Indonesian Journal of Social Research

The Adoption and Use of Digital Literacy Programs in Selected Tertiary Institutions of Tanzania

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ARTICLE INFO

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ABSTRACT

The purpose of this research is to assess the adoption and use of digital literacy in Tanzanian tertiary institution libraries, focusing on the current state of digital literacy acceptance, the practical implementation, and the obstacles associated with embracing and implementing digital literacy in library settings. The study employed a mixed-method approach, simultaneously using qualitative and quantitative methods. Thus, the primary data were collected through interviews with key informants, including librarians and ICT experts. The quantitative data were gathered through a semi-structured questionnaire. Subsequently, thematic analysis and statistical techniques were employed to analyze the collected data. The findings discovered that a majority had embraced and implemented digital literacy, though numerous challenges were reported. These challenges ranged from technophobia, lack of guidance for digital literacy programs, inadequate power supply, and limitations of internet connectivity. Improving digital literacy in libraries contributes to comprehensive educational development and enhanced access to digital resources to fill knowledge gaps and foster comprehensive social learning.

1. Introduction

Digital literacy denotes a conceptual framework encompassing a set of skills branded by interchangeable terms. Such term is ICT literacy, which covers a spectrum of user skills facilitating active participation where services and cultural expressions are digitised and diversified on the internet use. Moreover technological literacy involves a comprehensive understanding of digital technology, surrounding user specialised computing skills. In this regard, the dimension of knowledge in the society is centred around information literacy, based on a proficiency of searching, retrieving, processing and effectively utilizing digital information (Kárpáti, 2011). As Bejaković and Mrnjavac (2020) emphasizes, the internet plays a crucial role in educational settings. He argues that digital literacy goes beyond basic familiarity and involves a comprehensive understanding of both the fundamentals and nuances of the internet. Thus, the students possess specific information and skills applicable retrieve the text and interact to the material via the internet within a typical school-based learning environment.

However, the increased the volume of information brings new expectations for users, in a world abundant with information, individuals must cultivate a deeper understanding of information sources and develop the skills necessary to acquire, evaluate, use, and communicate information effectively. The development of information literacy is paramount in providing essential skills for becoming a proficient learner, subsequently such skills empower students in selecting relevant scholarly articles to rely on in their academic pursuits (Sasikala & Dhanraju, 2017). In line with this, user education programs play a crucial role in academic libraries. Thus, the user education programs aimed at ensure users to effectively utilise the library's information resources and services. This, was to go hand to hand with the library transformation in technologies and advancements of computers. Which was contrary of the past where libraries often appraised the quantity of documents, rather the quality of resources and services they offered. This evolution provides end-users with seamless access to internet-based services. This evolution has changed ways on how individuals, groups and societies communicate and manage information. Consequently, users must possess skills related to technology tools and ethical practices. Therefore, absence or lack of digital literacy programs limits the rapid growth of the internet usage that accelerating to digital culture, while ensuring equal access to information services and resources for all users (Lawal, 2017).

Even though the contemporary world of information uses technologies to resolve the continual increase of information volume and technical storage, their inadequacy or absence of digital literacy programs results in students' failure to seek and use information, negatively affecting the quality of information obtained. In this regard, the digital literacy programs serve as the basis of utilising the appropriate and meaningful channels as well as present suitable and diverse learning environments (Kárpáti, 2011). However, this dynamic environment increases the abundance of information and introduces the complexity of users' ability to locate, access, select, and manage information (Lwehabura & Stilwell, 2008). Thus, these advancements of technologies bring difficulties of users to search, select and effectively use the right information. Similarly, Alexander et al. (2016); Emiri (2017) revealed number challenges confronted users, ranged from the information options; limited skills in digital literacy; lack of ethical knowledge issues; limited access to comprehend with the usage of information available. Therefore, the digital literacy programs play a crucial role in promoting the necessary skills and impacting the institutional digital literacy knowledge aligned with the 2020 skills outlined by the World Economic (Alexander et al., 2016). There was a need, therefore, to carry out a study that would be the basis for establishing the adoptions and use of digital literacy among libraries in selected tertiary institutions of Tanzania.

The primary aim of this study was to evaluate the acceptance and use of digital literacy among libraries in selected tertiary institutions of Tanzania. The study was guided by three specific objectives, namely;

i. To evaluate the current state of users' adoption the digital literacy programs in selected libraries.
ii. To assess the utilisation of digital resources among library users in selected libraries.
iii. To identify the challenges associated with the adoption and implement of digital literacy programs in selected libraries.

This study will provide significant benefits to public and private institutions specifically especially in the academic sphere. In this regard, digital literacy programs serve as an empowering tool for librarian and students in equipping to digital platforms. In this regard, librarians with become and instructors of digital literacy programs and showcasing the resources as well as guiding users. While academicians and educators will remain relevant by embracing digital literacy programs.

1.1. Literature Review

Throughout the world, libraries have undergone significant technological advancements and digitization of information. These changes have brought about various improvements, including library computerization, virtual libraries, e- conferences, eLearning and the emergence of Library 2.0 (Emiri, 2017). However, librarians, who play a crucial role in instructing digital literacy, must ensure that users are well-equipped to navigate the digital environment. Digital literacy programs is a powerful tool for progress, facilitating opportunities for the underprivileged, improving service delivery, and fostering social change (Emiri, 2017). Terms like digital literacy have evolved, encompassing knowledge literacy, internet literacy, web literacy, and digital literacy, each playing a vital role in the digitalization process (Bejaković & Mrnjavac, 2020). Countries and cultures have varied needs for digital literacy, with some prioritising infrastructure development. In developing nations, digital literacy programs have become as national priorities for investing in education and technology (Donaldson & Alker, 2019).

Recognizing the digital divide, many libraries aim to develop digital literacy programs for those unfamiliar or uncomfortable with digital services. Librarians acknowledge meaningful technologies used to facilitate professional, personal, and social endeavors (IFLA, 2017). In this regard, the evolving role of libraries is to offer digital forms and adapt users' interaction with online systems (Decade et al., 2018). Therefore, libraries need adequate budgeting, planning, and skilled staff to teach digital literacy programs effectively. Tanzania's commitment to integrating Information and Communication Technology (ICT) in educational institutions aligns with the Education and Training Policy of 1995. The policy explicitly advocates for the use of technology in teaching and learning to enhance the quality of education to students. The objective was equipping educators and students with the necessary skills to seamlessly integrate ICT (Mungwabi, 2018). For, example academic libraries like the University of Dar es Salaam (UDSM); Sokoine University of Agriculture (SUA) and Muhimbili University of Health and Aligned Science (MUHAS) had embraced digital literacy in libraries since the 1990s (Mungwabi, 2018). They managed to establish robust infrastructure meets their requirements (Lwehabura & Stilwell, 2008). This ensures that they were operating efficiently, aligning with the efforts advocated by UNESCO and IFLA regarding digital libraries (IFLA & UNESCO, 2016).

The studies conducted on SUA, IUCO and SAUT by Muneja (2010) outlines challenges and potential opportunities for Tanzanian universities in implementing Information Literacy programs within higher education institutions, further the study explore challenges addressing issues of unreliable ICT infrastructure, unstable electric power, managerial rigidity, technophobia, lack of collaboration in setting common standards for information provision and a deficiency in Intellectual Property Right (IPR) knowledge.

1.2. Conceptual Framework

Digital literacies in libraries explored the context of various variables, the independent variable, adoption and use of digital literacy, while, the identified libraries are dependent variables, with intervening variables including users' information-seeking behaviour, financial resources and staffing. Thus, the relationship between digital literacy and libraries is established. The study adopts the Technology Acceptance Model (TAM) by Davis and Venkatesh (1996). TAM comprises three main features; the system, perceived ease of use, and perceived usefulness. The modelling is deemed relevant to the study, as library users, engaging in information retrieval through computer systems and the internet, and find these technologies helpful despite challenges persists.
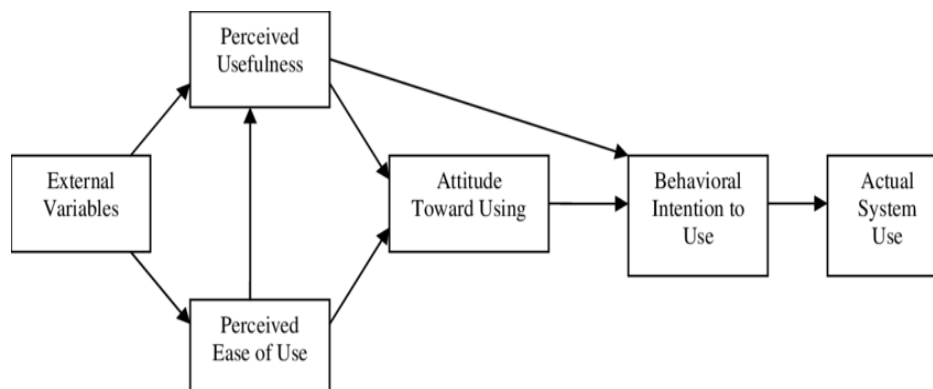
Figure 1 Displays Davis' Technology Acceptance Model of 1989, sourced from Urhiewhu and Emojorho (2015)

The ease of searching and retrieving electronic resources has influenced the current generation's perspective on digital content (Nkebukwa, 2016). The gap, noted is that a significant number of libraries in developing countries are facing limitations when adopting technological or facing new environments of work.

2. Methods

The study employed mixed research design, which delving into people's experiences to explore meanings and investigate issues of ethical, practical, or epistemological nature that are challenging to measure (Gounder, 2012). A robust research design ensures that the data collected is pertinent to the problem and is gathered and analyzed using objective and cost-effective methods (Haron, 2019). In line with the open-ended nature of the inquiry, this study embraces a qualitative approach (Haron, 2020). The study was conducted in academic institutions, specifically in selected libraries. The selection of a mixed research design in this study, as elucidated by Gounder (2012), is based on the intention to delve into individuals' experiences, explore meanings, and investigate issues of ethical, practical, or epistemological nature that may prove challenging to measure through a singular research method. This comprehensive approach facilitates a more thorough examination of the research questions and objectives. In this regard, incorporating both qualitative and quantitative elements, the study can leverage the strengths of each method to gain a more nuanced understanding of the phenomena under investigation. Qualitative research, as endorsed by Haron (2020), is particularly well-suited for exploring the open-ended nature of the inquiry. In this study, the emphasis on people's experiences and the meanings they attribute to certain phenomena aligns seamlessly with the qualitative paradigm. Through methods such as interviews, observations, or content analysis, researchers can capture the richness and depth of participants'

perspectives. This approach is indispensable when addressing complex and multifaceted issues, providing a more holistic view that transcends numerical data. Moreover, the study's focus on academic institutions, specifically selected libraries, further justifies the chosen research design. Academic settings often involve intricate dynamics, and individuals' experiences within these environments may be better captured through qualitative methods. Furthermore, conducting the study in libraries, the research gains context-specific insights into the challenges, ethical considerations, and practical issues that may arise in these particular settings. This focus on a specific context enhances the study's applicability and contributes to the development of targeted interventions or recommendations. Additionally, the commitment to a robust research design, as underscored by Haron (2019), ensures that the collected data is pertinent to the research problem. The mixed research design therefore, allows for triangulation, where findings from different methods can be compared and contrasted, thereby enhancing the validity and reliability of the study. This methodological rigor is crucial for establishing the credibility of the research outcomes and for providing a solid foundation for drawing meaningful conclusions.

The sample size for this study comprises 105 respondents, consisting of 98 library users and 7 librarians. These participants were carefully selected from a total student population of 1050 at Dar es Salaam Maritime Institute and Tanzania Public Service College. The selection process employed a combination of purposive and random sampling techniques to ensure a representative and diverse sample. In the case of librarians, purposive sampling was utilized to identify the 7 participants who were subsequently interviewed. The selection criteria were based on the nature of their roles within the library setting, ensuring a comprehensive representation of insights from different positions. Conversely, random sampling was employed for the 98 library users who were administered questionnaires. This method was chosen to uphold objectivity and minimize bias in selecting participants from the broader student population. In addition to primary data collection, secondary data were acquired through a comprehensive review of printed and electronic materials, encompassing books, journal articles, reports, and policies. This dual-method approach enriches the study by integrating both pre-existing knowledge and first-hand insights from participants. To uphold ethical standards throughout the research process, several measures were implemented. Instruments underwent pre-testing to ensure the reliability and validity of the data collection tools. Ethical considerations were prioritized, emphasizing the guarantee of respondents' anonymity and confidentiality. This commitment is pivotal for cultivating honest and open responses from participants.

Quantitative data collected through questionnaires underwent analysis using descriptive statistics, specifically frequencies and percentages, calculated with the assistance of SPSS. This statistical analysis offers a clear and concise summary of the numerical data, providing insights into the patterns and trends within the dataset. For qualitative data, emerging and recurring themes were identified through a meticulous analysis of the open-ended questionnaires and face-to-face interviews with librarians. Categorizing qualitative data into themes facilitates a deeper understanding of the subjective experiences and perspectives of participants, thereby complementing the quantitative findings.

3. Results and Discussion

The research delved into the background characteristics of the respondents, covering aspects such as gender, age, marital status, and level of education. These details were deemed crucial for a nuanced interpretation of the data. The total number of respondents comprised 98 library users from third year students, librarian, ICT personnel provided responses who through questionnaires and interviews were necessary.

Table 1 Distribution of respondents by sex, age and marital status n=98

Gender	Male	57 (58%)
	Female	41 (42%)
Age	18-24	43(44%)
	25-34	36(37%)
	35-44	18(18%)
	45- above	1(1%)
Marital	Single	69(70%)
	Married	26(27%)
Education level	Certificate	15(15%)
	Diploma	20(20%)
	Bachelor	58(59%)
	Masters	5(5%)

Source: Field data, 2023

In establishing the generalizability of research findings, gathering information on respondents' gender, age, marital status, and educational level is crucial, as it describes the main features of the distribution of essential characteristics among study participants (Pickering, 2017). However, the first objective aimed to determine the current state of users' adoption the digital literacy programs in selected libraries. The results indicated that 89% are aware of digital literacy, leaving 11% who are not. This advocates the majority awareness, that has a significant for more emphasis, highlight This advocates the majority awareness, which is emphasized, highlighting the need for integrating digital literacy education programs into the curriculum (Cordell, 2013).ing the need for integrating digital literacy education programs into the curriculum (Cordell, 2013).

The study reveals that 90% of respondents possess internet searching skills, followed by 83% for access, 66% for communication, and 43% for content creation. The findings, indicates a higher proficiency in internet searching and communication among library users. However, there is a need to make emphasis in other digital literacy skills for more comprehensive and promote the effective learning environment. During interviews, librarians confirmed the availability of digital literacy awareness education programs.

"I have acquired digital literacy awareness through training sessions organized by the Consortium of Tanzania University Libraries (COTUL). "These sessions focused on sharing information and navigating using various databases''. These training covered advanced search techniques, the use of Boolean operators, and content creation. This knowledge equips us to assist library users in searching information they need through effective search strategies."

Donaldson and Alker (2019) assert that digital literacy has opened up numerous opportunities for both society and individuals. Therefore, the social networks embedded in digital literacy systems enabled individuals to access and share information, signifying that library users are aware of digital literacy education. Similar findings indicate that users utilise library orientation programs, library training, and digital literacy classes to acquire digital literacy. In interviews conducted in both colleges, librarians emphasised similar key methods for transferring digital literacy awareness education to users. "We conduct training during the orientation for first year students to offer guidance whenever library users need assistance and provide daily support based on their requirements." This commitment for training, guidance, and continuous support highlights the dedication in promoting digital literacy among users. The goal is to empower users to become self-reliant in solving problems encountered during their learning journey (Lawal, 2017). In line with the findings, IFLA emphasises librarians to

possess technological abilities to meaningfully facilitate professional, personal, and social endeavours (IFLA, 2017).

Key findings on the importance of digital literacy programs revealed 91% of respondents denoted the importance of facilitating easy access to information across diverse digital platforms. This, emphasised the efficiency of sharing information and knowledge among library users, as motivation of digital literacy among institutions. In correspond with the findings, librarian during interviews revealing tangible benefits such as time-saving for both users and librarians. These insights align with the evolving role of libraries, emphasing user-centric approaches akin to customer-oriented businesses. In this, regard, the finding recognized the broader impact of digital advancements on daily life, emphasing the need for digital literacy in areas such as education. In the same vein, studies by Rosenberg (2019) denoted lack of digital literacy guidance, and power supply issues and hindering effective digital literacy use. Therefore, the user reluctance to engage in digital literacy training compound these challenges. Generally, there is a connected to limited funds, technophobia, and a scarcity of digital facilities in libraries present additional hurdles. Therefore, addressing these challenges is vital to creating a conducive environment for both librarians and users.

4. Conclusion

Institutions' top management should consider incorporating digital literacy awareness programs into the curriculum to improve the effectiveness and efficiency of digital literacy adoption and usage. This measure aims to alleviate technological apprehension among users and equip them with the necessary skills for utilizing digital literacy. It is advisable for the management of the colleges to prioritise and allocating funds for libraries, with the goal of promoting the adoption and use of digital literacy programs. This includes investments in acquiring up-to-date facilities, installing databases, making subscription of databases and implementing such programs for promoting of digital literacy awareness. The need to increase the availability of digital facilities in the library, there is a need for an augmentation of library experts specialising in digital literacy to ensure comprehensive assistance to students when the need arises. It recommended users' willingness to attend digital literacy programs whenever arranged, as well as familiarise oneself with digital facilities in the library.

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