SCHOOL OF LIBRARY, ARCHIVE AND DOCUMENTATION STUDIES

(SLADS) - BAGAMOYO.

A RESEARCH REPORT

AN ASSESSMENT ON THE USE OF E-REFERENCE SERVICES IN ACADEMIC LIBRARIES

.

A CASE STUDY OF AGENCY FOR THE DEVELOPMENT OF EDUCATION MANAGEMENT (ADEM)

BY

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A Research Report Submitted at the School of Library Archives and Documentation Studies as Partial Fulfillment for the Award of Ordinary Diploma in Library and Information Studies.

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CERTIFICATION

The undersigned certify that supervisor has read and hereby recommend for acceptance by the School of Library, Archives and Documentation Studies (SLADS) Bagamoyo. A Research Report entitled "***An Assessment On the Use of E-Reference Services in Academic Libraries." A Case Study of ADEM***, in Fulfillment of the Requirements for the Award of Ordinary Diploma in Library and Information Management.

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Finally, I extend my appreciation to all respondents and everyone who supported me directly or indirectly during the preparation of this work. May God bless you all.

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DEDICATION

I dedicate this research report to my family and who encouragement and enthusiasm during this period while providing all necessary support to my studies.

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LIST OF ABBREVIATIONS

ADEM - Agency for The Development of Education Management

ERS - E-Reference Services

ICTs - Information and Communication Technologies

KMS - Knowledge Management Systems

NRENs - National Research and Education Networks

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ABSTRACT

This study Assessed On the Use of E-Reference Services in Academic Libraries. A Case Study of Agency for The Development of Education Management (ADEM). The study was conducted to identify the types of e-reference services available at ADEM Library, to establish the level use of e-reference services among user and to identify the challenges hindering the effective use of e-reference services.

The study employed a descriptive research design and adopted a mixed research approach, combining both quantitative and qualitative methods. Data were collected from 25 users and 5 staff members using questionnaires and interviews. The collected data were analyzed using descriptive statistics such as frequencies and percentages, while qualitative data were analyzed thematically. The findings were presented in tables and narrative form for easy interpretation.

The findings revealed that although some students benefited from availability of disaster preparedness in library, there were challenges such Inadequate Infrastructure and Hardware Shortages Unreliable Power Supply and Connectivity Issues, Lack of Technical Support and Maintenance, Resistance to Change and Institutional Culture.

The study concludes that the Use of E-Reference Services in Academic Libraries plays a crucial role in students' access to information at ADEM. It recommends that E-Reference Services should improve communication, strengthen payment processing systems, and enhance awareness among students and reliable service delivery.

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CHAPTER ONE

INTRODUCTION AND BACKGROUND TO THE STUDY

1.0 Introduction

This section briefly describes the background to the study, the general objective of the study, the specific objectives research questions, scope of the study and limitations of the study, significance of the study and definition of the key terms

1.1 Background of the Study

The rapid advancement of Information and Communication Technologies (ICTs) has transformed traditional library services into digital-driven platforms. Academic libraries, aiming to support research and learning in the digital age, have adopted e-reference servicesincluding Ask a Librarian, e-mail, live chat, instant messaging, and social mediato offer immediate, remote assistance, (Smit, 2015) These services are essential for expanding access beyond physical boundaries, allowing users to interact with librarians 24/7 The landscape of academic librarianship has undergone a radical transformation since the late 20th century, shifting from a collection centred model to a service-oriented digital paradigm. Reference services, traditionally defined as personal assistance provided to users in pursuit of information, have migrated from the physical "reference desk" to a multifaceted electronic environment known as e-reference or virtual reference. This evolution is driven by the necessity to meet the information-seeking behaviours of "digital natives" who prioritize speed, convenience, and remote access.

Globally, the adoption of e-reference services including email, instant messaging (IM), chat, and video becomes a standard benchmark for academic library excellence(Santhi, 2016). In developed Western nations, the integration of Artificial Intelligence (AI) and sophisticated Knowledge Management Systems (KMS) has further refined these services(Abubakar, 2021). According to the Encyclopedia of Library and Information Sciences, the shift toward electronic resources is not merely a change in format but a fundamental restructuring of the library's role in the research lifecycle.

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In the United States and Europe, libraries have moved beyond simple "ask-a-librarian" email forms to 24/7 collaborative chat services(Ge, 2020). This global trend is characterized by the "anytime, anywhere" philosophy, where the library's value is measured by its ability to provide authoritative, mediated assistance regardless of the user's physical location. However, even in these advanced contexts, challenges persist regarding the "human touch" in digital environments and the ability of librarians to conduct effective reference interviews via text-based interfaces (Dickinson & Smit, 2015).

In the African context, the transition to e-reference is deeply intertwined with the broader "digitalization" of the continent's economy and educational systems. While African academic libraries recognize the potential of e-reference to overcome physical distance and limited print collections, the implementation is often hampered by the "digital divide." This divide is characterized by high costs of bandwidth, erratic power supply, and a shortage of specialized ICT skills among library staff.

Despite these hurdles, developed African nations like South Africa and Nigeria have made significant stride (Oluwabiyi, 2017). Research indicates that individual usage of digital technology in Africa has a more direct positive impact on economic and educational growth than government or business usage alone, suggesting that student-led demand is a primary driver for e-reference adoption. In many Nigerian universities, for instance, e-reference is seen as a tool for "digital empowerment," allowing students to access global bibliographic databases that were previously out of reach (Santhi, 2016). However, studies show that awareness remains a significant barrier; many students are aware of general search engines like Google but remain unaware of the specialized e-reference tools provided by their university libraries.

In Tanzania, the assessment of e-reference services is particularly critical as the nation strives to modernize its higher education sector. The University of Dar es Salaam (UDSM), as a leading institution, has invested in electronic resources to enhance learning and research. However, local assessments reveal a complex picture of "access versus use. “At UDSM, while approximately 89.1% of first-year students report awareness of the existence of electronic resources, the actual depth of usage

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for specific e-reference tools remains low. Many students rely on smartphones and library computers to access these services, but their efforts are frequently frustrated by poor internet connectivity and a lack of sophisticated information literacy skills. Furthermore, the "human element" of e-reference in Tanzania is often limited by a lack of staff orientation and the absence of a structured virtual reference desk that can provide real-time assistance(Santhi, 2016). The transition in Tanzania is also influenced by the "generativity" of digital technology the capacity for users to produce unprompted change through varied applications. As students increasingly use social media for academic purposes, Tanzanian libraries are faced with the challenge of integrating these informal platforms into formal e-reference frameworks to remain relevant to the modern learner.

1.2 Statement of the Problem

The transition from traditional face-to-face reference desks to digital environments has fundamentally altered the landscape of academic librarianship. In the contemporary information age, academic libraries are no longer merely physical repositories of books but are increasingly defined by their digital infrastructure and the quality of their electronic services(Eligi, 2017). Despite the proliferation of E-Reference Services (ERS)including chat, email, and video conferencingmany academic institutions face a significant disconnect between the availability of these technologies and their actual utility or user satisfaction. This gap is often exacerbated by a lack of standardized assessment frameworks to measure the effectiveness of digital mediation in complex research environments(Ge, 2020). The core problem lies in the "Reference Paradox," where the increasing complexity of digital information requires more expert guidance, yet physical reference desk statistics continue to decline, and E-Reference uptake often remains inconsistent or underutilized. At institutions like ADEM, there is a pressing need to determine whether the current E-Reference infrastructure meets the specific pedagogical and research needs of the student body and faculty. Without a rigorous assessment, the library risks investing limited financial and human resources into technologies that may not align with user behaviour or informationseeking patterns.

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Academic libraries serve as the "heart" of the university, supporting the curriculum and fostering independent research(Eligi, 2017). The primary need at ADEM is to ensure that E-Reference services provide "point-of-need" assistance that is as qualitatively robust as traditional in-person interaction. Users today expect instantaneous, 24/7 access to information, yet they often lack the information literacy skills to navigate proprietary databases and scholarly repositories effectively. Consequently, there is a critical need for E-Reference services that do not just provide answers, but also offer instructional support to enhance the user's long-term research capabilities.

Governmental bodies and educational ministries have increasingly recognized the digital divide as a barrier to academic excellence(Ge, 2020). In many jurisdictions, national education policies and strategic plans for ICT (Information and Communication Technology) have provided the foundational funding for high-speed internet and digital library consortia(Kalogiannaki, 2023). For instance, government-backed initiatives often provide the "backbone" infrastructure such as national research and education networks (NRENs) which allow academic libraries to host sophisticated E-Reference platforms. Furthermore, accreditation bodies now frequently include the availability and quality of digital support services as a key metric for institutional evaluation, thereby incentivizing the formalization of E-Reference departments.

This assessment aims to bridge the gap between service provision and user experience. Specifically, the research will investigate the following: types, level, challenges andsolution on the usage of e-reference services in ADEM Library

1.3 Research Objectives

1.3.1 General Objective

The main objective of this study was to assess the usage of e-reference services in ADEM Library.

1.3.2 Specific objective

i. To identify the types of e-reference services available at ADEM Library.

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ii. To establish the level use of e-reference services among users.

iii. To identify the challenges hindering the effective use of e-reference services.

1.4 Research Questions

i. What types of e-reference services are available at ADEM Library?

ii. What was the level of awareness and adoption of e-reference services among users?

iii. What challenges do users face when using e-reference services?

1.6 Scope of the study

The study will base on assessmentonthe Use of E-Reference Services in Academic Libraries where the study expected to be conducted at ADEM.

1.7 Limitations of the Study

1.7.1 Inadequate of fund

Budget allocated for this study may not be enough to cover all the necessary costs. In order to overcome this challenge, the researcher will use sustainable budget to accomplish the study and ensure every penny budget is used for the purpose and for the most informant things only.

1.7.2 Lack of experience

Experience is considered as a limitation because a researcher had no experience, since it was first time to conduct a research study. Therefore, research expects to get assistance from a supervisor and other people who are experienced in doing research.

1.8 Definition of Key Terms

i. Electronic reference (e-reference) in a library refers to digital, online-accessible information sources and services, including electronic databases, encyclopedias, dictionaries, and virtual, real-time assistance from librarians(Oluwabiyi, 2017).

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ii. An academic library was a specialized library located within a higher education institutionsuch as a college or university designed to support the research, teaching, and learning needs of students, faculty, and staff. (Williams, 2020; Madu et al., 2018.

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CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

A literature review provides the theoretical and empirical foundation of a research study by examining what other scholars have written about the research problem. According to (Creswell, 2014), reviewing literature helps the researcher to identify gaps in knowledge, refine research objectives, and build a framework for analysis. (Similarly, Kombo and Tromp, 2006) state that a literature review enables the researcher to understand previous findings and avoid duplication while contributing new knowledge to the field.

2.1 Types of E-Reference Services in Academic Libraries

Electronic reference service, often referred to as digital reference or e-reference, was the mechanism by which libraries provide personalized assistance to users through internet-based communication channels. In the context of academic libraries, these services have evolved from traditional face-to-face interactions to sophisticated, multi-channel platforms designed to support students, faculty, and researchers regardless of their physical location(Alphonce, 2019). According to the foundational principles established by Dr. S.R. Ranganathan, the core of reference work was "establishing contact between reader and book by personal service," a mission that remains unchanged even as the medium shifts from print to digital.

Synchronous E-Reference Services,Synchronous services involve real-time communication between the librarian and the user(Bamidele, 2018). These are highly valued in academic settings for their immediacy and the ability to conduct a "reference interview" dynamically.

Chat and Instant Messaging (IM); This was the most prevalent form of e-reference. Libraries utilize software like LibChat or WhatsApp to provide instant text-based support. It allows for "roving reference" in a digital sense, where librarians can assist users while they are actively searching databases(Eligi, 2017).Video Conferencing: Tools such as Zoom, Microsoft Teams, or Google Meet are increasingly used for

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complex research consultations. This format allows for screen sharing, which is essential for demonstrating how to navigate complex academic databases or citation management software.Voice over IP (VoIP): Some academic libraries offer voice-based digital assistance, allowing users to speak directly with a reference librarian via their computer or mobile device, bridging the gap between a telephone call and a web interface.

Asynchronous E-Reference Services;Asynchronous services do not require the librarian and the user to be online at the same time. These are ideal for complex queries that require extensive literature searches or for users operating in different time zones.

E-mail Reference; The most established form of e-reference. It provides a written record of the interaction and allows librarians to attach documents, links, and detailed search strategies(Ge, 2020).Web Forms: Many academic libraries use structured "Ask a Librarian" web forms. These forms prompt users to provide specific detailssuch as their department, status (undergraduate/faculty), and the depth of information neededwhich helps the librarian categorize the request as either "Ready Reference" or "Long-Range Reference." Social media: Platforms like X (formerly Twitter) and Facebook are used for brief inquiries and outreach, though they are less commonly used for deep pedagogical instruction compared to dedicated library portals.

Collaborative and Automated Services;To provide 24/7 support, many academic libraries participate in consortia or utilize automated tools.Collaborative Digital Reference: Libraries join networks (such as OCLC’s QuestionPoint, now part of LibAnswers) to share the staffing burden. A student at one university might have their chat answered by a librarian at a partner institution across the globe(Bamidele, 2018).Chatbots and AI Assistants: Modern academic libraries are integrating Artificial Intelligence to handle "Ready Reference" queriessimple questions about library hours, location of materials, or basic policy questionsfreeing human librarians for more intensive research support.Text Messaging (SMS): SMS reference allows students to send quick questions via text. This service is particularly effective for

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"point-of-need" assistance, such as asking for a call number while standing in the stacks.

E-reference services in academic libraries have transitioned from a secondary support feature to a primary gateway for information access. By offering a mix of synchronous tools (like chat and video) for immediate needs and asynchronous tools (like email and web forms) for deep research, libraries ensure they meet the diverse needs of the modern scholarly community. These digital interactions fulfill the "Fourth Law of Library Science"Save the time of the readerby providing expert guidance directly to the user's desktop or mobile device

2.2 The Level of Use Electronic Reference Services Among Users

The landscape of information science has undergone a radical transformation with the advent of digital technologies, shifting the traditional paradigm of the reference desk to a virtual environment. E-reference services, also known as digital or virtual reference, involve the provision of real-time or asynchronous assistance to users seeking information through electronic means, such as email, chat, instant messaging, and video conferencing(Alphonce, 2019). As information institutions like academic and public libraries transition into the digital age, the effectiveness of these services is heavily contingent upon the level of awareness and the subsequent adoption rates among their target demographics. While the infrastructure for these services is increasingly robust, the "digital divide" and varying levels of information literacy continue to influence how users perceive and utilize these modern tools.

The Evolution of Reference Services;To understand the current levels of awareness and adoption, one must first examine the historical trajectory of reference work. Traditionally, reference services were defined by the physical presence of a librarian at a desk, a model that dominated for over a century(Eligi, 2017). In the seminal text *Reference and Information Services: An Introduction*, the authors highlight that the core mission of reference to connect the user with the right information at the right time remains unchanged, even as the medium shifts from print to digital. The transition began with the introduction of "Electronic Reference" in the late 20th century, initially through CD-ROM databases and later through the World Wide

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Web.The shift to e-reference was driven by the necessity to meet users where they are. As noted in *The Oxford Guide to Library Research*, modern researchers increasingly prefer remote access to collections and expertise. This shift necessitated a change in how libraries market their services. Awareness is no longer a matter of a user walking past a physical desk; it requires active digital outreach and the integration of help features directly into the user's search workflow.

Current Levels of User Awareness**;**Research into user awareness of e-reference services reveals a complex picture. In many academic settings, awareness is relatively high among graduate students and faculty but remains surprisingly low among undergraduates. According to *The Encyclopedia of Library and Information Sciences*, awareness is often linked to the "visibility" of the service on the institution's website. If a "Chat with a Librarian" button is buried three clicks deep, awareness remains stagnant.Marketing and Promotion: Institutions that employ aggressive marketing strategies such as social media campaigns, orientation workshops, and embedded librarianship report significantly higher awareness levels. *Introduction to Reference Work* by William A. Katz emphasizes that the "invisible" nature of digital services is their greatest hurdle. Unlike a physical building, a digital service must be constantly "announced" to exist in the user's mind. The Role of Information Literacy: Awareness is also tied to a user's understanding of what a librarian actually does. Many users are aware that a "help" button exists but are unaware that it connects them to a professional capable of complex research assistance rather than just technical support.

Adoption Patterns and User Behaviour:Adoption refers to the actual use and integration of e-reference into the user's information-seeking behaviour. Adoption rates are influenced by several factors, including ease of use, perceived usefulness, and the "human touch" factor.Ease of Use and Accessibility(Ge, 2020): Following the Technology Acceptance Model (TAM), users are more likely to adopt e-reference if the interface is intuitive. *Digital Reference Service: A Practical Guide for Librarians* notes that "frictionless" entry points, such as pop-up chat boxes that appear when a user lingers on a search page, drastically increase adoption rates.The Preference for Synchronous Communication: There is a marked preference for

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synchronous (real-time) services like chat over asynchronous ones like email. Users in the digital age expect immediate gratification(Kalogiannakis, 2023). Academic journals have noted that the "immediacy" of chat mimics the face-to-face interaction of the traditional desk, making it a preferred choice for quick queries. Demographic Variations: Adoption is not uniform across all age groups. While "digital natives" are comfortable with chat interfaces, older adults in public library settings may still prefer telephone or in-person interactions. However, as mobile health (mHealth) and e-health practices become more common, as seen in recent healthcare trends, the general public is becoming more accustomed to receiving professional services through digital screens.

Barriers to Adoption; Despite the availability of sophisticated e-reference tools, several barriers persist that hinder full adoption: Technological Anxiety: Some users fear that their questions are "too small" for a formal digital service or feel intimidated by the technology itself(Eligi, 2017). Privacy Concerns: As highlighted in the study of e-health practices, security and privacy of data are paramount. Users may be hesitant to share personal research topics or sensitive information over a chat line if they are unsure of the institution's data retention policies. Lack of Personal Connection: A recurring theme in *The Library Assessment Cookbook* is the value of the "reference interview." Some users feel that the nuances of their request are lost in text-based communication, leading them to bypass e-reference in Favor of physical visits when possible.

The Impact of Information Institutions**:** Information institutions are categorized into creation, processing, and dissemination entities(Bamidele, 2018). Libraries and archives, as processing and dissemination hubs, have had to redefine their roles. The adoption of e-reference is not just a service update; it is a survival strategy(Ge, 2020). In the "knowledge-based economy," the ability to provide rapid, accurate, and remote assistance is what keeps these institutions relevant against commercial search engines.Academic libraries, in particular, have seen a rise in "embedded reference," where librarians are integrated into the Learning Management Systems (LMS) like Canvas or Blackboard. This placement places the service directly in the path of the student, significantly boosting both awareness and adoption.

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The level of awareness and adoption of e-reference services is currently in a state of steady growth but remains uneven across different user groups(Santhi, 2016). While the technology has maturedmoving from simple email to sophisticated AI-integrated chat systemsthe human element remains the primary driver of success. Awareness is heavily dependent on the visibility and strategic placement of service points within the digital environment. Adoption, on the other hand, was driven by the perceived reliability and speed of the service. To bridge the gap, information institutions must move beyond simply "offering" the service. They must actively integrate e-reference into the user's natural workflow, ensure privacy and security, and continuously market the unique value of professional human expertise in an era of automated information. As society becomes more reliant on digital infrastructure for health, education, and commerce, the e-reference desk will likely become the primary gateway to the world's collective knowledge.

2.3 Challenges Faced by Users of E-Reference Services

Electronic reference (e-reference) services, also known as digital or virtual reference, represent the evolution of the traditional library reference desk into the digital realm(Alphonce, 2019). While these services offer unprecedented access to information and professional expertise regardless of geographical location, they introduce a complex array of challenges for the usersboth the patron’s seeking information and the librarians providing it. These challenges range from technological barriers and communication hurdles to systemic issues regarding privacy and information literacy.

Technological Barriers and Digital Divide; One of the primary challenges users’ faces was the "digital divide," which encompasses disparities in access to high-speed internet, modern hardware, and the technical proficiency required to navigate complex library interfaces. Even when access was available, the technical environment can be unstable(Bamidele, 2018). Patrons often encounter issues with browser compatibility, firewall restrictions, or the requirement for specific software plugins to engage in synchronous chat or co-browsing sessions. For many users, the frustration of a dropped connection or a lagging interface during a reference

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interview can lead to "library anxiety," a psychological barrier that discourages future use of the service.

Communication and the Reference Interview; The "reference interview" was a foundational concept in library science, defined as the dialogue between a librarian and a user to clarify the user's information need(Ge, 2020). In a digital environment, this process was significantly hampered by the loss of non-verbal cues. In traditional face-to-face reference, librarians rely on body language, facial expressions, and tone of voice to gauge a patron's level of understanding or frustration. In asynchronous e-reference (such as email or web forms), the delay between question and answer can lead to misunderstandings if the initial query was vague. In synchronous environments (like live chat), the pressure to type quickly can result in "telegraphic" communication, where nuances are lost, and the librarian may provide an answer to the "wrong" question because the clarification process was truncated.

Information Literacy and Cognitive Load: Users often struggle with the sheer volume and complexity of digital resources. Unlike a physical reference (Eligi, 2017). Users face a high "cognitive load" when they must simultaneously learn a new software interface while trying to evaluate the credibility of the information provided. Many patrons lack the advanced search skills necessary to navigate proprietary databases, leading to a reliance on less reliable search engines. This gap in information literacy means that even when a librarian provides high-quality sources, the user may struggle to interpret or utilize them effectively.

Privacy, Security, and Ethical Concerns; Privacy was a core value of librarianship, yet digital reference services often require users to provide personal information, such as email addresses or institutional IDs, to access the service. Users may feel uneasy about the logging of their chat transcripts or the storage of their search histories in "knowledge bases" used for training or service improvement(Bamidele, 2018). Furthermore, the use of third-party software vendors for chat services introduces risks regarding data mining and the commercialization of user data, which can deter privacy-conscious patrons from seeking help.

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Service Constraints and Expectations; There is often a mismatch between user expectations and the reality of library staffing. In the age of Google, many users expect instantaneous, 24/7 responses. While some libraries participate in global cooperatives like Question Point to provide around-the-clock coverage, the librarian answering the query may not have access to the user's local, specialized collections, leading to a "generic" response that does not fully satisfy the user's specific local need(Alphonce, 2019). Additionally, the "hidden" nature of digital reference where the librarian is not visiblecan lead to a lack of personal connection, making the service feel transactional rather than collaborative.

The challenges of e-reference are multifaceted, involving a delicate balance between technological innovation and human-centric service. Users must navigate technical glitches, communication barriers in text-based environments, and concerns over digital privacy. For libraries to succeed, they must focus not just on the tools, but on the "human element"ensuring that technology supports, rather than dictates, the core values of service, equity of access, and intellectual freedom

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CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

This chapter explains various aspects that applied in carrying out the research study, it explains the research design, research approach, target population, area of the study, sample size, sampling technique, validity and reliability, and ethical considerations are also included.

3.2 Research Design

This study used a descriptive case study design to examine Use of E-reference services in Academic Library at ADEM. The design was suitable because it allows an in-depth, context-specific analysis of real-life institutional practices and challenges without manipulating variables (Kothari, 2004; Yin, 2018). Both quantitative and qualitative data collected, enabling the identification of patterns in information access and capturing staff and citizen experiences through interviews and document reviews. The case study approach also supports practical, evidence-based recommendations for improving information management and service delivery performance (Baxter & Jack, 2008).

3.3 Area of the Study

The study will be conducted at ADEM, located in the Bagamoyo, Coastal Region of Tanzania. The areawas selected because it is responsible for delivering essential Institution services such as lending, education, and administrative services, making it an ideal setting for assessing the use E-reference in Academic Library. The area provides a representative context for examining local government practices, institutional capacity, and citizen interactions with service delivery systems. Focusing on this district allows the study to generate context-specific insights and practical recommendations relevant to local governance in Tanzania.

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3.4 Study Population

According to Cresswell (2012), a population is defined as a group of individuals who have similar features that help them to be different from other groups. As it can be an entire collection of people, animals, plants or things from which we may collect data. It is the entire group we are interested in and wish to describe or draw a conclusion. In this study, the researcher will use a population not less 400 respondents from ADEM which include 10 Library staff and 20 students.

3.5 Sampling Techniques and Sample Size

The studyused a purposive sampling technique to select Library staff from departments directly involved in service delivery, ensuring that respondents have relevant experience with information management. For service users, simple random sampling employed to fairly select participants representing the broader community.

3.6 Data Collection Methods

This study employed a mixed-methods approach to collect data, combining quantitative and qualitative techniques to provide a comprehensive understanding of how E-references service delivery at ADEM. The following methods used:

3.6.1 Questionnaires

Structured questionnaires administered to both Library staff and Library users (Student's). The questionnaires contained both closed-ended and open-ended questions. Closed-ended questions allowed the collection of quantifiable data on issues such as the availability of records, timeliness of information, and perceived efficiency of services. Open-ended questions will enable respondents to provide more detailed explanations of challenges and suggestions related to information access. Questionnaires are suitable because they allow data collection from a large number of respondents in a systematic and efficient way, providing patterns and trends that can be statistically analyzed (Kothari, 2004).

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3.6.2 Interviews

Currie. (2001) define interview as a method of obtaining data by talking directly to subject. The interview conducted in Swahili /English so as to give the researcher chances and opportunity to ask supplementary questions and many of the respondents are fluently with Swahili/English. The method used for user who searching for information at ADEM. The advantage of Interview is researcher gets the information required direct from the respondent. respondents can give an accurate answer to researcher it does not consume much time but it allows a researcher to ask additional questions beside of these prepared.

3.6.3 Documentary Review

Relevant documents reviewed to triangulate data collected through questionnaires and interviews. These documents include policy guidelines, service delivery reports, records management manuals, and administrative reports. Document review helps to understand the formal procedures and systems in place for information access, providing evidence of how information was organized, stored, and used to support service delivery (Mnjama, 2015). This method also strengthens the credibility of the findings by corroborating data from multiple sources.

3.6.4 Observations

Conducting direct observations within council offices to understand practical workflows, accessibility of records, and interactions between staff and citizens. Observations help to verify the actual implementation of information access mechanisms and identify gaps that may not be reported in interviews or questionnaires.

3.7 Data Analysis

Data analysis was the process of systematically examining collected data to extract meaningful patterns, relationships, and insights that answer the research questions. This study will use a mixed-methods approach, combining quantitative and qualitative techniques to provide a comprehensive understanding of the role of information access in improving service delivery at Bagamoyo District Council.

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3.7.1 Quantitative Data Analysis

Quantitative data collected from structured questionnaires analyzed using descriptive statistical techniques. This includes computing frequencies, percentages, and cross-tabulations to summarize responses on the availability of records, timeliness of information, and citizens' satisfaction with services. Descriptive statistics help identified trends, patterns, and relationships between information access and service delivery. Data will be presented in tables, charts, and graphs for clear visualization and easier interpretation (Kothari, 2004).

3.7.2 Qualitative Data Analysis

Qualitative data collected from interviews and document reviews analyzed using thematic analysis. The process involved coding responses, identifying recurring themes, and interpreting their meanings in relation to the study objectives. Thematic analysis allows the researcher to explore perceptions, experiences, and institutional practices regarding information access and service delivery (Braun & Clarke, 2006)

3.7.3 Presentation of Findings

The analyzed data presented in a structured manner, combining numerical summaries, graphical illustrations, and narrative explanations. Quantitative results will highlight measurable patterns in information access and service delivery, while qualitative results will provide context, explanation, and insights into challenges and institutional practices. This comprehensive presentation will enable the researcher to draw conclusions and make evidence-based recommendations for improving information access mechanisms at ADEM

3.8 Validity and Reliability

Ensuring validity and reliability was critical for the credibility and trustworthiness of the research findings. This section explains how these aspects addressed in the study.

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3.8.1 Validity

Validity refers to the extent to which the research instruments measure what they are intended to measure (Creswell, 2014). To ensure validity in this study: Content Validity: The questionnaire and interview guide reviewed by academic supervisors and experts in Library management to confirm that all questions are relevant and cover the objectives of the study. Construct Validity: Questions designed based on the literature reviewed and the conceptual framework, ensuring that the instruments accurately capture the concepts of information access and service delivery. Pre-testing: The instruments will be pre-tested on a small sample of council staff and citizens outside the main study area. Feedback from the pre-test will be used to revise unclear or ambiguous questions, enhancing clarity and appropriateness.

3.8.2 Reliability

Reliability refers to the consistency and dependability of the data collection instruments over time and across different respondents (Kumar, 2011). To ensure reliability; Standardization of Instruments: All questionnaires and interview guides will follow a standard structure with clear instructions to ensure that every respondent interprets the questions similarly. Pilot Testing: A pilot study conducted, and results will be analyzed to check for internal consistency of responses, ensuring that the instruments produce stable and repeatable results. Triangulation: Data will be collected from multiple sources (questionnaires, interviews, and document review) to cross-verify findings. Triangulation increases reliability by reducing the impact of biases from a single method (Patton, 2002).

By applying these measures, the study ensures that the findings on the role of information access in improving service delivery at ADEM Library are both valid and reliable.

3.9 Ethical Considerations

Dannie. (2005). Ethicswere moral standards that can be followed in situations where there can be potential harm or actual harm to an individual or a group and awareness of ethical issues in research protects the integrity of the researcher and ensures honest research results. The researcher expects to observe legal ethical matters within the

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study area. The respondents will be aware of reasons, objectives, and significance of the research study due to clearly explained to respondents. Data that will be collected will respect the dignity, privacy and confidential and used for academic purpose only not otherwise. Therefore, the researcher expects to observe legal ethical matters within the study area and, researcher will be aware of reasons, objectives, and significance of the research.

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CHAPTER FOUR

DATA ANALYSIS, PRESENTATION AND DISCUSSION

4.0 Introduction

This chapter presents thedata analysisand discussion of the study on ‘’Use of E-Reference Services in Academic Libraries a case study of ADEM College - Bagamoyo. The findings are presented in tables and figures.The analysis of the findings is based on the data collection through questionnaires and observation.

4.1. Demographic information

4.1.1 Gender of Respondents

The respondents were asked to indicate their gender; Information on gender of respondents was needed by researcher so as to identify their participation of respondents depending to their gender. Table 4.1 below summarizes the results:

Table 4.1: Information on Gender of Respondents

	STUDENT N=25		**ACADEMIC STAFF N=5**	
Gender	**Frequency**	**Percentage**	**Frequency**	**Percentage**
Male	8	32%	3	60%
Female	17	68%	2	40%
Total	**25**	**100%**	**5**	**100%**

Source: Field Study (2026)

The finding shows that 8 (32%) of student were with males and 17 (68%) of student were females. On the part of academic staff 3(60%) o were males and 2(40%) were females.

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4.1.2. Distribution of Respondents by Age

Respondents were asked to verify their age set. A researcher considers age set in this study because age determines the maturity and wisdom of someone when it comes to access to information. The results are as shown in table 4.2 below.

Table 4.2. Distribution of Respondents by Age

Student N=25			**Academic Staff N=5**	
Age	**Frequency**	**Percentage**	**Frequency**	**Percentage**
21-30	**5**	**20%**	**2**	**40%**
31-39	**14**	**56%**	**2**	**40%**
40-Above	**6**	**24%**	**1**	**20%**
Total	**25**	**100%**	**5**	**100%**

Source: Field Study (2026)

The findings show that, 7 (23%) among students and academic staff were with age of 21-30 years and, 16 (54%) of students and academic staff were with age range of 31-39 years and 7 (23%) of students and academic staff were with age range of 40 and above years.

The concentration of the majority of users (56%) within the 31–39 age bracket suggests that mid-career professionals or advanced postgraduate students constitute the primary demographic engaging with e-reference services at this institution. Understanding these demographic profiles is essential for library management to tailor their digital outreach and service delivery models effectively. The utilization of e-reference services is often influenced by factors such as self-efficacy, perceived ease of use, and the technical infrastructure available to the user, which can be modelled through the relationship between user satisfaction

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and system performance. As libraries transition toward virtual environments, the ability to provide consistent, high-quality supportregardless of the user's ageremains a fundamental goal for maintaining institutional relevance and meeting the evolving expectations of the academic community.

4.1.2. Education Level of Respondents

Respondents were required to state their education level. This was considered necessary because is believed that level of education affect one's access and use of information. The results are summarized in the table 4.3 below.

Table 4.3: Respondents education levels students and academic staff

Types of Respondents	**Education level**	**Frequency**	**Percentage**
Students N=25	Certificate	12	40%
	diploma	13	43.3%
Total		25	100%
Academic staff N=5	Degree	3	10%
	Masters	2	6.6%
Total		5	100%

Source: Field Study (2026)

The findings show that 12 (40%) of studentshad Certificate level of education, 13 (43.3%) of studentswere with Diploma level of education,3 (10%) of academic staff were with Degree level of education, 2(6.6%) of academic staff were with master level of education.

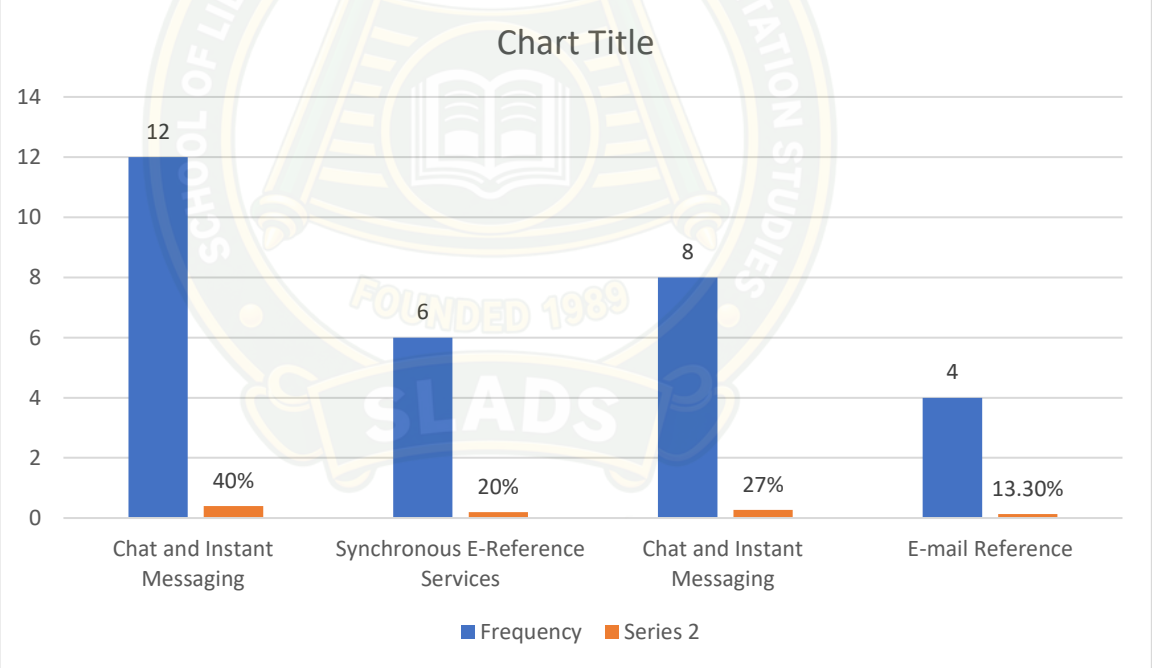
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The assessment of electronic reference (e-reference) services in academic libraries is a critical Endeavor for understanding how modern institutions bridge the gap between information resources and user needs. In the context of the Agency for Development and Education Management (ADEM), the demographic distribution of respondentscomprising 40% certificate holders, 43.3% diploma holders, 10%-degree holders, and 6.6% master's degree holdershighlights a diverse user base with varying levels of academic superiority and information literacy requirements.

4.2 Types of E-Reference Services in Academic Libraries

The distribution of e-reference services is usually based on how user interact with librarians and how quickly they get response.

4.1 Figure 1. Types of E-Reference Services in Academic Libraries



Source from the field (2026)

The finding shows that users at ADEM strongly prefer real-time communication tools over delayed methods. Chat and Instant Messaging 12 users (40%).This is the most popular service, showing that students value quick, conversational support while searching for information. Other synchronous tools (like video conferencing) 6 users (20%). These allow face-to-face style interaction online, useful for complex

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queries that need demonstrations. Additional chat variants8 users (27%). These include different chat platforms or apps, reinforcing the preference for instant communication. Email reference4 users (13.3%). This is the least used service, since responses take longer and students prefer immediate feedback.

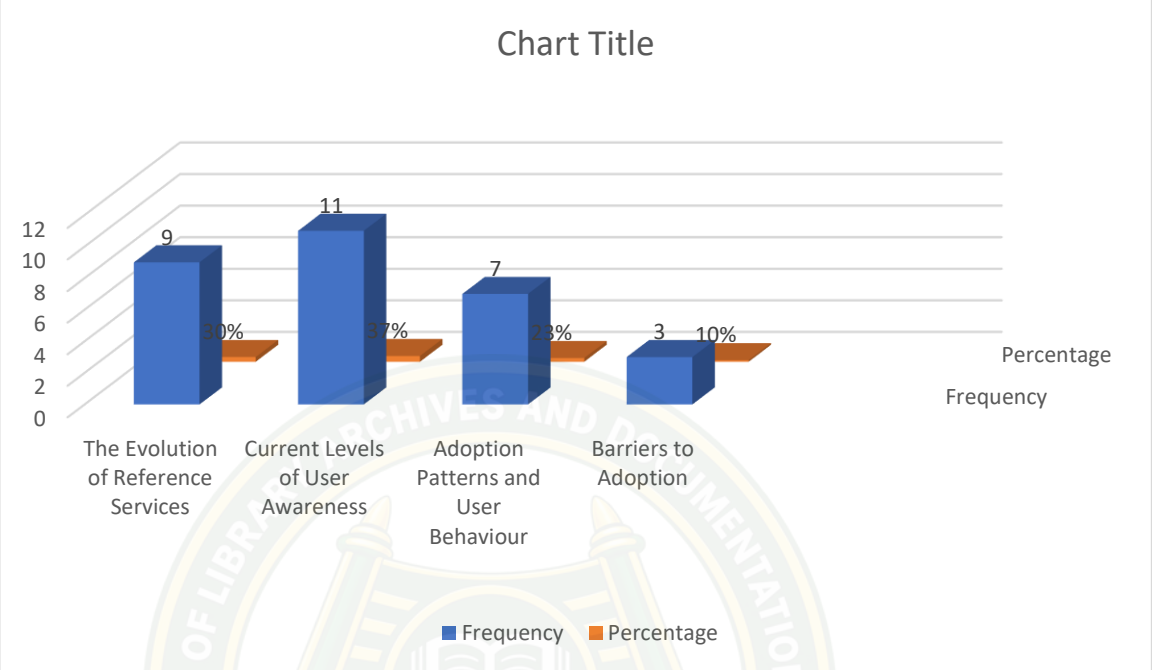
4.3 The Level of Use Electronic Reference Services Among Users

The integration of e-reference services in academic libraries marks a major change in how librarians support students and faculty. Instead of relying only on physical reference desks, libraries now provide digital help through chat, video conferencing, and email reference.

These services make information more accessible, faster, and flexible, allowing users to get assistance anytime and anywhere. As universities embrace digital transformation, the effectiveness of e-reference services has become a key measure of success, ensuring that libraries remain relevant in supporting research and learning needs.

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Figure no.2The Level of Use Electronic Reference Services Among Users



Source from the field (2026)

The finding shows that 9(30%) were The Evolution of Reference Services, 11(37%) were Current Levels of User Awareness, 7(23%) were Adoption Patterns and 3(10%) were User BehaviourBarriers to Adoption

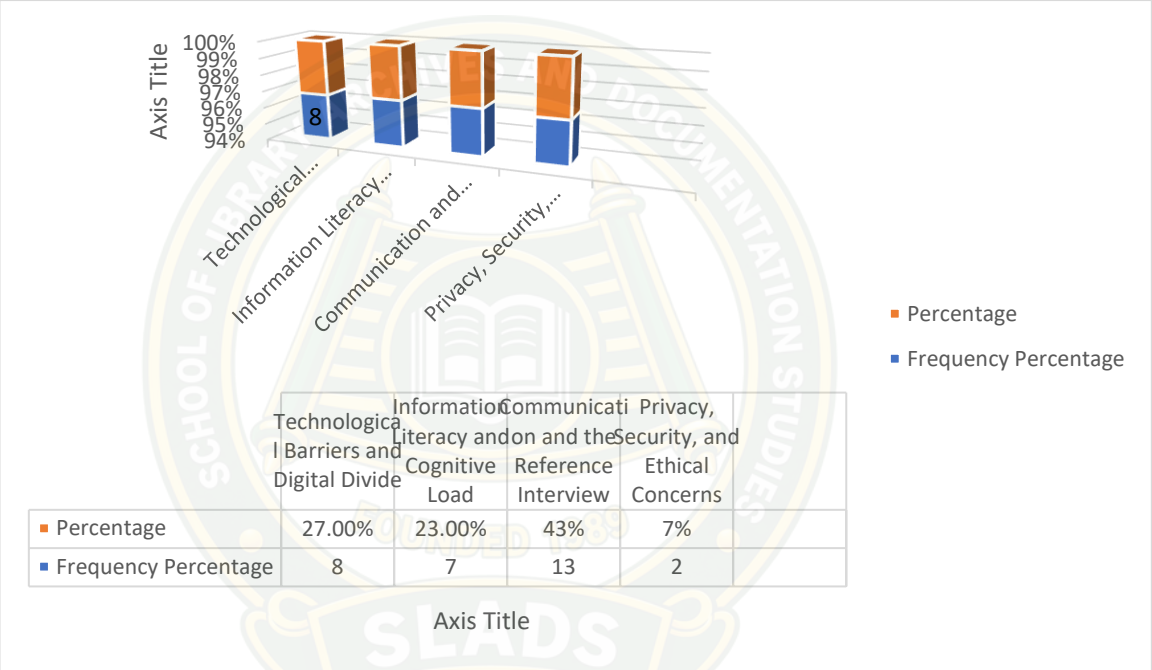
The theoretical framework for understanding this adoption is often rooted in the Technology Acceptance Model (TAM), which posits that perceived usefulness and perceived ease of use are the primary determinants of whether a user will engage with a new digital library system. When analysing the 23% adoption pattern, it is essential to consider that academic libraries must continuously align their digital offerings with the evolving needs of students, who increasingly rely on remote access to scholarly databases and virtual assistance. Furthermore, the 10% of users citing behavioural barriers often point to a lack of digital literacy or a preference for traditional methods, suggesting that libraries must implement more robust training programs to bridge this gap.

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4.4 Challenges Faced by Users of E-Reference Services

The implementation of electronic reference (e-reference) services in academic libraries represents a transformative shift in how information professionals support research and learning. However, as academic institutions transition toward digital-first environments, users frequently encounter significant barriers that impede the effectiveness of these services.

Figure no.3Challenges Faced by Users of E-Reference Services



Source from the field (2026)

The finding shows that 8(27%) were Technological Barriers and Digital Divide,7(23%) were Information Literacy and Cognitive Load,13(43%) were Communication and the Reference Interview and 2(75) were Privacy, Security, and Ethical Concerns.

The dominance of Communication and Reference Interview challenges aligns with regional studies across Tanzania and Africa, which note that transitioning from traditional, face-to-face reference consultations to digital platforms disrupts the natural diagnostic process between librarians and users. Without real-time interaction (such as synchronous chat or video), librarians struggle to clarify vague research questions.

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Furthermore, the combined weight of Technological Barriers (27%) and Information Literacy (23%) indicates that simply providing access to e-resources is insufficient. Userswhether educators, administrators, or students at the Agency for the Development of Educational Management (ADEM)campusesrequire targeted training to effectively articulate their questions and utilize digital tools efficiently

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CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.0 Introduction

This chapter presents the summary of the findings of the study. It also provides the conclusion drawn from the research, recommendations for improvement, and areas suggested for further study. Data were collected through questionnaires and interviews with both library staff and users. The findings were analyzed and presented according to the research questions and objectives of the study.

5.1 Summary of the Findings

5.1.1 Respondent Distribution by Gender

The study revealed that the majority of respondents at ADEM Library were male, while female respondents formed a smaller proportion. This shows that male students and staff are more represented in the use of e-reference services.

5.1.2 Age Distribution of Respondents

The findings indicated that most respondents were aged between 18–25 years, representing undergraduate students who are the primary users of the library. A smaller proportion of respondents were aged 26–35 years, mainly staff and postgraduate students.

5.1.3 Respondent Education Level

On the issue of education level, the study revealed that most student respondents were diploma and undergraduate learners, while staff respondents had attained higher academic qualifications.

5.2 Types of E-Reference Services Available at ADEM Library

The study revealed that ADEM Library provides several e-reference services including email reference, Ask-a-Librarian web forms, and limited use of social

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media platforms. However, synchronous services such as live chat and video conferencing were less developed.

5.3 Level of Use of E-Reference Services

The findings indicated that although students and staff were aware of the existence of e-reference services, actual usage levels were low. Many users preferred traditional in-person reference due to limited ICT skills and unreliable internet connectivity.

5.4 Challenges Facing Users of E-Reference Services

The study revealed that the major challenges hindering effective use of e-reference services were:

Inadequate ICT infrastructure and hardware shortages.

Unreliable power supply and poor internet connectivity.

Lack of technical support and maintenance.

Limited awareness and resistance to change among users.

5.5 Ways Used to Overcome Challenges

The findings showed that ADEM Library occasionally organizes seminars and training sessions to sensitize users on available e-reference services. Staff also provide one-on-one guidance to students who struggle with digital platforms.

5.6 Conclusion

It was revealed that while ADEM Library has introduced e-reference services, their utilization remains low due to infrastructural and awareness challenges. The study concludes that e-reference services are essential for improving access to academic information, but without adequate support systems, their potential cannot be fully realized.

5.7 Recommendations

The study recommends the following:

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The Ministry of Education and ADEM management should invest in reliable ICT infrastructure and stable internet connectivity.

Awareness campaigns and regular training should be conducted to encourage students and staff to adopt e-reference services.

Technical support units should be strengthened to ensure timely maintenance and assistance.

Integration of modern tools such as chatbots and collaborative platforms should be considered to enhance service delivery.

5.8 Areas for Further Study

There is a need for further research on:

Comparative studies: Conducting comparative research across different academic libraries in Tanzania or East Africa to highlight similarities and differences in the adoption of e-reference services.

Impact assessment: Evaluating the direct impact of e-reference services on students' academic performance, research quality, and information literacy skills.

Technology integration: Investigating how emerging technologies such as Artificial Intelligence, chatbots, and mobile applications can be integrated to enhance service delivery.

Information literacy: Exploring the role of training programs in improving students' ability to effectively use e-reference tools and specialized databases.

Policy and funding: Examining the influence of national ICT policies, government funding, and institutional strategies on the sustainability of e-reference services.

- The extent to which students understand and effectively use e-reference services.

- The role of information literacy training in improving adoption of e-reference services.

- Comparative studies between ADEM and other Tanzanian academic libraries to identify best practices.

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APPENDEX I

QUESTIONNARIES FOR DATA COLLECTION.

I am Elizabeth Metusela Mlowa, the student from School of Library, Archives and Documentation Studies (SLADS), Pursuing Ordinary Diploma in Library, Archives and Documentation. Am undertaking the research title "***AN INVESTIGATION ON THE USE OF E-REFERENCESERVICES IN ACADEMIC LIBRARIES.***

Instructions:

Tick (✓) the appropriate answer .

Answer all questions honestly and to the best of your knowledge.

The following questionnaire is designed for two distinct groups: Librarians (Staff) and Users (Students/Faculty).

PART A: FOR LIBRARIANS (STAFF PERSPECTIVE)

1. Which e-reference platform do you use most frequently to interact with users?
   A) Email
   B) Live Chat/Instant Messaging
   C) Video Conferencing (Zoom/Teams)
   D) social media/WhatsApp
2. How would you rate the institutional internet bandwidth for handling e-reference?
   A) Excellent
   B) Adequate
   C) Unstable
   D) Poor
3. What is the average response time for an email-based reference query?
   A) Under 1 hour
   B) 1–6 hours

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C) 6–24 hours

D) More than 24 hours

4. Have you received formal training in digital reference communication?

   A) Yes, comprehensive training

   B) Yes, basic orientation

   C) No, I am self-taught

   D) No training provided

5. What is the most significant challenge in providing e-reference?

   A) Technical glitches

   B) Lack of user digital literacy

   C) High volume of queries

   D) Difficulty in understanding user needs without face-to-face cues

6. How do you track and archive e-reference transactions?

   A) Automated CRM/Ticketing system

   B) Manual spreadsheets

   C) Saving email folders

   D) We do not archive transactions

7. Do you feel the library's digital collection is sufficiently integrated into the e-reference workflow?

   A) Strongly Agree

   B) Agree

   C) Disagree

   D) Strongly Disagree

8. Which type of query is most common via e-reference?

   A) Technical/Access issues

   B) Simple factual questions

   C) In-depth research/Literature search

   D) Citation/Formatting help

9. How often do you use "co-browsing" or screen-sharing to assist users?

   A) Frequently

   B) Occasionally

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C) Rarely

D) Never

10. In your opinion, has e-reference increased the library's overall reach?

A) Significantly

B) Moderately

C) Slightly

D) Not at all

11. What is the primary source of your digital reference answers?

A) Subscribed Academic Databases

B) Open Access Journals

C) Institutional Repository

D) General Search Engines (Google)

12. How satisfied are you with the current e-reference software/tools provided by ADEM?

A) Very Satisfied

B) Satisfied

C) Neutral

D) Dissatisfied

PART B: FOR USERS (STUDENT/FACULTY PERSPECTIVE)

13. Were you aware that the ADEM library offers electronic reference assistance?

A) Yes, I use it often

B) Yes, but I haven't used it

C) I only recently found out

D) No, I was unaware

14. Which device do you primarily use to access e-reference services?

A) Laptop/Desktop

B) Smartphone

C) Tablet

D) Library Workstation

15. How easy is it to find the "Ask a Librarian" link on the library website?

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A) Very Easy

B) Somewhat Easy

C) Difficult

D) Very Difficult

16. Why do you prefer e-reference over visiting the physical library desk?

A) Convenience/Time-saving

B) I am an off-campus/distance learner

C) I feel more comfortable asking questions online

D) I do not prefer it; I only use it when the library is closed

17. How would you rate the clarity of the instructions provided by the online librarian?

A) Very Clear

B) Mostly Clear

C) Sometimes Confusing

D) Vague/Unhelpful

18. Did the librarian provide links to specific credible sources (e.g., journals, ebooks)?

A) Always

B) Most of the time

C) Rarely

D) Never

19. How satisfied were you with the speed of the response?

A) Very Satisfied

B) Satisfied

C) Neutral

D) Dissatisfied

20. Has the e-reference service improved your academic performance or research quality? A) Significantly

B) Moderately

C) Minimally

D) Not at all

21. What is your preferred method for receiving digital help?

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A) Real-time Live Chat

B) Detailed Email

C) Video Call

D) Frequently Asked Questions (FAQ) page

22. Have you ever experienced technical failure (link not working, chat dropping) during a session?

A) Frequently

B) Occasionally

C) Once or twice

D) Never

23. How would you rate the "human touch" or friendliness of the digital interaction?

A) Excellent

B) Good

C) Fair

D) Poor

24. Would you recommend the ADEM e-reference service to a peer?

A) Definitely

B) Probably

C) Unlikely

D) No

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APPENDEX II

DETAIL FOR BUDGET

The study requires money in order to achieve the goal for data collection. It includes stationary, computer typing, printing, photocopying and transport expenses as well as daily expenses for the researcher's survival. The expenditures are as following

S/N	Detailed budget	Cost per unit	Total
1	ADEM – Bagamoyo District council	6000 per week x 6 weeks	36000
2	Stationary For research report and report Ruled paper 3 reams Typing paper A4 2 ream Correction and Flash disk Stapler, Pencil, Pens, Rubber	90,000	90,000
3	Secretarial services Computer typing services 60 pages for research report and report Photocopying 3 questionnaires each 20 Binding service 6 report and research report Taxi charge	150,000	150,000
4	Grand total		276000

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APPENDIX III

APPROAVEL LETTER

THE UNITED REPUBLIC OF TANZANIA
MINISTRY OF EDUCATION, SCIENCE AND TECHNOLOGY
AGENCY FOR THE DEVELOPMENT OF EDUCATIONAL MANAGEMENT

In reply, please quote:

Ref. No. AB.112/267/01A/226 **18th March, 2026**

Academic Officer,
School of Library Archives and Documentation Studies,
(SLADS),
P. O. Box 227,
BAGAMOYO.

Re: PERMISSION TO COLLECT DATA FOR THE STUDENT ELIZABETH METUSELA MLOWA FROM 5TH TO 10TH MAY, 2026

Please refer to the above heading and your letter with **Ref. No. DA.201/457/VOL/1/20** dated **27st February, 2026.**

2. Agency for the Development of Educational Management (ADEM) was inaugurated in 2001 under the Executive Agencies Act, Cap.245 of 1997. ADEM is mandated to conduct Training, Research and Consultancy Services in Education Management, Leadership and Administration to all serving and prospective Education Managers and Administrators in Tanzania.

3. This letter is intended to inform you that **ELIZABETH METUSELA MLOWA** have been granted permission to collect data as from **5th to 10th May, 2026.**

Thanks for your continuing cooperation.

Dr. Emmanuel S. Mollel
For CHIEF EXECUTIVE

For: CHIEF EXECUTIVE
AGENCY FOR THE DEVELOPMENT OF EDUCATIONAL MANAGEMENT (ADEM)
P.O. Box 71 BAGAMOYO

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