and staff common rooms to ensure full participation of the respondents and thus a maximum return rate. Administration of the questionnaires began in the last week before the Christmas break (20th December 2023) up to the first week in January 2024 when the university resumed operations. With weekly reminders and visits by the researcher to faculty offices, data collection was extended until the first week of February 8, 2024, as a mop up due to the unavailability of some faculty members and for those who were yet to complete it. Some completed questionnaires were left with the faculty officers for collection by the researcher and this also facilitated a higher response rate. Out of the 122 questionnaires administered, 92 completed questionnaires were returned until a point of saturation of 75% was reached where there was no further forthcoming completed questionnaires.

Similarly, interviews were conducted between the researcher and purposively selected library staff members. The librarians were pre-informed and appointments were made at their convenience and with approval of signing an informed consent form. The duration for each interview was less than an hour, for four consecutive days (8th to 12th January 2024), and were conducted within the offices of the purposively selected library staff members.

3.4.3 Data analysis

Data analysis in mixed methods research involves the independent analysis of quantitative data using quantitative analytical techniques and qualitative data using qualitative analytical techniques. Creswell and Plano Clark (2018) define the convergent concurrent or parallel approach as the method used by researchers to integrate the findings of quantitative and qualitative data analysis for the purpose of comparison or combination. The fundamental objective is to compare the two outcomes to achieve a more thorough understanding of a problem, to authenticate one set of results with the other, or to ascertain if participants react similarly when using quantitative predetermined scales and when posed with open-ended qualitative questions (Creswell & Plano Clark, 2018).

In order to ascertain academics' consciousness and usage of electronic resources subscribed to by the GCTU Library, the *Statistical Package for Social Sciences (SPSS)*, Version 28 was used to analyze the data collected (the questionnaires), through an application of descriptive statistics, including frequency and percentage distributions. Data analysis ran from the 12th of February 2024 to the 15th of March 2024. *SPSS* was opted for as data analysis software because it is widely used and its reliability in data analysis is assured (Abu-Bader, 2021: 28). Descriptive statistics encompass the process of providing a detailed account, visual representation, and concise summary of a dataset in order to accurately depict the many characteristics of that dataset. Essentially, descriptive statistics provide a description of numerical data (Acheampong, 2016: 41).

The semi-structured interviews with the GCTU librarians were analyzed according to the themes in relation to the critical questions of the study and were then discussed by the researcher. Using inductive approaches, the thematic contents of the interviews were transcribed into codes, and this allowed for logical interpretations. Coding in research analysis involves “assigning tags, labels, or other descriptors to segments of data that represents a specific concept or theme” (De Luca & Levinson, 2022: 1141). Affirming this, Babbie (2021: 332) also defines coding as the process of transforming raw data into a standardized form suitable for machine processing and analysis. It may also be referred to as a method of categorizing and identifying data to derive patterns or significance from it. The analysis of the interviews was facilitated using *NVivo*, Version 12 for coding themes identified in the critical questions and in line with the theory behind the study. *NVivo* is a qualitative data analysis computer software package that has many advantages and may significantly improve the quality of research. Hilal and Alabri (2013: 185) explain that this software greatly reduces manual task and gives the researcher more time to discover tendencies, recognize themes and derive conclusions. This program enabled the recollection of thoughts for coding and organized them into thematic regions (themes) and concepts out of the obtained data (Adjei, 2020: 156). The data were then shown using percentages, frequency tables, and graphs to reveal trends and patterns.

3.5 Reliability and validity

Reliability refers to the procedure to guarantee uniformity in the measurement of a study variable using the research instrument (Field, 2005; 6 & Bellamy, 2012; Ani, 2013). Reliability can also be referred to as the ability of a scale to consistently represents the construct it measures or assessment (Ani, 2013: 128). Yin (2018) posits that the goal of reliability is to minimize errors and biases in a study.

If a measuring or coding system is dependable, it will consistently produce the same measure or code when applied to the same set of data (6 & Bellamy 2012: 21; Ani, 2013:128-129). The researcher, for the study, intended to ensure the reliability of the structured questionnaire as a survey instrument. This was done by using reliable measures and pre-testing of the questionnaire to identify ambiguity in the questions which led to refinements to ensure that it was clear and understandable by the respondents. A pre-test of the questionnaire was administered to some faculty members at the Institute of Journalism (IJ) in the Faculty of Journalism and Media Studies, Accra. Similarly, the interview schedule, ensuring its reliability or trustworthiness as applicable to qualitative aspects of a mixed methods study, was pre-tested with the E-resources Librarian of the same institute (IJ) in order to undertake reviews and corrections before the main study. The pre-tests were very useful because IJ is also a public university and subscribes to the same e-resources subscribed to by GCTU which is facilitated through CARLIGH. The pre-test provided an avenue for the improvement of the research instruments towards collection of the data required for the study.

Yin (2018) refers to validity as the extent to which a researcher may assert that the findings of a study are truthful, correct, and applicable to situations other than the current study. Validity, as defined by Creswell and Plano-Clark (2018), refers to the use of methods that effectively tackle any problem identified in the process of collecting, analyzing, and interpreting data that could undermine the integration or correlation between the quantitative and qualitative aspects of the research. In mixed methods research, validity refers to the degree to which the study accurately examines the research topic or hypothesis under discussion while taking into account both quantitative and qualitative data. It entails making sure that the data gathered are accurate, trustworthy, and representative of the phenomenon under study, and that any conclusions formed from the data are backed-up by available facts. Validity enables a researcher to derive accurate inferences or conclusions from data collected (6 & Bellamy, 2012: 92; Ani: 2013:128). Yin (2018) further emphasizes that validity is a crucial component of any social research study, as it is the foundation for making claims about real-world phenomena under investigation. In ensuring validity of data collection, the data collected via the questionnaire and the interview schedules were triangulated for validation, truthfulness, and trustworthiness. Triangulation according to Babbie (2021: 118) is the employment of many research methodologies to validate a certain finding or discovery. The two data collection instruments were also validated as veritable tools for data collection, by the study's research supervisor through rigorous evaluation and repeated feedback to ensure clarity of language, professional presentation and alignment of the data collection instruments with the study's objective and critical questions.

3.6 Limitations of the study

According to Theofanidis and Fountouki (2019: 156), the limitations of a particular study are concerned with potential weaknesses that are usually beyond the control of the researcher and are closely associated with the chosen research design, statistical model constraints, funding constraints, or other factors, or an imposed restriction that is essentially beyond the researcher's control. As envisaged by the researcher, the response rate to the questionnaires could potentially be less, and in mitigation of this the researcher personally administered the questionnaires and sent reminders to faculty members in order to ensure a high rate of returns. The researcher also ensured the questionnaire was comprehensively designed and clearly understood by the respondents for quicker and efficient completion. At a recently established public university such as GCTU, there were limited library staff to be interviewed based on the study's critical questions. This was a limitation to the study as the researcher wanted to elicit detailed knowledge from the librarians' views on the awareness and use of e-resources by the faculty members at GCTU. Hence the inclusion in this study of the researcher who, at the time of the study, held a position (Librarian in-charge of Outreach, Training, Information Literacy and Marketing) relevant for data collection for the study. This could have resulted in bias and hence the study employed the use of an autoethnography approach (see Section 3.2) which helped to reduce possible biases and served as an instrument to ensure objectivity.

3.7 Ethical considerations

Ethical issues are an essential component of any research undertaking. This research looked at ethical compliance in terms of institutional approval, informed consent, secrecy, and anonymity.

3.7.1 Institutional approval

In ensuring that ethical guidelines of the University of Cape Town (where the study was registered) are obliged, an outline of the study as well as the data collection instruments were submitted for review by an ethics committee of the University of Cape Town for ethics approval; and secured an ethics clearance certificate (see Appendix D) which authorized the researcher to carry out the study in GCTU. Approval was then sought from the Registrar of GCTU to enable the researcher to conduct the study in the research site at GCTU (see Appendix E). With the GCTU ethical clearance, permissions and approvals were also sought and granted by the Deans of the faculties and the University Librarian to carry on with data collection.

3.7.2 Informed consent

In social science research, individuals, frequently termed participants, are typically the subjects of investigation, which creates a critical ethical concern regarding how researchers can perform their studies without inflicting damage on the participants (Ani, 2013: 132). The significance of informed consent lies in the researcher's role of elucidating the essence and objective of the study to the participants prior to the commencement of the scientific activity (Budu, 2015: 61). The participants must consent to the terms and conditions and demonstrate his or her willingness to engage in the study process. This therefore means that in research which will involve human participants, consent is needed from the participants before the onset of data collection. The participants in the study, faculty members (see Appendix C) and purposively selected librarians from GCTU (see Appendix A), were informed about the aims and the reason for the study and their willingness to voluntarily participate as respondents/participants of the study was sought.

3.7.3 Confidentiality and anonymity

Budu (2015: 61) points out the right to privacy and explains that it is the responsibility of the researcher to maintain the anonymity of the respondent's identity. Generally, when respondents have apprehensions about the impact of information sharing on their positions, they may choose to withhold accurate data. Hence anonymity of participants and confidentiality of information shared were assured. Further, there was an undertaking that all data collected would be used for research purposes. Data collected were secured in a safe space which only the researcher (and supervisor) had access to.

Although there were many issues to consider when engaging in autoethnography, the main criterion to bear in mind is that autoethnography itself is an ethical practice (Ellis, 2007: 26; Mendez, 2013: 283). Being morally and truthfully accurate while describing events and the sentiments of all those involved in these occurrences is a requirement for writing an autoethnography (Mendez, 2013: 283), and this was rigorously complied with by the researcher.

Finally, plagiarism according to Ani (2013: 132) is a significant ethical concern that a researcher must diligently address. Hence the utilization of all information sources for the research was undertaken responsibly and ethically and was duly acknowledged and referenced in order not to commit plagiarism.

3.8 Evaluation of methodology used

Evaluation, or making judgments concerning the caliber of things, must be relevant to the context and aims of research in order to be regarded as useful (Walliman, 2011: 8; Nkuebe, 2017: 42). In examining faculty members the level of awareness of e-resources and the extent thereof in GCTU, Accra campus, the convergent parallel mixed methods approach was found to be appropriate and suitable for the study. Motivated by the pragmatic paradigm, the study deployed both qualitative and quantitative approaches which made it necessary to use a single case study such as GCTU. The census of faculty members and the purposive selection of library staff members at GCTU, Accra campus and guided by TAM, proved to be adequate which allowed for the generalization of the study. The instruments (structured questionnaire and semi- structured interviews) used for data collection enabled the researcher to personally collect rich data and probe for more knowledge on key topics that needed to be developed on. Pre-testing the research instruments at IJ increased the response rates and produced rich responses that addressed the study's research problem and objective. Using *SPSS* and *NVivo* for data analyses facilitated the process and enhanced presentation of the findings in a comprehensible format. Generally, the researcher expressed satisfaction with the research methods, the instruments chosen to address the objective of the study and investigate the critical questions, which allowed for sufficient discussions, conclusions and recommendations.

3.9 Chapter summary

This chapter discussed the research paradigm (pragmatism) and approach (convergent parallel mixed methods). It also outlined the case (GCTU, Accra campus), the population (faculty members and library staff members), the sampling (census and purposive sampling), and the data collection instruments (questionnaire and interviews). How data were analyzed, reliability and validity, ethical considerations and an evaluation of methodology used, were all discussed and presented. Findings from the data analysis is presented in the following chapter.

Chapter Four: Presentation of Findings

4.1 Introduction

The previous chapter (Chapter Three) presented the methodology adopted for the study. This chapter presents the findings from the analysis of data collected via the structured questionnaire (see Appendix C) for faculty members and semi-structured interviews (see Appendix B) for purposively sampled library staff members. The objective of the study was to examine the level of awareness and extent of use of library electronic resources by faculty members at GCTU, Accra campus. The critical questions generated in response to this research objective addressed matters of level of awareness, extent of usage of library electronic resources by faculty members, possible purpose of such use, level of satisfaction and possible constraints (see Chapter One, Section 1.5 for detailed critical questions).

In this convergent-parallel mixed methods study, the Technology Acceptance Model (TAM) informed the research and facilitated the formulation of the critical questions, and hence the findings of the study are presented as per these five critical questions. Data collected were analyzed using *SPSS* (for quantitative data) and *NVivo* (for qualitative data). Results are displayed using frequency counts and percentage distributions (descriptive statistics) for quantitative data, and narratives and descriptive statistics, where required, for qualitative data. Graphs and tables are used, where applicable, for visualization of findings. The findings from the analysis are presented consecutively under the same themes (derived from the critical questions) used in both data collection instruments, for triangulation purposes (see Appendices B & C).

4.2 Return rates

A structured questionnaire (in printed form) and a semi-structured interview schedule were used as data collections instruments for the study. The structured questionnaire was administered to a census of faculty members (122) from the Accra campus of GCTU. Out of the total 122 questionnaires administered, 92 (75%) questionnaires were completed and returned. After several weekly reminders as well as visits to faculty members, a point of saturation was reached where there was no further forthcoming completed questionnaires. Of the 122 returned questionnaires, none could be regarded as spoilt, resulting in a return rate of 75%. Ruel, Wagner and Gillespie (2016: 162) opine that a dataset of above 70% is of high quality and can be viewed as representative of the population.

Therefore, the questionnaire return rate in the study was considered adequate for presentation of findings. In addition, four GCTU librarians were purposively selected for the semi-structured interviews and all four interviews were conducted.

4.3 Presentation of the findings

The findings of the study are presented in six sections (a biographical section followed by findings for each of the five critical questions guiding the study). Quantitative and qualitative data, where applicable, have been presented using descriptive statistics, including percentage distributions and frequency counts. Where appropriate, percentages have been rounded to the next whole number. As a result, totals may occasionally be slightly higher or lower than 100%. In case of the interviews, tabular and narrative presentation of findings are used instead of percentages owing to the small size of the dataset (number of participants). The study employed a side-by-side triangulation to effectively portray both quantitative and qualitative features and for integration during discussion in the next chapter. The findings are presented using graphs, pie charts, tables, and narratives when appropriate. As indicated earlier, presentation of findings of both the questionnaire and the interviews follows the same themes used to structure the data collection instruments. Additionally, the interview presentation of findings follows the same sequence of questions as that of the questionnaire for ease of triangulation and an integration during discussions.

4.3.1 Biographical data

The biographical data of respondents (faculty members) of the structured questionnaire and participants (librarians) of the semi-structured interview are presented in this section (see Appendices B & C). The questionnaire was administered to a census of faculty members from the three faculties (Engineering, Business School, and Computing and Information Systems) and interviews were conducted with purposively selected librarians in charge of various departments within the GCTU Library, Accra campus.

The structured questionnaire (refer to Appendix C, Section A) required respondents' (censused 122 faculty members) biographical data on the faculty designated, level of academic qualification, academic rank and number of years taught at GCTU. Biographical data for the purposively selected librarians interviewed focused on four themes including department designated within the GCTU Library, highest Library and Information Science (LIS) qualification, professional rank and the number of years engaged in e-resources related services (see Appendix B, Section A).

Figure 4.1 reflects designated faculties of respondents in GCTU (Accra campus). The findings indicate that majority of respondents 74 (81%) were designated from the faculties of Computing and Information Systems and the Business School in GCTU. The least respondents were designated from the Engineering Faculty.

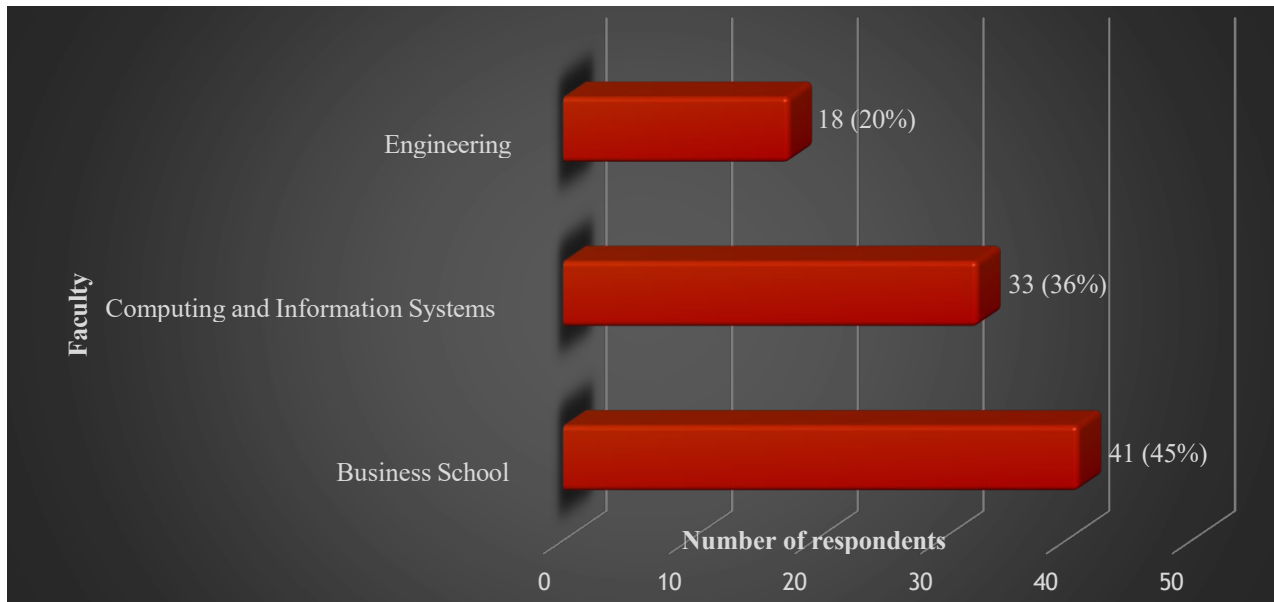


Figure 4.1: Faculty designated within GCTU (N=92)

The findings (see Table 4.1) also indicate that participants interviewed (including the researcher) were experienced LIS professionals who were heads designated in various departments within the GCTU Library.

Table 4.1: Biographical data of librarian participants interviewed (N=4)

Librarian (L)	Department designated	Highest LIS qualification	Professional rank	Years engaged in e-resources related service
1	Office of the University Librarian	PhD	University Librarian	Over ten years
2	E-resources Unit	MPhil	Junior Assistant Librarian	Seven years
3	Outreach, Information Literacy and Marketing Unit	MA	Junior Assistant Librarian	Over seven years
4	Systems Support Unit	MIS	Systems' Librarian	Eight to ten years

For the academic qualifications of questionnaire respondents, the two research qualifications, PhD, and Master’s (Research) total 89 (97%). This indicates that most faculty members had at least a research master's or a higher qualification. The findings are reflected in Figure 4.2.

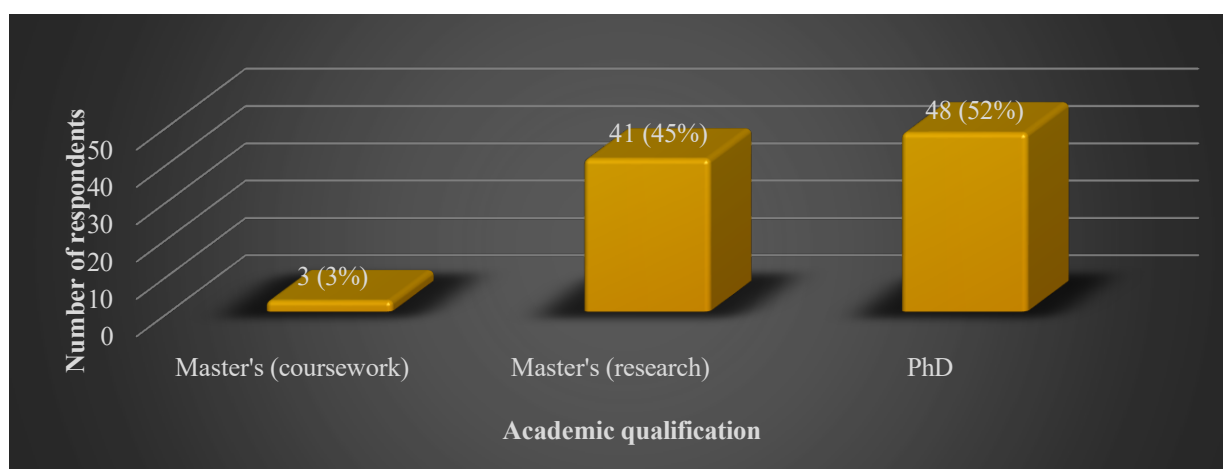


Figure 4.2: Faculty members’ academic qualifications (N=92)

The findings further indicate that all librarian participants interviewed were qualified professionals with at least a master’s degree in LIS (see Table 4.1).

The study was about faculty members and as such, respondents were required to indicate their academic ranks in GCTU. As reflected in Figure 4.3, majority 74 (81%) of respondents were within the rank of Lecturers and Senior Lecturers.

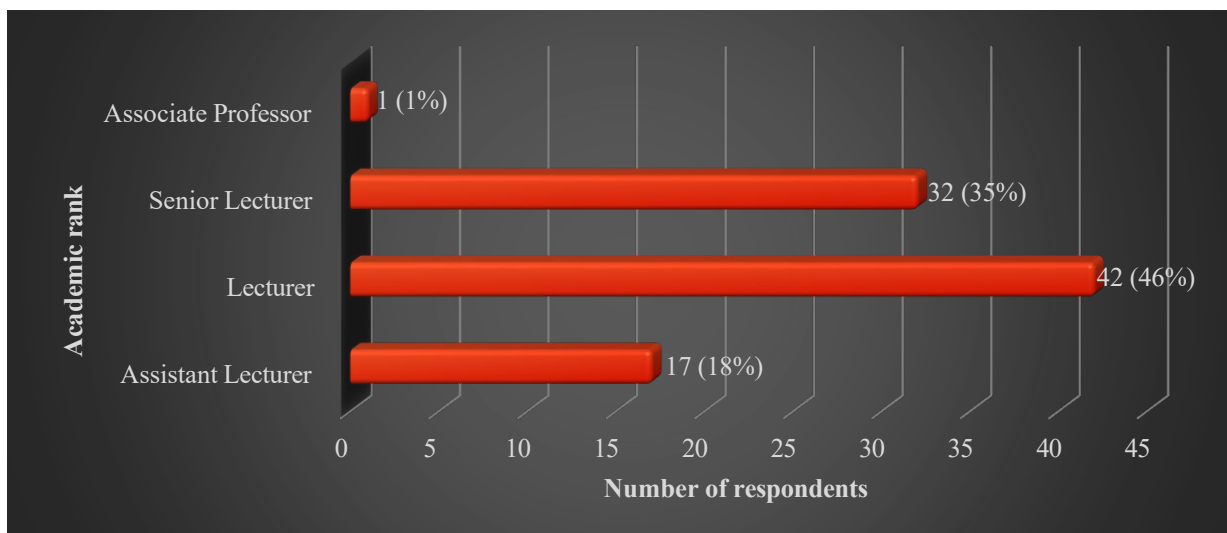


Figure 4.3: Faculty members’ academic rank (N=92)

Enquiring about the professional rank of librarian participants also indicated that they were all placed on various ranks within the GCTU Library structure depending on the department designated (see Table 4.1). Additionally, one participant was ranked with a managerial rank as the University Librarian.

Faculty members’ years of teaching in GCTU was enquired about. Table 4.2 reflects that majority of respondents 71 (77%) had been teaching in GCTU for between one to ten years.

Table 4.2: Faculty members’ years of teaching at GCTU (N=92)

Number of years of teaching	Frequency	Percentage
Less than one year	10	11%
One to five years	45	49%
Six to ten years	26	28%
Eleven to fifteen years	8	9%
More than fifteen years	3	3%
Total	92	100%

The findings also indicate that majority of librarian participants had been engaged with Library e-resources related services in the GCTU Library for over seven years (see Table 4.1).

4.3.2 Level of awareness of library electronic resources (e-resources) among faculty members

This section presents the findings that address the first critical question: What is the level of awareness of Accra campus faculty members of the GCTU Library's electronic resources? Responses focus on aspects such as whether faculty members are aware of the GCTU Library's subscribed e-resources; the medium through which they became aware; the GCTU Library's subscribed e-resources that they are aware of; how adequately have e-resources been publicized; and if not, what means do they think can be used to adequately publicize e-resources (see Appendix C, Section B). Respondents could select more than one option. This section also presents what means participants (interviewed librarians) use in creating awareness of the Library's subscribed e-resources amongst faculty members; list of some of the e-resources subscribed to by the GCTU Library; and what are the reasons for the Library not publicizing its subscribed e-resources, is this is the case (see Appendix B, Section B).

Respondents (surveyed faculty members) were asked if they are aware of the GCTU Library's e-resources. Figure 4.4 indicates that majority of respondents 87 (95%) were aware of the availability of e-resources in the GCTU Library. This clearly indicates that most faculty members are fully aware of the existence of the Library's subscribed e-resources.

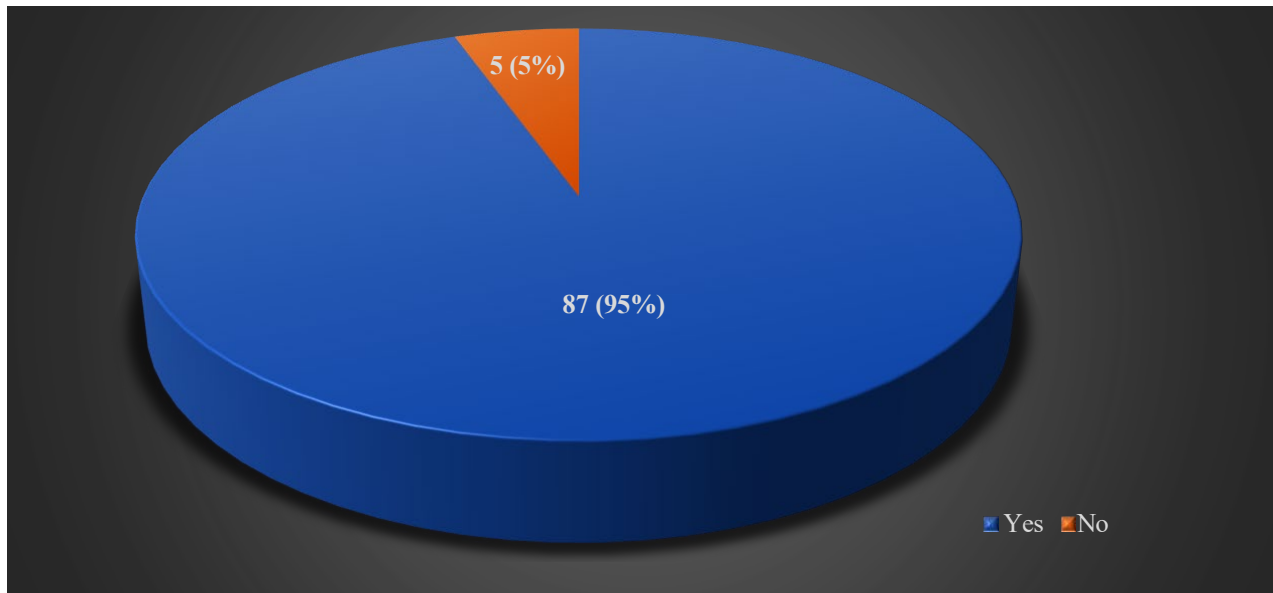


Figure 4.4: Faculty members' awareness of available e-resources in the GCTU Library (N=92)

A follow-up enquiry was made about how they become aware of the GCTU Library’s e- resources. Respondents could select more than one option (see Appendix C, Question 6). Table

4.3 indicates that majority of respondents were informed of the GCTU Library’s electronic resources through fellow academic colleagues 63 (68%) and library staff members 50 (54%).

Table 4.3: Faculty members’ means of e-resources awareness (N=92)

Means of awareness	Frequency	Percentage
Academic colleagues	63	68%
Library staff members	50	54%
Library orientation	24	26%
Library notices	14	15%
Library website	9	10%
Library seminars/workshops	3	3%

There are several ways by which libraries create awareness of its subscribed e-resources, and therefore librarian participants were asked to elaborate on how they create such awareness among faculty members. The findings indicate that the GCTU Library primarily uses email communications and the library website to inform faculty members about the availability of the GCTU subscribed e-resources. Additional means include news flashes, official emails and WhatsApp messages. Below are verbatim responses from interviewed participants:

“They use the library website and [also] through emails.” (L1)

“We try to send news flashes of about new and old resources; we have official mails ... and WhatsApp too.” (L2)

“We make use of emails to send out information and also updates the library’s website frequently.” (L3)

“We send out emails, provide news flash, and also through the website to make them fully aware of new developments.” (L4)

The study then went ahead to find out about the e-resources subscribed to by the GCTU Library that faculty members were aware of. As reflected in Table 4.4, Emerald, IEEE Xplore, JSTOR and EBSCOhost were the e-resources that faculty members were most aware of.

Table 4.4: Faculty members’ awareness of GCTU Library subscribed e-resources (N=92)

GCTU Library subscribed e-resources	Frequency	Percentage
Emerald	69	75%
JSTOR	65	71%
IEEE Xplore	61	66%
EBSCOhost	56	61%
SAGE Journal	40	43%
Electronic books (e-books)	37	40%
Wiley Online Library	29	32%
Taylor and Francis Online	25	27%
E-past examination question papers	14	15%
Cambridge University Journals	13	14%
Credo Reference	7	8%
World Bank E-Library	7	8%

In enquiring from interviewed librarians, the findings indicate that the Library offers a diverse range of e-resources, including Emerald, EBSCOhost, Taylor and Francis, IEEE Xplore, JSTOR, SAGE, and more. Below are some verbatim responses from the interviewed participants:

“We have Emerald, EBSCOhost, Taylor and Francis, and [also] IEEE.” (L1)

“At GCTU, we have Emerald, JSTOR, SAGE, IEEE ... and EBSCOhost.” (L2)

“We have made subscriptions to databases such as Emerald, JSTOR, SAGE, IEEE Xplore, EBSCOhost and among others.” (L3)

“We subscribe to Emerald, JSTOR, SAGE, IEEE and [also] EBSCOhost.” (L4)

Adequate publicity of the GCTU Library’s subscribed e-resources was also an aspect enquired from respondents of the structured questionnaire. Figure 4.5 reflects almost equal numbers, that is, 49 (54%) and 42 (46%) responded affirmatively and negatively, respectively, on the issue of adequate publicity of Library e-resources.

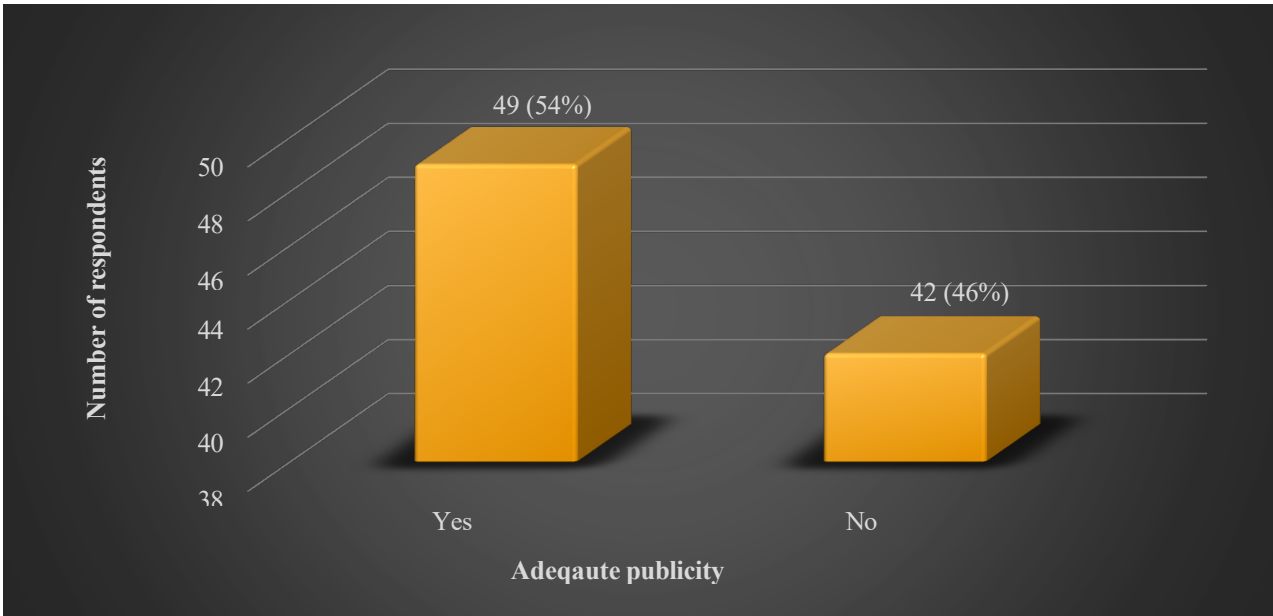


Figure 4.5: Adequate publicity of the GCTU Library’s subscribed e-resources among faculty members (N=91)

To respondents (42 (46%)) who indicated that the e-resources were not adequately publicized among faculty members, a further question was employed to enquire what means they think should be used by the Library to publicize e-resources. Table 4.5 reflects that majority of respondents indicated e-resource trainings and emails (69%).

Table 4.5: Means to adequately publicize GCTU Library’s subscribed e-resources (N=42)

Means for publicity	Frequency	Percentage
E-resource trainings	18	43%
Emails	11	26%
Library seminars/workshops	7	17%
Library website	4	10%
Library notices	2	5%
Total	42	100%

The study also enquired from the interviewed librarians if the Library does not publicize its subscribed e-resources, what are the reasons for this (see Appendix B, Question 7). The interviewed librarians instead expressed that such publicity activities are being undertaken by the GCTU Library and below are their verbatim responses:

“We share information on existing resources and so I can say we are in the process of promoting the e-resources but have not gotten there yet.” (L1)

“We do publicise our resources including e-resources.” (L2)

“There are publicity activities that we undertake as a library.” (L3)

“Publicity activities are organized periodically to our users.” (L4)

4.3.3 Extent of use of library electronic resources by faculty members

This section presents the findings that address the second critical question: What is the extent of use by Accra campus faculty members of the GCTU Library’s electronic resources? It focuses on aspects related to how long faculty members have been using the GCTU Library’s subscribed electronic resources, the frequency of utilization and the mode of access (see Appendix C, Section C). This section also presents (for triangulation purposes) responses from interviewed librarians on the extent of use and the mode of access to the GCTU Library’s subscribed e-resources by faculty members (see Appendix B, Section C).

Faculty respondents were requested to specify for how long they have utilized the electronic resources subscribed to by the GCTU Library. Sixty-three (63) respondents reported that they have utilized the GCTU Library’s subscribed e-resources for between one and four years. Table 4.6 reflects the findings.

Table 4.6: Faculty members' duration of use of the GCTU Library's e-resources (N=91)

Duration of use	Number of respondents	Percentage
Less than one year	10	11%
One to two years	27	30%
Three to four years	26	29%
Five to six years	9	10%
More than six years	8	9%
Not at all	11	12%
Total	91	100%

Faculty members were also asked how frequently they made use of the GCTU Library's e-resources. Table 4.7 reflects that a majority of 75 (82%) use GCTU Library's e-resources weekly and monthly.

Table 4.7: Faculty members' frequency of use of the GCTU Library's e-resources (N=92)

Frequency of use	Number of respondents	Percentage
Rarely	5	5%
Weekly	31	34%
Monthly	44	48%
Yearly	2	2%
Never	10	11%
Total	92	100%

Interviewed librarians reported that faculty members demonstrate moderate to frequent use of the GCTU Library's subscribed e-resources. Verbatim responses from librarian participants included:

"On a scale of 10, we are within seven ... and usage of e-resources is moderate." (L1)

"We put all of our resources under one umbrella which is the Remote X - we know the people who use it so I will say average usage." (L2)

"They frequently accessed the resources." (L3)

"The e-resources are frequently accessed by the faculty members." (L4)

Infrastructure is required to provide users access to library e-resources. Hence faculty members were asked to indicate how they access the GCTU Library’s e-resources. Respondents could select more than one option (see Appendix C, Question 12). Table 4.8 reflects that while 64 (70%) of respondents access the GCTU Library’s e-resources from their offices using the campus network, a similar 61 (66%) do so off-campus using the internet.

Table 4.8: Faculty members’ mode of access to GCTU Library’s e-resources (N=92)

Mode of access	Number of respondents	Percentage
From my office using the campus network	64	70%
Off-campus using the internet	61	66%
Via the Library website	11	12%
Never used it	7	8%
On-site using library computers	4	4%

Interviewed librarians also indicated that faculty members access the GCTU Library’s e- resources using a variety of modes or methods, including personal devices, office computers, and library computers. Below are verbatim responses from librarian participants:

“Faculty members use their gadgets, such as office computers through the school’s network and off-campus access to get access to the e-resources. Some come to the library to make use of the library’s computers.” (L1)

“They use the internet link in their offices and off-campus access which means they do not necessarily have to be present in the library to access the e-resources.” (L2)

“There are several means by which they access resources ... and examples are through their devices or office devices using the campus network and the off-campus access when they are not using the campus’ network.” (L3)

“Access to electronic resources by faculty is mostly through their devices as they come to the library to use the computers there [and also] off-campus access.” (L4)

4.3.4 Possible purposes for use of library electronic resources by faculty members

This section presents the findings that address the third critical question: For what possible purposes would faculty members use the GCTU Library's electronic resources? It focuses on aspects relating to which of the GCTU Library's subscribed e-resources faculty members use; for what purposes do faculty members use GCTU Library's e-resources; likely preference for e-resources over printed equivalents; e-resources training programmes organized by the GCTU Library; whether faculty members have attended any training programmes on use of e-resources organized by the GCTU Library; have they (faculty members and librarians) integrated library electronic resources into their teaching and learning, and/or research, as well as the Library's resources and service delivery, respectively. Faculty members could select more than one option. Both faculty members and librarian participants were probed on these issues (see Appendix C, Section D & Appendix B, Section D).

Faculty members were asked to indicate the GCTU Library's subscribed e-resources that they use. Table 4.9 captures high usage of Emerald (74%), JSTOR (65%), IEEE Xplore (63%) and EBSCOhost (57%).

Table 4.9: GCTU Library's subscribed e-resources used by faculty members (N=92)

Subscribed e-resource used	Number of respondents	Percentage
Emerald	68	74%
JSTOR	60	65%
IEEE Xplore	58	63%
EBSCOhost	52	57%
SAGE Journals	34	37%
Wiley Online Library	27	29%
Taylor and Francis Online	25	27%
Electronic books (e-books)	20	22%
E-past examination question papers	11	12%
Cambridge University Journals	8	9%
Credo Reference	7	8%
World Bank E-Library	5	5%

Interviewed librarians also observed that frequently used e-resources by faculty members were Emerald, IEEE Xplore, EBSCOhost, and JSTOR. Their verbatim responses included:

“I will say Emerald, IEEE and EBSCOhost is high among the faculty members.” (L1)

“Emerald, EBSCOhost, JSTOR, IEEE are for the Engineering Faculty.” (L2)

“The faculty members based on their discipline use diverse e-resources. For instance, the Engineering Faculty mostly make use of the IEEE Xplore, while others make use of the Emerald, JSTOR, and EBSCOhost.” (L3)

“They make use of Emerald, JSTOR, SAGE, IEEE, EBSCOhost.” (L4)

Faculty members were asked to indicate their purpose for using these e-resources. Table 4.10 reflects that a surprising minority of 17% and 14% use GCTU Library’s e-resources for preparation of lectures and for thesis or dissertation writing, respectively. However, it is not surprising that a majority 84 (91%) and 73 (79%) use these e-resources for research and publication purposes, respectively.

Table 4.10: Faculty members’ purpose for use of the GCTU Library’s subscribed e- resources (N=92)

Purpose for use	Number of respondents	Percentage
Research purposes	84	91%
Publication purposes	73	79%
Personal development	30	33%
Preparation of lectures	16	17%
Thesis or dissertation writing	13	14%

Interviewed librarians reported that faculty members use the GCTU Library’s e-resources for teaching, research, publication, and for personal development. Below are some verbatim responses from librarian participants:

“Most of faculty members research for their lectures, others request for articles to review for their own publication and the likes.” (L1)

“For teaching and references, research ... and for publication.” (L2)

“They employ the e-resources for their research, teaching and for personal development.” (L3)

“Faculty members use e-resources for their teaching and learning, and/or research, for their publication [and] for their personal development in finding relevant information they need.”
(L4)

Faculty members were asked why they would possibly prefer the use of the GCTU Library’s subscribed e-resources over their printed equivalent resources. Table 4.11 reflects their reasons, with convenience of access notching a high score of 70 (76%).

Table 4.11: Reasons for faculty members’ preference of GCTU Library’s e-resources over printed equivalents (N=92)

Reasons for preference	Number of respondents	Percentage
Convenience of access	70	76%
Currency of information	58	63%
Saves time	51	55%
Quick access to information	45	49%
Easier availability of online search tools	40	43%
Off-campus availability via the internet	40	43%

Librarian participants were asked why they think faculty members are likely to prefer the use of e-resources over their printed equivalent resources. Interviewed librarians indicated that faculty members prefer e-resources over printed equivalents due to their currency, scope, accessibility, and convenience of use. Their verbatim responses included:

“I believe it will be because of their currency, scope and to know the emerging trends in research.” (L1)

“The e-resources do not have limitations as it can be accessed anywhere; time factor, faster access to document or information [are other reasons].” (L2)

“The ability to get current information and also access relevant information in different formats at different times.” (L3)

“It is easier to get updated information from the e-resources and also, access them anywhere.” (L4)

Faculty members were asked if they have ever attended a training programme on electronic resources organized by the GCTU Library. Figure 4.6 demonstrates that a significant number of 63 (69%) respondents indicated that they have not attended such a training programme but would like to.

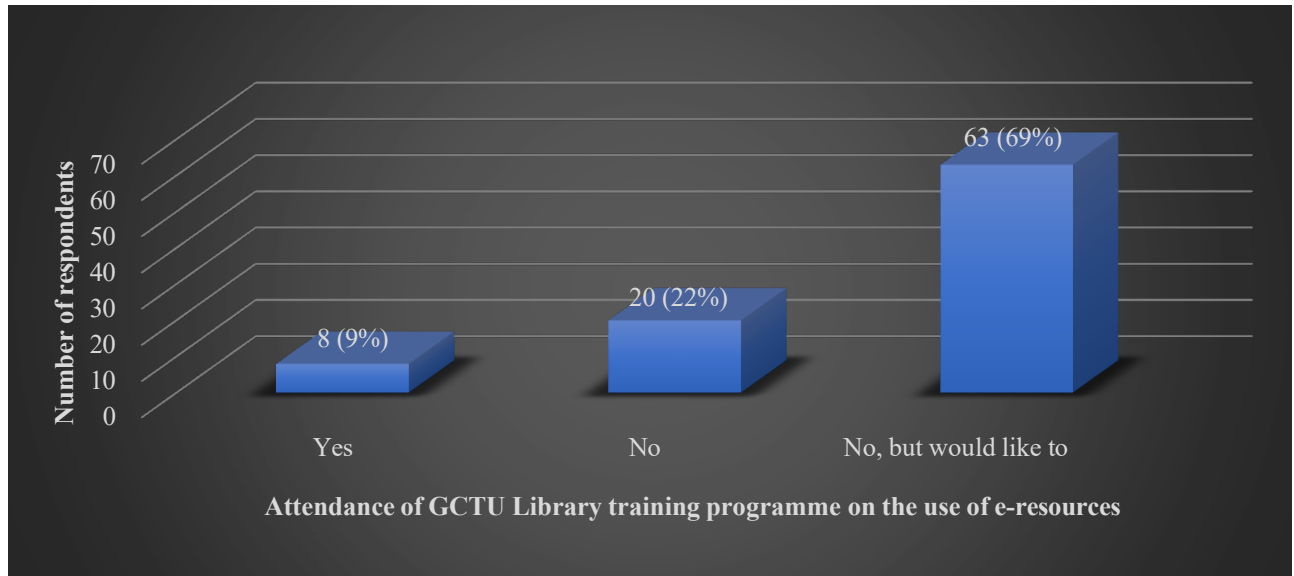


Figure 4.6: Attendance of GCTU Library training programme on the use of e-resources (N=91)

Training programmes help users to become conversant with the utilization of the electronic resources and so the research enquired from interviewed librarians if such training programmes have been organized by the GCTU Library. The findings indicated that such training programmes are organized from time to time for users, including faculty members. Verbatim responses from participants included:

“Yes, we have organized such programmes for faculty members.” (L1)

“Yeah, the library organizes training programmes but [but there is] low attendance.” (L2)

“Training programmes are being organized from time to time.” (L3)

“We do have training programmes for our users, including faculty members.” (L4)

Faculty members were asked if they have integrated the GCTU Library’s e-resources into their teaching and learning, and/or research. Figure 4.7 reflects that a little more than half the respondents, 52 (58%), indicated “No, but would like to”.

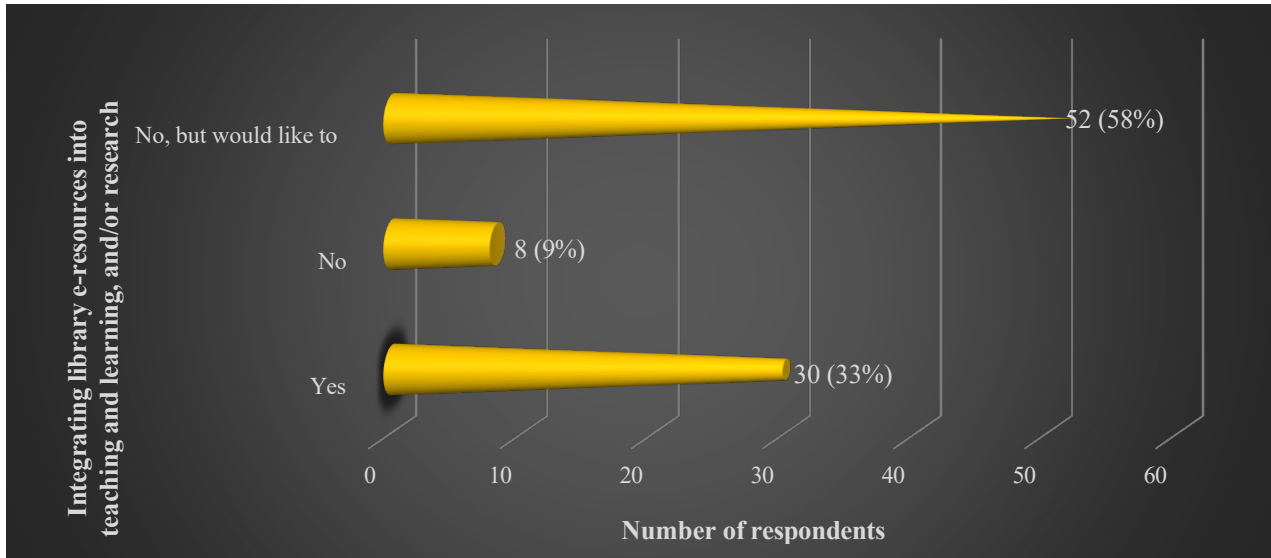


Figure 4.7: Faculty members integrating e-resources into teaching and learning, and/or research (N=90)

Interviewed librarians indicated that integrating the GCTU Library’s subscribed e-resources into the Library’s resources and service delivery for teaching and learning, and/or research was evident. Verbatim responses from the participants included:

“The Library’s resources were subscribed [to] based on subject areas in the faculties. It is very integrated as it forms part of the library resources.” (L1)

“On a scale of ten, I will take six-and-a-half being that the use of the resources is linked to the courses offered by the institution (GCTU).” (L2)

“They are best suited for teaching, learning and research because the collection and acquisition of the e-resources are done based on the programmes run on campus and thus, they are in sync to render the best services for teaching and research.” (L3)

“They are very integrated to help with teaching and learning as they are acquired in relation to the courses rendered in the school.” (L4)

4.3.5 Level of satisfaction with the use of GCTU Library’s electronic resources by faculty members

This section presents the findings that address the fourth critical question: What is the level of satisfaction by Accra campus faculty members in using the GCTU Library electronic resources? Aspects of this section include whether faculty members are satisfied with their use of the GCTU Library’s subscribed e-resources; their level of satisfaction; how useful these e- resources are in facilitating their academic work; and how easily they access information from these e-resources. Respondents were required to select appropriate responses (see Appendix C, Section E). This section also presents librarian participants’ views on faculty members’ satisfaction with the use of the GCTU Library’s e-resources, focusing on level of satisfaction, usefulness of the e-resources, and ease of access (see Appendix B, Section E).

Surveyed faculty members were asked if they are satisfied with their use of the GCTU Library’s subscribed e-resources. Figure 4.8 captures that a majority of 69 (83%) respondents were satisfied with their use of the subscribed e-resources. Interestingly, 9 (10%) respondents did not respond to this question.

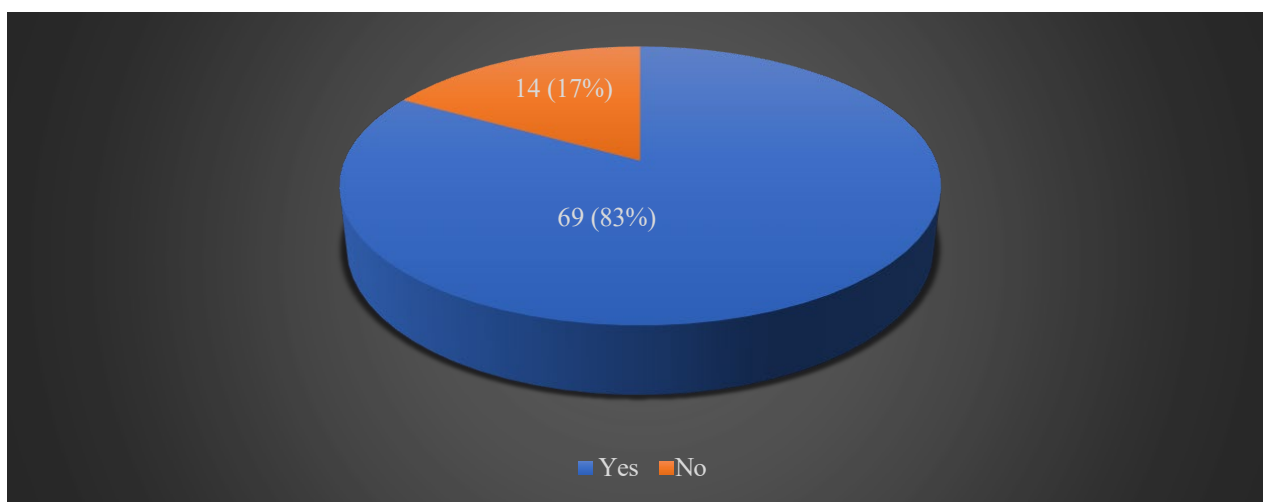


Figure 4.8: Satisfaction of faculty members with their use of e-resources subscribed by the GCTU Library (N=83)

Academics were further required to indicate their degree of contentment in using the GCTU Library’s e-resources (see Appendix C, Question 19). Figure 4.9 reflects that more respondents were satisfied (a total of 74 (83%)) rather than dissatisfied (a total of 7 (7%)) in using the GCTU Library’s subscribed e-resources.

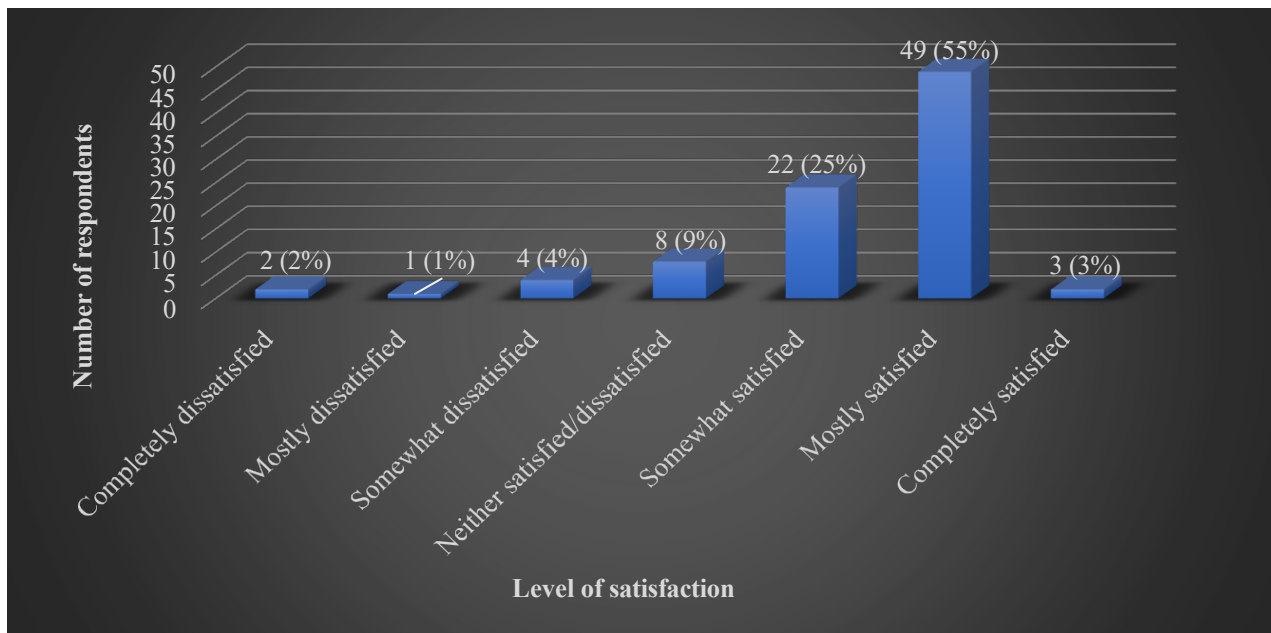


Figure 4.9: Faculty members’ level of satisfaction in using GCTU Library’s e-resources (N=89)

Librarian participants were also asked how satisfied they think GCTU faculty members are with the Library’s e-resources as useful information resources. Participants expressed that they think faculty members experienced moderate to high levels of satisfaction with the Library’s e- resources, citing their usefulness in supporting academic activities. Participants’ verbatim responses included:

“I think they are moderately satisfied with the e-resources.” (L1)

“I think on a scale of 1-10, [I will give] 8.5 - some of the databases we subscribe to have limited downloads per day of usage.” (L2)

“They are satisfied with the e-resources even though few express less satisfactions especially when they cannot access some of the resources.” (L3)

“They show high levels of satisfaction even though there are some setbacks as sometimes they cannot find the resources they need as we may not subscribe to such databases [because] our access does not cover that.” (L4)

E-resources are subscribed to by libraries to support academic and research work of the institution, and hence the study asked faculty members to rate how useful the GCTU Library’s e-resources are in facilitating their scholarly endeavours. Table 4.12 reflects that a majority of respondents, 83 (94%), found the GCTU Library’s e-resources to be “useful”, “very useful” or “extremely useful”.

Table 4.12: Usefulness of GCTU Library’s subscribed e-resources to faculty members (N=88)

Usefulness of subscribed e-resources	Frequency	Percentage
Not useful	2	2%
Somewhat useful	3	3%
Useful	17	19%
Very useful	53	60%
Extremely useful	13	15%
Total	88	100%

Librarian participants were asked to express how useful the GCTU Library’s subscribed e- resources is in contributing to effective and efficient library services delivery. The findings indicated that these e-resources have facilitated the searching and retrieval of relevant information sources required for academic work of library users. Participants’ verbatim responses included:

“I will say it is very useful because it helps library users in their research endeavours and learning activities.” (L1)

“E-resources have been very useful to library service delivery especially during the COVID-19 pandemic where most library services were provided online.” (L2)

“I will say 100% useful because based on the current situation of life [where] everybody is moving virtual ... and the incorporation of e-resources to have access to materials as and when they want has been very useful.” (L3)

“It is very useful as access to the library and its resources has increased due to the subscription of the e-resources.” (L4)

Faculty members surveyed were asked how easily information is accessed from the GCTU Library’s subscribed e-resources. Table 4.13 indicates that a majority of 80 (91%) respondents find it “easy” or “very easy” to access information from the GCTU Library’s subscribed e- resources.

Table 4.13: Faculty members’ ease of access to information from GCTU Library’s subscribed e-resources (N=88)

Ease of access	Frequency	Percentage
Not easy	3	3%
Slightly easy	5	6%
Easy	52	59%
Very easy	28	32%
Total	88	100%

Enquiry from librarian participants about how easy faculty members find it to access information from the Library’s subscribed e-resources revealed that in their view, faculty members find it easy to access information from these e-resources due to training and guides available for their use and reference. Verbatim responses from the participants included:

“Very easy because a step-by-step user guide has been shared from time to time to keep them abreast of how to access the e-resources.” (L1)

“It is very easy, on a scale of ten, I will give 8.5 because when it comes to the system working, it is perfect but using it may result in a bit of challenges such as internet, power etc.” (L2)

“There is regular training done for access to the e-resources, so I will say they find it very easy to access the subscribed e-resources.” (L3)

“E-resources are easily accessed by the faculty, especially with the aid and assistance provided to them.” (L4)

4.3.6 Possible constraints faced by faculty members in using the GCTU Library's e-resources

This segment introduces the results that pertain to the fifth and final critical question: What are possible constraints faced by Accra campus faculty members in using the GCTU Library's electronic resources? Findings relate to whether faculty members are able to use the Library's subscribed electronic resources anytime and wherever they are; constraints faculty members encounter when using the subscribed e-resources; and measures faculty members recommend overcoming constraints (see Appendix C, Section F). Librarian participants were enquired about these issues as well (see Appendix B, Section F).

Faculty members were asked whether they are able to utilize the GCTU Library's subscribed electronic resources anytime and wherever they are. Figure 4.10 reflects that a minority of 13 (15%) respondents could not use the GCTU Library's subscribed e-resources anytime and wherever.

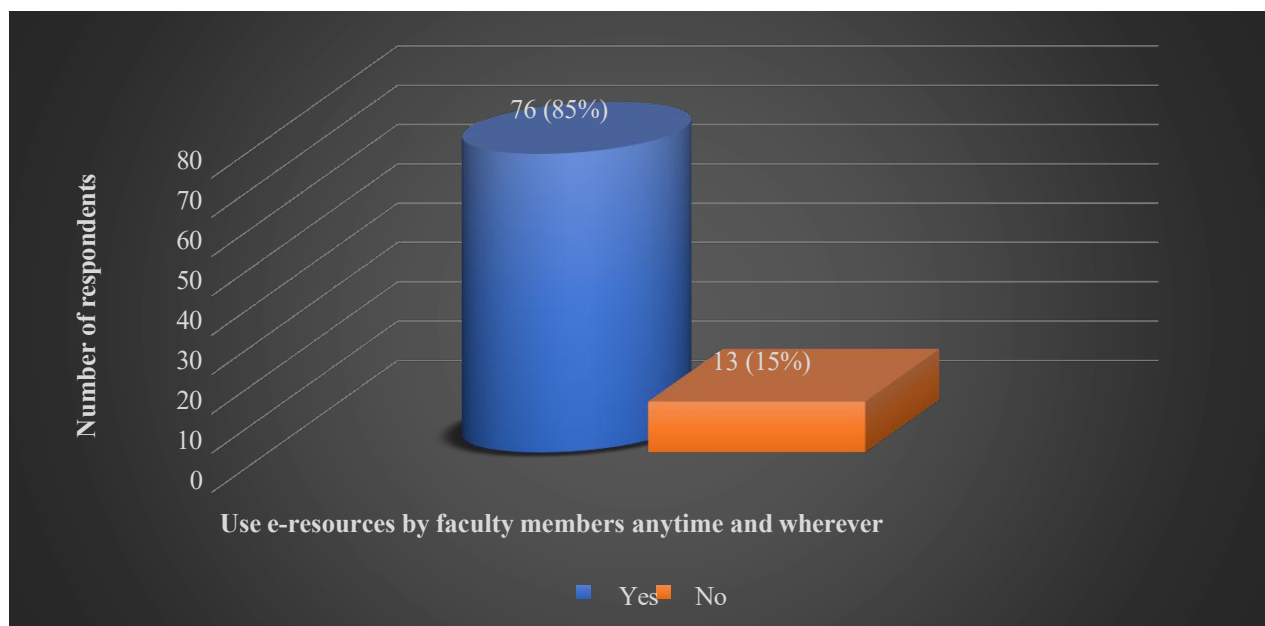


Figure 4.10: Faculty members' ability to use GCTU Library's subscribed e-resources anytime and wherever (N=89)

Librarian participants were also asked about faculty members' ability to access the GCTU Library's subscribed e-resources irrespective of time and location. Their responses indicated that faculty members do have access to the GCTU Library's subscribed e-resources anytime due to the Remote X platform which also enables them to access the resources off-campus. Participants' verbatim responses included:

“Yes because of the Remote X software or the off-campus access and also being registered on the site.” (L1)

“Yes please, through Remote X, you are able to access the e-resources we subscribed to wherever you are once you have internet.” (L2)

“There is ubiquitous access as through the Remote X, ... and everybody registered can access the resources regardless of the location.” (L3)

“Yes, the e-resources can be accessed everywhere, on-campus and off-campus through Remote X.” (L4)

There was a follow-up question for faculty members who responded “No” to the question about whether they are able to use the Library’s e-resources anytime and wherever, in that they were required to provide an explanation for this response (see Appendix C, Question 23). Table 4.14 reflects respondents’ explanations which were mostly related to network challenges, lack of knowledge about e-resources, and non-availability of some e-resources.

Table 4.14: Faculty members’ explanations for their inability to use the GCTU Library’s subscribed e-resources anytime and wherever (N=13)

Explanations	Number of respondents
Network challenges	6
Lack of knowledge about e-resources	4
Non-availability of some e-resources	3
Total	13

Librarian participants were also asked to explain why some faculty members are unable to access the Library’s e-resources (see Appendix B, Question 19). Participants’ verbatim responses included:

“Faculty members are sometimes unable to access the Library’s e-resources because of network challenges.” (L1)

“Reliable internet connectivity has been a major constraint to access the Library e-resources.” (L2)

“Lack of some reputable e-resources has also been a constraint to some faculty members.” (L3)

“Faculty members sometimes lack the knowledge and training on how to access the Library’s subscribed e-resources.” (L4)

There may be some challenges that could limit users from accessing library e-resources and hence faculty members were asked to indicate some of the constraints they encounter when using the GCTU Library’s subscribed e-resources. Respondents could select more than one from a number of options provided as seen in Table 4.15. Slow internet connection, 68 (74%), appears to have been a major constraint encountered by faculty members when using subscribed library e-resources.

Table 4.15: Constraints encountered by faculty members when using GCTU Library’s e-resources (N=92)

Constraints	Number of respondents	Percentage
Slow internet connection	68	74%
Inadequate searching skills	36	39%
Information overload	28	30%
Difficulty in retrieving relevant information	23	25%
Difficulty to use the e-resource	14	15%
Lack of computers for searching purposes	14	15%
Frequent power cuts	5	5%

Responses from interviewed librarians also indicated that faculty members encounter some constraints when using the GCTU Library’s subscribed e-resources and these include internet connectivity issues, power supply disruptions and technical issues when accessing e-resources. Participants’ verbatim responses included:

“Their major constraints are slow internet connectivity ... and sometimes erratic power supply.” (L1)

“Sometimes they have problems with the internet, power sources as there are some power crises in Ghana, [also] technical issues such as resetting password after some periods.” (L2)

“As always, there are issues with internet connectivity in terms of the speed as sometimes it becomes difficult to make use of it. Also, power issues such as the erratic power supply disrupts the access and activities of the library.” (L3)

“I will say internet issues and power cuts are the main challenges.” (L4)

Librarian participants were additionally asked to express how the GCTU Library should ensure maximum usage of its subscribed e-resources. They suggested more awareness creation and training programmes to help academics maximize the utilization of the electronic resources. Participants’ verbatim responses included:

“We should create massive awareness and promotion of new and existing resources.” (L1)

“Creating more awareness, linking teaching and research to the databases as lecturers can send students to go and access the resources as an assignment.” (L2)

“There has to be more awareness creation and training programmes for the faculty members.” (L3)

“More training programmes and awareness creation for faculty members.” (L4)

Faculty members were asked to recommend measures to overcome constraints faced by them in using the GCTU Library’s subscribed e-resources. Table 4.16 reflects that a majority of 75 (82%) respondents recommended instruction on use of the library and internet resources, 71 (77%) for strengthening of internet connectivity and 67 (73%) for creating more e-resources awareness programmes.

Table 4.16: Faculty members’ recommendations to overcome constraints in using GCTU Library’s e-resources (N=92)

Recommendations	Number of respondents	Percentage
Training on how to use library and internet resources	75	82%
Strengthening internet connectivity	71	77%
Creating more e-resources awareness programmes	67	73%
Increasing the number of computers in the library available for searching purposes	11	12%
Providing standby generators to mitigate power cuts	4	4%

Librarian participants’ recommendations on measures to overcome the constraints faced by faculty members in using GCTU Library’s subscribed e-resources included creating more cognizance of the subscribed electronic resources; arranging training programs for all users; enhancing internet connectivity; providing backup power supply; and improving technical support. Participants’ verbatim responses included:

“I will recommend management should liaise with internet service providers to provide better internet connection and increase the distribution on campus and have a power back-up.” (L1)

“More training has to be organized, a standby-generator, internet improvement.” (L2)

“The bandwidth of the school has to be increased to help improve the internet connectivity, [also] more training programmes, creating awareness and backup power supply.” (L3)

“Awareness creation to be cognizant of all e-resources, enhancing the internet issues and having a standby power.” (L4)

4.3.7 Additional comments

In the last section for both the structured questionnaire and the semi-structured interview schedule (see Appendices B & C, Sections G), faculty members and librarians were asked to provide additional comments relating to the study which may not have been covered.

Fifty-one (55%) faculty members did not provide any comment to this general question. However, 41 (45%) responded as reflected in Table 4.17.

Table 4.17: Faculty members' additional comments (N=41)

Additional comments	Number of respondents	Percentage
Create more e-resources awareness programmes	13	32%
E-resources is an important area of study	9	22%
Library should subscribe to Scopus	8	20%
Library should subscribe to Web of Science	5	12%
Strengthen internet connectivity	4	10%
Create more awareness and training on e-resources use	2	5%
Total	41	100%

With the librarian participants, all four made additional comments:

“This digital era requires continuous subscription of library e-resources, and all efforts must be made to ensure that their availability and use.” (L1)

“A vigorous awareness creation must be organized periodically.” (L2)

“The library must organize e-resources training programmes to all its users especially faculty members.” (L3)

“We also need reliable stable internet connectivity to ensure a consistent service delivery on subscribed e-resources.” (L4)

4.4 Chapter summary

This chapter presented the results that addressed the critical questions and the objective of the inquiry. The findings were derived from the analysis of data collected via a structured questionnaire (for faculty members) and semi-structured interviews (with librarians) from the GCTU, Accra campus. The chapter highlighted findings from the biographical data for faculty respondents and librarian participants, degree of consciousness of library electronic resources by lecturers, extent of use, possible intended use, degree of contentment, constraints encountered and lastly, additional comments. The next and final chapter presents discussion of the study's main findings, conclusions are derived from the conversation on the level of awareness and utilization of electronic resources by faculty members at the GCTU (Accra campus), recommendations are provided.

Chapter Five: Discussion of Main Findings, Conclusions and Recommendations

5.1 Introduction

The preceding chapter (Chapter Four) presented the findings from the survey questionnaire administered to a census of faculty members and semi-structured interviews conducted with purposively selected library staff members. Chapter Five discusses the main findings based on the objective of the study, the critical questions guiding the study as well as the theoretical framework (TAM) underpinning the study and literature reviewed. Based on this discussion, conclusions are drawn and recommendations are made.

To restate, the objective of the study was to examine the level of awareness and extent of usage of library electronic resources by faculty members at GCTU, Accra campus. The following critical questions, informed by the Technology Acceptance Model (TAM), were generated to address this objective:

- What is the level of awareness of Accra campus faculty members of the GCTU Library's electronic resources?
- What is the extent of use by Accra campus faculty members of the GCTU Library's electronic resources?
- For what possible purposes would faculty members use the GCTU Library's electronic resources?
- What is the level of satisfaction by Accra campus faculty members in using the GCTU Library electronic resources?
- What are possible constraints faced by Accra campus faculty members in using the GCTU Library's electronic resources?

5.2 Discussion of the main findings

The main findings are discussed in the order of the critical questions listed in Section 5.1.

5.2.1 What is the level of awareness of Accra campus faculty members of the GCTU Library's electronic resources?

Awareness includes knowledge or perception of a situation, facts, recognition, consciousness, realization, and acknowledgement of new developments (Ansari, 2020: 2). According to Bentil (2011: 88) effective promotion of any service for patronage requires the creation of knowledge about that service. Previously neglected or not fully used services might be significantly patronized when users or the target audience becomes aware of them. The first critical question focused on faculty members degree of awareness of the GCTU Library's e-resources. It was very evident from the study's finding that majority of faculty members were aware of the e- resources subscribed to by the GCTU Library (see Figure 4.4 of Chapter Four). This study corroborates the findings of Larson (2017: 6), Sohail and Ahmad (2017: 168), Temboge and Yaji (2018: 55) and Msezane and Dlamini (2021: 8) that knowledge of e-resources among faculty members and postgraduate students were high.

Awareness creation of e-resources is often made through a medium and the study examined the means through which awareness is created. The main medium or means for awareness creation of the GCTU Library's e-resources were through academic colleagues, library notices, orientations, seminars/workshops, library staff members and the library website. It was also evident that most lecturers became aware of the Library's e-resources through their academic colleagues and through library staff members (see Table 4.3 of Chapter Four) which indicates high level of awareness. This correlates with the study by Meeramani (2023: 8) on electronic resources awareness and utilization by faculty members at JAIN University, India where the findings also reported awareness as high and that it was through librarians within the faculties of Business, Computer Science, and Information Technology. This specific means of creating awareness, however, was different to how the interviewed librarians created awareness among faculty members in GCTU. It was found that awareness creation of the GCTU's Library e- resources for faulty members was primarily through emails and the Library's website with additional means being news flashes and WhatsApp messages.

With a diverse range of e-resources being subscribed to by the GCTU Library, the findings were clear that more than half of the faculty members were mostly aware of Emerald, IEEE Xplore, JSTOR and EBSCOhost with less awareness for both Credo Reference and the World Bank E-Library (see Table 4.4 of Chapter Four). This finding from faculty members aligned with that from the GCTU librarians interviewed and also correlated with findings from the studies by Adjepong, Boakye-Yaidom and Ntumy (2022: 10) and Acheampong (2016: 63) where it was found that most

responses indicated Emerald, EBSCOhost, JSTOR, IEEE Xplore and SAGE as e-resources that faculty members were aware of. This comprehensive selection of e-resources caters for various academic disciplines and research interests, thus enhancing the Library's utility for all users, especially faculty members. On the contrary, faculty members at the Afe Babalola University in Nigeria were unaware of EBSCOhost, LexisNexis, Law Pavilion and Access Engineering (Olajide & Adedokun, 2018: 7).

A high level of awareness of the GCTU Library's e-resources was as a result of some form of publicity. The findings revealed almost equal percentages for both affirmative and negative responses among faculty members for adequate publicity of the e-resource subscribed to by the Library and this is reflected in Figure 4.5 (Chapter Four). In order to ensure adequate publicity of the GCTU subscribed e-resources among faculty members, there was a unanimous call (by those who responded inadequate publicity) for the Library to organize training programmes, dissemination through emails or WhatsApp platforms, use of notice boards, websites, workshops, seminars and social media. A key purpose of TAM is how it provides the basis for tracing the impact of external factors on internal beliefs, attitudes and intentions (Davis, Bagozzi & Warshaw, 1989: 985) which may enhance awareness when adequate publicity is provided. Responses from the interviewed librarians, however, disagreed with the findings from faculty members that publicity activities are undertaken but agreed there was more room for improved publicity of the subscribed electronic resources.

In summary on the level of awareness, the research found that most academics were cognizant of the GCTU Library's e-resources, with over half being familiar with Emerald, IEEE Xplore, JSTOR, and EBSCOhost. However, there is a need for more awareness of Credo Reference, the World Bank E-Library and other e-resources subscribed by the Library. The Library should therefore organize training programmes, information dissemination methods, workshops, seminars and use social media for e-resources awareness creation.

5.2.2 What is the extent of use by Accra campus faculty members of the GCTU Library's electronic resources?

The concept of Actual System Use (in TAM) denotes the levels at which systems are effectively used in practical scenarios. This is influenced by the behavioral intention that an individual has towards using the system (Davis, Bagozzi & Warshaw, 1989: 320; Okyere, 2020: 10). The degree to which faculty members utilize electronic resources may vary (Okoyere, 2020) depending on the perceived value and the actual utilization of that resource or the length of use of the e-resource (Acheampong, 2016: 75). The findings for the duration of use of the GCTU Library's e-resources spanned from less than one year to more than six years as against those who did not use it at all or gave no response. However, the results of the research indicated that many of the lecturers' duration of use of the GCTU Library's e-resources was between one and four years (see Table 4.6 of Chapter Four). Somewhat related to this finding, Akinola et al. (2018: 11) discovered sporadic utilization of electronic databases by the postgraduates at the University of Ibadan and attribution due to the preference for certain databases over others, hence avoiding the utilization of databases that could offer pertinent information.

On probing more specifically about how frequently faculty members used the GCTU Library's subscribed electronic resources, it was evident that majority of faculty members used the Library's e-resources on a weekly or a monthly basis. Yearly usage was recorded as the least frequently used. A study conducted by Meeramani (2023: 9) examined the prevalence of electronic resources usage among faculty members. The findings indicated that 31% of respondents reported using e-resources on a weekly basis, with a time commitment of 5 to 6 hours per week. Additionally, 23% of respondents reported using e-resources for a minimum of 2-3 hours per week, while 19% reported using them daily. Furthermore, 15% of respondents reported using e-resources for 10-12 hours per week, and 12% reported using them for more than 20 hours per week. The current study too found that most faculty members utilize e-resources weekly for their information as well as for research needs. These findings are congruent with other studies as well (Mulla, 2011:4; Yusuf & Farouk, 2017: 23; Akinola et al., 2018: 11). The findings from these studies, like the findings from the GCTU librarians interviewed, also established that faculty members demonstrated moderate to frequent usage of library' e-resources.

Atuase (2016: 98) posits that the primary role of a university library is to cater for the evolving information requirements of its users. To do this, the GCTU Library offers various electronic information services to ensure easy access to information for its users. Mode of access to library e-resources is dependent on various IT infrastructure, methods and platforms including computers, networks and security requirements (ID logins and passwords). The accessibility of library e-resources both on and off campus may contribute to their frequent utilization. The study established that faculty members mostly access the GCTU Library's e-resources from their offices using the campus network and outside (off-campus with internet access) the library because of the remote access service provided (see Table 4.8 of Chapter Four). This finding from faculty members was confirmed by the librarian participants interviewed. It was also found that only a few (4%) of faculty members access the library's e-resources on-site using the Library's computers. In short, accessibility of library e-resources, both on and off campus, contributes to their frequent utilization.

Summarizing the extent of use of e-resources by GCTU Accra campus faculty members, the study found that most faculty members have been using the Library's e-resources for between one and four years, and mostly on a weekly or monthly basis. They access the e-resources from their offices and from outside the library through the campus network and remote access services.

5.2.3 For what possible purposes would faculty members use the GCTU Library's electronic resources?

Relevance of information may differ with various users (Madhusudhan, 2010: 497; Acheampong, 2016: 53) especially faculty members, depending on the purpose attached to that information. Adjepong, Boakye-Yaidom and Ntummy's (2022: 13) study on the awareness and usage of available electronic resources by students and faculty members of the Methodist University College of Ghana (MUGG) in Accra revealed that respondents 'strongly agreed' with using electronic resources for the writing of articles for publication, preparing teaching/lecture materials, preparing assignments for students, writing project proposals, and lastly, for seminar and conference paper preparations. It was evident that the GCTU Library has subscriptions to varied e-resources for its users and among them, majority of faculty members highly use Emerald, followed by JSTOR, IEEE Xplore, EBSCOhost, with the least used being the World Bank E-Library (see Table 4.9 of Chapter 4). There were other e-resources such as SAGE Journals, Wiley Online Library, E-books, E-past examination question papers, Cambridge University Journals and Credo Reference subscribed to by the Library but usage was considerable low.

These findings confirm the observations made by the interviewed librarians and also correlates with the study by Meeramani (2023: 9) where it was observed that the most used of the electronic resources by lecturers were EBSCOhost and Emerald.

The practical utilization of a system is contingent upon the many levels at which its users engage with it (Davis, Bagozzi & Warshaw, 1989: 320; Okyere, 2020: 10). It became clear from the findings of the study that most of faculty members of GCTU use the Library's e-resources for research and publications, with a surprising minority using them for the preparation of lectures and thesis or dissertation writings (see Table 4.10 of Chapter Four). GCTU librarians interviewed in addition to the study by Kumar and Kumar (2008: 686) emphasized research, teaching and project work as purposes for which faculty members used library e-resources. It seems that the main motive and reason behind lecturers' utilization of electronic resources is for scholarly investigation, with teaching and instruction being secondary (Yebowaah & Plockey, 2017; Thompson, Wellington & James, 2018: 88). In contrast to the work by Makate (2022: 48) and Thamaraiselvi, Lakshmi and Manthiramoorathi (2019: 6), a study of faculty awareness and perception of e-resources in selected self-financing Arts and Science Colleges in Chennai, India, indicated that the majority of respondents utilize e-resources for teaching (32%) and for supplying study materials to students (28%), with only a minority employing e-resources for alternative purposes. This shows that e-resources support various academic activities, ranging from lecture planning to scholarly inquiry, thus highlighting their versatile nature.

There is mostly preference for e-resources over printed equivalent resources because of the benefits. According to Madhusudhan (2010: 503), e-resources have revolutionized information communication and have become an effective and popular medium among researchers. The actual usage of e-resources by faculty members may be dependent on one's intention as well as preference over its printed resources. E-resources provides a lot of benefits including varied information, currency, convenience of off-campus access, online search tools, saves space and it is economical. The findings of this study indicated that faculty members in GCTU prefer e-resources over printed materials or resources with convenience of access being the most popular among the reasons given (see Table 4.11 of Chapter 4). The GCTU librarians interviewed as well as the studies by Alsalhi et al. (2020: 10) at the University of Ajman, United Arab Emirates (UAE) and Acheampong (2016: 78) on the utilization of electronic resources by students at the University of Professional Studies in Accra in Ghana, all confirmed the benefits offered by e-resources over their printed counterparts.

The ability to access updated information from anywhere at any time, without limitations, is a significant advantage over printed materials.

Actual usage of systems (library e-resources) requires extensive education and training. Academic libraries organize training programmes to help equip users with the expertise to make good use of their subscribed e-resources. The allocation of electronic resources training is crucial as it possesses the potential to enhance the utilization of electronic resources (Ankamah, Gyesei & Amponsah, 2022: 9). While many faculty members have attended electronic resources training programmes organized by the GCTU Library, a significant number of faculty members in GCTU indicated they have not attended e-resources training programmes organized by the Library but have shown interest to attend such training when organized (see Figure 4.6 of Chapter Four). It was, however, surprising that the findings from the librarians interviewed indicated otherwise, that is, the Library organizes training programmes from time to time but with low patronage. Training sessions ought to be arranged with consideration of teaching material, the schedule, and the form of training that users need (Bentil, Liew & Chawner, 2022: 122). This reflects the need for the GCTU Library to organize more training programmes especially on the utilization of electronic resources to increase awareness and ultimately usage.

Library electronic resources currently form an integral part of academic work and are productive tools for both academic staff and administrators as well as for university students. They are used for teaching and learning, and/or research and the findings indicated that both GCTU faculty members and librarians have integrated the Library's subscribed e-resources into their line of work (teaching and learning, and/or research in the case of faculty members and service delivery in the case of the librarians). However, a significant number (58%) of faculty members indicated 'no', but that they would like to integrate the GCTU Library's subscribed electronic resources into their pedagogy and scholarship. Expressed in by research by Kuzilwa and Kuzilwa (2022: 159), the discrepancies in the utilization of e-resources among different universities and individual academics are highly fascinating and that low utilization of e-resources in Tanzania will lead to both waste of important resources and investments. TAM also confirms users' adoption of available technology if they perceive there are some benefits or usefulness for using them (Kuzilwa & Kuzilwa, 2022: 160).

Based on the above discussion on possible purposes of use of e-resources, while the GCTU Library subscribes to various e-resources most faculty members on the Accra campus use Emerald, JSTOR, IEEE Xplore, and EBSCOhost. Most academic staff utilize these electronic resources for studies and publication, and with a minority of them using these e-resources for lecture preparation and thesis writing. Moreover, faculty members prefer e-resources over their printed equivalents largely because of convenience of use. While many faculty members have attended e-resources training programmes organized by the GCTU Library, a significant number have not, but expressed interest to do so. Even though some faculty members have integrated the GCTU Library's subscribed e-resources into their teaching and learning, and/or research, majority have not yet integrated them but would like to do so. This finding corresponds to the fact that e-resources have already been integrated into GCTU Library service delivery as confirmed by the librarians interviewed.

5.2.4 What is the level of satisfaction by Accra campus faculty members in using the GCTU Library electronic resources?

In order to ensure continuous acceptance of and satisfaction in using electronic resources, for both students and faculty members, there is the need to create visible awareness, and to orient, train, and retrain users on usage (Acheampong, 2016: 90). In GCTU, the majority of faculty members indicated that they were satisfied with their use of the Library's subscribed e-resources (see Figure 4.8 of Chapter 4). This correlates with the studies by Joshua and King (2020: 60) on assessing satisfaction or impact of e-resources at Modibbo Adama University of Technology (MAUTech) at Yola, Adamawa State in Nigeria; and Scoulas and De Groote (2023: 8) on faculty perceptions, use, and needs relating to library resources and services in a public research university at the University of Illinois, Chicago in the US. It also correlates with the study by Thamaraiselvi, Lakshmi and Manthiramoorathi (2019: 4) where majority of academics expressed contentment with their utilization of e-resources. However, there was moderate satisfaction among students and faculty members at the University of Perpetual Help System – Laguna (UPHSL), Philippines with regards to the use of EBSCOhost (Malabanan & Bayeng, 2019: 205). Hence it is important to observe that aside from the number of faculty members at the GCTU who expressed satisfaction, 17% also indicated dissatisfaction with their use of the e-resources subscribed to by the GCTU Library.

Satisfaction comes from the acceptance of a product, or a service rendered and normally depends on the level of satisfaction. The study reflected a majority number of satisfied faculty members with the use of the GCTU Library's e-resources (see Figure 4.9 of Chapter Four). Reviewing the literature, Malabanan and Bayeng (2019: 205) also identified a notable correlation between the degree of satisfaction and the degree of utilization of EBSCOhost, namely, a greater level of satisfaction corresponds to a greater level of usage. This reflects how faculty members perceived e-resources as a useful resource and their perceived ease of use due to convenience and enhancement of academic work. Interviewed librarians also expressed that they perceived faculty members experienced moderate to high levels of satisfaction with the Library's subscribed e-resources and cited usefulness of e-resources in supporting academic work. Various studies such as Alsalhi et al. (2020: 10) at the University of Ajman, United Arab Emirates (UAE), Roig-Marín and Prieto (2021: 4) at the University of Alicante (UA) and Budu (2015: 112) at two universities in Ghana (Akrofi-Christaller Institute of Theology, Mission and Culture (ACI) and Ghana Technology University College (now GCTU)), all confirm high levels of satisfaction with the use of e-resources. However, it should be noted that a figure of 7% were dissatisfied with their use of the e-resources.

Venkatesh and Davis (2000) highlighted that the Technology Acceptance Model (TAM) suggests that the perceived utility of a technology is determined by the perceived ease of use. This means that the more user-friendly a technology is, the more beneficial it can be to its users. E-resources are very helpful for several activities. Critically assessing how useful the GCTU Library's subscribed e-resources are in facilitating academic work, majority of faculty members found them to be useful, very useful or extremely useful (see Table 4.12 of Chapter Four). This finding is consistent with the study by Ankamah, Gyesi and Amponsah (2022: 12) which can be linked to the fact that users acquire and retrieve valuable information when they search through e-resources. E-resources are very useful because of the advantages they offer including the ease of use, timesaving, informative and cost effective as compared to their printed equivalents. These findings were also confirmed by the librarians interviewed who indicated e-resources as a positive resource in contributing to effective and efficient library services delivery.

E-resources are very helpful for several reasons. The ease of access to information from e- resources and regular training contributes to positive user experiences or attitudes. According to Humbhi et al. (2023: 119), the findings in their study indicated that a significant majority of respondents strongly agreed with the statement that e-resources are timesaving when it comes to completing academic work. This suggests that these resources are efficient and enable quick access to information. Similarly, a significant majority of faculty members found the GCTU Library's e-resources easy or very easy to access its information. Respondents indicated e- resources as being useful because it makes information retrieval easy, helps them to expand their knowledge base to excel in their academics and enhances their abilities to recall what they have learnt with ease (Acheampong, 2016: 77). Also, in the view librarians interviewed, faculty members find it easy to access information from the GCTU Library's e-resources citing reasons such as training programmes and guides that are made available for use and for reference purposes.

At the degree of satisfaction in using GCTU Library's electronic resources, in summary it can be said that most faculty members at the Accra campus are satisfied with their utilization of the Library's subscribed electronic resources, with GCTU librarians supporting this assertion from their experience of faculty members' utilization of the library's electronic resources. More specifically, academics generally find the Library's subscribed e-resources useful, easy to retrieve, and very supportive of their academic work.

5.2.5 What are possible constraints faced by Accra campus faculty members in using the GCTU Library's electronic resources?

TAM stresses that actual system use pertains to the many levels upon which system patrons engage in the practical utilization of the system which is influenced by one's behavioral goal (Okyere, 2020: 10). Regardless of the perceived usefulness, integration and usage of e- resources are met with various degrees of constraints which hinders its smooth utilization. Examples of constraints include unstable power cuts, poor technological infrastructure and computer networks, poor and unstable internet links, information overload and insufficient searching abilities. The results of this study indicated that a significant proportion of faculty members (85%) indicated proficiency in utilizing the subscribed electronic resources of the GCTU Library, enabling them to obtain them at any moment and from any place (see Figure 4.10 of Chapter 4). As elucidated by Sebastian and Muthumari (2020: 3), e-resources can be conceptualized as data miners that undergo optimization, restructuring, and frequent storage in the digital realm, hence enabling digital and remote accessibility globally.

Interviewed librarians confirmed this proficiency finding and attributed it to the Remote X platform access provided by the Library. This also indicates that time and location do not limit access to the GCTU Library's e-resources by its users.

In the provision of explanations by those faculty members who were unable to utilize the Library's e-resources anytime and wherever, faculty members cited reasons such as network challenges, insufficient knowledge about electronic resources and non-availability of some e-resources (see Table 4.14 of Chapter Four). Ansari's (2020: 14) investigation of the utilization and understanding of electronic resources among research academics in literature disciplines at Banaras Hindu University, India also cited challenges such as insufficient technical expertise, lack of suitable set-up, internet transfer rate and inadequate access to electronic resources. The GCTU librarians interviewed also expressed the same constraints identified by the faculty members specifying unstable and unreliable internet connectivity, lack of knowledge and training on how to access the Library's e-resources.

Faculty members identified many of constraints they encountered when utilizing the GCTU Library's subscribed e-resources such as slow internet connection, inadequate searching skills, information overflow, challenges in obtaining pertinent information, difficulty in utilizing electronic resources, lack of computers for searching purposes and frequent power cuts. Slow internet connection was identified as a major constraint faculty members in GCTU, Accra campus encounter with the least cited being frequent power cuts (see Table 4.15 of Chapter Four). These constraints were also identified and confirmed by the GCTU librarians interviewed with slow internet connectivity and erratic power supply being identified as the constraints. Power supply demonstrated a proclivity for disrupting internet information services, consequently impeding access to information on electronic devices (Atuase, 2016: 124). Other studies, Thompson, Wellington, and James (2018: 90), Veer and Panda (2021: 12), Makate (2022: 50), Ankamah, Gyesi and Amponsah (2022: 12) and Bentil, Liew and Chawner (2022: 119) all confirm various constraints that users, including faculty members, encounter whilst using e-resources. These constraints were found to hinder the seamless utilization of e-resources which necessitate interventions to address them.

The study by Kwadzo (2015) identified interconnected aspects of awareness and utilization of electronic resources. Library patrons might possess knowledge of and utilize the accessible electronic resources. Library patrons may also possess knowledge about the electronic

resources but either choose not to utilize them or remain oblivious to their existence, so refraining from their usage. In expressing procedures to ensure the maximum utilization of the GCTU Library's electronic resources in view of the constraints encountered by faculty members, the librarians interviewed suggested the creation of more awareness through the marketing of the subscribed e-resources and provision of training programmes for faculty members. Uukongo (2023: 14) usefully posits that aspects of awareness associated with library e-resources may encompass cognitive awareness, which encompasses awareness of the accessible electronic materials, methods of accessing them, and their potential applications for academic research.

For recommendations in overcoming the constraints identified by the lecturers, it was not surprising that most lecturers recommended training on how to use both library and internet resources as well as the strengthening of internet connectivity. The librarian participants also recommended the same and recommended that the Management of GCTU ensure the provision of better internet connectivity as well as power back-ups. Acheampong et al. (2020: 209) recommended ongoing training in information literacy competencies, focusing on electronic information retrievals that will enhance effective use of e-resources as well as user trainings to enable users to do independent searching. Meeramani (2023: 9) also stated that to mitigate the challenges encountered by faculty members, network connectivity must be enhanced. Also, Adjepong, Boakye-Yiadom and Ntumy (2022: 15) recommended that the MUCG Library, together with faculty, institute a training programme to teach students the techniques of writing articles and to continue to use e-resources to achieve other mandates too. These measures were aimed to optimize e-resource utilization and to mitigate the challenges faced by users (especially faculty members).

In summary, the research shows that while the majority of GCTU, Accra campus lecturers are proficient in using the Library's subscribed e-resources, some struggle due to the following constraints: slow internet connectivity; inadequate searching skills; information overload; difficulty in retrieving relevant information; difficulty in using the e-resource; lack of computers for searching purposes; and frequent power cuts. Some faculty members are cognizant of the Library's electronic resources yet opt not to utilize them. Hence, maximizing usage of the GCTU Library's subscribed electronic resources, increased knowledge, marketing, and organizing faculty training programmes are important.

5.3 Conclusions of the study

Based on the discussion in Section 5.2, the following conclusions are drawn:

- i. The bulk of academics demonstrated awareness of the electronic resources available at the GCTU Library, with more than half of them being familiar with Emerald, IEEE Xplore, JSTOR, and EBSCOhost. Nonetheless, it is necessary to increase knowledge about electronic resources such as Credo Reference, the World Bank E-Library, and other electronic resources subscribed to by the Library.
- ii. The majority of faculty members have been utilizing the subscribed e-resources of the GCTU Library for a duration ranging from one to four years, and consistently on a weekly basis. They generally utilize the e-resources from their offices and beyond the library, via the university network and remote access services.
- iii. The bulk of academics utilizes library electronic resources for research as well as publication reasons, while a smaller percentage access them for lecture preparation and thesis writing. Furthermore, faculty members prefer electronic resources over their printed counterparts mostly due to the ease of usage. While a significant number of faculty members have participated in e-resources training programmes arranged by the GCTU Library, many have not but expressed interest to do so. While a few faculty members have incorporated the subscribed e-resources of the GCTU Library into their teaching, learning, and/or research, majority have not yet established such integration but express a desire to do so. The aforementioned findings align with the confirmation by the interviewed librarians that e-resources have been included in the service delivery of GCTU Library.
- iv. Most faculty members at the GCTU, Accra campus expressed satisfaction with their utilization of the Library's subscribed e-resources. This claim is substantiated by GCTU librarians who have observed and studied the usage of the library e-resources by faculty members. More precisely, faculty members typically regard the Library's subscribed electronic resources as valuable, easily accessible, and highly beneficial to their academic endeavours.
- v. Although majority of faculty members at GCTU, Accra campus are skilled in using the Library's subscribed e-resources, some face challenges due to factors such as slow internet connection, insufficient searching abilities, information overload, difficulty in retrieving relevant information, difficulty in using the e-resource, lack of computers for searching, and

frequent power outages. Although some lecturers are cognizant of the electronic resources available at the Library, some opt not to utilize them.

5.4 Recommendations of the study

Based on the conclusions drawn in Section 5.3, the following recommendations are made:

- i. The GCTU Library must increase awareness of lesser-known e-resources through targeted campaigns, workshops, seminars, social media and the utilization of various communication channels, organize regular webinars, and share user success stories to maximize their use and promote their benefits.
- ii. An effort by the GCTU Library to increase faculty training and support through regular sessions on library e-resources for research, publication, and teaching; personalized support for those struggling with knowledge of e-resources or network issues; and the creation of online tutorials for easy access.
- iii. The University should enhance internet connectivity, expand remote access capabilities and provide necessary equipment to ensure uninterrupted access to Library e-resources. This includes enhancing Virtual Personal Network (VPN) services, implementing single sign-on systems, and ensuring reliable power back-ups.
- iv. Encourage faculty members' integration of library e-resources into their teaching and learning, and/or research activities, in collaboration with librarians. The Library should regularly collect feedback on faculty satisfaction, challenges and consider offering incentives or recognition for active use of e-resources and its promotion within departments or in the academic community.
- v. Regular faculty-librarian meetings and collaborative resource selection can enhance communication between librarians and faculty, ensuring the library's offerings align with academic and research needs.
- vi. Whilst this study focused only on faculty members on the Accra campus, further research is needed to understand faculty members' awareness and usage of library electronic resources on different GCTU campuses in Ghana and its potential to enhance research output. Further

study could also examine the adoption and utilization of electronic resources among students in GCTU, Ghana.

5.5 Chapter summary and general conclusion

This chapter discussed the main findings of the study in relation to the five critical questions that guided the research on faculty members' awareness and usage of the GCTU e-resources subscribed by the library, within the framework of the conceptual model (TAM) that informed the study as well as the literature that was reviewed. Conclusions and recommendations were derived from this discussion, applicable to both practice at GCTU Library, Accra campus as well as future research on library e-resources for the GCTU Libraries across all GCTU campuses. The chapter also includes a chapter summary and a general conclusion covering implications of the research for practice, policy, theory and methodology.

Driven by a pragmatic worldview (paradigm), the study adopted a convergent parallel mixed methods approach to collect both quantitative and qualitative data and conduct analyses using the GCTU, Accra campus as a single case study to address the critical questions guiding the study. The paradigm selected was appropriate for an LIS study that examined the degree of awareness and the scope of utilization of library e-resources by faculty members of the GCTU, Accra campus. The study deployed more strength with by using both quantitative and qualitative methods which complemented and ensured neutralization of inherent biases that come with each of the methods. In pursuing the study's objective, a descriptive structured questionnaire survey and semi-structured interviews facilitated adequate data collection from censused faculty members and purposively selected librarians at the GCTU, Accra campus, respectively. This approach allowed for a comprehensive analysis of the research problem (low level of comprehension and degree of utilization of library electronic resources by academics). The use of the GCTU, Accra campus as a single case study benefited the research in terms of the research process and outcome and helped to focus this study within the parameters of space (Accra) and duration for this particular situation (Schoch, 2020: 246).

The robustness of the Technology Acceptance Model (TAM) guided the study in the generation of critical questions that aimed to determine the level of awareness and the extent of use of library e-resources among faculty members at the GCTU, Accra campus. The researcher is satisfied that the paradigm (pragmatism), the research approach (convergent parallel mixed methods), the research design (single case study) and the methods (descriptive survey and semi-structured interviews) elicited rich data in answering the five critical questions.

The outcomes of the study would be advantageous to three primary groups of personnel within the academic community, that is, faculty members, library and information services (LIS) professionals, and university administrators and policy makers. The deficiency of awareness and minimal utilization of electronic resources is a great cost to academic libraries and, by extension, to institutions such as GCTU. This study which examined the degree of awareness and the scope of utilization of library electronic resources by faculty members would serve as a reference point in addressing such issues and these findings could help university libraries to identify challenges encountered by users of electronic resources. This research would likewise enable LIS professionals to become cognizant of the degree of awareness and utilization of electronic resources by academics for purposes of identifying strengths and weaknesses in their training programmes and services to derive maximum benefits from these critical library resources. This study would also be useful to university administrators and policy makers in the process of justifying continuing subscription to e-resources in support of teaching and learning, and/or research in universities. The findings of the study would also add to the discipline of Library and Information Science and serve to identify gaps and areas for further studies on the promotion and utilization of electronic resources as a major resource in academic libraries globally. The methodology adopted by the study to inquire into cognizance and utilization of an academic library's e-resources could also offer lessons to other similar studies. High demand on academic libraries and LIS professionals in meeting the informational requirements for their patrons and the academic public, significant changes from hard copies to digital resources, including library e-resources, coupled with several constraints, necessitate that cognizance and utilization of library electronic resources must be advocated and championed for high usage within the higher education sector in Ghana, Africa and globally.

In short, the study has relevance and significance for LIS professional practice, disciplinary theory/knowledge growth, research methodology, and university policy development.

References

- 6, P. & Bellamy, C. 2012. *Principles of methodology: research design in social science*. Los Angeles: SAGE. Available: https://books.google.com.gh/books?hl=en&lr=&id=6V4mLZwu0KQC&oi=fnd&pg=PP1&ots=YwAfjf4ooN&sig=Hrd3PoBAfgk9zyuO1NFXmr6SGt0&redir_esc=y#v=onepage&q&f=false [2023, January 18]
- Abu-Bader, S.H. 2021. *Using statistical methods in social science research: with a complete SPSS guide*. 3rd ed. New York: Oxford University Press
- Acharyya, R. & Bhattacharya, N. 2020. *Research methodology for social sciences*. London: Routledge. DOI: [10.4324/9780367810344](https://doi.org/10.4324/9780367810344)
- Acheampong, E.K. 2016. *Students' use of electronic resources in University of Professional Studies*. MPhil Thesis. University of Ghana. Available: <http://197.255.68.205/handle/123456789/21176> [2022, March 26]
- Acheampong, S. A., Boakye, E. & Agyekum, B. O. 2019. Access and use of e-journals by students of Kumasi Technical University, Kumasi, Ghana. *Library Philosophy and Practice (e-journal)* 2327. Available at: <https://digitalcommons.unl.edu/libphilprac/2327> [2024, August 1]
- Acheampong, L.D., Mingle, N.A., Kofi, P.S.O. & Bekoe, S. 2020. Investigating awareness and usage of electronic resources by research scientists in Ghana. *DESIDOC Journal of Library & Information Technology*, 40(4): 204-210. Available: <https://drdo.gov.in/sites/default/files/inline-files/14906-Article%20Text-52786-2-10-20200730.pdf> [2024 August 1]
- Adams, B., 2017. *The knowledge, skills and competency requirements for music librarians in academic music libraries in the Western Cape, South Africa*. Master's Thesis. University of Cape Town. Available: <http://hdl.handle.net/11427/26881> [2024, August 1]
- Adanu, T. 2019. *Journal databases: academic databases*. Research guides at University of Ghana. Available: <https://libguides.ug.edu.gh/c.php?g=658231&p=4620940> [2022, November 15]
- Adegbore, A.M. 2011. University faculty use of electronic resources: a review of the recent literature. *Pacific Northwest Library Association Quarterly*, 75(4): 1-7. Available: <https://www.researchgate.net/profile/Adebayo-Adegbore-2/publication/263504327> [2024, August 1]

- Adesoye, A.E. & Amusa, O.I. 2013. Use of electronic resources in health sciences institutions in Ogun State, Nigeria. *Pacific Northwest Library Association Quarterly*, 77(3): 28-41. Available: <https://eds.p.ebscohost.com/eds/pdfviewer/pdfviewer?vid=1&sid=66e3a97e-f62e-414c-ab0b-8a41ef1a9413%40redis> [2024, August 1]
- Adjei, K.O.K. 2020. *Managing information and communication technologies (ICTs) at academic libraries in selected public universities in Ghana*. Doctoral Thesis. University of KwaZulu-Natal. Available: <http://hdl.handle.net/10500/27052> [2023, July 20]
- Adjepong, S.K., Boakye-Yiadom, M. & Ntumy, M.X. 2022. Awareness and usage of available electronic resources by students and faculty of Methodist University College, Ghana (MUCG). *UNIZIK Journal of Educational Research and Policy Studies*, 14(3): 1-16. Available: <file:///C:/Users/admin/Downloads/351-Article%20Text-712-1-10-20221207-1.pdf> [2024, August 1]
- Adu, T.L. & Van der Walt, T.B. 2021. Management of e-resources in academic libraries in Ghana: copyright implications. *IFLA Journal*. 0(0): 1-18. DOI: [10.1177/03400352211027188](https://doi.org/10.1177/03400352211027188)
- Agarwal, R. & Karahanna, E. 2000. Time flies when you're having fun: cognitive absorption and beliefs about information technology usage. *Management Information Systems Quarterly*, 24(4): 665-694. DOI: [10.2307/3250951](https://doi.org/10.2307/3250951)
- Ajuwon, G.A. 2003. Computer and internet use by first year clinical and nursing students in a Nigerian teaching hospital. *BMC Medical Informatics and Decision Making*, 3(1): 1-11. Available: <http://www.biomedcentral.com/1472-6947/3/10> [2024, August 1]
- Akinola, A.O., Shorunke, O.A., Ajayi, S.A., Odefadehan, O.O. & Ibikunle, F.L. 2018. *Awareness and use of electronic databases by postgraduates in the University of Ibadan*. Available: <https://www.researchgate.net/profile/Femi-Ibikunle/publication/329556980> [2024, August 1]
- Akpojotor, L.O. 2016. Awareness and usage of electronic information resources among postgraduate students of library and information science in southern Nigeria. *Library Philosophy and Practice*. Available: <https://digitalcommons.unl.edu/cgi/viewcontent.cgi?article=3876&context=libphilprac> [2024, August 2]

- Alsalmi, N.R., Al-Qatawneh, S., Eltahir, M., Althunibat, F. & Aljarrah, K. 2020. The role of academic electronic books in undergraduate students' achievement in higher education. *Heliyon*, 6(11). DOI: [10.1016/j.heliyon.2020.e05550](https://doi.org/10.1016/j.heliyon.2020.e05550)
- Ani, O. E. 2013. *Accessibility and utilization of electronic information resources for research and its effect on productivity of academic staff in selected Nigerian Universities between 2005 and 2012*. Doctoral dissertation. University of South Africa. Available: <http://hdl.handle.net/10500/13057> [2022, November 12]
- Aniebiet, I.N. 2009. Noise sources and levels at the University of Calabar Library, Calabar, Nigeria. *African Journal of Library, Archives and Information Science*, 19(1): 53-64. Available: <https://link.gale.com/apps/doc/A203230560/AONE?u=unict&sid=bookmark-AONE&xid=ff32a2a5> [2024, August 2]
- Ankamah, S., Gyesei, K. & Amponsah, V. 2022. Use of electronic resources in research and learning in a health sciences library in Ghana: an analysis of awareness and perception of users. *Information Development*, 1-18. DOI: [10.1177/02666669221107378](https://doi.org/10.1177/02666669221107378)
- Ansari, M.S. 2020. Use and awareness of e-resources among research scholars of literature subjects in Banaras Hindu University. *Library Philosophy and Practice (e-journal)*, 4667. Available: <https://digitalcommons.unl.edu/libphilprac/4667> [2024, August 2]
- Ansari, M.N. & Zuberi, B.A. 2010. Use of electronic resources among academics at the University of Karachi. *Library Philosophy and Practice*, 385: 1-7. Available: <https://digitalcommons.unl.edu/libphilprac/385> [2024, August 2]
- Appleton, L. 2006. Perceptions of electronic library resources in further education. *The Electronic Library*, 24(5): 619-634. DOI: [10.1108/02640470610707231](https://doi.org/10.1108/02640470610707231)
- Aramide, K.A. & Bello, T. 2009. Accessing electronic databases for curriculum delivery in schools: implication for school library media specialists. *Nigerian School Library Journal*, 8: 29-46. Available: <http://repository.ui.edu.ng/handle/123456789/5154> [2024, August 2]
- Asamoah-Hassan, H.R. 2003. Information: the oil in the wheel of national development. *Ghana Library Journal*, 15: 1-14. Available: file:///C:/Users/admin/Downloads/ajol-file-journals_234_articles_33950_submission_proof_33950-2785-35561-1-10-20050520.pdf [2024, August 2]

Atuase, D. 2016. *The use of electronic resources by postgraduate students of the University of Cape Coast*. MPhil Thesis. University of Ghana. Available:

<http://197.255.68.203/handle/123456789/21464> [2022, March 25]

Baayel, P. & Asante, E. 2019. Faculty's information seeking behavior in an ICT environment: a study of Koforidua Technical University. *Library Philosophy and Practice*, 2529: 1-21. Available:

<https://digitalcommons.unl.edu/libphilprac/2529> [2024, August 2]

Babbie, E. 2021. *The practice of social research*. 15th ed. Australia: MA: Cengage Learning

Bellary, R.N. & Surve, S. 2019. E-resources are boon for the teaching and research work of an academic institute: a survey on usage and awareness of e-resources by the NMIMS (Deemed University) engineering faculties, Mumbai. *Library Philosophy and Practice*, 2369: 1-12.

Available: <https://core.ac.uk/download/pdf/215161917.pdf> [2024, August 21]

Bell, B.J., Turner, J., Andre, E., Gerbers, K., Jostad, J., Hobbs, W. & Collins, K. 2023. A census methodology for outdoor adventure research. *Journal of Outdoor Recreation, Education, and Leadership*. DOI: [10.18666/JOREL-2023-11560](https://doi.org/10.18666/JOREL-2023-11560)

Bentil, W. 2011. *The use of electronic resources in Ghanaian Universities: a comparative study of the University of Cape Coast and the Central University College*. MPhil Thesis, University of Ghana, Legon.

Bentil, W., Liew, C.L. & Chawner, B. 2022. The management and the usage of electronic resources in academic libraries: a bi-directional relationship. *Information Development*, 38(1): 114-124. DOI: [10.1177/0266666920983600](https://doi.org/10.1177/0266666920983600)

Bible Society of Ghana, 2020. *The Holy Bible, King James Version (KJV)*. Ghana ed. Accra: The Bible Society of Ghana.

Borrego, A., Anglada, L., Barrios, M. & Comellas, N. 2007. Use and users of electronic journals at Catalan universities: the results of a survey. *The Journal of Academic Librarianship*, 33(1): 67-75.

DOI: [10.1016/j.acalib.2006.08.012](https://doi.org/10.1016/j.acalib.2006.08.012)

Budu, S. 2015. *Use of electronic information resources for research and learning in private universities in Ghana*. MPhil Thesis. University of Ghana. Available:

<http://197.255.68.203/handle/123456789/21885> [2022, March 26]

- Charles, P., Sasireka, I. & Mary, M.J. 2022. Utilization of e-resources by faculty members and students in Management Institutions, Coimbatore: a study. *Library Philosophy and Practice*, 6802: 1-8. Available: <https://digitalcommons.unl.edu/libphilprac/6802> [2024, July 20]
- Chau, P.Y. & Hu, P.J.H. 2001. Information technology acceptance by individual professionals: a model comparison approach. *Decision Sciences*, 32(4): 699-719. DOI: [10.1111/j.1540-5915.2001.tb00978.x](https://doi.org/10.1111/j.1540-5915.2001.tb00978.x)
- Chisenga, J. 2004. *ICT in libraries: an overview and general introduction to ICT in libraries in Africa*. Paper presented at INASP ICT workshop, held at Johannesburg, South Africa. 21-23 July 2004. Johannesburg: International Network for Advancing Science and Policy. Available: <http://www.inasp.info/lsp/ict-workshop-2004/session1-chisenga.pp> [2022, December 14]
- Chowdury, G.G., 2010. *Introduction to modern information retrieval*. Facet publishing.
- Cohen, L., Manion, L. & Morrison, K. 2018. *Research methods in education*. 8th ed. Oxon: Routledge. DOI: [10.4324/9781315456539](https://doi.org/10.4324/9781315456539)
- Creswell, J.W. & Creswell, J.D. 2023. *Research design: qualitative, quantitative, and mixed methods approaches*. 6th ed. Los Angeles: SAGE
- Creswell, J.W. & Creswell, J.D. 2018. *Research design: qualitative, quantitative, and mixed methods approaches*. 5th ed. Los Angeles: SAGE
- Creswell, J.W. & Plano Clark, V.L. 2018. *Designing and conducting mixed methods research*. 3rd ed. Los Angeles: SAGE. Available: <https://www.pdfdrive.com/designing-and-conducting-mixed-methods-research-d196908993.html> [2024, July 20]
- Dadzie, P.S. 2005. Electronic resources: access and usage at Ashesi University College. *Campus-Wide Information Systems*, 22(5): 290-297. DOI: [10.1108/10650740510632208](https://doi.org/10.1108/10650740510632208)
- Davis, F.D. 1989. Perceived usefulness, perceived ease of use, and user acceptance of information technology. *Management Information Systems Quarterly*, 13(3): 319-340. DOI: <https://doi.org/10.2307/249008>
- Davis, F.D., Bagozzi, R. P. & Warshaw, P. R. 1989. User acceptance of computer technology: a comparison of two theoretical models. *Management Science*, 35(8): 982–1003. DOI: [10.1287/mnsc.35.8.982](https://doi.org/10.1287/mnsc.35.8.982)

- DeJonckheere, M. & Vaughn, L.M., 2019. Semi structured interviewing in primary care research: a balance of relationship and rigour. *Family Medicine and Community Health*, 7(2). DOI: [10.1136%2Ffmch-2018-000057](https://doi.org/10.1136%2Ffmch-2018-000057)
- De Luca, C. & Levinson, M. 2022. Coding. In *Oxford research encyclopedia of education*. W. Noblit, Ed. Oxford: Oxford University Press. 1141. Available: <https://oxfordre.com/education/view/10.1093/acrefore/9780190264093.001.0001/acrefore-9780190264093-e-1141> [2023, April 12]
- Diop, K.A.S. & Liu, E. 2020. Categorization of case in case study research method: new approach. *Knowledge and Performance Management*, 4(1): 1-14. DOI: [10.21511/kpm.04\(1\).2020.01](https://doi.org/10.21511/kpm.04(1).2020.01)
- Edwards, J. 2021. Ethical autoethnography: is it possible? *International Journal of Qualitative Methods*, 20: 1-6. DOI: [10.1177/1609406921995306](https://doi.org/10.1177/1609406921995306)
- Egberongbe, H.S. 2011. The use and impact of electronic resources at the University of Lagos. *Library Philosophy and Practice*, 472: 1-9. Available: <https://digitalcommons.unl.edu/libphilprac/472> [2024, August 9]
- Ellis, C. 2007. Telling secrets, revealing lives: relational ethics in research with intimate others. *Qualitative Inquiry*, 13(1): 3-29. DOI: [10.1177/1077800406294947](https://doi.org/10.1177/1077800406294947)
- Emwanta, M. & Nwalo, K.I.N. 2013. Influence of computer literacy and subject background on use of electronic resources by undergraduate students in universities in South-Western Nigeria. *International Journal of Library and Information Science*, 5(2): 29-42. DOI: 10.5897/IJLIS12.017
- Ervasti, M. & Helaakoski, H. 2010. Case study of application-based mobile service acceptance and development in Finland. *International Journal of Information Technology and Management*, 9(3): 243-259. DOI: [10.1504/IJITM.2010.030942](https://doi.org/10.1504/IJITM.2010.030942)
- Field, A. 2005. *Discovering statistics using SPSS*. 2nd ed. London: SAGE
- Ghana Communication Technology University [GCTU]. 2024a. Available: <https://site.gctu.edu.gh/gtuc/administration/about-gtuc/> [2024, July 30]
- Ghana Communication Technology University Act, Act No.1022. 2020. Available: <https://site.gctu.edu.gh/wp-content/uploads/gtuc/external/GCTU-Basic-Laws.pdf> [2024, July 30]

Ghana Communication Technology University 2024b. Directorate of Human Resource and Organization Development. Available: <https://site.gctu.edu.gh/office-of-human-resource> [2024, July 30]

Ghana Communication Technology University Library. 2024. Available: <https://library.gctu.edu.gh/overview-of-university-library> [2024, July 30]

Grant, C. & Osanloo, A. 2016. Understanding, selecting, and integrating a theoretical framework in dissertation research: creating the blueprint for your" house". *Administrative Issues Journal: Connecting Education, Practice, and Research*, 4(2): 12-26. DOI: 10.5929/2014.4.2.9

Hahn, S. E., & Wyatt, A. 2014. Business faculty's attitudes: open access, disciplinary repositories, and institutional repositories. *Journal of Business & Finance Librarianship*, 19(2): 93–113. DOI: [10.1080/08963568.2014.883875](https://doi.org/10.1080/08963568.2014.883875)

Haridasan, S. & Khan, M. 2009. Impact and use of e-resources by social scientists in National Social Science Documentation Centre (NASSDOC), India. *The Electronic Library*. DOI: [10.1108/02640470910934632](https://doi.org/10.1108/02640470910934632)

Hilal, A.H. & Alabri, S.S. 2013. Using NVivo for data analysis in qualitative research. *International Interdisciplinary Journal of Education*, 2(2): 181-186. Available: https://ijoe.org/v2/IJJOE_06_02_02_2013.pdf [2023, February 28]

Humbhi, S., Tareen, S., Raheem, A. & Humbhi, A. 2023. Awareness and utilization of e-resources to support academic and research activities. *Journal of Literature and Librarianship*, 12(2): 107-129. Available: <https://iafor.org/journal/iafor-journal-of-literature-and-librarianship/volume-12-issue-2/article-8/> [2024, June 28]

Institute of Journalism [IJ]. 2023. Available: <https://gij.edu.gh/> [2023, March 5]

Jacobs, N. & Cornelius, S. 2022. Building blocks in planning research methodology: a roadmap to research design options. *Town and Regional Planning*, 80(1): 105-117. Available: <https://www.ajol.info/index.php/trp/article/view/232193> [2024, August 6]

Joshua, D. & King, L. 2020. The utilization of e-resources at Modibbo Adama University of Technology (MAUTech), Yola, Adamawa State, Nigeria. *International Journal of Knowledge Content Development & Technology*, 10(1): 47-70. DOI: [10.5865/IJKCT.2020.10.1.047](https://doi.org/10.5865/IJKCT.2020.10.1.047)

Katabalwa, A.S. 2016. Use of electronic journal resources by postgraduate students at the University of Dar es Salaam. *Library Review*, 65(6/7): 445-460. DOI: [10.1108/LR-11-2015-0108](https://doi.org/10.1108/LR-11-2015-0108)

Kenchakkanavar, A.Y. 2014. Types of e-resources and its utilities in library. *International Journal of Information Sources and Services*, 1(2): 97-104. Available: <https://www.researchgate.net/publication/268508509> [2024, August 6]

Kumar, B.S. & Kumar, G.T. 2010. Perception and usage of e-resources and the internet by Indian academics. *The Electronic Library*. DOI: [10.1108/02640471011023432](https://doi.org/10.1108/02640471011023432)

Kumar, G.T. & Kumar, B.T. 2008. Use of electronic information sources by the academic community: a comparative study. Available: <https://ir.inflibnet.ac.in/handle/1944/1322> [2024, August 6]

Kuzilwa, M. & Kuzilwa, J. 2022. Adoption of electronic resources among academic staff in public universities in Tanzania: an examination of influencing factors. *Tanzania Journal of Development Studies*, 20(2): 158-171. Available: <https://journals.udsm.ac.tz/index.php/tjds/article/viewFile/5697/4781> [2023, April 20]

Kwadzo, G. 2015. Awareness and usage of electronic databases by geography and resource development information studies graduate students in the University of Ghana. *Library Philosophy and Practice*, 1-28. Available: <http://digitalcommons.unl.edu/libphilprac/1210> [2024, August 6]

Kwafoa, P.N.Y., Imoro, O. & Afful-Arthur, P. 2014. *Assessment of the use of electronic resources among administrators and faculty in the University of Cape Coast*. *Library Philosophy and Practice*, 1094: 1-18. Available: <http://digitalcommons.unl.edu/libphilprac/1094> [2024, August 6]

Larson, A.G. 2017. Faculty awareness and use of library subscribed online databases in the University of Education, Winneba, Ghana: a survey. *Library Philosophy and Practice*, 1515: 30-48. Available: <http://digitalcommons.unl.edu/libphilprac/1515> [2024, August 6]

Leavy, P. 2022. *Research design: quantitative, qualitative, mixed methods, arts-based, and community-based participatory research approaches*. 2nd ed. New York: Guilford Press

Library and Information Science Academic Blog (2023). Available: <https://www.lisedunetwork.com/definition-and-types-of-e-resources> [2024, August 6]

- Lottering, T., Billings, B., Brits, D., Hutchinson, E. & Kramer, B. 2022. The ethical use of digital technology in teaching anatomy: a Southern African perspective. *Annals of Anatomy-Anatomischer Anzeiger*, 244: 151990. DOI: [10.1016/j.aanat.2022.151990](https://doi.org/10.1016/j.aanat.2022.151990)
- Madhusudhan, M. 2010. RFID technology implementation in two libraries in New Delhi. *Program: Electronic Library and Information Systems*, 44(2): 149-157. DOI: [10.1108/00330331011039508](https://doi.org/10.1108/00330331011039508)
- Makate, M.G. 2022. *Usage of library electronic resources by students at North-West University, Vaal Triangle Campus, South Africa*. MA Thesis. University of South Africa. Available: <https://uir.unisa.ac.za/handle/10500/29450> [2023, April 20]
- Malabanan, E. & Bayeng, A. 2019. Level of satisfaction and utilization of EBSCOhost among UPHSL students and faculty. *Digital Library Perspectives*, 35(3/4): 205-215. DOI: [10.1108/DLP-03-2019-0009](https://doi.org/10.1108/DLP-03-2019-0009)
- McIlveen, P. 2008. Autoethnography as a method for reflexive research and practice in vocational psychology. *Australian Journal of Career Development*, 17(2): 13-20. DOI: [10.1177/103841620801700204](https://doi.org/10.1177/103841620801700204)
- Meeramani, N. 2023. A study on e-resource awareness and use by the faculty members of JAIN University, India. *Library Philosophy and Practice*, 7586: I-14. Available: <https://digitalcommons.unl.edu/libphilprac/7586> [2024, June 11]
- Mendez, M. 2013. Autoethnography as a research method: advantages, limitations, and criticisms. *Colombian Applied Linguistics Journal*, 15(2): 279-287. Available: <https://revistas.udistrital.edu.co/index.php/calj/article/view/5134/6744> [2023, February 2]
- Molina-Azorin, J. F. & Fetters, M. D. 2019. Building a better world through mixed methods research. *Journal of Mixed Methods Research* 13(3): 275–281. DOI: [10.1177/1558689819855864](https://doi.org/10.1177/1558689819855864)
- Moon, J.W. & Kim, Y.G. 2001. Extending the TAM for a World-Wide-Web context. *Information & Management*, 4(38): 217-230. DOI: [10.1016/S0378-7206\(00\)00061-6](https://doi.org/10.1016/S0378-7206(00)00061-6)
- Msezane, M.N. & Dlamini, P. 2021. Use of electronic resources by postgraduate students of information studies at the University of Zululand, South Africa. *Mousaion*, 39(2): 1-20. DOI: [10.25159/2663-659X/8343](https://doi.org/10.25159/2663-659X/8343)

Mulla, K.R. 2011. Use of Electronic Resources by Faculty Members in HKBK College of Engineering: A Survey. Available : <http://digitalcommons.unl.edu/libphilprac/593> [2023, March 4]

Muthumari, P. 2013. *Utilization of traditional and electronic resources in higher education: a comparative study on user point of view*. PhD Thesis. Alagappa University. Available: <https://shodhganga.inflibnet.ac.in/handle/10603/54320> [2024, August 9]

Mweshi, G.K. & Sakyi, K. 2020. Application of sampling methods for the research design. *Archives of Business Review*, 8(11). DOI: [10.14738/abr.811.9042](https://doi.org/10.14738/abr.811.9042)

Neuman, W.L. 2014. *Social research methods: qualitative and quantitative approaches*. London: Pearson Education.

Newman, M. & Gough, D. 2020. Systematic reviews in educational research: methodology, perspectives and application. *Systematic reviews in educational research: Methodology, perspectives and application*, 3-22. DOI: [10.1007/978-3-658-27602-7](https://doi.org/10.1007/978-3-658-27602-7)

Ngulube, P. & Ngulube B. 2022. Are we there yet? Mixed methods research in the *South African Journal of Economic and Management Sciences. Acta Commercii*, 22(1): 1-11. DOI: [10.4102/ac.v22i1.1013](https://doi.org/10.4102/ac.v22i1.1013)

Nkuebe, M.P.A. 2017. *Knowledge and skills requirements of National University of Lesotho librarians in meeting information needs of humanities undergraduate students in the digital age* Master's Thesis. University of Cape Town. Available: <http://hdl.handle.net/11427/24909> [2023, July 23]

Nwagwu, W.E. 2015. Postgraduate students' use of e-books at the University of Ibadan, Nigeria. *Mousaion: South African Journal of Information Studies*, 33(1): 121-152. DOI: [10.10520/EJC172998](https://doi.org/10.10520/EJC172998)

Okyere, E.K. 2020. *Awareness and use of online academic databases among undergraduate students at the University of Ghana*. MA dissertation: University of Ghana. Available: <http://ugspace.ug.edu.gh/handle/123456789/36164> [2024, August 7]

Olajide, O. & Adedokun, F. 2018. Awareness and use of electronic information resources by the faculty members of AFE Babalola University, Ado Ekiti (ABUAD): a survey. *University of Nebraska-Lincoln Digital Commons, University of Nebraska-Lincoln*, 1-13. Available: <http://digitalcommons.unl.edu/libphilprac/2064> [2024, August 7]

- Omotayo, B.O. 2010. Access, use, and attitudes of academics toward electronic journals: a case study of Obafemi Awolowo University, Ile-Ife. *Library Philosophy and Practice*, 335. Available: <https://digitalcommons.unl.edu/libphilprac/335> [2024, August 6]
- Owolabi, K.A., Ajiboye, B.A., Lawal, O.W. & Okpeh, S.C. 2012. Use of electronic information sources (EIS) by faculty members in Nigerian universities. *Library Philosophy and Practice*, 721. Available: <https://www.researchgate.net/publication/266506732> [2024, August 6]
- Paul, J. & Criado, A.R. 2020. The art of writing literature review: what do we know and what do we need to know? *International Business Review*, 29(4): 101717. DOI: [10.1016/j.ibusrev.2020.101717](https://doi.org/10.1016/j.ibusrev.2020.101717)
- Ponce, O.A. & Pagán-Maldonado, N. 2015. Mixed methods research in education: capturing the complexity of the profession. *International Journal of Educational Excellence*, 1(1): 111-135. Available: <https://www.researchgate.net/profile/Nellie-Pagan-Maldonado/publication/282529137> [2024, August 7]
- Prelitz, K., Szydlowski, N., Roy, M., Davis Jr, A., Agee, A. & Chan, E.K. 2023. How ethnic studies faculty use streaming video: instructional needs, applications, and challenges. *The Journal of Academic Librarianship*, 49(2): 102654. DOI: [10.1016/j.acalib.2022.102654](https://doi.org/10.1016/j.acalib.2022.102654)
- Raju, J. 2014. Knowledge and skills for the digital era academic library. *The Journal of Academic Librarianship*. 40 (2): 163-170. DOI: [10.1016/j.acalib.2014.02.007](https://doi.org/10.1016/j.acalib.2014.02.007)
- Ravikiran, A. S. 2023. *Population vs samples: definitions, differences, and examples*. Available: <https://www.simplilearn.com/tutorials/machine-learning-tutorial/population-vs-sample> [2024, August 7]
- Roig-Marín, A. & Prieto, S. 2021. English literature students' perspectives on digital resources in a Spanish university. *The Journal of Academic Librarianship*, 47(6): 102461. DOI: [10.1016/j.acalib.2021.102461](https://doi.org/10.1016/j.acalib.2021.102461)
- Ruel, E., Wagner, W. & Gillespie, B. 2016. *The practice of survey research: theory and applications*. London: SAGE.
- Salaz, A.M., Johnston, N. & Pickles, C. 2018. Faculty members who teach online: a phenomenographic typology of open access experiences. *The Journal of Academic Librarianship*, 44(1): 125-132. DOI: [10.1016/j.acalib.2017.09.006](https://doi.org/10.1016/j.acalib.2017.09.006)

Schoch, K. 2020. Case study research. In *Research design and methods: an applied guide for the scholar-practitioner*. G.J. Burkholder, K.A. Cox & L.M. Crawford, Eds. Thousand Oaks: SAGE. 245-258.

Scoulas, J.M. & De Groot, S.L. 2023. Faculty perceptions, use, and needs of library resource and services in a public research university. *The Journal of Academic Librarianship*, 49(1): 102630. DOI: [10.1016/j.acalib.2022.102630](https://doi.org/10.1016/j.acalib.2022.102630)

Sebastian, R. & Muthumari, D.P. 2020. Impact and usefulness of e-resources on delivering knowledge in contemporary learning environments of medical colleges in Kerala: a study. *Library Philosophy and Practice*, 1-17. Available: <https://digitalcommons.unl.edu/libphilprac/3931> [2024, August 7]

Shukla, S. 2020. Concepts of population and sample. Available: <https://www.researchgate.net/publication/346426707> [2023, March 29]

Sohail, M. & Ahmad, S. 2017. Use of electronic resources and services by faculty members and students of Fiji National University. *DESIDOC Journal of Library & Information Technology*, 37(3): 165-171. Available: <https://www.researchgate.net/profile/Md-Sohail/publication/317240395> [2023, April 21]

Srinivasulu, P., Balu, C.C. & Narendra, A. 2019. Awareness and usage of e-resources by faculty members at Vardhaman College of Engineering (Autonomous), Hyderabad: a Study. *Library Philosophy and Practice*, 1-16. Available: <https://digitalcommons.unl.edu/libphilprac/2537> [2023, March 5]

Surendran, P. 2012. Technology acceptance model: a survey of literature. *International Journal of Business and Social Research*, 2(4): 175-178. Available: <https://thejournalofbusiness.org/index.php/site/article/view/161/160> [2022, November 7]

Swain, D.K. & Panda, K.C. 2009. Use of electronic resources in business school libraries of an Indian state: A study of librarians' opinion. *The electronic library*, 27(1): 74-85. DOI: [10.1108/02640470910934605](https://doi.org/10.1108/02640470910934605)

Tashakkori, A. & Teddlie, C. 2010. Putting the human back in “human research methodology”: the researcher in mixed methods research. *Journal of Mixed Methods Research*, 4(4): 271-277. DOI: [10.1177/1558689810382532](https://doi.org/10.1177/1558689810382532)

- Taylor, S. & Todd, P.A. 1995. Assessing IT usage: the role prior experience. *Management Information Systems Quarterly*, 19(4): 561-570. DOI: 0.2307/249633
- Temboge, A. & Yaji, G.S. 2018. Awareness and use of the Essential Electronic Agricultural Library (TEEAL) database among faculty members in Federal University, Kashere and Federal College of Education (Technical), Gombe, Nigeria. *Information Impact: Journal of Information and Knowledge Management*, 8(3): 51. DOI: [10.4314/ijjkm.v8i3.5](https://doi.org/10.4314/ijjkm.v8i3.5)
- Ternenge, T.S. & Kashimana, F. 2019. Availability, accessibility, and use of electronic information resources for research by students in Francis Sulemanu Idachaba Library University of Agriculture, Makurdi. *Library Philosophy and Practice (e-journal)*, 2352, 1-41. Available: <https://digitalcommons.unl.edu/libphilprac/2352> [2023, May 12]
- Thamaraiselvi, M., Lakshmi, S. & Manthiramoorathi, M. 2019. Awareness and perception about e-resources among faculty members in selected Self-Financing Arts and Science Colleges of Chennai—A Study. *Library Philosophy and Practice*. Available: <https://digitalcommons.unl.edu/libphilprac/2995> [2023, February 24]
- Theofanidis, D. & Fountouki, A. 2019. Limitations and delimitations in the research process. *Perioperative Nursing-Quarterly Scientific, Online Official Journal of GORNA*, 7(3): 155-163. DOI: [10.5281/zenodo.2552022](https://doi.org/10.5281/zenodo.2552022)
- Thompson, H., Wellington, K.A.R. & James, J. 2018. Faculty use of electronic resources (e-resources) at the University of Technology, Jamaica. *Journal of Arts Science & Technology*, 11(2). Available: <https://www.researchgate.net/profile/Kerry-Ann-Rodney-Wellington/publication/332182465> [2023, April 20]
- Tsakonas, G. & Papatheodorou, C. 2006. Analysing and evaluating usefulness and usability in electronic information services. *Journal of Information Science*, 32(5): 400–419. DOI at: [10.1177/0165551506065934](https://doi.org/10.1177/0165551506065934)
- Uukongo, W.N. 2023. *An investigation into the awareness and usage of e-resources by the University of Namibia students: a case study of Ogongo campus*. Master Dissertation. University of Namibia. Available: <https://repository.unam.edu.na/server/api/core/bitstreams/a4aaf84e-4d3d-4865-9ad4-19135e9a6b00/content> [2024, August 28]

- Veer, R. & Panda, S. 2021. Usage statistics of e-resources during pandemic period: a case study of Chandigarh University Library. *Library Philosophy and Practice*, 6339: 1-15. Available: <https://digitalcommons.unl.edu/libphilprac/6339> [2020, April 21]
- Venkatesh, V., & Davis, F.D. 2000. A theoretical extension of the technology acceptance model: four longitudinal field studies. *Management Science*, 46(2): 186-204. DOI: <https://www.researchgate.net/deref/http%3A%2F%2Fdx.doi.org%2F10.1287%2Fmns.46.2.186.1926>
- Venkatesh, V., Morris, M. G. Davis, G. B. & Davis, F. D. 2003. User acceptance of information technology: toward a unified view. *Management Information Systems Quarterly*, 27: 425-478
- Walliman, N. 2011. *Your research project: designing and planning your work*. 3rd ed. London: SAGE.
- Wisker, G. 2008. *The postgraduate research handbook*. 2nd ed. New York: Palgrave MacMillan
- Wolf, C., Joye, D., Smith, T. W. & Fu, Y. 2016. Questionnaire pretesting. *In the SAGE handbook of survey methodology*. London: SAGE. 359-381. DOI: 10.4135/9781473957893
- Xiao, Y. & Watson, M. 2019. Guidance on conducting a systematic literature review. *Journal of Planning Education and Research*, 39(1): 93-112. DOI: [10.1177/0739456X17723971](https://doi.org/10.1177/0739456X17723971)
- Yebowaah, F.A. & Plockey, F.D.D. 2017. Awareness and use of electronic resources in university libraries: A case study of University for Development Studies Library. *Library Philosophy and Practice*, 1562: 1-32. Available: <https://core.ac.uk/download/pdf/127441055.pdf> [2024, August 7]
- Yin, R.K. 2018. *Case study research and applications: Design and methods*. 6th ed. Thousand Oaks, California: SAGE.
- Yusuf, M. & Farouk, B.L. 2017. Awareness, access, and use of academic databases by faculty members: a case study of Bayero University Library. *International Journal of Library and Information Science*, 6(3): 13-26. Available: <https://www.researchgate.net/profile/Yusuf-Muhammad-2/publication/321805014> [2024, August 7]

Appendix A: Informed consent for library staff members

Awareness and use of library electronic resources by faculty members of the Ghana Communication Technology University: a case study of the Accra campus

Preamble

My name is Philip Larry Anguah, an MPhil(Research) student in the Department of Knowledge and Information Stewardship, Humanities Faculty at the University of Cape Town, South Africa. I am conducting research for completion of my dissertation. The title of my study is, '**Awareness and use of library electronic resources by faculty members of the Ghana Communication Technology University: a case study of the Accra campus**'. The objective of the study is to examine the level of awareness and extent of use of library electronic resources by faculty members at the Ghana Communication Technology University (GCTU), Accra campus. The study is being supervised by Professor Jaya Raju.

It will be greatly appreciated if you would consent to being interviewed on issues related to the study. There are no known direct benefits resulting from your participation. However, the outcome of the study would contribute to knowledge generation on the use of library electronic resources in higher education. The interview is semi-structured and should not last for more than an hour. Your participation in this study is entirely voluntary, and you may opt out at any time. Information shared during the interview will be treated with absolute confidentiality, and the anonymity of participants is assured during the reporting of findings. If you decide to leave the study, you may withdraw your consent and any data acquired from you will be destroyed. You are welcome to ask questions at any time. You may also object to respond to a question if you feel compelled to do so.

The University of Cape Town (where this master's study is registered) and the Ghana Communication Technology University (the study's research site) have both granted ethical approval for this study. Unless your organization expressly requests otherwise, the identity of your higher education institution that serves as a research site for this study, will be mentioned in the reporting of findings. Should you have any queries about the study, please contact the researcher.

Researcher: Philip Larry Anguah, angphi001@myuct.ac.za, +233 244 887030

Informed consent:

Please initial box

I have read and I understand what this study is about.

I was given the opportunity to clarify any concerns that I may have.

I agree voluntarily to participate in the study.

I am aware that I have the right to withdraw from the study at any point.

I understand that I am not obliged to answer all questions.

I understand that the information I share will be treated confidentially and

will be used for research purposes only.

I understand that my anonymity will be assured during the reporting of findings.

I agree to this interview being audio-recorded.

YES **NO**

Name of Participant

Date

Signature

Name of Researcher

Date

Signature

Appendix B: Semi-structured interview schedule for librarians

Awareness and use of library electronic resources by faculty members of the Ghana Communication Technology University: a case study of the Accra campus

Preamble

My name is Philip Larry Anguah, an MPhil(Research) student in the Department of Knowledge and Information Stewardship, Humanities Faculty at the University of Cape Town, South Africa. I am conducting research for completion of my dissertation. The title of my study is, '**Awareness and use of library electronic resources by faculty members of the Ghana Communication Technology University: a case study of the Accra campus**'. The objective of the study is to examine the level of awareness and extent of use of library electronic resources by faculty members at the Ghana Communication Technology University (GCTU), Accra campus. The study is being supervised by Professor Jaya Raju.

You have consented to be interviewed on issues related to the study, by completing the informed consent form. The interview is semi-structured and should not last for more than an hour. To reiterate, your participation in this study is entirely voluntary and you may opt out at any time. Information shared during the interview will be treated with absolute confidentiality, and the anonymity of participants is assured during the reporting of findings. If you decide to leave the study, you may withdraw your consent and any data acquired from you will be destroyed. You are welcome to ask questions at any time. You may also object to respond to a question if you feel compelled to do so. You have agreed/disagreed for this interview to be audio-recorded.

The University of Cape Town (where this master's study is registered) and the Ghana Communication Technology University (the study's research site) have both granted ethical approval for this study.

Semi-structured interview schedule

Section A: Biographic data

1. Which department, at the GCTU Library, are you designated in?

2. What is your highest Library and Information Science (LIS) qualification? (e.g., MA Information Studies; PhD Information Studies)

3. What is your professional rank within the GCTU Library (e.g., Assistant Librarian; Senior Assistant Librarian)?

4. For how many years have you been engaged in library e-resources related services?

Section B: Level of awareness of library electronic resources (e-resources) among faculty members

5. Ansari (2020) asserts that “awareness can be understood as knowledge of a situation or experience of it, facts, recognition, consciousness, realization, and acknowledgment of new growth”. In ensuring that all users become aware of the GCTU Library’s subscribed e-resources, how do the librarians create awareness among GCTU faculty members? [Prompt: What means do the librarians use to inform faculty members of the Library’s e-resources (e.g., library website)?]

6. Please list some of the e-resources subscribed to by the GCTU Library?

7. If the GCTU Library does not publicize its subscribed e-resources to create awareness among faculty members, what are the reasons for this?

Section C: Extent of use of library electronic resources by faculty members

8. “Different types of users in university settings, be it students, academics, administrators, and researchers, consult e-resources (online academic databases) in one way or the other, but the extent or frequency of use may differ in various areas” (Okyere, 2020). What is the extent of use of the GCTU Library’s subscribed e-resources by Accra campus faculty members?

9. How do Accra campus faculty members access the GCTU Library’s subscribed e-resources (e.g., off-campus using the internet; on-site using library computers)?

Section D: Possible purposes for use of library electronic resources by faculty members

10. Which of the GCTU Library’s subscribed e-resources have you observed faculty members using (e.g., EBSCOhost; Emerald)?

11. For what purposes do you think faculty members use the GCTU Library’s subscribed e-resources?

12. Why do you think faculty members are likely to prefer the use of the GCTU Library’s subscribed e-resources over their printed equivalents?

13. Has the GCTU Library organized any training programmes for faculty members in relation to the use of its e-resources?

14. How integrated is GCTU Library’s subscribed e-resources into the Library’s resources and service delivery for teaching and learning, and research?

Section E: Level of satisfaction with the use of the GCTU Library's electronic resources by faculty members

15. Satisfaction comes from the acceptance of a product or a service rendered, and this assertion can also be related to the provision of e-resources to support library users in universities. How satisfied do you think GCTU faculty members are with the Library's subscribed e-resources as useful information resources?

16. How useful is GCTU Library's subscribed e-resources in contributing to effective and efficient library services delivery?

17. How easy do faculty members find it to access information from the Library's subscribed e-resources?

Section F: Possible constraints faced by faculty members in using the GCTU Library's e-resources

18. Are GCTU faculty members able to access the Library's e-resources any time and wherever they are? Please elaborate.

19. If **No**, would you please explain why?

20. There are several obstacles to the use of e-resources for research work (Madhusudhan, 2010; Acheampong 2016). In your view, what are some of the constraints faculty members encounter when using the GCTU Library's subscribed e-resources?

21. How should the GCTU Library ensure maximum usage of its subscribed e-resources?

22. What measures would you recommend to overcome constraints faced by faculty members in using the GCTU's subscribed e-resources?

Section G: General

23. Do you have any additional comments relating to the study that have not already been covered in this interview?

Debriefing: Briefly ask participant about their experience of the interview session. Finish off by summarizing main points.

Thank you for agreeing to this interview and for your time and effort in participating. Any questions about the interview or the study may be sent to the researcher at philipanguah@gmail.com or angphi001@uct.ac.za

[Record date, time and duration of the interview]

Appendix C: Structured questionnaire for faculty members

Awareness and use of library electronic resources by faculty members of the Ghana Communication Technology University: a case study of the Accra campus

Preamble

My name is Philip Larry Anguah, an MPhil (Research) student in the Department of Knowledge and Information Stewardship, Humanities Faculty at the University of Cape Town, South Africa. I am conducting research for completion of my dissertation. The title of my study is, '**Awareness and use of library electronic resources by faculty members of the Ghana Communication Technology University: a case study of the Accra campus**'. The objective of the study is to examine the level of awareness and extent of use of library electronic resources by faculty members at the Ghana Communication Technology University (GCTU), Accra campus. The study is being supervised by Professor Jaya Raju.

As part of this study, I need to conduct a survey of GCTU faculty members about their awareness and use of library electronic resources. Hence, your participation in responding to questions in the study is critical and would be greatly appreciated. The University of Cape Town (where this master's study is registered) and the Ghana Communication Technology University (the study's research site) have both granted ethical approval for this study. Confidentiality of information provided by you as a research respondent is assured and will be used solely for research purposes. Your participation in this study will remain anonymous. I therefore encourage you to kindly complete this questionnaire with complete honesty.

Instructions

Please respond by **ticking** (✓) where applicable or by providing responses in the spaces indicated.

Section A: Biographic data

1. Faculty:

- a) Business School []
- b) Computing and Information Systems []
- c) Engineering []

2. Level of academic qualification:

- a) Master's (coursework) []
- b) Masters's (research) []
- c) PhD []

3. Academic rank:

- a) Assistant Lecturer []
- b) Lecturer []
- c) Senior Lecturer []
- d) Associate Professor []
- e) Professor []

4. For how long have you been teaching at the GCTU?

- a) Less than one year []
- b) One to five years []
- c) Six to ten years []
- d) Eleven to fifteen years []
- e) More than fifteen years []

Section B: Level of awareness of library electronic resources (e-resources) among faculty members

5. Are you aware of the available e-resources in the GCTU Library?

- a) Yes []
- b) No []

6. If **Yes** to Question 5, how did you become aware of the e-resources of the Library? (You may select more than one option)

a) Academic colleagues []

b) Library notices []

c) Library orientation []

d) Library seminars/workshops []

e) Library staff members []

f) Library website []

g) Other [], please specify _____

7. Which of these e-resources subscribed to by the GCTU Library are you aware of? (You may select more than one option)

a) Cambridge University Journals []

b) Credo Reference []

c) EBSCOhost []

d) Electronic books (e-Books) []

e) Emerald []

f) E-past examination question papers []

g) IEEE *Xplore* []

h) JSTOR []

i) Taylor and Francis Online []

j) Wiley Online Library []

k) SAGE Journals []

l) World Bank E-Library []

m) Other [], please specify _____

8. Have the GCTU Library e-resources been adequately publicized among faculty members?

a) Yes []

b) No []

9. If **No** to Question 8, what means do you think should be used by the Library to adequately publicize e-resources among faculty members?

Section C: Extent of use of library electronic resources by faculty members

10. For how long have you been using the GCTU Library's subscribed e-resources?

a) Less than one year []

b) One to two years []

c) Three to four years []

d) Five to six years []

e) More than six years []

f) Not at all []

11. How frequently do you use the GCTU Library's subscribed e-resources?

a) Daily []

b) Weekly []

c) Monthly []

d) Yearly []

e) Other [], please specify _____

12. How do you access the GCTU Library's subscribed e-resources? (You may select more than one option)

- a) From my office using the campus network []
- b) Off-campus using the internet []
- c) On-site using library computers []
- d) Via the Library website []
- e) Other [], please specify _____

Section D: Possible purposes for use of library electronic resources by faculty members

13. Which of the GCTU Library's subscribed e-resources do you use? (You may select more than one option)

- a) Cambridge University Journals []
- b) Credo Reference []
- c) EBSCOhost []
- d) Electronic books (e-Books) []
- e) Emerald []
- f) E-past examination question papers []
- g) IEEE *Xplore* []
- h) JSTOR []
- i) Taylor and Francis Online []
- j) Wiley Online Library []
- k) SAGE Journals []
- l) World Bank E-Library []
- m) Other [], please specify _____

14. What is your purpose for using these GCTU Library subscribed e-resources? (You may select more than one option)

- a) Personal development []
- b) Research purposes []
- c) Publication purposes []
- d) Preparation of lectures []
- e) Thesis or dissertation writing []
- f) Other [], please specify _____

15. Why would you possibly prefer the use of GCTU Library's subscribed e-resources over their printed equivalents? (You may select more than one option)

- a) Easier availability of online search tools []
- b) Convenience of access []
- c) Currency of information []
- d) Off-campus availability via the internet []
- e) Quick access to information []
- f) Saves time []
- g) Other [], please specify _____

16. Have you ever attended a training programme organized by the GCTU Library on the use of e-resources?

- a) Yes []
- b) No []
- c) No, but would like to []

17. Have you integrated library e-resources into your teaching and learning, and/or research?

- a) Yes []
- b) No []
- c) No, but would like to []

Section E: Level of satisfaction with the use of the GCTU Library’s electronic resources by faculty members

18. Are you satisfied with your use of the e-resources subscribed to by the GCTU Library?

a) Yes []

b) No []

19. Please indicate your level of satisfaction in using the GCTU Library’s subscribed e-resources. Please tick the appropriate response.

Completely dissatisfied	Mostly dissatisfied	Somewhat dissatisfied	Neither satisfied / dissatisfied	Somewhat satisfied	Mostly satisfied	Completely satisfied

20. How useful would you rate the GCTU Library’s subscribed e-resources in facilitating your academic work? Please tick the appropriate response.

Not Useful	Somewhat useful	Useful	Very useful	Extremely useful

21. How easily is information accessed from the GCTU Library’s subscribed e-resources?

Please tick the appropriate response.

Not easy	Slightly easy	Easy	Very easy

Section F: Possible constraints faced by faculty members in using the GCTU Library’s e-resources

22. Are you able to use the GCTU Library's subscribed e-resources anytime and wherever you are?

a) Yes []

b) No []

23. If **No** to Question 22, would you please explain why?

24. What are some of the constraints you encounter when using the GCTU Library's subscribed e-resources? (You may select more than one option)

a) Difficulty in retrieving relevant information []

b) Difficult to use the e-resource []

c) Inadequate searching skills []

d) Information overload []

e) Lack of computers for searching purposes []

f) Slow internet connection []

g) Frequent power cuts []

h) Other [], please specify _____

25. What measures do you recommend to overcome the constraints faced by faculty members in using the GCTU Library's subscribed e-resources?

a) Training on how to use library and internet resources []

b) Increasing the number of computers in the library available for searching purposes []

c) Strengthening internet connectivity []

d) Providing standby generators to mitigate power cuts []

e) Creating more e-resources awareness programmes []

f) Other [], please specify _____

Section G: General

26. Please provide any additional comments relating to the study that have not already been covered in this questionnaire.

Thank you for your time and participation. Really appreciated.

Any questions about the study may be sent to the researcher at philipanguah@gmail.com or angphi001@uct.ac.za

Appendix D: Ethical approval – UCT



Department of Knowledge & Information Stewardship
University of Cape Town
Upper Campus

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E-mail: dkis@uct.ac.za
Website: www.dkis.uct.ac.za

13 December 2023
Ref: DKIS2023-11-07

Mr Philip Anguah (ANGPHI001)
Department of Knowledge and Information Stewardship
Chancellor Oppenheimer Library
University of Cape Town

Ethics approval for Master's research (ANGPHI001)

Mr Anguah

I am pleased to inform you that ethical clearance has been granted by the Ethics Review Committee of the Department of Knowledge and Information Stewardship (DKIS), on behalf of the Humanities Faculty of the University of Cape Town, for you to proceed with collecting data for your Master's study entitled: *Awareness and use of library electronic resources by faculty members of the Ghana Communication Technology University: a case study of the Accra campus.*

As a next step, please ensure that you obtain approval from the relevant ethics committees to collect data at your data collection sites, as necessary.

We wish you well with your data collection and the completion of your research.

Yours faithfully,


Signed by candidate

Ms Theresa de Young
Chair: Department (DKIS) Research Ethics Committee

Appendix E: Ethical approval – GCTU

GHANA COMMUNICATION TECHNOLOGY UNIVERSITY

Private Mail Bag 100,
Accra North, Ghana.



Tel: +233 303940446 / 501579732
+233 500872419

15th December 2023

The Registrar
Ghana Communication Technology University
PMB 100
Tesano, Accra
Ghana

Dear Sir,

ETHICAL APPROVAL FOR DATA COLLECTION

My name is Philip Larry Anguah, an MPhil (Research) student from the Department of Knowledge and Information Studies at the University of Cape Town, South Africa and currently researching the topic below, as a requirement for completion of my dissertation.

“Awareness and use of library electronic resources by faculty members of the Ghana Communication Technology University: a case study of the Accra campus”

The objective of the study is to examine the level of awareness and extent of use of library electronic resources by faculty members at Ghana Communication Technology University (GCTU), Accra campus.

I am therefore requesting your high office for approval in order to collect data from both faculty members and purposively selected library staff members of the Accra campus.

Counting on your usual cooperation,


Yours sincerely,

Signed by candidate

Philip Larry Anguah

Cc: University Librarian

W. Anguah
Approved: [Signature]
15/12/2023



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