



## The Consortium of Tanzania University and Research Libraries (COTUL)

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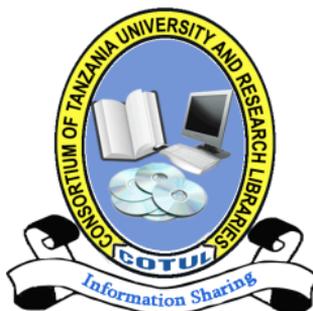


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**CONSORTIUM OF TANZANIA UNIVERSITY AND  
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CONFERENCE HELD ON 8<sup>th</sup> – 12<sup>th</sup> NOVEMBER 2021 AT  
MOSHI CO-OPERATIVE UNIVERSITY, KILIMANJARO,  
TANZANIA**

**THEME: “RESEARCH AND SCHOLARSHIP IN THE WAVE  
OF DIGITAL TRANSFORMATION: THE CHANGING ROLE  
OF LIBRARIES AND INFORMATION PROFESSIONALS”**

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## FOREWORD

The Consortium of Tanzania University and Research Libraries (COTUL) is a formal association of academic and research libraries established for the purpose of engaging in joint information provision activities particularly: acquisition of electronic information sources, research, carrying out capacity building training, providing consultancy services and other educational and research activities deemed critical in the attainment of academic excellence.

COTUL was established in 2008 as a voluntary organization formed in Tanzania. It brings together University and Research Libraries from both public and private universities, research institutions and other Higher Learning Institutions. COTUL was formally registered in 2017 with the Ministry of Home Affairs (Reg. No. S.A. 21148) under the Societies Act [CAP. 337 R.E. 2002].

The 2013 COTUL Annual General Meeting (AGM) which was held at Ruaha Catholic University in Iringa region decided among other issues to begin holding scientific conferences for the purpose of sharing knowledge and expertise among information professionals in the country and beyond. Since, then, a total of three (3) scientific conferences have been conducted. However, during the last COTUL Scientific Conference, which was conducted in November, 2021 at Moshi Co-operative University (MoCU), a total of ten (10) papers were presented under the following major conference theme: **Research and Scholarship in the Wave of Digital Transformation: The Changing Role of Libraries and Information Professionals.**

Therefore, COTUL is pleased to publish some of the selected papers in its 3<sup>rd</sup> Conference Proceedings.

On behalf of COTUL Executive Committee and the Conference Organizing Committee, I would like to extend my sincere gratitude to all authors, conference participants, sponsors, employers and other individuals for their contributions that have made the AGM and the Scientific Conference successful.

**Dr. Sydney E. Msonde**

COTUL Chairperson

# Academic Libraries Service Provision in the Digital Era: The Institute of Finance Management Library Experience with Social Media Adoption

Valeria Kyumana

Institute of Finance Management  
Email: [asumptavaleria@yahoo.com](mailto:asumptavaleria@yahoo.com)

## Abstract

Despite numerous challenges hampering the effective utilisation of electronic resources such as e-books and electronic journals in libraries, the demand for scholarly content and virtual reference services has steadily risen due to widespread application of information and communication technology. This study, therefore, explored social media platforms for academic libraries seeking to extend their presence beyond the traditional four walls using the Institute of Finance Management Library in Tanzania as a case study. Using a qualitative research approach, the study collected data using three focus group discussions held with purposively selected librarians and library staff at the IFM Library. Additionally, interviews were conducted with heads of department and section to obtain in-depth information. The study found that Facebook (95%, n=20), WhatsApp (90%, n=19), Instagram (81%, n=17), YouTube (67%, n=14), Twitter (57%, n=12) and Goodreads (29%, n=6) were the preferred social media platforms for providing services such as current awareness services, announcements and links to scholarly documents, video tutorials and virtual tours to the library, reference services and answering queries using mobile application (WhatsApp) as well as the establishment of the library book club to boost reading culture amongst students. Challenges included monetary costs, dormancy of accounts, trolling and bullying, and lack of management support. To remedy the situation, a library social media committee could be created in addition to advocacy for the selected social media, posting interesting and engaging content regularly, as well as blocking and reporting trolling and bullying.

**Keywords:** *library services, social media, academic libraries, Tanzania, virtual reference services, ICT in libraries*

## 1. Introduction

The decline of library users' physical visits to the library coupled with the proliferation of ICT and social media as a tool for accessing and sharing information has made many librarians and library staff re-think the traditional ways of service provision and instead, explore innovative ways to disseminate information digitally to be in sync with the demands of the digital age. After all, the 'dotcom' library users want information at their fingertips through their phones, tablets, laptops and computers while avoiding a physical trip to the library to access the information. They go to the library only when they need a quiet space to read. Kwanya and Stilwell (2010) further contend that the 'dotcom' library users are generally competent with technology, hence easily bored with traditional ways of obtaining information; moreover, they have limited tolerance with delays in the provision of services as they want to remain connected to new information happening in their surroundings. These

sophisticated users believe everything is on the Web and are comfortable and enthusiastic about technology and prefer downloading or getting information digitally—desiring easy access. This breed of library users has prompted many libraries to embrace technology and devise innovative ways for incorporating social media in providing library services to ensure library presence extends beyond the traditional four walls and into the digital space.

The availability of toxic and negative information via social media notwithstanding, one cannot ignore the positive side where it offers a platform to share knowledge and exchange information virtually, hence its suitability in marketing and crisis management (COVID 19 and social distancing requirements). This paper explores services that can be provided to library users via social media, preferably, Facebook, Twitter, Goodreads, WhatsApp and Instagram to inform, educate and communicate while exploring challenges to the utilisation of such social media platforms.

Several studies have been conducted in the context of Tanzania's academic libraries utilisation of social media tools for marketing library resources and services (Mashindano, 2020; Mosha & Holmner, 2019) as well as in other countries in Africa (Dickson & Holley, 2010; Chizwina *et al.*, 2017; Chapatula & Abdullah, 2020). However, the issue of using different social media platforms deserves particularised and scholarly scrutiny as very little is known about how social media can help in providing services to library users. This study therefore, intends to fill that knowledge gap by addressing the following objectives:

- To establish services that social media can provide at the Institute of Finance Management Library.
- To determine factors hindering effective service provision using social media at the Institute of Finance Management Library.

## **2. Literature Review**

Information and Communication Technology (ICT) has impacted significantly on the quality and speed of information provision in libraries. With ICT incorporation in libraries major activities, library routines and operations have changed, i.e. many activities that were once carried out manually are now computerised, implying the applications of ICT techniques have improved library services for the end users (Adebayo, Ahmed & Adeniran, 2018). Social media, on the other hand, refer to interactive technologies that allow for the creation or sharing/exchange of information, ideas, career interests and other forms of expression via virtual communities and networks (Merriam Webster, 2019). Common features of social media include user-generated-content whereby posts or comments through all online interactions serve as the lifeblood of social media. Mosha and Holmner (2019) note that social media include online technological tools that enable people to communicate, participate, share and collaborate easily via the internet. Additionally, social media tools provide a virtual space that inspires and facilitates formal interactions and the process of knowledge sharing among workers and their clientele.

In libraries, Harrison *et al.* (2017) note that academic libraries are increasingly engaged in the use of ICT and social media to connect with diverse community groups and move

beyond the traditional bounds of the library. Anyira (2011) describes the anatomy of library users in the 21<sup>st</sup> century and defines a library user as anybody who visits the library to utilise its resources to satisfy information needs. However, in the 21<sup>st</sup> century, the underlined word “visits” includes remote access to the library portal or websites. In fact, the 21<sup>st</sup> century has turned everything virtual, thus the tag a “library without walls”. The author further notes that the library user requires 21<sup>st</sup> century technologies to access library resources; meanwhile, the access needs not be restricted to physical visits to the library building. As Shumaker (2012) contends, librarians need to be innovative to keep up with library users, as patterns of usage and modality of accessibility have changed:

People don't have to come into libraries to get information or use it. They obtain and use information at home, in the office, in dorms, and in restaurants. They gather information sitting down and standing up. They use desktops and laptops, smart phones and tablets. Moreover, they access every type of information this way – whether it's for business, personal interest, scholarship, or science. Thus, when people do come to a library, they don't come for the traditional reasons. They come for programs, a quiet place to work, group study spaces, or to use the computers. They don't come to ask for help from the reference librarians, and as a result, traditional reference activity is declining (ibid).

In Tanzania, the use of ICT in academic libraries was found to be high among library users as they mostly utilised the internet, audio devices, network computers, YouTube (audio/visual materials) and mobile phones in their learning process (Mungwabi, 2018). This finding is in line with Kemp (2020) who provides statistics of internet users in Tanzania and reveals that there were 14.72 million users as of January 2020 showing the penetration of internet usage stood at 25 percent. Regarding social media usage, 4.50 million people were social media users showing that social media penetration stood at 7.6 percent by January 2020.

Mutarubukwa and Mazana (2020) while exploring the use of social media as a teaching tool in selected higher learning institutions find that social media are attractive to youths who regard it as a platform and space for activities not possible in the face-to-face context. The authors further noted that research on how students use social media in Tanzania is limited. However, Kasika's (2017) study on social media usage to enhance collaborative learning in higher learning institutions in the country finds that social media is mostly used in sharing learning materials among groups, and for acquiring new knowledge and skills. Hence, libraries need to explore how social media can help to provide services to users in the digital era.

### **3. Methodology**

The study used the qualitative method research design. Gray (2009) elaborated that this method is suitable for small samples of respondents, cases or phenomena nested in particularised contexts. To select respondents, purposive non-probability sampling was used. In this regard, three focus group discussions with library staff (6 respondents in each group to make a total of 18) were held at the IFM Library and semi-structured interviews were held with one head of department; one head of section and the director, making a total

of 21 respondents in the study. Subsequently, the obtained data were analysed thematically and organised based on the research objectives and emerging issues. The IFM Library was selected due to its devotion to incorporate social media as one of the tools to provide services and market library services to its academic community.

## 4. Findings and Discussion

### 4.1 Services to be Offered via Social Media at the IFM Library

ICT has revolutionised the way information is acquired, processed, stored, accessed, disseminated and used. This transformation demands most services and content to be delivered online to interact with users in the digital era and inspire them to keep on using the library. During FGDs, six social media platforms were explored and found to be preferable by librarians at the IFM Library as follows: WhatsApp mobile application was favourable to 19 (90%) library staff; Facebook 20 (95%) library staff; YouTube/Video tutorials 14 (67%) library staff; Twitter 12 (57%) library staff; Goodreads 6 (29%) library staff; and Instagram 17 (81%) library staff, as Table 1 illustrates. Each of these social media platforms was explored and services to be provided through the said media were identified.

**Table 1:** Social Media Preferability at IFM Library

	WhatsApp	Facebook	YouTube	Twitter	Goodreads	Instagram
<b>Frequency</b>	19	20	14	12	6	17
<b>Percentage</b>	90%	95%	67%	57%	29%	81%

**Source:** Field Data (2021)

#### 4.1.1 WhatsApp

WhatsApp is a mobile phone application that has grown in popularity within a short time of its existence (Chaputula & Abdullah, 2020). WhatsApp is a popular messaging application as of 2015 and has over 2 billion users as of February 2020 (Merriam Webster, 2021). It allows users to send text and voice messages as they share images, documents and other content. At the IFM Library, 19 (90%) of library staff reported this mobile application to be favourable; in fact, during FGDs, one librarian who deals with readers at the issuing desk noted that the IFM Library could utilise WhatsApp for creating groups in the library where customers can interact with librarians and have their queries answered. At the same time, library staff working at the issuing desk wanted to use the app to remind library users who have borrowed books and they are overdue. Reminders could be sent to library users to avoid unnecessary fines while at the same time notifying them when the reserved item is available. During interview with the head of section responsible for the issuing desk, he noted that:

...A library WhatsApp group chat could be created to facilitate constant academic interaction with users through sharing pictures of new acquired documents and links to scholarly contents. At the same time, notifications of overdue books could be sent to library users via their mobile phones and throughout working hours, queries could be answered through chatting.

The research at Mzuzu University Library in Malawi on the use of WhatsApp for providing services found that the application was successful in providing reference services through answering user's queries promptly hence ensuring customer support to students and staff members who are off-campus around the clock leading to resource utilisation, awareness and greater satisfaction among library users (Chapatula & Abdullah, 2020).

#### **4.1.2 Facebook**

Findings revealed that 20 (95%) library staff found Facebook to be suitable for providing current and up-to-date information to users. During FGDs, many library staff noted that a Facebook page would be appropriate in providing IFM Library users and staff members with current awareness services (CAS). The current awareness services aim to inform users about the new acquisitions in their libraries. As of current moment, the IFM Library uses display tables/boards, shelves and staff members WhatsApp group chats to draw attention to recent additions to the library, something that at times is inadequate.

With ICT developments, many researchers are overwhelmed by the overflowing information making them susceptible to fake news articles, plagiarised articles and predatory journals. This is because many users try to keep themselves up-to-date with new publications while they are not savvy enough to detect inauthenticity in some of the information sought. Against this backdrop, librarians who are information gatekeepers try to devise innovative ways to help and prevent users from drowning in overflowing information by providing them access using current awareness services as one of the library staff said during FGDs:

...through electronic resources' subscriptions, librarians receive updates of new journal articles published and new books released. By using the Library's Facebook page, librarians can share this information with faculty members and students, thereby supporting research and ensure academicians are up to date in their field of researches. Also, the platform can be used to serve users when they are off campus and during the time of crisis, for instance the COVID 19 pandemic.

Tak Hei Lam, Hang Au and Chiu (2019) conducted a research at Hong Kong University Libraries and found that most libraries use Facebook as a marketing tool, yet user engagement in these pages was low while communication-related posts and videos attracted the most attention from patrons. In South Africa, on the other hand, Chizwina *et al.* (2017) found out that social media can be used in libraries during crises and revealed that indeed Facebook can be used in a university setting during crises to inform, educate and communicate as it was during students' protests (#FeeMustFall campaign in their research on social media usage in libraries).

#### **4.1.3 YouTube**

Sorka (2014) noted that the popularity of social media has prompted academic libraries to turn to video tutorials to host and promote usage of library resources and upload them to YouTube for accessibility. At the IFM Library, 14 (67%) library staff found video tutorials and YouTube to be the best way to familiarise patrons with the library services despite the fact that it was expensive and needed modern equipment to take quality videos for

academic purposes. In fact, many library staff were enthusiastic to adopt video tutorials to promote the usage of the library. During FGDs, one librarian noted:

...it's hard to get students to come to the library during orientation programme and at times many are embarrassed to ask for assistance from the librarians once they come to the library. Video tutorials could be helpful where librarians provide tutorials on the library setting and sections (virtual tours), tutorials on how to search electronic resources in the subscribed journals, demonstration of services offered and how to use the Online Public Access Catalogue (OPAC). Many students and faculty members will watch the uploaded videos and learn at their own pace thereby bringing more awareness into the library services and resources.

Similarly, the University of Illinois at Urbana-Champaign (UIUC) History, Philosophy and Newspaper Library (HPNL) begun to produce a series of video tutorials on “American Newspaper, 1800-1860”. Their approach was successful as video instructions allow students to learn at their own pace. At the same time, videos facilitate and provide support for teaching, encourage discovery and use of information while raising awareness on library resources and support services in a library (Sorka, 2014). Yi (2016), on the other hand, noted that academic libraries in Australia use video tutorials (YouTube) as a way of promoting library services and resources, thereby attracting clients, generating non-user awareness and raising awareness on the resources available in a library. Zhu (2017) investigated the academics’ active and passive use of YouTube for research and leisure and found that majority of them have watched YouTube videos for leisure purposes with almost half of them also having watched YouTube videos for academic purposes. Generally, many academics had a positive attitude towards YouTube as a means for disseminating academic materials.

#### **4.1.4 Twitter**

Twitter is a ‘microblogging’ system that allows the sending and receiving of short posts called tweets. Tweets can be up to 140 characters long and may include links to relevant websites and resources. Twitter has recently become popular with academics as well as students, policy-makers, politicians and the public. This tool is suitable for smart-phone users who do not want to read long on-screen content (Economic and Social Research Council (ESRC), 2021). At the IFM Library, 12 (57%) library staff were in support of using twitter for announcements and provision of useful tips and information that readers can follow by clicking on the links provided. During an FGD, one librarian said:

...we have a hard time letting users know when the library schedule changes unexpectedly. Twitter could be one of the quickest ways of making such announcements to our patrons together with links to academic documents that may benefit them in their academic journey. At the same time, educational [thought provoking] quotations could be posted as a way of engaging readers and inspire students in their academic journey.

Al-Daihani and AlAwadhi (2015) explored academic libraries' use of twitter and found that many academic libraries used it for news and announcements. Additionally, their findings also showed that academic libraries used twitter as a marketing and promotional tool, with academic libraries posting links to useful sites for more targeted content.

Moreover, the Economic and Social Research Council further notes that in academic context, twitter can help promote research by providing links to journal articles and new researches; fostering information sharing through tweets and retweets with a large number of people, keeping abreast of latest news and developments and experts in certain fields; and provision of feedback on services (Economic and Social Research Council (ESRC), 2021), something that the IFM Library can also use and gain from the academic benefits that the twitter platform engenders.

#### **4.1.5 Goodreads**

Among the least known social media is Goodreads as indicated by 6 (29%) library staff. Goodreads is an American social cataloguing website that allows individuals to search its database of books, annotations, quotes and reviews. Users can sign up and register books to generate library catalogues and reading lists. They can also create their own groups of book suggestions, surveys, polls, blogs and discussions (McClary, 2016). McClary (ibid) explores how public libraries can connect with readers on Goodreads and notes that it is an excellent tool for learning about new books and making decisions on what to read next. The platform also enables readers to track new upcoming books and access book reviews and recommendations from other book lovers. Hence, academic library can utilise this popular site with more than 10 million books in its catalogue to promote their collections, engage with readers and encourage reading culture by offering their insights and recommendations since reading culture in many developing countries is generally poor, Tanzania being no exception in this matter (Masabo, 2015; Wema, 2018; Gabriel, 2020). During FGDs, one librarian noted that:

...many students don't like reading. They only read for examinations and tests and they prefer notes, lecturers' pamphlets and recommended books. Using Goodreads, the IFM Library could establish a library reading group where 'book of the month' could be voted for, selected and library staff and users could read and discuss the book together, making it fun and meliorating. This in turn will pique students' interest in reading for leisure, exposure and enriching their knowledge as opposed to the poor reading culture that is seen currently.

Through the established book club, the IFM Library could also establish their own reading lists known as 'bookshelves'. The Goodreads' groups feature allows the establishment of an online book club, which could be one of the best ways to promote a reading culture through engagement, discussions and group reading. Similarly, the New Jersey State Library has a group named '*Online Book Cafe*' that shares new books and encourages discussions and library users to read their recommended book of the month (McClary, 2016).

#### **4.1.6 Instagram**

Findings indicate that 17 (81%) of the Library staff at IFM wanted to establish an Instagram page primarily for marketing the library's newly-acquired resources. Instead of putting new books, newspapers, magazines and hard copy journals on display shelves; pictures of these new acquisitions could be uploaded onto the site for the library users to see them. Librarians could also provide a synopsis for each book in the caption to pitch the items to readers' interests. Additionally, pictures of library activities and events such as trainings' conducted, seminars attended, webinars and useful links to scholarly articles could be provided to ensure widespread awareness and use amongst readers of library resources and services. During the interview with the head of technical services, it was noted that:

...the library receives a lot of new information that is processed and shelved, making it harder for readers to see them. Through Instagram, library users and faculty members could be able to see all new acquired library documents. At the same time, library trainings could be advertised and pictures of events such seminars, short courses, and links to scholarly content and events could be shared via this platform.

Verishagen and Elliot (2021) in their article on Instagram tout it as a novel way of connecting with students via the library Instagram page i.e. Saskatchewan Polytechnic Library in Canada (@saskpolytech) enriched with posts of wide variety content wise. The library also posted pictures of librarians to connect with users and assure them that their visit to the library would be met by a friendly and warm smile. Moreover, the book displays, library and campus events, holiday closures and hour changes, informational posts and promotional posts for online resources all strived to gain more followers and keep them engaged (Verishagen & Elliot, 2021).

#### **4.2 Challenges to the Provision of Services in the Digital Era**

Monetary costs and long-term sustainable financial base of keeping pace with technological advancements of using social media applications emerged in the study as some of the major concerns. To ensure sustained online presence, modern tablets are a must. In addition, there was a need to set aside monthly budgets for buying internet bundles that will ensure library presence beyond the traditional four walls. During FGDs, one Librarian noted that:

...monetary costs are still a challenge for the library miscellaneous expenditures for at times months pass without subscription fees being paid for TV monthly packages, hence one worries the same may happen to bundle requests hence derailing constant and uninterrupted presence of the library in the social media platforms chosen.

An uninterrupted, constant and consistent quality service is a prerequisite to engaging readers actively in a social media platform in addition to ensuring that their queries were answered timely. On the other hand, amidst major cuts in library budgets and expenditure, sustainability of these value-adding social media platforms could face an axe once monetary expenses become unbearable. Furthermore, developing content that keeps readers engaged also emerged as a challenge that the IFM Library envisaged and faces. To keep readers on

a platform, one is ought to create interesting and engaging content daily. However, in the middle of the semester when books have already been bought, services reach a form of plateau as one librarian noted:

...what kind of content will be posted to keep readers engaged and glued to the page without being bored when the library has reached plateau or in the middle of the semester? And who will be responsible for choosing the said content? It's easy to start but maintaining and sustaining is a huge onus.

On the other hand, one [librarian responsible for social media] must be innovative, humorous and intellectually stimulating to keep readers interested and attract followers to the platform. At times, lack of motivation and imagination cripples most social media as users end up being bored as the content becomes too unpalatable or outdated particularly when information updates take too long to materialise. Additionally, trolling and bullying were some of other challenges many library staff feared at the IFM Library. Trolling is an internet jargon for making random unsolicited or controversial comments on various platforms with intent to provoke a negative reaction. During FGDs, one of the library staff said:

...one cannot control what users [followers] of the said platform will comment once a post is uploaded. However, some people are negative and will say negative, offensive things while others will advertise content that does not even relate to the objective of the page with the intent to instigate negative dialogue.

This trolling could result in negative publicity for the library or library staff aimed to bully the activities or the institution. Many of the respondents at IFM feared this kind of negative attention, an evil that comes with the utilisation of social media. Many also noted that staying positive or ignoring could never dilute negative comments already made. Furthermore, the respondents identified lack of management support as one of the challenges facing the library's social media platform exploitation. They reported that many institutions did not support social media use for library activities as they feared that their presence on such platforms could come into conflict with institutional needs and safeguards. At the same time, most [institutions/organizations] have established that the Public Relations Officer (PRO) is the official spokesperson for the said institution hence cutting a slice for library to own their own social media pages is met with reservations. In consequence, it was increasingly hard to invest in library social media platforms and, at times, even individual efforts towards such ends are swatted and discouraged, which explained why many social media platforms [for libraries] remain largely dormant.

## **5. Conclusion and Recommendations**

The study findings show that the IFM Library preferred Facebook, WhatsApp, Instagram, YouTube, and Twitter as social media platforms that can provide services to the academic staff and students. Goodreads though largely unknown to many at IFM emerged as another equally important platform that the IFM Library could exploit. Overall, these social media platforms could come in handy for current awareness services; reference services and answering queries; video tutorials and virtual library tours; and sharing links to scholarly

articles and announcements. Moreover, the platforms could foster marketing of library resources, activities, schedules and upcoming events. Ultimately, no type of library—be it academic or public or special library—can ignore the benefits accruing from ICT and social media use in terms of bettering service provision and extending the library’s influence beyond its traditional four walls. The study also identified challenges that IFM Library faces in the provision of services in the digital era to include lack of management support when it comes to social media usage and sustainability; content and readers’ engagement challenge; trolling and bullying that occur on many social media platforms, hence resulting in negative feedback; and soaring monetary costs.

To be successful in incorporating ICT and social media as tools in service provision, the study calls for the establishment of social media committees (which will include PROs as members) tasked with selecting social media platforms suitable for the library usage, helping in branding the library’s image digitally and guiding purposeful steps towards engaging in and commitment amongst libraries when it comes to social media usage to avoid dormancy. There is also a need to post frequently and ensure active online presence by providing engaging and exciting content. Trolling and bullying can be reduced by blocking and reporting wayward content to social media platform administrators. Additionally, committed library staff—who are tech-savvy and have the wisdom and patience to remain professional while engaging with readers on a social media platforms; and can be responsible for ensuring the library’s presence in the digital world is lively and positive without neglecting prompt response to queries and interacting with readers—have to be chosen intentionally. Such an operational environment can ensure the sustainability of subscriptions for social media pages and management, which could further be consolidated after seeing readership rate rises in these media.

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# Developing E-resources Utilisation Strategies for Tanzanian Higher Learning Institutions: A Case of Mzumbe University

*Mosha, G. E.<sup>1</sup>, Siyao, P.<sup>2</sup>, Nyakwaka, D. O.<sup>3</sup>*

## Abstract

This paper aims to examine the development of e-resources utilisation strategies for Higher Learning Institutions in Tanzania taking the case of Mzumbe University. Data for this study were collected from three major sources: five Higher Learning Institutions (HLIs) in Tanzania (UDSM, SUA, MUHAS, CBE, & NM-AIST), e-resources usage statistics from COTUL subscribed databases for the MU library and views from the MU library users. Usage statistics from COTUL subscribed e-databases provided quantitative data which were supplemented with experiences from five visited HLIs and views from MU internal stakeholder forums. The study outlined the roles and functions of all Mzumbe University organs in promoting and advocating the use of subscribed e-resources. The MU organs ranged from the university management, schools, faculties, and directorates including the library, institutes and the MU students' organization. Specifically, MU Library was assigned the role of training users, creating online e-resource discussion forums, improving library websites, acquiring e-resources remote access software, promoting and advocating e-resources use, and employing knowledge ambassadors. The study identified challenges encountered in implementing the strategies which include poor ICT infrastructure, shortage of librarians with e-resources skills and interest, the meagre budget allocated to the library, insufficient specialized subject contents from subscribed databases, and poor cooperation between academic staff and the librarians. Since the library renders cross-cutting functions to the University, the task of promoting e-resources usage was recommended to be played by every organ at the University. The University is urged to speed up subscription /acquisition of e-resources remote access tools which will be enhancing e-resources utilisation. Additionally, the maximum utilisation of e-resources will be fully achieved by changing the mindset of lecturers and students from relying solely on print to e-resources. This study was not able to extract all usage statistics from the 24 databases at Mzumbe University because some database vendors particularly free databases do not release COUNTER statistics. Based on the findings of this study, Mzumbe University Library may: decide and inform COTUL on which e-resource databases to renew; propose measures to improve the usage of e-resources and lay down University-wide e-resource strategies to improve utilisation strategies. This paper is based on original usage statistics provided by the e-resource vendors in the COUNTER format and interviews administered to some selected respondents. Related literature has been reviewed and used, and appropriate citations and references have been acknowledged. The paper has been checked through Turnitin plagiarism detecting software.

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1 E-resource Librarian, Department of Library Science and Information Management - Mzumbe University Library: [gmosha@mzumbe.ac.tz](mailto:gmosha@mzumbe.ac.tz)

2 Librarian, Department of Library Science and Information Management - Mzumbe University Library: [posiyao@mzumbe.ac.tz](mailto:posiyao@mzumbe.ac.tz)

3 Librarian and Head, Department of Library Technical Services - Mzumbe University Library: [daonyango@mzumbe.ac.tz](mailto:daonyango@mzumbe.ac.tz)

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## **1. Introduction**

Electronic resources (e-resources) are currently becoming major resources for forming teaching materials, research and writing papers for publication. On the side of students, particularly postgraduates, they use e-resources in attempting their assignments, writing research proposals and term papers. E-resources are also major informational assets as compared to print resources. Bentil (2020) recommends that university libraries should strategise on how to manage and maximize the usage of e-resources. Heterick (2002) highlights various categories of e-resources which include among others e-books, e-journals, databases, internet gateways and search engines. Most of the HLIs in Tanzania depend on e-resources subscribed through COTUL which include EBSCO host, JSTOR, SAGE, Taylor and Francis, Wiley, Emerald, Research4Life, and other databases available under *Electronic Information for Libraries (EIFL)*, among others. Such resources enable academic staff, researchers, and students to improve their ways of teaching, learning as well as research and scholarly outputs in the Higher Learning Institutions in Tanzania.

Despite the associated benefits accrued from e-resources, the challenges in accessing and using them range from selection, acquisition, content, ease, speed and effectiveness of use, the volume of use and networked access for remote locations, license restrictions on access and copyright restriction in the use, as well as maintenance of hardware and software as stipulated by White & Crawford, 1997; and Coutts, 1998 as cited in Kiondo, 2004. As academic and research libraries in Tanzania are not working in isolation, they face the above challenges in the utilisation of e-resources. This subsequently resulted in the establishment of the Consortium of Tanzanian Research and Academic Libraries (COTUL) in 2009. One of the main objectives of COTUL is to share electronic resources in terms of subscription, access, and usage. The consortium also trains librarians and researchers in information search skills to access and use the resources to support teaching, learning, and research in their respective institutions.

The introduction of e-resources, which was initiated by COTUL, has shown the need for academic and research libraries to re-strategise services such as training and marketing of subscribed e-resources. Therefore, monitoring and evaluating the impact of such services on e-resources is vital as noted by the DLTS that culminated in coming out with this written strategy. An investigation conducted by the Directorate of Library & Technical Services (DLTS) at Mzumbe University indicated that both contextual and environmental factors have been influencing e-resources usage at the University. Such factors include students and academic staff personal characteristics that range from the slowness of access to database contents, mainly caused by low bandwidth, lack of awareness of available e-resources, unfriendly databases' interfaces, inadequate marketing and advocacy strategies, a limited number of ICT facilities not matching with the number of users in the library, and lack of skills to make productive searches. Mzumbe University library has been actively collecting and reporting statistics for its subscribed e-resource databases since approximately 2015.

The statistics are normally reported on a monthly basis. The databases in which those statistics have been reported are Emerald, SAGE, Research4Life, JSTOR, Taylor and Francis, Cambridge University Journals, Wiley Journals, Royal Society, and currently EBSCOhost.

Despite the fact that subscribed e-resources provide specific, exhaustive, and efficient dissemination of information to the community of users in the HLIs which is used by students, teaching staff and researchers in a bid to accomplish their learning, teaching and research activities (Mwantimwa et al., 2017), there has been less frequent usage of these resources as indicated by the DLTS Weekly Reports, 2019.

**Table 1: MU E-resources Usage Statistics 2017-18**

<b>Taylor &amp; Francis Journals Usage Statistics 2017-2018</b>													
Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
2017	127	79	160	134	215	170	121	78	112	74	85	137	<b>1492</b>
2018	196	56	70	299	318	181	208	183	203	125	100	170	<b>2109</b>
<b>Wiley Usage Statistics 2017 – 2018</b>													
Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
2017	102	65	67	135	152	82	60	35	91	75	56	60	<b>980</b>
2018	112	26	36	147	165	144	115	74	68	102	114	88	<b>1191</b>
<b>Cambridge University Press Journals Usage Statistics 2017-2018</b>													
Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
2017	16	4	7	9	13	7	3	2	15	2	2	6	<b>86</b>
2018	5	1	10	5	9	10	15	3	7	6	8	9	<b>88</b>
<b>JSTOR Usage Statistics 2017-2018</b>													
Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
2017	611	273	227	329	399	674	139	213	258	89	332	409	<b>3953</b>
2018	251	226	170	500	714	371	398	375	309	329	461	788	<b>4892</b>
<b>SAGE Journals 2017-2018</b>													
Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
2017	0	1	26	34	89	34	30	36	32	37	25	51	<b>395</b>
2018	144	29	27	76	122	112	48	91	47	63	34	42	<b>835</b>

Source: DLTS Weekly Report 2019

The probable reasons for such underutilisation are associated with inadequate ICT facilities in the library, difficulties in using subscribed e-resources, limited information literacy skills, poor internet connectivity, lack of University-wide e-resources' use strategies and poor marketing of e-resources. Developing an e-resources utilisation strategy will promote e-resources usage at Mzumbe University and hence facilitate the realisation of the value for money provided by the government for subscribing to the said e-resources. This study, therefore, aims at establishing e-resources utilisation strategies at Mzumbe University.

Specifically, this study aims to:

- i. Establish a rationale for developing e-resources utilisation strategy at Mzumbe University;
- ii. Assess the status of e-resources utilisation at Mzumbe University;
- iii. Demonstrate/Outline procedures used by Mzumbe University Library in developing e-resources utilisation strategic document;
- iv. State application of the e-resources utilisation strategy document at Mzumbe University; and
- v. Report challenges encountered in developing and implementing electronic resources strategy at Mzumbe University.

## **2. Review of the Literature**

### ***2.1 History of Usage of E-resources in Tanzania***

The history of e-resources access and use in the Tanzania HLIs can be traced back to the early 1990s' (Manda, 2005). The initial stages involved the use of CD-ROM facilities by the University of Dar es Salaam Library. The late 1990s was associated with the emergence and use of the internet in HLIs which spearheaded the use of e-resources. The University of Dar es Salaam has been very instrumental in assisting the availability of such resources to other universities in Tanzania. Some of the freely available e-resources that Tanzania has been using for years include Research4Life with the following databases: HINARI, OARE, AGORA, GOALI, and ARDI. Others are TEEAL and AJOL. In 2001, the International Network for the Availability of Scientific Publications (INASP) through the Programme for the Enhancement of Research Information (PERI) introduced the use of full-text e-journal articles in the HLIs (Manda 2005; Katabalwa & Underwood, 2017).

### ***2.2 The Rationale for Developing E-Resources Utilisation Strategy***

The advent of Information Communication Technologies (ICTs) has changed how information resources are accessed and utilised. Furthermore, it has offered new and exciting opportunities for students to find information related to their subjects of specialization, as well as research areas (Isibika & Kavishe, 2018). Ani et al. (2015) believe that with ICT, access to information is relatively enhanced, as information is made available and accessible to the scholarly community electronically. APIAR (2017) postulates that e-resources are the aftermath of these advancements in ICT and they are credible as they offer clarity and research options, provide case studies, give a wide range of information to work with, come in many forms, provide freedom to download including graphs, tables, and images, and allow to access information even in the absence of the Internet. E-resources are also vital for driving any academic or research institution as they provide timely and reliable means for accessing scholarly information (Ani et al., 2015; Nazir & Wani, 2015 as cited in Lwoga & Sukums, 2018). Despite being advantageous to scholars, e-resources consume an increasing percentage of library budgets, and they are underused when users are unaware, ignorant and fail to get relevant resources pertaining to their areas of specialization (Malabanan & Bayeng, 2019; Mawere & Sai, 2018; Toteng et al., 2013).

The MU Library Operational Internal Audit Report (MULOIAR) (2016) disclosed that e-resources available at MU were underutilised. The reasons for the underutilisation of the e-resources were: inadequate e-resource training programmes, tremendously short orientation time and poor timing of orientation days and hours. Both training and orientation sessions failed to equip library users with practical and theoretical skills necessary for accessing, retrieving and using available e-resources. Additionally, the report examined a sample of sixty (60) course outlines at MU and discovered that only two (2) course outlines had e-resources as required and recommended readings to students. The report called upon the DLTS to devise strategies to enhance the utilisation of the available subscribed e-resources.

Libraries in different parts of the world have designed various mechanisms for e-resources utilisation after realizing that the resources are not used effectively. A study by Makori (2015) identifies the following strategies: consultative or partnership meetings between librarians and users, provision of information literacy and learning skills to users, preparation of promotional tools such as portable brochures, and guides, running seminars and workshop training, and increasing public relations. These, according to Makori (2015), would enhance the effective utilisation of e-resources in universities. Moreover, Manda (2008) also recommends that all academic and research libraries in Tanzania develop policies, standards, strategies, and action plans to promote the effective use of e-resources. Manda (ibid) emphasizes that such strategies should be tailored to address issues of standardising and harmonising resource acquisition, infrastructure development, management and training to promote the skills and competencies required for librarians in the digital age. It is anticipated that all Higher Learning Institutions will have implementable e-resources utilisation strategies, will enhance the effective utilisation of e-resources.

### ***2.3 Status of E-resources Utilisation at Mzumbe University***

Mzumbe University library facilitates access to numerous online databases in a form of internet subject gateways and other electronic publications that include e-books, reports, journal articles, and case studies subscribed through the Consortium of Tanzania University and Research Libraries Consortium (COTUL), Electronic Information for Libraries (EIFL) and International Network for the Availability of Scientific Publications (INASP) (Isibika & Kavishe, 2018). Apart from subscribed databases, the library also disseminates various open-access databases to its user community. Subscribed databases usage reports from 2014-2018 extracted from seven (7) databases were as follows: Taylor and Francis (7618), Willey online library (5484), Cambridge University (200), JSTOR (16504), Sage (1265), Research4Life (702) and emerald insight (15261). In the year 2014, a total of 2006 full-text items were downloaded from all databases making an average of seven (7) articles per year assuming that all downloads were made from 274 academic staff. Based on the report, it is evident that the most used databases by users at Mzumbe University were JSTOR, emerald insight and Taylor and Francis respectively.

When usage statistics are high, it is likely an indication that the databases have relevant content and users are well informed and trained on access and use, the opposite is the case. Constant, reliable and evolving statistics from subscribed databases is a very important tool

for managing e-resources. Such statistics can be used by the library in making informed decisions concerning subscribed databases as well as users. Dean and de Jager (2009), and Gallagher, Bauer, & Dollar (2005) are of the view that statistical data extracted from subscribed e-resources databases would enable librarians to see how such library materials are being used compared to the print environment though currently, discovery tools like Panorama from EBSCOHost can gauge both statistics.

### ***2.4 Implications of the E-resources Usage Statistics***

The Mzumbe University library requires subscribing e-resources usage statistics to enable the library to: assess the value of subscribed e-resources products/services; make better-informed future acquisition decisions (e.g. whether to renew it or not) by advising the University and COTUL; plan infrastructure and allocation of resources; and support internal marketing and promotion of library services. The usage statistics are also used as justification for value for money.

E-resources usage statistics are essentially useful for tracking the general use of e-resource titles, and for calculating the cost: price/search use (Snyman, 2011). When usage statistics are high, it is likely an indication that the databases have relevant content and users are well informed and trained on access and use. On the other hand, if the usage is low, it can indicate that users require training, the content is supposed to be marketed, the content does not meet collection development criteria, and the database is a candidate for cancellation in the future. Constant, reliable and evolving statistics from subscribed databases is a very important tool for managing e-resources. Such statistics can be used by the library in making informed decisions concerning subscribed databases as well as users.

## **3. Methodology**

Methodologies presented below were used by researchers in formulating the MU E-resources Utilisation Strategy Document (MUEUSD). Data for this study were collected from the MU five (5) purposively selected subscribed e-resources databases for the past four (4) years, 2016-2019 in the COUNTER JR1 report. The selected databases were Taylor & Francis, Wiley Online, Cambridge University, JSTOR, Taylor & Francis, and SAGE Journals. The reason for selecting the databases is their complacency standards for extracting usage statistics.

### ***3.1 Interview Sessions***

The interview was carried out with fifteen (15) MU Library staff and 15 postgraduate students. Their views were analysed and formed the strategies which are presented in the findings section of this study. Such information was used to supplement quantitative data from subscribed e-resources database vendors.

### ***3.2 Visits to Selected Higher Learning Institutions***

Five electronic resources librarians from the following Higher Learning Institution Libraries (HLILs) were consulted: University of Dar Es Salaam (UDSM), College of Business Education (CBE) Dar es Salaam, Sokoine University of Agriculture (SUA),

Muhimbili University of Health and Allied Sciences (MUHAS), and Nelson Mandela African Institution of Science and Technology (NM-ST). The reason for selecting the said libraries was as follows: UDSM is the oldest university in the country and the pioneer of e-resources. The SNAL, its users depend largely on e-resources and has information discovery tools (libhub kiox) formerly and currently My Library On Finger Tips (MyLOFT) which facilitate remote access to e-resources. The MUHAS library was included because it is very instrumental in marketing and advocating e-resources. CBE in Dar es Salaam was visited because it has a renowned countrywide expert in e-resources. The last institution visited was NM-AIST due to its experience in running a digital library. Inputs obtained from the institutions visited were used in the process of developing the MU E-resources Utilisation Strategy.

### ***3.3 Benchmarking of Strategies from Institutions in other Countries***

Researchers reviewed various similar library documents in the course of developing the MU E-resources Utilisation Strategy. The documents reviewed were the institutions' Strategic Plans and their Collection Development Policies. The researchers examined the extent to which the two documents postulated issues related to e-resources utilisation. The institutions benchmarked were Makerere University – Uganda, the Great Zimbabwe University - Zimbabwe, Kisii Nairobi, and Jomo Kenyatta universities from Kenya, and the Pretoria University Library – South Africa.

### ***3.3 Internal Stakeholders***

The researchers collected information from internal stakeholders via diverse discussion forums and presentations. The internal stakeholders involved were the MU Library Management, MU staff, and the library users (i.e. students). Focus Group Discussion (FGD) and individual interviews with students were conducted to obtain views regarding e-resources utilisation. Postgraduate students were the focal point for both FGD and individual interviews because they form major users of e-resources. The following three questions guided FDG and one-to-one interviews. First, do you use e-resources to access relevant information in support of your academic work? Secondly, do you encounter any challenges in accessing e-resources? Thirdly, would you suggest any strategies to improve e-resources utilisation at MU? The first and second questions were just for assessing students' knowledge regarding their awareness of the use of e-resources. Responses from postgraduate students were incorporated in the preparation of the e-resources utilisation strategic document.

### ***3.4 Circulating the Document to the MU Community***

The first draft of the E-resources Utilisation Strategy was electronically circulated to the MU community to receive their suggestions, views and comments which were incorporated whenever necessary.

## **4. Analyses of Findings**

### ***4.1 Rationale for Establishing E-resources Utilisation Strategies at MU***

#### ***4.1.1 Mzumbe University Fourth Corporate Strategic Plan 2017/2018 – 2021/2022***

The fourth Corporate Strategic Plan of Mzumbe University provides a roadmap toward the accomplishment of the University's objectives. The MU 4<sup>th</sup> CSP requires the Directorate of Library and Technical Services (DLTS) to initiate and undertake the process of developing an e-resources utilisation strategy by the end of June 2019. The said issue is under the Key Result Area "A1.3" which reads "*Improving learning and ICT enabling and utilisation environment of its strategic plan of 2018/2019*".

#### ***4.1.2 MU Library Operational Internal Audit Report (MULOIAR) of 2016***

In the year 2015, Mzumbe University ordered the Directorate of Internal Audit to audit MU Libraries. The MU Internal Audit released a report titled "The MU Library Operational Internal Audit Report (MULOIAR) in 2016. The report disclosed that e-resources available at MU were underutilised. Furthermore, the report divulged the following inadequacies: e-resource training programmes provided to library users were inadequate, tremendously short orientation time, and the timing of orientation day and hours which were used to be scheduled on weekends affected the attendance of fresher students. Both training and orientation sessions failed to equip library users with practical and theoretical skills necessary for accessing, retrieving and using available e-resources. Additionally, the report examined a sample of sixty (60) course outlines at MU and discovered that only two (2) course outlines had e-resources as required and recommended readings to students. The report called upon the DLTS to devise strategies to enhance the utilisation of the available subscribed e-resources.

The idea for developing MU e-resources utilisation strategies has also been borrowed from what was recommended by Manda (2008) that all academic and research libraries in Tanzania should develop policies and standards, strategies and action plans to support access to electronic information. Manda (ibid) emphasised that such strategies should be tailored to address issues of standardising and harmonising resource acquisition, infrastructure development, management and training to promote the skills and competencies required for librarians in the digital age.

#### ***4.1.3 The Low Usage Statistics of the MU Subscribed E-resources Databases***

The usage statistics were extracted from the following databases: Taylor and Francis, Wiley, Cambridge University Press, JSTOR, SAGE Journals, Emerald and Research4Life. These databases were purposively selected because the content matches MU programmes. The extraction was done using Counting Online Usage of Networked Electronic Resources (COUNTER). The usage was noted to be relatively low for the past five (5) years from 2014 to 2018, as summarized in Table 2:

**Table 2:** *Usage Report Extracted from Selected COTUL Subscribed Databases 2014-2018*

Year	Usage Statistics from COTUL Subscribed Databases 2014-2018							Total
	Taylor & Francis	Wiley	Cambridge	JSTOR	SAGE	R4Life	Emerald	
2014	1084	692	0	0	0	230	0	<b>2006</b>
2015	1759	1357	0	3704	0	163	0	<b>6983</b>
2016	1174	1264	26	3953	35	23	5627	<b>12102</b>
2017	1492	980	86	3955	395	9	5228	<b>12145</b>
2018	2109	1191	88	4892	835	277	4406	<b>13798</b>
<b>Total</b>	<b>7618</b>	<b>5484</b>	<b>200</b>	<b>16504</b>	<b>1265</b>	<b>702</b>	<b>15261</b>	<b>47034</b>

**Source:** *Subscribed Databases COUNTER Reports 2014-2018*

**The type of statistics extracted from the above databases is the “Total item requests”** which refers to the number of times users viewed, downloaded, emailed, or printed the full content of a journal article, abstract, book chapter, etc. from the databases. Based on the information provided in Table 2, JSTOR, Emerald, Taylor and Frances databases documented the highest usage while Cambridge University, Research4Life and SAGE were the least. Moreover, some of the databases in 2014 & 2015 had never been used, for instance, Wiley, Cambridge University Press, JSTOR, and Emerald. Although there are not any established standards on how many online scholarly papers a student should read in the course of attempting their class assignments if one takes a ratio between usage statistics in Table 2 and the number of students enrolled in Table 4, one can realise a very low ratio. Moreover, the e-resources usage statistics are supposed to validate the University’s financial investment and Return on Investment (ROI) for a continual subscription.

#### **4.1.4 MU Academic Staff Disposition 2013/14 – 2018/19**

Mzumbe University has a total of 291 academic staff, according to the MU Figures & Facts (2021). Academic staff are supposed to be major users of subscribed e-resources as they provide a platform of information required for the preparation of teaching materials, research, paper writing for publication, seminars, workshops, and conference presentations. In Table 2 above, in the year 2014, a total of 2006 full-text items were downloaded. This shows that in 2006 (articles downloaded ÷ 274) (total number of academic staff) on average every academic staff downloaded 7 items for the whole year. The first assumption is that only academic staff downloaded items from the subscribed databases. The second assumption is based on the same formula, combining academic staff and masters’ students produce an average of one (1) item download for the whole year. Since there is no universally agreed standard number of books or articles an academic staff and postgraduate students are supposed to read in a given year, the ratio above seems to be very low.

**Table 3: Academic Staff Disposition 2013/14-2018/19**

#	Years	Male	Female	Total
1	2013/14	203	71	274
2	2014/15	207	88	295
3	2015/16	223	93	316
4	2016/17	204	87	291
5	2017/18	204	91	295
6	2018/19	202	89	291

**Source:** MU (2020) *Figure & Facts*

#### **4.1.5 Postgraduate Students Enrolment 2014-2019**

E-resources are useful to postgraduate students as they help them in achieving diverse purposes including writing their research proposals, term papers, and other class assignments. This is supported by Manda (2005) who reports that postgraduate students are inclined to use e-resources to obtain essential knowledge for their coursework and research.

**Table 4: Number of Master's Degree Graduates 2014-2019**

#	Years	Male	Female	Total
1	2014/15	831	681	1512
2	2015/16	581	512	1093
3	2016/17	529	478	1007
4	2017/18	497	428	925
5	2018/19	351	313	664
6	2019/20	309	253	562

**Source:** MU (2020) *Figure & Facts*

#### **4.2 Mzumbe University E-resources Utilisation Strategies**

Owing to the identification of numerous factors affecting the utilisation of the MU subscribed e-resources, the findings present some agreed strategies that can be used in maximising the utilisation of e-resources at MU. Since the MU library renders cross-cutting functions to the University, the task of promoting e-resources usage was recommended by respondents and researchers to be played by every unit at the University as stipulated hereunder:

##### **4.2.1 Mzumbe University Management Roles**

It was agreed that the MU Management should at least perform the following roles: Firstly, it should continue allocating a feasible budget, which will enable DLTS to pay for COTUL annual subscription cost to e-resources and acquire additional e-resources which are not under the COTUL package. Secondly, the University's budgetary allocation to the library should be improved annually. Additionally, the MU Management should continue improving DLTS ICT infrastructure including computers and the internet for easy access to e-resources.

#### ***4.2.2 The Directorate of Library & Technical Services Roles***

Since the Library and Librarians at MU are the custodians of information organisation and management, they were required to perform the following roles: conducting training aiming at changing users' mindsets towards e-resources, and imparting them with Information literacy skills. To achieve this, the library is required to: run regular e-resources training sessions for all MU staff and students; offer subject-specific training programmes to schools; faculties, directorates, institutes and campus colleges, and provide e-resource training to newly recruited academic staff which will make e-resources usage part of their main routine at MU; and communicate with lecturers to bring their students to the library for training.

Additionally, the library is required to create an online forum for both staff and students to share ideas relating to e-resources. The ideas offered shall be examined for their suitability to improve e-resources access and use and establish "the communication hub" that shall be used as a bridge between DLTS and lecturers during curriculum revision and programmes review process or at the time of introducing new programmes. Contact shall be established between library staff and lecturers on the availability of utilisation of e-resources relevant to programmes/courses in action.

The library was also required to involve lecturers in the acquisition of e-resources trials, renewals and cancellation decisions of e-resources where appropriate. The library should create e-resources branding and marketing which will be used for awareness creation and promotion of available e-resources. In the course of attaining e-resources branding and marketing, the library is required to: prepare more structured and well-organised orientation programmes where freshers will be appropriately introduced to available e-resources; develop and maintain a communicative library website; prepare updated banners, posters, brochures, and flyers that shall be distributed to all library users; prepare Online Information Tutorials guiding library users on how to search, evaluate, cite e-resources; and use such resources ethically and legally.

The library was required to establish or adopt the "Knowledge Ambassadors (KAs)" practice which has shown success in promoting the usage of electronic resources in Kenya. KAs are student volunteers who are passionate about library services and resources and zealous to promote the same to their peers. The library management was required to make sure that the skills of librarians on ICT-based resources are updated to enable them to direct the users on the use of ICT resources for research purposes.

#### ***4.2.3 MU Directorate of Information Communication Technology (DICT) Roles***

The DICT was assigned two major roles. The first is to provide excellent Free Internet Access (Wi-Fi) points for accessing available e-resources. Secondly, to improve the existing library ICT infrastructure for the effective utilisation of e-resources including a well-furnished library computer laboratory, and excellent Wi-Fi connectivity; the library has to have a large number of LAN internet access points.

#### ***4.2.4 The Directorate of Research and Postgraduate Studies (DRPS) Roles***

The DRPS was required to perform the following two major roles: to assist in formulating a requirement of having at least 15% of e-resources in the reference list of postgraduate academic works, and assist in encouraging or motivating postgraduate students to attend “e-resources training offered by the DLTS.”

#### ***4.2.5 The Principals, Deans, and Directors Roles***

To increase e-resources usage at MU, the principals, deans, and directors roles are recommended to market and advocate e-resources usage in their areas of jurisdiction by reminding academic staff in their respective campuses, schools, faculties, and institutes of the need of using e-resources in preparation and teaching of their lessons; making sure that all course outlines contain e-resources as both required and recommended readings; ensuring that the newly established and reviewed courses incorporate e-resources as already directed by TCU; supporting the integration of some aspect of e-resources into the courses they teach such as Communication Skills, and or Research Methodology; and making sure that all programmes of study at MU are incorporating high-quality e-resources from reputable publishers/databases in their course outlines as REQUIRED and RECOMMENDED readings.

#### ***4.2.6 The Directorate of Undergraduate Studies (DUS) Roles***

It was discovered that undergraduate students were among the e-resource users’ groups with the least usage of subscribed e-resources. This being the case, the DUS was assigned the following roles to stimulate the usage: One, to emphasise the inclusion of e-resources in all undergraduate course outlines as REQUIRED and RECOMMENDED readings, and two, to make sure that all supervisors of undergraduate students’ field research reports and projects contain at least 10% of e-resources in the reference list of their projects. Also, they were required to consider including “Information Literacy” or “Information Retrieval” topics in Communication Skills and Research Methodology courses.

#### ***4.2.7 The Directorate of Quality Assurance (DQA) Roles***

One of the roles of the MU Directorate of Quality Assurance (DQA) is to provide a framework for ensuring the quality delivery of academic programmes at the University. For the DQA to participate in maximising e-resources use, they were required to perform three major tasks which are: making sure that all programmes of study at MU are incorporating high-quality e-resources from reputable publishers/databases in their course outlines as required and recommended readings, insisting on the use of high-quality scholarly journal articles from subscribed e-resources databases for teaching and learning, and keeping on reminding principals, deans, and directors to include e-resources in the newly established and reviewed programmes and courses as per TCU directives.

#### ***4.2.8 Mzumbe University Students Organization (MUSO)***

It was suggested and recommended that since students are the major e-resources stakeholders, they should be fully involved in the formulation of strategies for maximising usage. As such,

the MUSO government was required to perform the following roles: motivating students to use e-resources in their academic works; encouraging their fellow students to use Mzumbe University Students' webmail for accessing subscribed e-resources in their gatherings, and assisting in developing software for remote access to e-resources at the university.

## **5. Monitoring and Evaluation of the E-resources Utilisation Strategy**

Monitoring of e-resource utilisation strategies in this document will be done by the Directorate of Library and Technical Services (DLTS) regularly. The DLTS will collect, compile, and analyse reports from all schools, faculties, and campuses and submit them to the Deputy Vice-Chancellor Academic for further action. Some of the main issues to be monitored include:

1. Reporting from subscribed e-resource and free databases. The report will contain total download subject-wise, type of item accessed (e-journals, e-books, cases, etc.) and the faculties and courses utilising e-resources than others,
2. The DLTS will go through new and reviewed programmes to see and report to the DVCA the extent of inclusion of e-resources in their course outlines,
3. The DLTS will be examining both undergraduate field research reports and postgraduate theses and dissertations to see and report the extent of usage of e-resources on an annual basis,
4. The DLTS will be reporting schools, faculties, institutes, and departments that will be sending their students to the library for training on accessing e-resources to the DVCA,
5. The DLTS, through the Department of Library Science & Information Management (DLSIM), will be regularly updating links of available e-resource databases on its website for easy access by users,
6. The DLTS will be regularly reporting challenges affecting e-resources utilisation to the MU DVCA,
7. The DLTS will be reporting the extent of internet connectivity within and outside the library to the DICT,
8. The DLTS will subscribe to an e-resource remote access tool/software which will facilitate access to e-resources, and
9. The DLTS will continue to build the internal capacity of her staff by sending them to both internal and external e-resource workshops, seminars and conferences.

## **6. Challenges Encountered in Developing E-resource Utilisation Strategies**

Challenges encountered in developing and implementing the e-resources utilisation strategy at MU are: Lecturers are not cooperative, and also are not willing to use such resources. Librarians' role at the university has largely been ignored and misplaced, the place and purpose of the profession are not appreciated by the majority of lecturers in the university. As such, researchers experienced poor cooperation in the data collection process. The researchers visited a few Higher Learning Institutions when conducting this

study, thus the generalisation of findings should be taken with great care. Similarly, some of the visited institutions were reluctant to reveal strategies they were using in promoting e-resources usage. The researchers were faced with an acute shortage of detailed literature related to e-resources utilisation strategies.

## **7. Challenges in Implementing the Strategies**

The following are some of the challenges encountered: The university ICT infrastructure is not to the required standards. There is no stable internet connectivity in the library, and difficulty in reaching a large number of students residing in off-campus hostels since most of the subscribed e-resources are available through IP addresses and they are confined to the internet services available to on-campus students only, hence without appropriate ICT infrastructure in place, it is impossible to advocate e-resources utilisation. Also, the library is faced with an acute shortage of computers for training users on how to access e-resources. Despite the calls for training, a good number of students and lecturers do not attend. The shortage of librarians with an interest in instructing/training users on online information search is also another problem. The budget allocated to the MU libraries is not sufficient to subscribe much needed electronic resources which are not under the COTUL package. For instance, the Faculty of Law has not been getting enough resources from COTUL subscribed e-resources, as such; they always request the library to consider subscribing to HeinOnline, Lexis Nexis, and others. Similarly, the delay of the University to pay the COTUL fees (membership fee and subscription fees) has been another major challenge. University teaching timetable is compacted to the extent that it is not easy to slot in time for teaching Information Literacy Skills to the users. Lastly, the MU librarians are not involved in the preparation of course training materials and reading lists, so they cannot suggest to the lecturers about the available subscribed and free e-resources so that they may be included.

## **8. Conclusion**

The current low usage of available e-resources at MU has been a result of slow internet speed, and lack of e-resource policy, shortage of computers for accessing e-resources, frequent power interruptions both within the university and off-campus, poor Information Literacy Skills among library users, and the lack of awareness of the existence of e-resources among the MU scholarly community. All these have acted as a deterrent to the use of available e-resources. This study informs MU Management that in order to enhance or maximise e-resources utilisation, there is a need for regular training on e-resources access and use as well as making Information Literacy Skill training mandatory for all students. The library should be given a workable budget which will among other things be used for training and marketing the available e-resources. There is a need for having a standard website that will act as a getaway to the library e-resources. The acquisition of e-resources remote access tool would also serve as a panacea for enhancing e-resources utilisation. Additionally, the maximum utilisation of e-resources will fully be achieved by changing the mindset of lecturers from relying on print to e-resources. The researchers, therefore, urge the entire MU community to effectively use available e-resources to which the university

is subscribing.

## 9. Recommendations

Based on the findings, the following recommendations are strongly made: The e-resource remote access tool/software which is discussed in the findings of this study should be subscribed to or procured by MU library. This tool will enable library users to extract available resources remotely, meanwhile enabling the library to extract more meaningful statistics, e.g. who used a certain resource, from which faculty, school, and which journal title, etc. The DICT needs to increase wireless access points in the library and surrounding areas so that users can access e-resources using their smartphones and laptops since the number of computers in the library is not sufficient to serve the number of library users. A reliable and constant supply of electricity within the university is a crucial factor for raising e-resources usage, hence electricity fluctuations discourage the use of e-resources. This study is, therefore, recommending that the library should make sure that the available standby generator is automatically working.

The Mzumbe University Library should adopt a more dynamic method of promoting subscriber e-resources like improving e-resource knowledge ambassadors which work perfectly in Kenya to inform and create awareness of the available e-resources at the university. Additionally, the library should diverge the evaluation of usage of e-resources focusing on the number of full-text downloads of resources from subscribed e-resources databases by moving toward using a number of research articles published as an output indicator of usage of the subscribed e-resources. COTUL should consider increasing the number and relevance of the content of subscribed electronic databases to enhance accessibility and utilisation of such resources in all Higher Learning Institutions in Tanzania. The library should continue providing regular and mandatory information search training which will enable students to seek, locate, evaluate, and use information effectively to fully meet their educational needs.

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# Study towards Adoption of Research Data Management Services in Zanzibar Academic Libraries

*Abbas Mohamed Omar*  
Zanzibar University

## Abstract

The aim of this paper is to study the mechanism towards adoption of research data management in Zanzibar academic libraries. The study used a cross-sectional design whereby qualitative and quantitative methods were used to collect data. Survey-based questionnaires were used to collect quantitative data and interviews were undertaken to collect qualitative data. Forty (40) information professionals and twelve (12) IT technicians were selected through non-probability sampling technique under purposive random sampling from a population of 45 librarians and 16 IT technicians from five higher learning institutions in Zanzibar namely the Institute of Public Administration, Mwalimu Nyerere Memorial Academy – Karume Campus, State University of Zanzibar, Sumait University and Zanzibar University. The response rate was 45 (74%). The findings show that ICT services and infrastructure in most of the universities were good, however, many universities face common challenge of low internet bandwidth. This may reduce the effectiveness of research data access among researchers. Findings also show that some academic libraries have started to manage research outputs through institutional repositories; however, none of them implemented research data management. Findings also show the existence of NICTNBB, ZICTIA, COTUL, TERNET and COSTECH can be taken as an opportunity for establishing a national wide dataset. Likewise, the majority of information professionals have limited knowledge about research data management and this was a major challenge facing academic librarians. The study recommends establishing a national discussion on research data management, creating awareness and developing strategies and guidelines on research data management and sharing in academic libraries in Zanzibar -Tanzania.

**Keywords:** *research data management, higher learning intuitions, academic libraries, Zanzibar, Tanzania*

## 1. Introduction

Today, the Research Data Management (RDM) and sharing agenda is increasingly discussed in the field of research and information science. However, according to Tenopir et al. (2014), the subject of research data management is still new to many information professionals and researchers in Africa. Despite that, researchers from different disciplines have varying opinions and perceptions towards RDM. Several scholars have attempted to provide a useful definition of RDM. For example, Whyte and Tedds (2011) define research data management as an organization of data, from its entry to the research cycle through the dissemination and archiving of valuable results. Similarly, Eindhoven University of Technology (2020) defines RDM as the careful handling and organization of research data during the entire research cycle, with the aim of making the research process as efficient as possible and to facilitate cooperation with others. More specifically, RDM helps to protect

data, it facilitates in sharing the data with others and it ensures that research data is findable, accessible and (re) usable.

Furthermore, the Organization for Economic Co-operation and Development (2007) defines research data as factual records (numerical scores, textual records, images and sounds) used as primary sources for scientific research, and that are commonly accepted in the scientific community as necessary to validate research findings. Here, data could be physical records of computer files created by researchers or big data shared on servers. Regarding the format of research data, Borgman (2012) states that data produced as part of research takes a wide range of forms, from statics and experimental results to discussion and interview records and questionnaire scripts. Research data management consists of a number of different activities and process associated with the data lifecycle, involving the design and creation of data, storage, security, preservation, retrieval, sharing and reuse, all these activities taking into account technical capabilities, ethical and legal issue and government framework (Cox & Pinfield, 2014). Research data management involves the management of data via infrastructures, the long-term storage and security of data, and open access, but also communication between researchers and different fields of study (Schopf, et al. 2014).

The discussion on RDM, according to Childs et al. (2014), is mainly associated with the need to introduce it and how can be sustained. The discussion also, based on the agenda of openness, which insists more sharing of scholarly content, including research data, to allow it to be accessed by other researchers so as to ensure research integrity. In this regard, it can be concluded that the effective management of research data has a number of significances as elaborated by Bloom (2013) that RDM can be reused by other researchers and applied in various contexts. The data collectors and analysts also get credit and acknowledgement through data citation. Data sharing brings transparency in the research process and data collection methods. It also saves a lot of time of the researchers, so they can focus on newer avenues of research instead of collecting data from scratch. In addition, it can help to optimize research outputs, increase the impact of research, and support open scientific inquiry. Economically, according to Patel (2016), RDM leads to an intensification of the need for research funders to justify how the public money they give to research is spent. Based on this significance, it is anticipated that management of research data, sooner, is going to become indispensable in the field of research as well as information sciences. However, the issues related to research data management are varied and complex and may require technical and legal expertise. Therefore, it is imperative that research institutions and universities start evolving mechanisms to manage and share research datasets.

There is a positive story about research sharing in Tanzania, whereby several efforts have been taken to enhance research sharing activities in the country. For example, the study of Dulle (2010) observes that the majority of researchers in Tanzania are willing to share their research in open access journals. The study of Mgonzo & Yonah (2014) states that there is a number of universities established digital open access institutional repositories aimed at freely sharing of their research and intellectual outputs. Similarly, the Tanzania Commission for Science and Technology (COSTECH) (2019) has established a one stop

database for all Tanzania institutional repositories to facilitate the accessibility of scientific output produced in the country. However, Yonah (2014) observes that types of content shared in those repositories are journal articles, unpublished theses, references and learning objects, but not research datasets. Based on these facts, one may conclude that the research datasets sharing in Tanzania is not yet practiced or it is at infancy stage.

The subject of data management has attracted attention to researchers and information professionals. However, literatures show that so far many universities and higher learning institutions have concentrated much on open access as a means of improving visibility and sharing research outputs emanating from their respective institutions. Several research which focus on open access and research sharing in academic libraries, for example (Garritano & Carlson, 2009; Newton, Miller, & Bracke, 2010; Brewerton, 2012; Auckland, 2012) observe that institutional repositories are becoming major components of the technical infrastructure of research sharing among higher learning institutions in Africa. Referring to Tanzania, for example, the studies of Dulle (2010), Lwoga & Questier (2014) and Mgonzo & Yonah (2014) found that there has been a high uptake of institutional repositories by universities in Tanzania and researchers willing to share their research openly. Despite this fact, however, most of the previous studies have focused on the adoption and usage of open access repositories rather than research data preservation and sharing. Therefore, the topic of open data repositories or research data management has not been well examined in Tanzania and research data appears not to be published by any university repository. Consequently, lack of research data sharing may lead to duplication of researchers' efforts and misallocation of national research funds. This study, therefore, intends to examine the mechanism towards adoption of research data management in academic libraries in Tanzania islands (Zanzibar). The main objective of this study is to study the mechanism towards adoption of research data management services in academic libraries in Zanzibar. Specifically, this study needs to:

1. Examine the knowledge and awareness of information professionals in research data management services
2. Assess the institutional strategies and initiatives in place towards provision of research data management in Zanzibar academic libraries
3. Identify the available opportunities for research data management implementation in Zanzibar academic libraries
4. Examine the challenges towards adoption of research data management in academic libraries in Zanzibar

Research questions include:

1. What is the knowledge and awareness level of information professionals in research data management?
2. What are the institutional strategies and initiatives in place for provision of research data management services in Zanzibar academic libraries?
3. Which opportunities are available for research data management implementation in Zanzibar academic libraries?

#### 4. What are the challenges facing academic libraries in Zanzibar in the adoption of research data management?

The study covers a very small area of Tanzania and uses cross-sectional study to only five academic libraries in Zanzibar and involves a small sample size, skewed weighting towards information professionals working with libraries. Also, it partially discusses several aspects of RDM leaving some of them undiscussed. Therefore, the results may not be generally applicable to all aspects of RDM, academic libraries and other RDM stakeholders in Tanzania.

## 2. Literature Review

### *2.1 The Global Overview of Research Data Management*

Research cannot happen and would be not completed in any area of study without authentic and objective data (Patel, 2016). In this regard, a group of scientists in the United Kingdom in 2009 proposed that for science to effectively function and for the society to harvest the full benefits from scientific endeavours, it is crucial that science research data be made open (Pryor & Whyte, 2013). The period from 2000 has evidenced an explosion in the drivers of data sharing to the extent that nowadays, according to Corti, et al. (2014), some research funders, publishers and research institutions are increasingly encouraging easy/ or open access to research data and data plans to ensure maximum quality, sustainability, accessibility and openness of research data. The survey of Corral et al. (2013) in UK, Australian, New Zealand and Ireland, which had 88 institutions is very significant. Corral et al. (ibid) observe that some of UK libraries currently offering RDM support through assistance with technology infrastructure and tools. This is the fact that, as the need for research data management grows, academic libraries around the globe should consider adding data services to help with the research mission of their institution.

### *2.2 The Experience of Researchers and Information Professionals in Research Data Management*

Today, researchers' responsibilities towards their research data are changing across all domains of scientific endeavour. Corti et al. (2014) emphasize that researchers and information professionals need to improve, enhance and professionalize their research data management skills to meet the challenge of producing the highest quality research outputs in an efficient and responsible way, with the ability to share and reuse such outputs. The research data management services in an increasingly familiar unit within university libraries, providing a range of services to support researchers who are creating, managing and sharing their research. Several commentators, for example, Alvaro et al., as cited by Cox & Pinfield (2014), have proposed that academic library services are in good position to play an important role in research data management. This is very true since there is a potential connection between research data management and the open-access agenda that libraries have been so active in promoting it. However, the agenda of RDM may not be necessary in open access.

There is a wide range of skills required for research data management, and where the

librarians are very strong in cataloguing including metadata, classification, research engagement, digital preservation, training, copyright issues, and publication process. In this regard, a number of researchers have argued convincingly for the need for library services to foreground the RDM agenda. Lewis (2010) and further Corral (2012), for example, propose a pyramid model of nine areas of RDM activity for librarians. At the peak of the pyramid is influencing national policy; at the next level, leading on institutional policy, developing local curation capacity and working with Library and Information Science schools to identify required skills; and at the third stage, developing information professional's workforce confidence with data, training to researchers including undergraduate and postgraduate students, and advice services and data awareness raising among researchers.

Similarly, Lyon (2012) sketches potential roles of the library to a research lifecycle model in ten stages, whereas at some points tried to identifying potential partner services, they include: first, RDM requirements gathering; second, RDM planning – advocacy and guidance to researchers at all levels; third, RDM informatics – technical advice on data formats and metadata; fourth, research data citation; fifth, RDM training to researchers; sixth, research data licensing; seventh, research data appraisal – guidance on which data to keep; eighth, research data storage (with IT services); ninth, research data access; and finally, research data impact (with research support offices).

However, apart from these new RDM skills, Auckland (2012) emphasizes various traditional ways in which librarians could have a role in supporting research and data management, for example: information literacy and reference management trainings, offering advice on funding sources, advice on copyright issues, advice on archiving of research data, open access and institutional repository, and supporting roles in conducting literature reviews or current awareness alert. On another part, Rice & Southall (2016) call academic librarians as data librarians to mean that they could be involved in working within library systems, managing data and developing good working relationships with researchers. However, apart from all of these library technical skills, the study of Cox & Pinfield (2014) observed that over 50% of the respondents said the library staff did not have the capacity and adequate RDM skills.

### ***2.3 Mechanism for Effective Preservation and Sharing of Research Data in Academic Libraries***

There is a research principle which says that good research needs good plans. Recognizing this fact, Wolski & Richardson (2011) note that at present, many major research funders globally either have currently developed or are implementing policies that require grant holders to submit data management plans for formal approval and to manage their data in accordance with those plans. Recently, publishers as well as the research society have started to realize the importance of sharing raw research data along with the manuscript. Referring to Indian universities Patel (2016) stresses that universities now mandate at least a few publications from scholars pursuing doctoral studies before the degree is awarded. Such observation has also been expressed by RCUK (2012) as cited in Cox and Pinfield (2014) that in United Kingdom, many major research funders now mandate the applicants to produce a data management plan as part of their research proposal and this is expected

to design-in data sharing and reuse whether possible.

In January 2011, the National Science Foundation (NSF) began requiring researchers to include a detailed data management plan as part of each funding proposal. NSF guidelines state the proposal structure and the required information that should be included, that are: information about the types of data to be gathered during the research, the metadata standards to be used, data reusability policies and provisions, and finally, plans for long-term data archiving (NFS, 2012). This is where libraries and librarian's role and contribution might be called for. Libraries and librarians can be actively involved in providing an infrastructure of research data tools and services (Tenopir, Birch & Allard, 2012). Libraries also have expertise in information organisation, metadata standards and application, and providing access to information (Antell et al 2014). Similarly, Brochu & Burns (2019) argue that librarians are a key component in RDM. They consider them as educators because of their role in data discovery, re-use, collection, and management so they can help researchers to understand the best way to conduct research.

Larsen and Riis (2012) and Vaughan et al. (2013) assert that libraries might be involved in research through the whole process of conducting research from ideas generation and conception, data collection, manipulation and interpretation, storage and data preservation, publication of findings, and assessment of impact. They may also provide supports to researchers through facilitating access to a collection of sources and then helping and training people to use it, making it an informal partner in the research (Corrall, 2014; O'Brien & Richardson, 2015). Apart from their significant role, there might be some barriers and challenges for libraries to provide research data services that make libraries cooperation in the research field not fully exploited. Among these barriers is data sharing, as researchers might not be willing to share their data. One reason for this might be the documentation process of data that is labor intensive and time consuming. Another reason according to Borgman (2012) is the lack of interest as the reward of the research comes from its publication and not from its data management process.

#### ***2.4 The Challenges Facing National Research Institutions and Academic Libraries in Managing their Research Datasets***

A report on an international study of RDM activities, services and capabilities in higher education libraries in Australia, Canada, Germany, Ireland, the Netherlands, New Zealand and the UK as cited in Cox et al. (2017) indicates that libraries have provided some RDM services, particularly in advocacy and policy development. The same report, however, shows some challenges that libraries are facing: lack of skills; limited resources; and absence of collaboration with other support services and getting acceptance from researchers and university management. Lack of sufficient resources and expertise is another challenge facing RDM in Africa. Knight (2015) Emerald Group Publishing Limited. Purpose \u2013 The purpose of this paper is to present a case study of work performed at the London School of Hygiene and Tropical Medicine to set-up a Research Data Management Service and tailor it to the needs of health researchers. Design/methodology/approach \u2013 The paper describes the motivations for establishing the RDM Service and outlines the three objectives that were set to improve data management practice within the institution. Each of the objectives are explored in turn, stating how they were addressed. Findings \u2013

A university with limited resources can operate a RDM Service that pro-actively supports researchers wishing to manage research data by monitoring evolving support needs, identifying common trends and developing resources that will reduce the time investment needed. The institution-wide survey identified a need for guidance on developing data documentation and archiving research data following project completion. Analysis of ongoing support requests identifies a need for guidance on data management plans and complying with journal sharing requirements. Research limitations/implications \u2013 The paper provides a case study of a single institution. The results may not be generally applicable to universities that support other disciplines. Practical implications \u2013 The case study may be helpful in helping other universities to establish an RDM Service using limited resources. Originality/value \u2013 The paper outlines how the evolving data management needs of public health researchers can be identified and a strategy that can be adopted by an RDM Service to efficiently address these requirements.”, “author” : [ { “dropping-particle” : “”, “family” : “Knight”, “given” : “Gareth”, “non-dropping-particle” : “”, “parse-names” : false, “suffix” : “” } ], “container-title” : “Program”, “id” : “ITEM-1”, “issue” : “4”, “issued” : { “date-parts” : [ [ “2015” ] ] }, “page” : “424-439”, “title” : “Building a research data management service for the London school of hygiene & tropical medicine”, “type” : “article-journal”, “volume” : “49” }, “uris” : [ “http://www.mendeley.com/documents/?uuid=aab9ac70-52f2-4bac-a04d-ad2760c6df7d” ] } ], “mendeley” : { “formattedCitation” : “(Knight, 2015 notes that although there was a recognition that a central service should be available to assist researchers manage their data, the RDM services did not possess sufficient resources and expertise to take a proactive role at a time. Regarding the economic challenge of RDM, Blue Ribbon Task Force (2010) observed that the key questions in research data repository development include financial cost to manage data and who will pay for it.

Similarly, the study of Patel (2016) addresses the following challenges regarding RDM: copyright and data licensing issues, erroneous interpretation of data, data security, data privacy and researcher’s mindset. Patel emphasizes that the most difficult challenge is to convince the researchers to accept the idea of their data being made available for re-use. The information technology skills required for RDM may also be significant. Carlos and Garritano (2010) emphasize that librarians may not currently have IT technical knowledge, may lack domain-specific expertise and may also have limited personal experience of research, all of which may make it difficult for them to position themselves as key players in this area. In the study of Corral et al. (2013), 52 respondents answered the question on the major challenges for librarians with RDM, the most common answers were connected with the issues of skills gaps (20) and lack of confidence (20).

Furthermore, the same source explains that some fields are well advanced in their understanding of the issues (such as health science and engineering) while for other may not yet be an issue (for instance, some humanities scholarship). Concurring with this, Corral (2014) observes that outside the Faculty of Science and Technology, there is yet relatively little awareness of RDM and what it might involve. Another challenge noted by Cox & Pinfield (2014) is lack of collaboration between library and other parts of institution, this includes encouraging others to recognize RDM as a priority, working with other professional services, supporting the wide range of data management practices across

different disciplines and getting the library to be taken seriously.

### 3. Methodology

The study was carried out in Zanzibar and involved five Higher Learning Institutions including the Institute of Public Administration (IPA), Mwalimu Nyerere Memorial Academy – Karume Campus (MNMA), State University of Zanzibar (SUZA), Sumait University (SU), and Zanzibar University (ZU). This study was organized under cross-sectional study whereby mixed approach method was designed to elicit detailed information to address research questions. Questionnaire based- survey was a main instrument and supplemented by a series of face-to-face interview with library and information professionals from the selected academic libraries. The population was composed of 45 university library staff and 16 IT technicians. This makes a total of 61.

A self-administered questionnaire was distributed to all 61 respondents selected through purposive sampling technique. The survey questionnaire was made available online using Google form application. Invitations to participate in the survey were sent to respondents through emails and WhatsApp messages. Prior to release, the questionnaire had been piloted by five academic librarians. Piloting confirmed that the questionnaire took between 15 and 20 minutes to complete, depending on the extent to which free-text comments were added. Changes were made to the questionnaire in response to their comments before its general circulation. Qualitative data were collected through an in-depth interview held with 5 head of libraries, 1 from each academic library and 5 IT technicians, one from each institution. Before analyzing the questionnaire, an assessment was made of the number of responses received and a message was sent to all respondents which had not yet submitted a response by that time requesting that they consider doing so. This prompted further responses before the survey was closed. Finally, the responses were obtained from 35 librarians and 10 IT technicians. The total number of all respondents therefore, was 45 with an overall response rate of 74.5% as Table 1 illustrates:

**Table 1:** *Distribution of Study Population and Questionnaire Responses by Category of Respondent*

Institutions	Study population		Total
	Librarians	IT Technicians	
SUZA	25	6	30
MNMA	4	3	7
SU	4	3	7
ZU	7	4	9
IPA	5	3	8
Total of study population	45	16	61
Respondents targeted	40	12	52
Total response	35	10	45
% of response	87	62	74.5

Source: *Field Data, 2021*

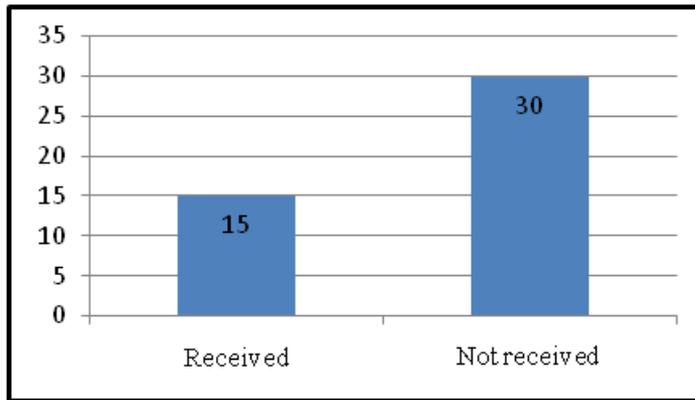
After collection, the data were edited by means of checking and adjusting errors in order to ensure completeness and consistency before analysis. As mentioned before, data in this study came from two sources, thus, interview responses were noted and data coding for survey instrument was done via online software tool and captured in Microsoft Excel file for analysis. Frequencies and percentages were calculated to assess the degree of respondents' rating with questionnaire items in order to assess their awareness, and knowledge on RDM. Also, to assess the available opportunities, the existing strategies and initiatives and finally to assess the challenges that academic libraries might face in the adoption of RDM services.

## **4. Discussion of Findings**

### ***4.1 Awareness and Knowledge of Information Professionals in Research Data Management***

In order to adopt and sustainably maintain any new library service, staff require awareness, knowledge, skills and clear understanding of the new concepts. Thus, the first question in the questionnaire focused on finding out respondents' familiarity with RDM services. Respondents were asked to rate their familiarity from excellent and not familiar. Respondents' general comments with respect to RDM provided some insights regarding their knowledge and skills about RDM services. As indicated in Figure 2, less than a quarter (8:17.7%) of respondents rated average familiar with RDM services. This number includes 5 library staff and 3 IT technicians. In normal situation, all information professionals were expected to be familiar with the trend of RDM services. However, the findings show that more than a half of respondents (25:55.5%) were not familiar with RDM services; followed by (12:26.6%) of respondents who scored less than average awareness of RDM services.

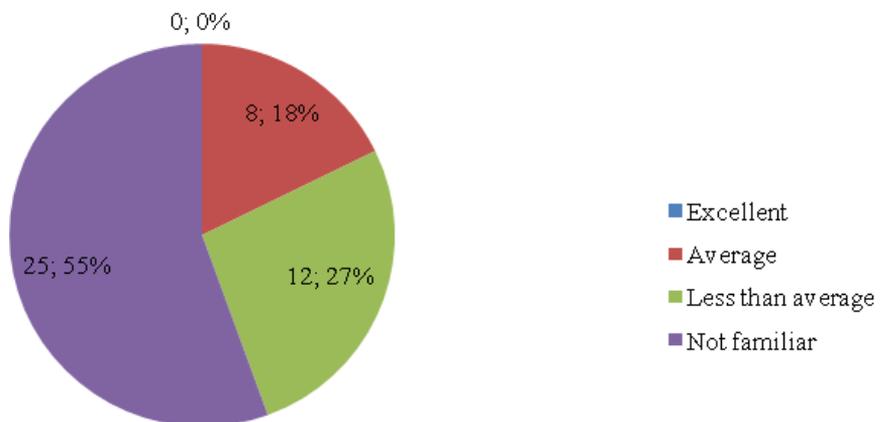
The data imply that the level of awareness of RDM services among the majority of both library staff and IT technicians was likely to be low. Furthermore, data from interview indicated that those who were aware of research data management were confusing between RDM and research report preservation and sharing though institutional repositories. This implies that there is an urgent need to increase awareness on RDM-related skills among librarians. Similar findings were also reported by Tenopir et al. (2014) on RDM awareness and presented the lack of knowledge and skills among librarians and their confidence in the expected roles in RDM services as one of the major challenges. Furthermore, respondents were asked to indicate if they have received any training regarding RDM services. Figure 1 summarizes respondents' answers.



**Figure 1:** *Training on RDM*

**Source:** *Field Data, 2021*

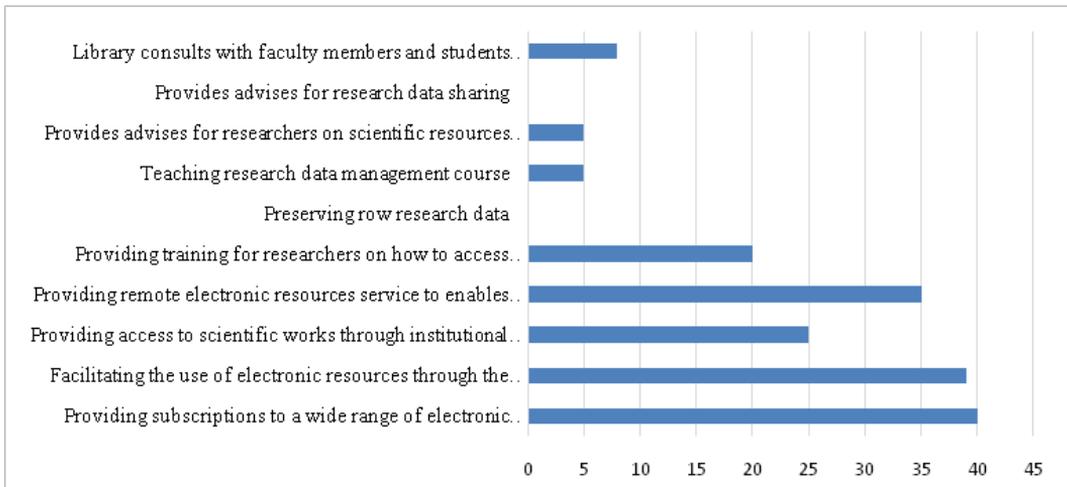
It was noted from Figure 1 that more than a half (30: 66.6%) of the respondents have not received any special training regarding RDM. This was followed by (15:33.4%) respondents who had received some kind of RDM services. Data from interview show that respondents received training on the establishment and management of institutional repository as kind of research data management services. This implies that, generally, the subject of RDM services in academic libraries in Zanzibar is still at its infancy stage and therefore it needs special attention and urgent actions. One interesting result was that some library staff perceive their role as only about providing information support rather than technical research support. This might imply the lack of understanding of core function of academic libraries and the role of libraries in RDM services provision among library staff. Moreover, Cox & Pinfield (2014) argue that even though librarians' information management skills may be relevant, it could be challenging translating them to research data contexts (including metadata creation or good data housekeeping).



**Figure 2:** *Awareness, Knowledge and Skills of Information Professionals in Research Data Management*

## 4.2 Institutional Strategies and Initiatives in Place towards Research Data Management Implementation

Respondents were mainly asked questions related to strategies and initiatives in place towards research data management implementation in their libraries. Multiple answers were provided as indicated in Figure 3:



**Figure 3:** *Institutional Strategies and Initiatives in Place towards Research Data Management Implementation*

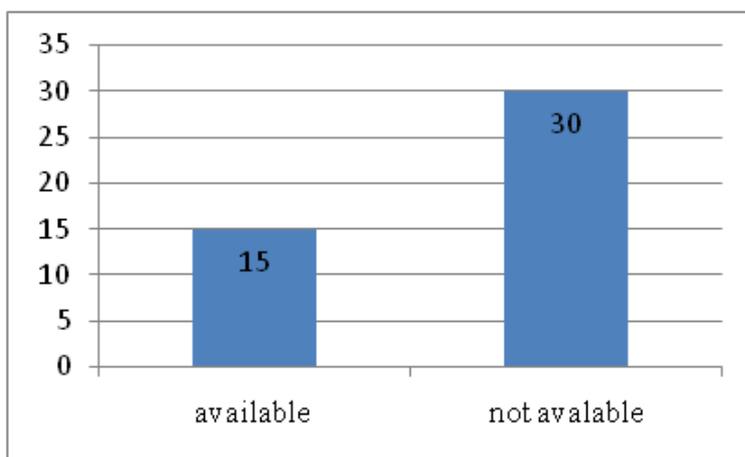
**Source:** *Research Data, 2021*

The results in Figure 3 show that a good number of respondents (40: 88%) indicated that the library provides some kind of RDM services through providing subscriptions to a wide range of electronic database in natural and social sciences, followed by (39.86%) facilitating the use of electronic database through the library network. Moreover, (35.77%) respondents emphasized the library role in providing remote electronic resources service to enable its users to access e-resources off campus, as an initiative in providing RDM services. Furthermore, almost a half of respondents (25.55%) indicated that academic libraries provide access to intellectual works produced by researchers in their institutions including research reports through institutional repository. However, less than a half (20.44%) indicated that library position in providing training for researchers on how to use research data and advice for researchers on scientific resources to support their scientific research was poor, and very few of them (8.15%) indicated that the library consults with faculty members and students about their needs for research data management. Only 5.11% indicated the introduction of research data management course in library academic program. Interestingly, all respondents noted that their libraries did not provide advice for research data sharing, training for researchers on how to access research data and they did not preserve row research data. In general, these data imply that academic libraries in Zanzibar are likely to have introduced some initiatives in supporting research data management through providing access to a wide range of electronic resources and databases through its subscription.

It is true that providing subscriptions to electronic resources and database can be considered

as one of the most important factors that contribute to research development. Likewise, data from interview show that apart from that, respondents claimed to provide research advice on the management of research reports; training researchers on how to use citation systems; training researchers on how to use reference management software; training researchers on how to use data analysis software and advise them on copyright issues. However, it was observed that research data management as defined by Whyte and Tedds (2011) which involves a number of different activities and processes associated with the data lifecycle, involving the design and creation of data, storage, security, preservation, retrieval, sharing and reuse was likely to be limitedly practiced in most of academic libraries in Zanzibar. This implies that there is a need of expanding library’s role to support research. However, according to Auckland (2012) there is evidence that academic faculties often do not engage with the library to the expected level and this might discourage libraries to put more efforts in RDM services.

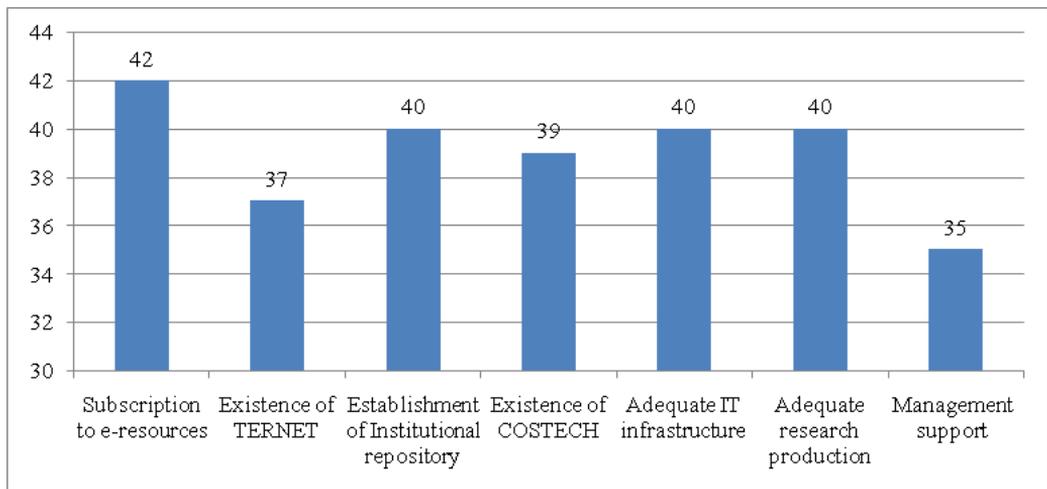
Respondents were also asked on the availability of a policy/guideline regarding research data management in their institution. Their responses provide contradicting picture on the RDM services strategies. As shown in Figure 4, more than a half (30.66%) of the respondents claimed to have neither policy no guideline on RDM while only (15.34%) agreed that there was a policy on RDM. Interestingly, respondents from the same institution had different opinions regarding the issue of policy. In fact, their responses are doubtful and led the researcher to conclude that probably there were no RDM policy in the all selected academic libraries; unless otherwise respondents were confusing between institutional repository policy and research data management services which in fact are two different things though they are somehow related.



**Figure 4:** *Availability of RDM Policy*

**Source:** *Research Data, 2021*

Another question focused on opportunities available for academic libraries in adopting research data management services in Zanzibar. Respondents were asked to rate the given opportunities. Figure 4 summarizes the data.



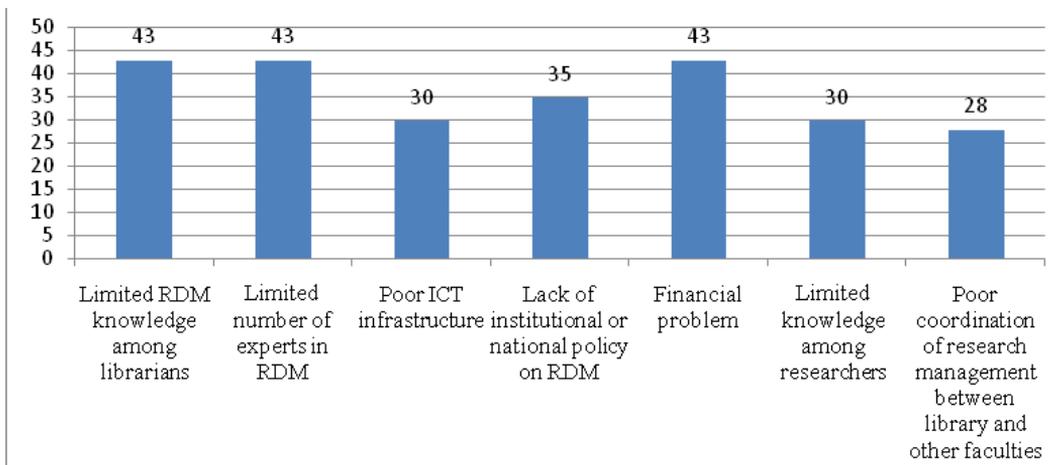
**Figure 5:** *Opportunities Available for Academic Libraries in Adopting RDM Services*

The results in Figure 5 show that a greater part of respondents which is equal to 42.93% out of 45 agreed that subscription of e-resources by the Consortium of Tanzania University and Research Libraries as a great opportunity in the provision of RDM services; followed by 40.88% of the respondents who perceived establishment of institutional repository, adequate ICT infrastructure and adequate research production as crucial opportunities for RDM services. This was followed by 39.86% who mentioned the support provided by the Tanzania Commission for Science and Technology (COSTECH) as significant opportunity towards RDM in Tanzania. Existence of the Tanzania Higher Education and Research Network (TERNET) as well as the establishment of the National Information and Communication Technology Broadband Backbone (NICTBB) was noted as significant opportunities towards RDM services provision in Tanzania by 37.82% respondents. Finally, only 35.77% respondents perceived the support of university administration towards RDM services as a moderate opportunity. Generally, these data imply that there were considerable opportunities from Government as well as Non-governmental organizations towards adoption of research data management services in Zanzibar academic libraries. If these opportunities could be utilized wisely, academic libraries as well as research institutions in the country would be significantly benefited in establishing and maintaining RDM services in the country.

#### **4.3 Challenges Towards Adoption of Research Data Management in Academic Libraries**

The last question focused on finding out the challenges in providing RDM services in Zanzibar academic libraries. Respondents were asked to weigh the level of the expected challenges by selecting the provided 5 scales, where 1 stands for “not a challenge” and 5 for “the most serious challenge”. Figure 6 summarizes the data. Similar responses were provided to limited financial support, limited number of experts and limited staff knowledge and experiences regarding research data management, whereby majority of respondents (43.95%) rated them as the most serious challenges, followed by 35.77% respondents who rated lack of policy and guidelines regarding RDM services as the more serious

challenge. Similarly, a good number of respondents (30.66%) is likely to have the opinion that inadequate ICT facilities to support RDM services and limited knowledge and lack of willingness among researchers to share their research data are somewhat a challenge that might face libraries in providing RDM services. Finally, the data indicate that only 28.62% respondents commented that poor coordination of RDM between library and academics is a less serious challenge. Figure 6 summarizes the data.



**Figure 6:** *Challenges Facing Academic Libraries in the Adoption of RDM*

**Source:** *Research Data, 2021*

Findings in Figure 6 are supported by scholars such as Garritano & Carlson, 2009; Newton, Miller, & Bracke, 2010; Brewerton, 2012; and Auckland, 2012. They point out that inadequate funding to provide research data services is perceived as the main hindrance that hinder libraries to fully implementation of RDM services. This is also related to inadequate resources for RDM services, including ICT infrastructure, i.e., computers and data repository, and policies to manage digital materials and deal with research data management. Similarly, the study of Patel (2016) addresses the following challenges regarding RDM: copyright and data licensing issues, data security, data privacy and researcher’s mindset. Furthermore, Carlos & Garritano (2010) emphasizes that librarians may not currently have IT technical knowledge, may lack domain-specific expertise and may also have limited personal experience of research, all of which may make it difficult for them to position themselves as key players in this area. Comparing the findings of the current study regarding challenges and the available opportunities, it can be concluded that the available opportunities overweigh the existing challenges and as it has been noted previously that if all RDM stakeholders cooperate and use the available opportunities wisely, the country will achieve notable development in research in general and RDM in particular.

## 5. Conclusion and Recommendations

Research data management has been attracting attention globally. The current study aimed at studying the adoption of research data management services in Zanzibar academic libraries.

The results presented in this cross-sectional study indicated a knowledge gap among information professionals regarding research data management. Interestingly, many of information professionals were confusing about what data management meant, and seemed to associate data management issues with other research topics, such as data analysis and institutional repository. Findings of the current study noted that it is essential to increase awareness of the emerging role of academic libraries staff to support research development. The findings of the current study show that there are some initiatives in place on RDM services such as various research training for researchers and introduction of institutional repositories for preservation of research outputs. Also, there are significant opportunities towards RDM services such as the Government support through the establishment of COSTECH and NICTBB, and the existence of TERNET and COTUL. Finally, lack of knowledge and skills in RDM services was a major concern of library staff, and lack of policy and guidelines and limited financial support to provide research data appeared to be the main obstacle that might hinder libraries implementation of RDM services in academic libraries in Zanzibar. Therefore, this study affirmed the need to train library staff to provide them with technical skills related to RDM and also to develop RDM policies and standards in collaboration with local researcher institutions. Based on the findings of current study, the following recommendations have been provided:

- It is crucial to train library staff on how to provide RDM services and to increase awareness about their role in providing RDM technical services beside their normal informational services.
- Academic libraries should utilize the existing opportunities to enhance RDM services in their institutions.
- In collaboration with other research partners, academic libraries should develop policy, guidelines and strategies for serious implementation of RDM services.
- University and library schools should figure out a way of embedding the RDM topic in their curriculum or providing short trainings on RDM to librarians as well as researchers. This will help to keep them aware and impart knowledge and skills of RDM to them.

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# Paradigm Shifts with Respect to Changing Library Users' Needs: A Case of the State University of Zanzibar

<sup>a</sup>Abdalla A. Shaame and <sup>b</sup>Riziki A. Hassan

<sup>a</sup>School of Computing and Media, The State University of Zanzibar,  
P. O. Box 146, Zanzibar-Tanzania

<sup>b</sup>Directorate of Library Services, The State University of Zanzibar,  
P. O. Box 146, Zanzibar-Tanzania

## Abstract

The university library needs to provide appropriate library services to motivate lecturers and students to use the services. The library has to offer services that relate with the current library users' requirements. The services and facilities in the university libraries have a huge impact on the users' satisfaction. This research is conducted to examine the current library users' requirements in line with the changing nature of the university library. The study design was a quantitative phenomenology approach that involved lecturers and students from ten (10) campuses of the State University of Zanzibar (SUZA). Primary data were collected and administered by an online questionnaire. The findings of the study show that library users preferred computerized digital systems to traditional systems in accessing library resources. The findings also reveal that library users were satisfied and had knowledge of digital resources to improve their teaching, learning and research. The library users raised concern on the use of internet and journal articles to provide quality of their work. The conclusion drawn from this study is that the services offered by the university library should be improved with respect to the requirements of the current library users who are surrounded with digital native environments.

**Key words:** *current library users, university library, requirements, and changing nature*

## 1. Introduction

Changing library operations has been in top discussion among librarians and information specialists for the last few years (Ashiq, Rehman & Mujtaba, 2021). Penetration of technology in the library profession and globalization has played significant roles in this tremendous change (Aslam, 2018). Completely, the library paradigm has been changed due to intervention of technology in the library settings. Hence, changing the skills, knowledge and attitude of the current library users had an impact significantly changing the academic library environment and management.

Effective leadership is extremely required to library leaders to meet the current demands and future scenarios of delivering library services (Aslam, 2018). Library leadership needs innovative, competence and motivation to handle the current technological changes in the library paradigm and leaders should play significant roles during the library transformation period (Kang, 2020). Hence, library employees need to be initiative, self-motivated, obsessive about the work and willing to learn new things (Chow & Conte, 2021). The library leader and employee should be keeping up to ensure the quality of their work that needs constant change and growth (Chow & Conte, 2021).

The technology has taken the leading role in the library in the 21<sup>st</sup> century, the story has been changed as users visited the library to use printed materials, whereby the printed materials have been migrated to digital format (Kari, 2019; Bucciarelli, 2017). The management of library services has changed significantly due to the rapid advance of digital technology (Bucciarelli, 2017). Obviously, the technology has reshaped the library profession (Aslam, 2018). Library professionals need to ensure the libraries meet the current requirement of library users. Nowadays, it is practically impossible to offer effective library services without employing technology (Kari, 2019). The technology should be well utilized in the library to raise interest of users to use the library and make them satisfied by the library services.

Future library professionals would be required to make library services better by strategically removing barriers to innovation (Ashiq et al., 2021). In addition to that, the future of library professionals should have skills related with operating to the internet and create interaction with the users through the internet (Widén & Kronqvist-berg, 2014). The Internet is the major source of professional reading; hence the future training of the library professional should be related to future trends of librarianship and IT-related library and information services (Gunasekera, 2021).

Currently, academic libraries are facing many challenges such as changing users' behavior and attitude, human resources, financial and technological issues (Ashiq et al., 2021). The big challenges are to resolve the technological competing views on the delivering library services and what libraries need to adopt to meet the rapid changes in library users (Dorner, Campbell-Meier & Seto, 2017). Hereto, in a digital environment, it is difficult to provide and manage relevant contents to the library users (Aslam, 2018). The changing of library paradigm consequently makes changes of the library leaders and employees. The librarians need to understand their profession and present a clear picture of what is their role and how it fulfills that role (Dorner et al., 2017). Therefore, this study was guided with the research question: what are the requirements of the current library users in the academic library?

## **2. Literature Review**

Users are the most important component in any library environment because the mission of every academic library is to provide excellent services to the users (Olorunfemi & Ipadeola, 2018). Library has been a key provider of information that can enhance the academic performance for students, lecturers and provide quality research and that increase the reputation of the academic institutions. In the traditional library, users spend much time searching for information and rely on assistance from librarians, however with the presence of technology, users spend less time and librarians avoid duplication of work and make smooth operation and effectiveness of library services (Somananda & Weerasighe, 2021). The extent of universities' achievement of their goals largely depends on the level of services and resources provided by the university library to users (Olorunfemi & Ipadeola, 2018). The effective delivery of library services positively affects the education outcome and students' success (Parbie & Barfi, 2021).

The key determinant requirements of quality library services to the library users in the

university libraries is invincible by the librarians to provide better services and equipped with online resources, knowledgeable library professionals and uses of computer systems with broadband (Tetteh & Nyantakyi-Baah, 2019). To accomplish the requirements of users, librarians should have knowledge of the user's needs. Without knowing the information needs of its users, it is difficult to provide effective and efficient service to them (Olorunfemi & Ipadeola, 2018). Notable, all library activities are designed to develop a system based on a strong service to the users up to their satisfaction as an indicator to meet the university library objective (Iyishu, 2021).

Study by Mwilongo (2018) observed that user requirements in academic libraries play a major role in developing library collections. The quality of a university library can be determined by the quality of its collection and services (Iyishu, 2021). Library users in academic libraries require current library resources in electronic format for better accessing and easy subscription to online scholarly content. This positively affected the teaching and learning process, research and consultation services. Nowadays, the university libraries are increasing their collections by subscribing to e-resources in full online journals and online databases (Ankrah & Atuase, 2018).

In the light of the foregoing, availability of relevant information resources, proper organization of the resources, its awareness through various means such as user education and utilization of information resources are factors that ensure user's satisfaction. Persistent promotion and marketing efforts are critical by libraries to ensure library users optimize use of electronic information resources efficiently (Olorunfemi & Ipadeola, 2018). Electronic information is used to supplement print information in the university library to give users continent access and reliable information source to full-fill their requirements (Ankrah & Atuase, 2018). Expectations of libraries are achieved when information resources are fully utilized. Therefore, carrying out consistent appraisals on user requirements and satisfaction regularly on various aspects of library usage will be a helpful guide for librarians in library planning to keep meeting with the library goals and objectives (Olorunfemi & Ipadeola, 2021).

Moreover, the kind of information resources required by the current library users should regard the crucial requirements from them (Olorunfemi & Ipadeola, 2021). The primary requirement and purpose of the university library to its users is to provide support to the library users through disseminating current library materials in order to enhance learning, teaching and research activities of the university community. The university constitutes major groups of users that make use of its library; the active use of library by users is believed to be the major objective of establishing libraries in higher institutions of learning impacted positively on the use of relevant information resources available in the university library (Iyishu, 2021).

### **3. Methodology**

The overall objective of this study is to examine the requirement of the current library users in the academic library. The study design employed was a quantitative method. The data were collected using the online questionnaire. The online questionnaire was managed using

Google form. The questionnaire form was filled by 94 participants, including 19 (20.2%) instructors and 75 (79.8%) students from ten campuses of SUZA. The questionnaire involved close ended questions that intended to provide answers to the research questions. The questionnaire URL link was sent through email and WhatsApp groups of instructors and students. The data were analyzed using Google form. Hence, the descriptive statistics was employed using simple percentages to present the results of the study.

## 4. Findings and Discussion

### 4.1 Demographic Information of the Respondents

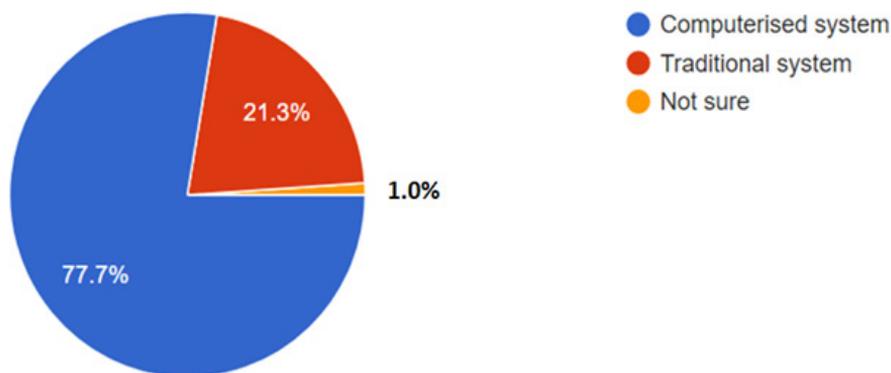
Demographic information of respondents in this survey is classified in Gender and Age group as presented in Table 1. Of the respondents 36 (38.3%) are male and 58 (61.7%) are female. This suggests that female students dominate in Tanzanian universities. Table 1 also presents the respondents age group, and it was revealed that more than 54.3% (n=51) of the respondents belong to 18 – 30 years, 40.4% (n=38) belong to 31 – 44 years, following 4.3% (n=4) above 45 years and there are very few of the respondents 1.1% (n=1) are below 18 years. This means that though most of the students in the university are youth and early middle aged 18 – 44 years, there are old adults and teenagers who may have different requirements for accessing library services.

**Table 1:** *Age Group of the Respondents*

S/n	Description	Frequency	Percent
<b>Gender</b>			
	Male	36	38.3
	Female	58	61.7
<b>Age group</b>			
	Below 18	1	1.1
	18 - 30	51	54,3
	31 - 44	38	40.4
	Above 45	4	4.3

### 4.2 Means of Accessing Library Services

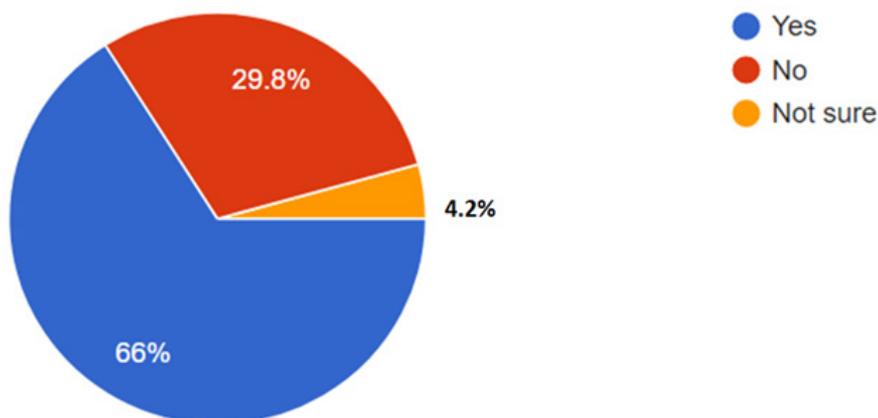
The respondents of the survey were asked to choose the preferable ways of accessing library services. As shown in Figure 1, more than three quarters of the respondents had chosen the computerized system rather than the traditional system as a means to access library services. Similarly, the study by Alzahrani et al. (2019) in Malaysia found that library users were not only satisfied with computerized digital systems but also influenced with behavioral intention to use the computerized system in effective use of digital libraries. Meanwhile, the library users require digital resources to acquire correct information efficiently (Chang et al., 2018). In fact, most of the library users prefer to use digital resources than print media for academic and pleasure reading (Larhmaid, 2018).



**Figure 1:** *Preferable Means of Accessing Library Resources*

### 4.3 Adequate Library Collection

The survey also intended to determine whether the library collection is adequate to meet the current library users' requirements. Figure 2 shows that most of the respondents said the library has enough collections and there are some respondents who said the library collection is not adequate. Similarly the study by Ankrah and Atuase (2018) in Ghana found that the university library continues increasing the capacity of e-resources collection of full-text journals and online databases. Hence, through the consortiums such as the Consortium of Tanzania University Libraries (COTUL), the university members subscribed to the reputable journals with low cost rather than individual library subscription. However, the consortium may be limited to subscribe to the journals which are highly demanded to some disciplines in the university. Therefore, the university should allocate a specific budget for improving its collection by subscribing to the journals which are prioritized by the departments/schools.

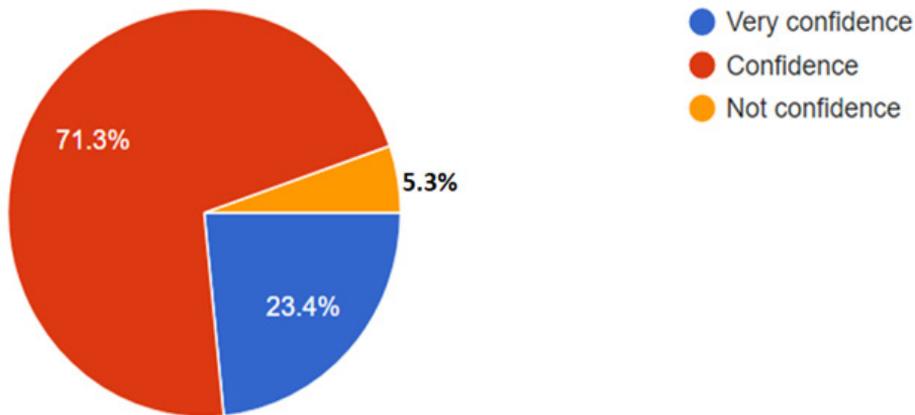


**Figure 2:** *Adequate of Library Collection*

### 4.4 Confidence of Accessing Digital Resources

When respondents were asked whether they are confident to access digital resources, almost all 89 (94.5%) respondents said they have confidence in accessing digital resources, while

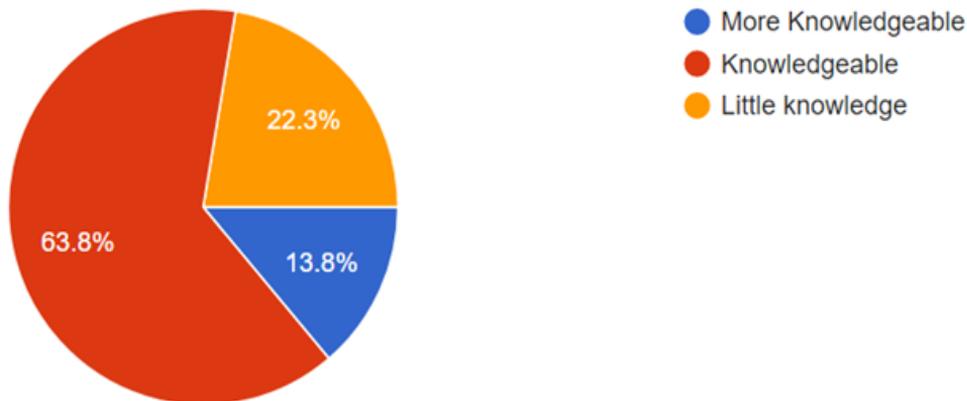
only 5(5.3%) of the respondents have no confidence in accessing digital resources. This is an encouraging development and it means that the university library users in Tanzania have confidence to access digital library services. Thus, the university library in Tanzania should continue offering digital services to meet the requirements of their users. In the same manner, the study by Ankrah and Atuase (2018) found that most of the students in the university have confidence and prefer to use digital resources to access Google scholar, web based database and other databases that are available in the library.



**Figure 3:** *Confidence of Accessing Digital Resources*

#### **4.5 Knowledge Level to Access Digital Resources**

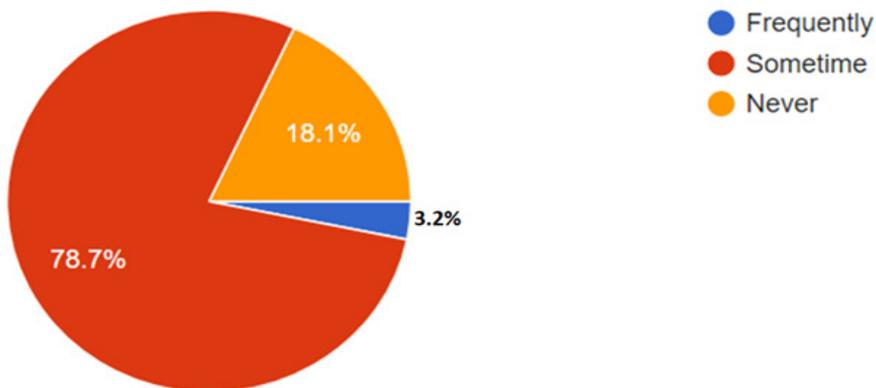
The library users need to have some knowledge to be able to access the digital resources effectively. The respondents were asked the knowledge level that they have to access the digital resources. Most respondents (78.2%) as shown in Figure 4 have the knowledge in accessing digital resources, while about quarter of the respondents (27.1%) have little knowledge in accessing digital resources. Similarly, the study by AlZebidi and Alsuhaymi (2021) in Saudi Arabia found that a high percentage of students have knowledge, awareness and practice of digital systems in their studies. Hence, the knowledge and practice of using the internet could not be evidence of using digital technology in learning. As evident by Ashiq et al. (2021), the library professionals should have appropriate knowledge, training and education whereas most library professionals are lagging behind with workforce training and development especially in information technology and uses of social media. Therefore, the librarians should ensure that students gain the specific knowledge of using digital systems in learning.



**Figure 4:** *Knowledge Level of Accessing Digital Resources*

#### **4.6 Training**

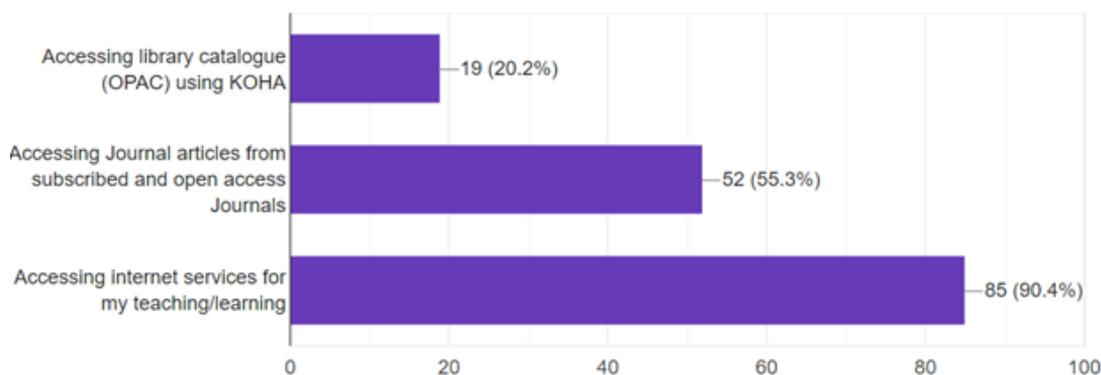
The concept of digital library is still a new field for the library users in many developing countries; its practices are not reviewed well to the most library professionals. The library users should be trained to gain the specific knowledge to provide changes in their teaching and learning. The respondents were asked in what frequency they have received training on the effective use of e-library services. Figure 5 shows that most of the respondents accounting 79.3% were getting training sometimes, while 17.4% never received training and only 3.2% have received training frequently. Due to the changing nature of the library profession, many studies revealed that training is paramount to library users (Gunasekera, 2021; Tripathi, Sonkar & Rajbanshi, 2016). Library users should be given training frequently specifically in using digital systems to improve their teaching, learning and research (Al-abdullatif & Gameil, 2020). What is more, there is a claim that many librarians are not providing enough training to their users (Ashiq et al., 2021). Therefore, the library management and library professional should ensure library users are given the required training for acquiring the intended knowledge for supporting their teaching, learning and researching functions in the University. Librarians should create more awareness and provide user training sessions in the libraries and also in different departments/colleges in the University to improve usage of the library resources (Soni, Gupta & Shrivastava 2018; Ankrah & Atuase, 2018).



**Figure 5:** *Training of Library Users*

#### 4.7 Types of E-library Services

There are different e-library services that University libraries offer to their users. The respondents were asked to select the type of e-library services that they use in the library. As shown in Figure 6, a large number of respondents chose to access internet services, followed by accessing journal articles and very few accessing library catalogue. This means that most library users fluently use the internet, and some of them access journal articles from different databases. The same findings obtained by the study by Chang et al. (2018) in Taiwan show that the internet can distract students' attention from studying and they can choose suitable and reliable information for studying and they use e-resource to simplify their learning. In addition to that, the study by Chang et al. (2018) found that most of the library users were fully satisfied with journal articles provided by the university.



**Figure 6:** *Types of E-resources in the Library*

Many studies found that KOHA OPAC provides a positive impact on efficient cataloguing, remote management of users' item borrowed, fine tracking and customizable search interface (Ali, 2021; Gupta, 2018). Surprisingly in this study, there are few respondents who used library catalogues using KOHA to access library materials. This could be the reason that the library catalogues were not integrated with the library services, therefore library users could not get access to other library services directly from KOHA OPAC. Thus, the

library catalogue needs to be integrated with other library services to provide easy access to library services. The OPAC should offer several features and functionalities to attract and influence library users by getting quick access and retrieving valuable documents (Gupta, 2018). For example, OPAC may provide links to Google scholar, subscribed and open access journals as well as learning management systems.

## 5. Conclusion

This study explored the library users' requirements in the university library. The findings show that most library users prefer computerized systems to traditional systems in accessing library resources. In fact, most of the library users prefer to use digital resources than print media for academic and pleasure reading. The findings further revealed that the library professionals should ensure the university libraries have adequate collections and improve by subscribing to the reputable journals that meet the departments/schools academic demands. The findings also revealed that the library professionals should offer training that reflects the current library users' requirements that assist them to use digital resources effectively. In addition, the findings highlight that the library users have knowledge and confidence to use digital resources to support their teaching, learning and research activities. The study confirmed that the current library users preferred internet services and journal articles to ensure quality of their work. Moreover, the study recommends that the university libraries should ensure library professionals provide services that are required by the current library users who are surrounded by digital environments.

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# A 14 - Years Mapping of Research Productivity of the School of Business Academicians at Mzumbe University, Tanzania: A Bibliometrics Analysis

Shemahonge, A. H.<sup>1</sup>, Mosha, G. E.<sup>2</sup> and Siyao, P. O.<sup>3</sup>

## Abstract

The purpose of this study is to determine the research productivity of the School of Business (SoB) academic staff at Mzumbe University between 2007 and 2020. The study employed a mixed approach in data collection. A total of 58 SoB academic staff were used in this study. Quantitative data were extracted from google scholar using the Publish or Perish (PoP) software. Qualitative data were collected using an interview guide. The quantitative data were analysed using a Microsoft Excel Spread sheet whereas qualitative data were analysed using content analysis. The findings indicate that a total of 253 publications were recorded for all 14 years yielding a low yearly average of 18.07 publications for all academicians and an average of only 4.4 publications for each SoB academician. Individual productivity analysis shows Dr. Hawa Tundui as the top-ranking academician with 20 publications. The distribution of citations for SoB academicians has Dr. Ernest Mwasalwiba ranking the first with 924 citations. The authorship pattern at SoB was dominated by single-authored publications 100 (40%) followed by two-authored publications 87 (34%) with an average of 0.49 degree of collaboration. Subject-wise distribution reveals that SoB academic staff are more interested in writing on Small and Medium Enterprises (SMEs) and business area. With regard to the journal of preference, most of the SoB scholars prefer to publish in the Uongozi Journal of Management and Development Dynamics (UJMDD). This bibliometrics analysis was limited to SoB. Other studies should cover all MU schools, faculties, directorates and other campuses. To improve growth of research and publications at MU, collaborations in research and publications; formulating a friendly and favourable research policy; awareness creation about online research platforms such as registering on Google Scholar among MU academicians, Research Gate and ORCID among others and capacity building in publishing skills are highly recommended. This is the first time a bibliometrics analysis has been conducted to determine research productivity at MU and which covered a field of business in Tanzania.

**Key words:** *research productivity, bibliometric analysis, publications, academicians, distribution of citations, authorship pattern, degree of collaboration, metrics, business school, Mzumbe University, Tanzania.*

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1 BSc-LIM Student, Mzumbe University, E-mail: [adamhassan246@gmail.com](mailto:adamhassan246@gmail.com)

2 Electronic resources Librarian, Department of Library and Information Management, E-mail: [goodluck.mosha@mu.ac.tz](mailto:goodluck.mosha@mu.ac.tz)

3 Librarian, Department of Library and Information Science Management, E-mails: [peter.siyao@mu.ac.tz](mailto:peter.siyao@mu.ac.tz) & [siyaopeter@yahoo.com](mailto:siyaopeter@yahoo.com) (Corresponding Author)

## 1. Introduction

Bibliometrics analysis has become a tool for assessing research and scientific publications worldwide (Zyoud, et al., 2014; Bramness et al., 2014). The tool is frequently used in the field of library and information science to provide a quantitative analysis of academic literature (Sife and Kipanyula, 2016) and to measure the research productivity of academicians in their disciplines of study (Islam and Widen, 2021). Studies by other scholars (e.g. Wei, 2019; Hodgson and Lamberg, 2016; and Olczyk, 2016) have shown that bibliometric analysis has the potential of providing valuable insights into academic research as well as on economics. It can also be used in measuring the coverage and quality of scientific publications and thus helping in library collection development. It empowers librarians to make vital decisions for selecting journals and other scientific publications for the subscription in the library within the limited budget granted (Satpathy, Maharana and Das, 2014). Other scholars like de Oliveira et al. (2016) are of the views that bibliometric analysis allows knowledge development about the impact of the particular research area, the influence of research group or institution, the scientific impact of publication or academic results of the quantitative research.

Furthermore, Chuang et al. (2011), Sife & Lwoga (2014) and Lukwale & Sife (2017) report that the bibliometric analysis is an important tool for evaluating the research performance of individuals, groups, institutions and countries by analysing quantitative and qualitative aspects of publications, measuring statistical patterns in variables such as authorship, sources, subjects coverage, geographical origins, and citations of scholarly works which can further become an essential step to understand the strength of research activities, identify priority areas and uncover those areas that are less researched by scientists. Angamma & Jayatissa (2015) point out that bibliometric analysis can also be used for forecasting the potential of a particular field through considering a number of research performance indicators such as H-index, G-index, Hc-index and HI-norm and the frequency of their citations.

In Africa, there has been an unprecedented growth of bibliometric studies for measuring research productivity in various fields (Jabeen et al., 2015) to give insights into the growth of literature and the flow of knowledge within a specific field of research by identifying the trends and patterns of publications, authorship, citations and journal coverage of academician works (Gudodagi 2014; Chuang et al., 2011). In Tanzania, a bibliometric technique can be used in the evaluation of research productivity and impact of researchers in a particular discipline which is an essential step to understand the strength of research activities, identify priority areas and uncover those areas that are less researched (Sife & Mataba, 2021). This is vital because it helps to know the real worth of research investments and it can also be used as a criterion in ranking universities and research institutions within the country (Sife & Kipanyula, 2016). Fu et al. (2011) as well as Bozeman, Fay and Slade (2012) add that bibliometric analysis is an important tool in analyzing the quantitative and qualitative aspects of publications to measure research productivity trends and output within a given topic such as business studies in the institution or a country which in turn may enable scientists and academicians to receive professional recognition, respect,

promotion, and funding for future research. de Battisti and Salini (2013) are of the view that bibliometric analysis of research output from a particular country is an image of its research activity and its current economic, developmental and health status.

However, a review of the literature indicates that bibliometric analysis in Tanzania has no space in the extant literature in the fields of business such as accountancy, procurement, marketing, finance, and entrepreneurship which are one of the areas of specialization of Mzumbe University since its inception in the year 2000. The available studies have focused on other discipline of studies such as Forestry (Sife et al., 2013); Traditional Medicine (Lwoga & Sife, 2013); Librarianship (Sife & Lwoga, 2014); Medicine (Lwoga & Sife, 2014); Veterinary (Sife & Kipanyula, 2016); Computer Science (Marwa, Sangeda & Lwoga, 2017); Climate Change (Lukwale & Sife, 2017); E-resources Usage (Mallya & Sife, 2017); Pharmacy (Lwoga, Sangeda & Sife, 2017), Agricultural Science (Mnzava & Chirwa, 2019); and Co-operative studies (Sife & Mataba, 2021). Furthermore, at Mzumbe University, there is little awareness on issues related to bibliometrics and citation analysis which in turn has resulted into having very few scholarly published works on online platforms where they can not be easily cited. This study, therefore, aimed at determining the research productivity of the SoB academicians at Mzumbe University from 2007 to 2020. Specifically, it aimed to examine the growth of SoB literature, determine the productivity of individual SoB academicians, determine the distribution of citations of the SoB academic staff, examine the authorship patterns and degree of collaboration of SoB scholarly works at Mzumbe University, determine the subject-wise distribution of SoB publications, and assess journals of preference by SoB academicians.

## **2.Literature Review**

### ***2.1 Concept of Research Productivity***

Research productivity is the number of publications per researcher, group or institution. Aksnes et al. (2019) opine that research productivity is indicated by the number of publications produced in a given period and citation counts meaning how many times the publications have been cited by other authors or a combination of other several indicators such as H-index, G-index and H1-norm index. A written work is the most important visible proof of research productivity which shows the scholarly impacts that enhance the understanding of the growth and development of research. Research productivity is determined by using bibliometric indicators, that is, using data collection tool called Publish or Perish (PoP) which uses Google Scholar to retrieve those relevant data.

### ***2.2 Importance of Bibliometrics Study***

Bibliometrics is treated as a branch of Library and Information Science (LIS) with the application of mathematics and statistics to analyze bibliographic information of publications (Islam & Widen, 2021). It is a research method used for analysing and measuring research productivity trends and output ( Marx et al., 2014). Bibliometrics analysis is the greatest tool in evaluating and tracking the impact of published research and assisting a researcher or institution to identify journals with the highest impact factor in a research area and

support applications for promotion, tenure and grant funding. According to Harinarayana and Raju (2012) and Sife & Kipanyula (2016), bibliometrics techniques are used by research and higher learning institutions to support decision-making processes such as recruitment, rewards giving, workload and resource allocations, collection development, assessing the quality of a particular work, person, or group as well as providing valid results useful for decision-making and identifying the age of literature as well as the relative status of individuals, departments and institutions. Matcharashvili et al. (2014) reveal that bibliometrics analysis is a crucial tool for evaluating research performance of the country and helps governmental decision makers to build long-term strategic plans, answer questions about which research directions should be built in future or which ongoing research activity should be supported in accordance with the economic and political objectives of a country as well as understanding the country's position relative to global and domestic standards of research quality and production. Harinarayana and Raju (2012) reports that bibliometrics analysis is mostly used because it is relatively inexpensive in terms of time, money, effort and scalability which can be applied from a micro level, i.e., individual research or institute or to a macro level, i.e., country or world and provides valid results useful for decision-making.

### ***2.3 Research and Publication in Higher Learning Institutions (HLIs) in Tanzania***

Research and publications are an important component in HLIs' daily life as it is used for promotion, professional recognition, rewards, and for ranking universities as well. Academicians and researchers are publishing to adhere to their institutions and Tanzania Commission for Universities (TCU, 2019) requirements. Others publish to contribute to the body of literature and knowledge for the development of individual scientists (Sife & Kipanyula, 2016). Research and publications are currently becoming critical and a necessary driving gear for institution/university growth and development as well as the nation at large. TCU standard and guidelines (2019) emphasise that university academic staff should do research or embark on innovation for ensuring greater productivity, competitiveness, and relevance to society and the national development agenda.

According to TCU (2019: 5.11), conducting research is one of university academic staff duties. Every university shall participate in incubating research and innovation outputs and outcomes for better results. These results should have an impact to the society as well as encouraging innovation of products, solutions or services as equivalent to publication requirements for promotions and other purposes. Thus, Tanzanian universities are required to undertake an evaluation of academic staff publications for seeking promotion according to institutional criteria of the respective university as aligned to the Commission's Standards and Guidelines.

Additionally, TCU (2019:5.17) emphasises and encourages academic staff to collaborate in research and publish the research articles in journals with the highest scholarly standards to enhance the academic reputation of their respective universities. Furthermore, TCU (2019) suggests that every university should evaluate and weigh publications on a point scale based on subject matter coverage, originality, presentation, contribution to knowledge, relevance to the academic discipline and overall quality. Generally, university research and

publications are not only important entities in the sustainability, development and growth of universities and countries, but they also generate a new body of knowledge and create enterprises based on innovations.

#### ***2.4 Growth of Literature***

The growth of literature is an increase in publications or research output of an individual or a certain institutions/organization which is revealed by using the bibliometric analysis method by retrieving all online publications for understanding the impacts of the researchers. Availability of online scholarly works helps to make researchers' works and publications more visible to people and thus may increase citations. Egghe et al. (2013) opine that an online published paper has a greater chance of becoming highly cited whenever it has more visibility. On the other hand, the non-availability of publications online may have a drastic effect on research productivity. Research productivity is said to be efficient when all scholar's research works and publications are available online. Thus, registration of scholars in online platforms such as Google Scholar, ORCID, Research Gate, Publons, and many others are of paramount importance.

A study conducted by Lwoga & Sife (2013) indicates that there was an increase in the rate of publication in East Africa in the year 2010. Another study conducted by Song and Zhao (2013) indicates that the number of articles published in the year 2013 had a stable annual growth rate. Baby and Kumaravel (2012) indicate the growth of research of Periyar University faculties in India during 1998–2010 in which the growth of research increased progressively from a single article in 1998 to over 100 articles in 2010. This growth in publications in academic institutions may have been resulted from amendments and review of the publications policy (Sahoo et al., 2015). On the other hand, Chen et al. (2010) indicate that the low growth of publication at the Western Kentucky University was caused by heavy teaching loads, poor collaboration in publications, and inadequacy of publications skills. This is similar to a study conducted by Sife and Lwoga (2014) who reported that there is low growth of research and publications in East Africa universities particularly in Tanzania HLIs which was probably caused by poor paper quality, lack of publication skills and low level of teamwork among Tanzanian scholars.

#### ***2.5 Individual Productivity in Research and Publications***

Costas, Leeuwen & Bordons (2010) opine that individual productivity is the growth of publications per author in a given period which increases the value of outputs produced by the author over a given period of time. Research productivity becomes a norm in bibliometrics that is an essential indicator of efficiency in any company, institution or country that is measured by the number of publications per researcher, distinguishing it from impact (Costas et al., 2010). Annibaldi et al. (2010) note that writing and publishing scientific papers is a function of many factors including the institution where the author works, studies, interest in writing, authors' researcher skills and talents among others. The studies by Sife, Benard & Ernest (2013) and Lwoga & Sife (2013) indicate that

there is low individual productivity in Tanzania which is manifested by few published articles and less productive authors. These findings agree with Lotka's Law of Scientific Productivity which postulates that large proportions of authors tend to produce relatively few articles, with the majority of productions being made by a small number of scholars (Lotka, 1926). This is contrary to a study by Baby and Kumaravel (2012) who report about the individual productivity of Periyar University faculty scholars that they are more productive where the majority published many articles and few scholars published a few publications. Observations by (Adigwe, 2016) have shown that the growth of many scholars in developing countries has been low compared to developed countries because of the favourable scientific research environment that characterized these countries.

The studies conducted by Copes et al. (2012) and Amara, Landry & Halilem (2015) note that senior academic staff are more productive compared to junior scholars because of their experiences in research and publications which enable them to publish frequently. Furthermore, senior staff can publish more frequently than juniours because they have an opportunity of supervising postgraduate students whom they can publish together. On the other hand, if junior scholars are not mentored by seniors in publishing, they remain unproductive (Chen et al., 2010). Sife & Lwoga (2014) report that junior academicians in Tanzania are not productive in research and publications because they lack publishing skills and they are not also properly mentored by seniors.

### ***2.6 Distribution of Citations of Scholars***

According to Aksnes, Langfeldt & Wouters (2019), citations in scientific work is a core indicator in research productivity that shows the impacts of the research or its quality. It is an indicator that is used in the evaluation of the scientific performance of an individual, research groups, departments and institutions and the usefulness of scholars' research and publications (Forsythe et al., 2019). Based on PoP citation metrics, there are five types of citations namely: total citation (TC) which measures the total impact of the publications; citations per paper (CPP) that measures the average number of citations a paper receives; citations per year (CPY) which is calculated by dividing the total number of citations by the total number of years the author has published, and this assesses the yearly impact of an author; citations per author (CPA) which is calculated by dividing the citation counts for each paper by the number of authors for that paper, and this gives a good picture of the author's impact; and citation counts (CC) depending on the number of publications per author plus other factors such as the visibility of journals where one publishes, quality of publications, author's integration into scientific networks, age of publications, the size of the scientific community and the topic or subject which is published (Lwoga & Sife, 2013).

### ***2.7 Authorship Pattern and Degree of Collaboration in Research and Publications***

There is an abundant evidence that research collaboration has become the norm in every field of scientific and technical research (Bozeman, Fay & Slade, 2012). Authorship patterns involve collaboration among scholars in writing or inventing publication work.

The starting point in an authorship study is to select a group of authors per publication and may include multiple authors such as two, three, four, five or more than five per one publication. The authorship pattern facilitates the bibliometrics analysis to find out the collaboration among researchers of a specified institution or country. Authors like Sife & Lwoga (2014) in their study report that there is an increasing trend in collaborative research and publication among scholars across the world which in turn has increased an author's productivity (Adigwe, 2016). The findings from this study indicate that more than half of the publications were multiple-authored with nearly one-third of the publications being contributed by three joint authors and the ratio of teamwork was higher than that of sole work. On the other hand, Onyancha (2007) and Ocholla et al. (2012) report that academicians from Africa do not prefer publishing works and doing research collaboratively. The majority of research articles from journals in Africa are dominated by single-authored publications followed by double-authored and triple authored articles which is an indication of a low level of research collaborations among scholars in this part of the world. Nevertheless, the authorship pattern shows that the research output of the authors worldwide is fairly collaborative. This means that the number of multiple-authored articles exceeds the number of single-authored articles, thus there is a higher degree of collaboration (Alanazi, Baladi & Ul Haq, 2018).

### ***2.8 Subject-wise Distribution in Research and Publications***

The subject-wise distribution looks at the area or topics that have been more researched or written by different scholars. The subject literature analysis lies in the fact that it contributes to the understanding of that subject and it further provides a critical comparison of different areas or topics where a researcher can contribute in terms of publications. A study by Pedraza (2021) reports that Small and Medium Enterprises (SMEs) and business research are the most researched area by scholars. These subjects are considered to be attractive and emerging new topics which help to provide greater awareness, skills, and knowledge on how to introduce new small businesses, products, markets or how to be an entrepreneur. Other studies have been conducted in other fields to indicate the subject-wise distribution of research and publications in journals. For example, the studies by Thanuskodi (2010) and Hussain and Swain (2011) show that issues related to libraries and the internet were the most researched subject while that of Edewor (2013) indicates information technology ranked the highest. The study conducted by Forsythe et al. (2019) reveals that Library and Information Communication and Technology (ICT) had more publications followed by general librarianship, library user education and library statistics while social media ranked the least among the researched area. This may be attributed to the fact that every field of human being depends on the application of ICT.

### ***2.9 Journals of Preference in Research***

Journal of preference is a selection or choice of authors in publishing scientific works. Scholars strive to publish their research ideas, thoughts and innovations in quality journals to influence societal change and make positive contributions in their fields of endeavour. There are two kinds of journals preference to publish researchers' work; that is local and

international journals. The quality of the journal is facilitated by its visibility, accessibility and coverage which make researchers to choose the most preferred and qualified journals to publish their works (Adjei & Owusu-Ansah, 2016). Scholars prefer to publish their research idea into quality and visible journals for people to know their extent in publishing such as the number of research and publications produced, author research quality and the number of citations scored. Therefore, the journal of preference is one of the core parts of doing bibliometric analysis. Academicians and administrators have attempted to rank journals based on some hierarchy of quality. Despite several years of debates, there is still no universally accepted journal rank, but several journals have earned the distinction of consistently making the list of high-quality journals compiled by various authors. For example, Chan et al. (2013) identify the Journal of Finance as the leading finance journal. Several other studies such as Cooley and Heck (2005) also include the Journal of Finance among their list of top five finance journals in addition to demonstrating substantial consistency for other top journals. Sangeda & Lwoga (2017) reported the distribution of articles in journals of preference. The findings in this study showed that most Tanzanian researchers published their works in journals that covered the field of medical sciences, which was followed by agricultural journals. A study by Lancaster (1982) reports that many academicians in developing countries prefer to publish in foreign journals rather than in their native journals for the sake of prestige and recognition.

### **3. Methodology**

This study employed a cross-sectional research design using both qualitative and quantitative research approaches to permit the analysis and output to complement each other to reach the desired conclusions. The population for this study comprised all academic staff affiliated to SoB at Mzumbe University from 2007 to 2020. The selection criteria include: firstly the names of the authors listed in the MU website as SoB academic staff member either present, shifted to another institution or retired, and secondly, authors have authored or co-authored at least one publication either in a form of journal articles, book chapters, book reviews or conference papers. The bibliometrics analysis focused on publications and citations available online only which could be retrieved using the Google scholar platform. The publications and citations that were not online when this study was conducted were not included in this study.

Census and purposive sampling techniques were used to select SoB academic staff members for this study. The census sampling method is a statistical enumeration where all units or members of the population are involved in the study. Bailey (1994) cited by Lwoga & Sife (2014) recommends that when the study population is small, all items of the population should be involved in the study. Thus all 58 academic staff members in SoB were involved in this study. The rationale for choosing a census sampling technique is its suitability for a small population, it covers all items without any element of chance left out and the highest accurate findings are obtained. Furthermore, under the census investigations, the intensive study is conducted as every unit of the population is covered and therefore it unbiasedly leads to obtaining reliable data and with negligible error. Purposive sampling was employed in this study to select the cases that deliberately provided important information that cannot

be obtained from other choices as suggested by (Taherdoost, 2016).

Quantitative data for this study were collected through PoP software using (<http://scholar.google.com>) that relies on raw data from Google Scholar to establish author citation and impact analysis which measures the impact of publications over a given period of time (Harzing, 2007). PoP is a software that retrieves and analyses academic citations (Sangeda & Lwoga, 2017). It uses Google Scholar which is a free online search engine for scientific and scholarly literature and serves as a data source for bibliometric analysis. Compared to Web of Science and Scopus, Google Scholar has two key advantages. One advantage is that Google Scholar is freely available. No subscription is required. The other advantage is that Google Scholar offers a more comprehensive coverage of scientific and scholarly literature (Waltman & Noyons, 2018). PoP also provides important metrics for research output such as total number of papers, total number of citations, h-index, g-index, HI-norm index, h-annual, count and ratio of cites per years, cites per author, cites per paper, papers per author, therefore, becoming a potential tool for evaluating the research performance through measuring and tracking the impacts of published scientific publications that enhance the international reputation of individual, institution or country (Lukwale & Sife, 2017). To collect data through PoP, the following procedures were followed:

- i. Using Google Scholar address: (<http://scholar.google.com>) click was made on the
- ii. “profile of the author” link at the top of the page to get the account set up to start;
- iii. Google Scholar would provide the groups of articles that belong to the author;
- iv. Selection of articles that belong to the author was made; and
- v. If articles were not seen, more searches were made.

The procedures enabled us to retrieve 253 publications, citations and other metrics such as h-index, g-index, Hc-index and HI-norm index for 58 SoB academic staff from Mzumbo University. Google scholar was used to obtain publication details such as author’s name, year of publication, citations, subject area, document type, keyword, affiliation, publication type, journal name, issue number and volume. Qualitative data from 10 purposefully selected SoB academic staff members were collected through interviews. Quantitative data were analysed using MS Excel spread sheet whereas Qualitative data were analysed using the content analysis method.

## **4. Findings and Discussion of the Results**

### **4.1 Distribution of Respondents**

A total of 58 academic staff members from SoB were involved in this study. A total of 34.5% of respondents had a google scholar account and publication, 31% were not registered in google scholar profile but they had publications online whereas 34.5% of respondents neither had google scholar profile nor online publications (Table1). This implies that more than a quarter of respondents may have published only in print journals and books and they may also not yet understand the importance of publishing in open access and online journals.

**Table 1:** (N=58)

S/n	Category of Responses	Frequency	%
1	SoB Staff with Google Profile & Publications	20	34.5
2	SoB staff without google profile but have publications online	18	31.0
3	Staff with neither google profile nor publications	20	34.5
<b>Grand Total</b>		<b>58</b>	<b>100</b>

**Source:** *Field Data 2021*

#### 4.2 Demographic Profile of Respondents

The findings show that the majority (79.3%) of the respondents were male, while there were only (20.7%) females (Table 2). These findings suggest that there is gender imbalance employment in SoB at Mzumbe University.

**Table 2:** *Demographic Profile of Respondents*

S/n	Rank	Males	%	Females	%	Total
1	Professors	0	0	0	0	0
2	Associate Professors	3	5.17	1	1.7	4
3	Senior Lecturers	8	13.9	3	5.2	11
4	Lecturers	17	29.3	3	5.2	20
5	Assistant Lecturers	17	29.3	4	6.9	21
6	Turtorial Assistants	1	1.7	1	1.7	2
<b>Total</b>		<b>46</b>	<b>79.3</b>	<b>12</b>	<b>20.7</b>	<b>58</b>

**Source:** *Field Data 2021*

The findings in Table 2 indicate that SoB has no academic staff in the rank of full professor. The majority of respondents were in the rank of Assistant Lecturers and Lecturers and a few Associate Professors. Few Associate Professors and Senior Lecturers may be associated with the lack of publishing culture which may hinder SoB academic staff to get promotions for higher academic ranks. Furthermore, the Mzumbe University Academic Staff Scheme of Services (2019) mandates academic staff to publish for promotions as well as for the University visibility.

An in-depth interview with the Dean of SoB yielded the following remarks:

...There are very few Senior Lecturers at SoB. This might be contributed by the fact that SoB academicians are not publishing enough articles, books or book chapters with reputable publishers so as they can qualify for promotions to the senior academic ranks (Dean SoB, Mzumbe University, June, 2021).

In another interview, one SoB senior lecturer gave his views in a lamenting manner

as follows:

... DRPS is not doing what it is supposed to be doing. To my understanding, DRPS is supposed to promote and coordinate sustainable research, insisting on publications and innovation culture within the university. This is not properly done, thus one should not expect academic staff to have a culture of publishing (SoB Senior Lecturer, June, 2021).

These findings are similar to those of Jung (2012) who notes that academic staff fail to publish because of lacking a publishing culture. He further adds that the time for teaching versus for research and heavy workload, poor research policies and lack of financial incentives for conducting research affect self-publishing determinations.

### ***4.3 Growth of SoB Literature for the Period between 2007 and 2020***

Findings in Figure 1 depict that 58 SoB academic staff members published a total of 253 publications during the span of 14 years from 2007 to 2020. This gives a yearly average of 18 publications for all academic members, 4.4 publications for each academic staff for all 14 years and a yearly average of only 0.3 publications for each academic staff. The year-wise distribution of SoB publications shows that the highest number of research output was 34 (13.0%) published in the years 2018 and 2019, followed by the years 2016 and 2020 which had 25 (10%) publications. On the other hand, the year 2014 had a total of 24 (9.0%) publications whereas the years 2008, 2009, 2010 and 2011 recorded the lowest number of research outputs with single-digit publications and the year 2007 had zero 0 (0%) publication. The findings indicate that the most productive years within the fourteen years were 2018, 2019 followed by 2016 and 2010. The findings in this study imply that although publications were produced every year, the trend does not show a consistent growth pattern within the fourteen years of the study period. Such a trend of publication might be attributed by the unreliable availability of research funds which are often obtained through donor support. It could also be because of the prolonged manuscripts publishing process. Most of the reputable journals take a long time to publish articles, similarly, such journals may also have very few publication frequencies that is twice or thrice per year.

Furthermore, findings show that there were very few publications at SoB during the years 2007, 2008, 2009, 2010 and 2011. An interview with the Head of Research and Publication at the DRPS yielded that:

...A low trend of publications at Mzumbe University could be attributed to various factors including lack of motivation in publishing, shortage of research funds, and a small number of academic staff with PhD who could assume a role of mentoring junior staff in research and publications. From 2007 to 2011, Mzumbe University was at its infant stage because it had only 4 years since it became a full-fledged University from the then Institute of Development and Development (IDM). This also had a negative impact on the growth of publications because before IDM was promoted to a full-fledged Mzumbe University, promotions were based on seniority or number of years served, and very little attention was paid into publications (DRPS- Head of Research and Publications, June, 2021).

In another in-depth interview with the DRPS Head of Research and Publications as to why there was a low growth of publications within four consecutive years, the said head of department provided the following remarks:

... Google scholar started to operate officially in 2004, the time when MU had only three years since it became a full-fledged university. At that time, no one had an idea of registering into the online research platforms for citation purposes. As a result, most of the MU publications were on offline platforms and no way they could be cited. It is only in 2020, the DRPS announced that every MU academic staff should register in google scholar, and in other platforms such as Research Gate and ORCID which can track and record authors citations (DRPS – Head of Research & Publications, June, 2021).

These findings are similar to that of Powers et al. (1998) who report that the low growth of publications is caused by a lack of awareness by academicians on the existence of online research platforms where they can publish their works for citations and visibility. In other two in-depth interviews with SoB academic staff concerning the low growth of research productivity, the responses were as follows:

...It is true that growth of SoB research and publications was very low from 2007 to 2011 because at that time most of the academic staff were lacking publishing skills, which resulted in the production of poor papers which in turn were not accepted in international and local journals. There was also lack of institutional motivations in publishing. These were worsened by an acute shortage of academic staff, which make the existing academic staff to have very heavy teaching workloads and therefore lacking ample time to engage themselves in publications (SoB Senior Lecturer, June, 2021).

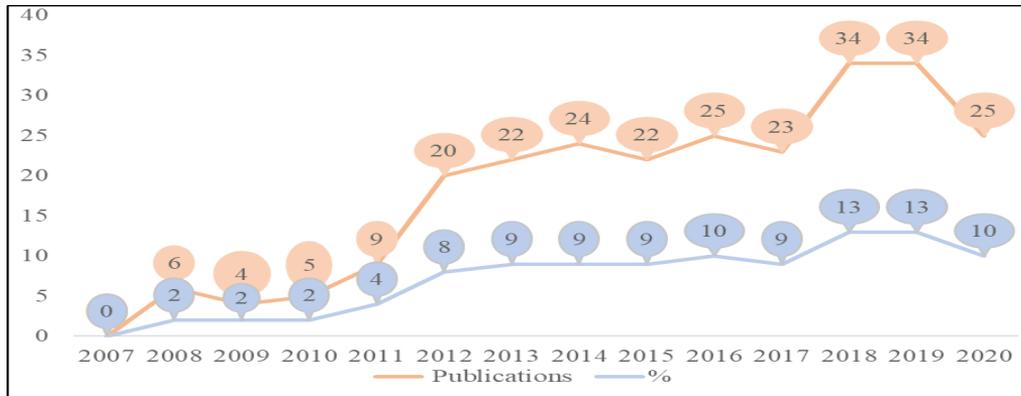
In an in-depth interview with one of the junior academic staff, the following responses were given:

...We lack appropriate mentorship from senior academic staff, which may result in the production of publications of dubious quality which cannot be accepted for publication in reputable journals (SoB Junior Lecturer, June 2021).

These findings are in conformity with that of Chen et al. (2010) and Sife & Lwoga (2014) who report that the low growth of publications in universities is a result of heavy teaching work loads, poor collaboration in publications, and lack of publications skills.

In the years 2012-2020, there was a steady growth of SoB publications from a single-digit in 2008-2011 to double-digit in the year 2012, and 2018, and 2019 became the most productive years with 34 (13%) publications which was probably due to the awareness created to the SoB academicians on the need of doing research and publications. According to TCU (2019) standards and regulations, for academicians to get promotion, they must publish. The presence of a favourable publishing environment and the institution's amendment of its publication policy which insists that academic staff should be instrumental in doing research and publishing led to the steady publication growth of SoB academic members of

staff in that particular period. This is in similarity with Sahoo et al. (2015) who found that the growth in publications in academic institutions is the result of amendments and review of publication policy.



**Figure 1:** SoB Publication Growth Trend 2007 – 2020

**Source:** Google Scholar 2021

During an interview with the DRPS Director, the following remarks were recorded:

...The University amended its Research and Publication Policy in 2010. The amendment was in line with setting aside funds to promote research and publication. The University also improved ICT infrastructure and the University library started subscribing to e-resources which enabled lecturers to access more resources. Financial incentives were also provided to the academic staff who managed to publish their journal articles, book chapters and books. Prize giving and publications recognitions were provided during convocation meetings. These strategies acted as an impetus in stimulating publications at Mzumbe University (DRPS Director, June, 2021).

These findings are similar to that of Lwoga & Sife (2013) who reported that there was an increase in the rate of publication in East Africa during the 2010s which was associated with advancement and improvement in ICT infrastructure in the higher learning institutions.

#### **4.4 SoB Senior Lecturers Research Publication Productivity**

The analysis of individual productivity for SoB senior lecturers involved examining the prevailing trend in carrying out research based on the number of publications (Table 3). Results indicate that Dr. Hawa Tundui ranked number one with the highest number of publications (20) in that study period. Dr. Nsubi Isaga with 13 publications ranked number four followed by Dr. Cosmas Mbogela, Prof. Geraldine Rasheli and Prof. Harun Mapesa who ranked number five with a total of 11 publications each. Dr. Gabriel Komba had 10 publications, whereas Dr. Ernest Mwasalwiba, Dr. Kato Mushumbushi, Dr. Robert Makorere and Dr. Leornida Mwangike who had 8 publications each and the rest had the lowest number of publications.

**Table 3: Senior Lecturers Publication Productivity at SoB**

<i>N</i>	Name of Author	Academic Ranks	Total Publications	Overall Rank	Single Author	Collaboration	Papers_Author	Authors_Paper
1	H. Tundui	Senior Lecturer	20	1	5	15	10.3	2.2
2	N. Isaga	Senior Lecturer	13	4	7	6	9.1	1.8
3	C. Mbogela	Senior Lecturer	11	5	7	4	9	1.4
4	G. Rasheli	Associate Prof.	11	5	5	6	7.3	1.9
5	H. Mapesa	Associate Prof.	11	5	4	7	6.8	2.2
6	G Komba	Senior Lecturer	10	6	4	6	6.5	1.9
7	J. Kikula	Senior Lecturer	9	7	2	7	5.5	1.9
8	E. Mwasalwiba	Senior Lecturer	8	8	3	5	4.7	2.3
9	M. Kato	Senior Lecturer	8	8	0	8	4	2.3
10	R. Makorere	Senior Lecturer	8	8	4	4	5.8	1.6
11	L Mwangike	Senior Lecturer	8	8	1	7	4	2.3
12	N. Mrope	Senior Lecturer	7	9	3	4	4.2	2.4
13	G. Nyamsogoro	Associate Prof.	6	10	3	3	4.5	1.5
14	E. Kihanga	Associate Prof.	5	11	1	4	2.1	3.2
15	D. Meela	Senior Lecturer	3	13	2	1	2.5	1.3
<b>Total</b>			<b>138</b>		<b>51</b>	<b>87</b>		

**Source:** *Google Scholar 2021*

The results imply that the most prolific authors were Dr. Hawa Tundui, Dr. Nsubi Isaga and Dr. Cosmas Mbogela. In normal circumstances, one could expect the Associate Professors to take a lead in publications, but this was not the case. This may be associated with the assumption that maybe their publications are in print books and journals or they were not registered in the online research platforms such as Google Scholar, Research Gate and ORCID until recently and maybe they were also overwhelmed by administrative responsibilities at the university. This is contrary to the study by Amara, Landry & Halilem (2015) who note that senior academic staff members are supposed to be publishing frequently because of their experiences in research and that they are supervising postgraduate students from whom they can publish together.

#### **4.5 Lecturers Publication Productivity at SoB**

Findings in Table 4 portray the ranking of lecturers productivity by the number of publications they attained. Dr. Emmanuel Chao ranked number two with a total number of 19 publications, followed by Dr. Erasmus Kipesha who ranked number three with 14 publications and Dr. Arbogast Musabila who ranked number six with 10 publications, while the rest had the lowest number of publications or they had no publications on online platforms at all when this study was conducted.

**Table 4 : Lecturers Publication Productivity at SoB**

S/N	Author	Academic Ranks	Total Publications	Overall Rank	Single Author	Collaboration	Paper per Author	Authors per Paper
1	E. Chao	Lecturer	19	2	13	6	15.8	1.4
2	E. Kipesha	Lecturer	14	3	8	6	11	1.4
3	A. Musabila	Lecturer	10	6	1	9	4.1	3
4	N. Tutuba	Lecturer	8	8	0	8	3	2.8
5	D. Kibona	Lecturer	7	9	2	5	4	2.4
6	B. Maligwa	Lecturer	6	10	2	4	3.3	2.3
7	J. Moshi	Lecturer	5	11	2	3	3.03	2.4
8	P. Nsimbila	Lecturer	5	11	1	4	2.8	2
9	J. Swai	Lecturer	4	12	0	4	2	2
10	G. Mofulu	Lecturer	3	13	2	1	2.3	1.7
11	E. Makoye	Lecturer	3	13	2	1	1.8	2
12	M. Maziku	Lecturer	3	13	2	1	1.3	2
13	J. Kiria	Lecturer	2	14	1	1	2	1
14	A. Maziku	Lecturer	1	15	1	0	0.2	6
15	J. Myava	Lecturer	1	15	1	0	1	1
16	A. Mwakibete	Lecturer	0	0	0	0	0	0
17	M. Mohamed	Lecturer	0	0	0	0	0	0
18	J. Muhimila	Lecturer	0	0	0	0	0	0
29	J. Mnzava	Lecturer	0	0	0	0	0	0
20	P. Daudi	Lecturer	0	0	0	0	0	0
<b>Total</b>			<b>91</b>		<b>38</b>	<b>53</b>	<b>57.63</b>	<b>34.4</b>

**Source:** Google Scholar 2021

Furthermore, results indicate that Dr. Emmanuel Chao is the most productive author in the category of Lecturers at SoB with 19 publications. Dr. Erasmus Kipesha is ranked the second with 14 publications, followed by Dr. Arbogast Musabila with a total of 10 publications. The majority of lecturers had a low number of publications (single-digit publication), while others had no publications. The findings suggest that the scholars with zero publications for the study period might be that their publications were offline by the time when this study was conducted.

#### **4.6 Junior Staff Publication Productivity at SoB**

Findings indicate that Dr. Jasinta Msamula had 9 publications produced collaboratively

which made her ranked number one in the category of assistant lecturers. Mr. Emmanuel Akili had a total of 4 publications and the other two authors that is Mr. Muhamed Suleiman and Mr. Baraka Kambi had three 3 publications each. Three authors published the lowest number of publications with only 1 publication each, while the other 16 junior staff had no publication on online platforms at all (Table 5).

**Table 5: Junior Staff Publication Productivity at SoB**

S/N	Name of Author	Academic Ranks	Total Publications	Overall Rank	Single Author	Collaboration	Papers_Author	Authors_Paper
1	J. Msamula	Ass. Lecturer	9	7	0	9	3.1	3
2	E. Akili	Ass. Lecturer	4	12	3	1	3.2	2.3
3	M. Suleiman	Ass. Lecturer	3	13	2	1	2.5	1.3
4	B. Kambi	Ass. Lecturer	3	13	2	1	2.5	1.3
5	K. Willium	Ass. Lecturer	2	14	1	1	2	1
6	N. Masawe	Ass. Lecturer	1	15	1	0	1	1
7	P. Pascoe	Ass. Lecturer	1	15	1	0	1	1
8	S. Kitilla	Ass. Lecturer	1	15	1	0	1	1
9	M. Severin	Ass. Lecturer	0	0	0	0	0	0
10	F. Rilagonya	Ass. Lecturer	0	0	0	0	0	0
11	R. Muhabe	Ass. Lecturer	0	0	0	0	0	0
12	A. Msuya	Ass. Lecturer	0	0	0	0	0	0
13	O. Msaki	Ass. Lecturer	0	0	0	0	0	0
14	H. Kipangula	Ass. Lecturer	0	0	0	0	0	0
15	E. Mtui	Ass. Lecturer	0	0	0	0	0	0
16	H. Mhiche	Ass. Lecturer	0	0	0	0	0	0
17	M. Marco	Ass. Lecturer	0	0	0	0	0	0
18	M. Hudson	Ass. Lecturer	0	0	0	0	0	0
19	J. Katekere	Ass. Lecturer	0	0	0	0	0	0
20	D. Njovu	Ass. Lecturer	0	0	0	0	0	0
21	S. Juma	Ass. Lecturer	0	0	0	0	0	0
22	A. Seega	T. Assistant	0	0	0	0	0	0
23	K. Mwita	T. Assistant	0	0	0	0	0	0
<b>Total</b>			<b>24</b>	<b>11</b>	<b>13</b>			

**Source:** Google Scholar 2021

These findings suggest that SoB junior lecturers were not productive at all. This could be attributed with the lack of appropriate mentorship from senior lecturers. This corroborates the study by Chen et al. (2010) who finds out that when junior lecturers are not mentored by seniors, they become unproductive in publication and research. In one of the in-depth

interviews with junior academic staff at SoB, the following remarks were obtained:

... We junior lecturers do not have publications because we lack appropriate mentorship and guidance from senior lecturers. The senior lecturers are not ready to team up with juniors in writing up projects, research and in publishing journal articles collaboratively ( SoB Junior Lecturer, June, 2021).

#### **4.7 *Single-authored Publications***

This section intended to identify SoB academicians who published papers individually. Findings indicate that Dr. Emmanuel Chao ranked the first position by publishing a total of 13 papers individually, followed by Dr. Erasmus Kipesha who had eight papers, Dr. Nsubili Isaga and Dr. Cosmas Mbongela took the third position with only seven single-authored publications each. Dr. Arbogast Musabila and Dr. Leonarda Mwangike had only one publication published individually (Table 3 & 4).

These findings suggest that academicians with many single-author publications at SoB might be those with good research and publications skills and talents in paper writing. This is similar to what Annibaldi et al.(2010) who noted that writing and publishing scientific papers individually is a function of many factors including the institution where the author studies, interest in writing, the ability and talent of the researcher. Single-author publishing in higher learning institutions in Tanzania may also be influenced by both the government harmonised scheme of service for academics and the Mzumbe University for 2015. In those schemes, more points are awarded for single-authored works when it comes to promotion. For instance, these schemes award one point for a peer-reviewed journal article paper for a single author (MU Scheme of Service for Academic Staff, 2015; URT, 2014).

#### **4.8 *Collaborative Publications***

Findings show that Dr. Hawa Tundui ranked number one with 15 collaborative papers, followed by Dr. Jansita Msamula and Dr. Arbogast Musabila with 9 collaborative publications each, Dr. Kato Mushumbushi and Dr. Nicholas Tutuba with 8 collaborative papers each respectively (Table 3, 4 & 5). The results suggest that many collaborative works are likely the results of a mentorship programme between senior and junior lecturers. In the academic year 2020/21, a total of 100 million Tanzanian shillings were set aside by Mzumbe University management for research and publication. One of the conditionalities was a collaboration between senior and junior academicians. One top management officer was quoted saying that:

...Since one of the prime motives of providing small research grants was for senior researchers to mentor junior ones, I would like to see junior staff (mentees) making presentations so that we can satisfy ourselves that they have indeed been mentored and they can now stand on their own feet to develop research projects. If mentoring has not happened in the course of implementing these projects, then we have missed the target of investing TZS 100 million in this exercise (MU Top Management Officer, June, 2021).

On the other hand, co-authorship publications may be negatively affected by the existing publication policies. For example, for a journal article in which one point is awarded for promotion purpose if it is written by a single author, the same point must be shared equally by the number of those who co-authored the journal article which in turn discourages collaborative paper writing.

**Papers Per Author (PPA)**

In determining papers per author of SoB academicians, the following formula by Harzing (2009) was used:

$$PPA = \frac{NX + fr}{NY}$$

Where: PPA = Papers per author  
 NX = Total number of articles  
 Fr = Fractional (n/1)  
 NY = Number of author counts

$$\text{Dr. Emmanuel Chao PPA} = \left( 13 + \frac{1}{3} + \frac{1}{4} + \frac{1}{4} + \frac{1}{2} + \frac{1}{2} + \frac{1}{2} \right)$$

$$\text{Dr. Emmanuel Chao PPA} = 15.8$$

The PPA for SoB academicians shows that Dr. Emmanuel Chao ranked the first with 15.8 PPA, followed by Dr. Erasmus Kipesha with 11 papers and Dr. Hawa Tundui with 10.3 papers. The results suggest that Dr. Hawa Tundui failed to maintain her first position in this metric because she had a lot of papers published collaboratively. This suggests that in evaluating individual research performance, one should consider many measures instead of relying on a single indicator such as the number of publications (Sife & Lwoga, 2014).

**4.9 Authors Per Paper (APP)**

With respect to the Authors Per Paper (APP) analysis, Harzing (2009) formula was employed:

$$APP = NX/NY$$

Where: APP = Authors per paper  
 NY = Number of authors in a result set  
 NX = Total number of papers

$$\text{Prof. Ernest Kihanga APP} = \left( \frac{1 \times 1 + 1 \times 3 + 3 \times 4}{5} \right)$$

$$\text{Prof. Ernest Kihanga APP} = 3.2$$

The results reveal that Profesor Ernest Kihanga ranks the first with 3.2 authors per paper, followed by Dr. Arbogast Musabila with 3 and Dr. Nicholas Tutuba with 2.8 authors per paper. The findings show that these academicians published many works in collaboration.

#### 4.9.1 Distribution of Citations of the SoB Academic Staff for the Period between 2007 and 2020

An assessment of the SoB academic staff for 14 years in terms of citations involves 38 (66%) academic staff who are registered and were visible in a Google Scholar platform. A total of 20 (34%) SoB academicians were not visible in the Google Scholar platform (Table 1).

**Table 6:** Rank-list of SoB Scholarly Impact Based on Citations (N=38)

S/N	Author's name	Ranks	Citations	Number of Publications	Years	Cites/Year	Cites/Paper	Cites/Author	H_index	G_index	HI_norm
1	E. Mwasalwiba	Sen. Lecturer	924	8 (8)	11	84	116	874	5	8	3
2	E. Kipasha	Lecturer	398	14 (3)	9	44	28	302	9	14	9
3	H. Tundui	Sen. Lecturer	193	20 (1)	12	16	10	107	6	13	4
4	M. Kato	Sen. Lecturer	190	8 (8)	9	21	24	95	1	8	1
5	N. Isaga	Sen. Lecturer	176	13 (4)	9	20	14	141	6	13	6
6	G. Nyamsogoro	Assoc. Prof.	88	6 (10)	11	7	13	71	3	6	2
7	J. Kikula	Sen. Lecturer	88	9 (7)	8	11	10	44	2	9	2
8	R. Makorere	Sen. Lecturer	81	8 (8)	9	9	10	80	4	8	4
9	G. Komba	Sen. Lecturer	71	10 (6)	13	5	7	25	3	8	2
10	N. Mrope	Sen. Lecturer	65	7 (9)	3	5	9	36	5	7	4
11	D. Kibona	Lecturer	54	7 (9)	12	5	8	28	4	7	4
12	A. Musabila	Lecturer	42	10 (6)	9	5	4	34	3	6	1
13	C. Mbogela	Sen. Lecturer	37	11 (5)	12	3	3	27	4	5	3
14	E. Kihanga	Assoc. Prof.	36	5 (11)	11	3	7	12	4	5	2
15	G. Rasheli	Assoc. Prof.	35	11 (5)	7	5	3	23	3	5	3
16	L. Mwangike	Sen. Lecturer	32	8 (8)	13	2	4	16	3	5	3
17	J. Moshi	Lecturer	30	5 (11)	7	4	6	15	1	5	1
18	E Chao	Lecturer	23	19 (2)	11	2	1	21	3	3	3
19	M. Suleiman	Ass. Lecturer	19	3 (13)	5	0.3	1	3	1	1	1
20	J. Swai	Lecturer	18	4 (12)	8	2	5	9	3	4	2
21	N. Tutuba	Lecturer	16	8 (8)	3	5	2	6	2	3	2
22	M. Maziku	Lecturer	14	3 (13)	9	2	7	14	1	2	1
23	B. Maligwa	Lecturer	13	6 (10)	5	2.6	2.2	5	2	3	1
24	E. Akili	Ass. Lecturer	10	4 (12)	13	1	5	10	2	3	2
25	H. Mapesa	Assoc. Prof.	9	11 (5)	13	1	1	8	2	2	2
26	J. Msamula	Ass. Lecturer	9	9 (7)	10	1	1	3	1	2	1
27	A. Maziku	Lecturer	7	1 (15)	7	1	7	1	1	1	1
28	P Nsimbila	Lecturer	5	5 (11)	10	1	1	3	2	2	1
29	B Kambi	Ass. Lecturer	3	3 (13)	10	0.3	1	3	1	1	1
30	D. Meela	Sen. Lecturer	2	3 (13)	6	0.3	1	1	1	1	1
31	G. Mofulu	Lecturer	2	3 (13)	5	0.4	1	1	1	1	1

S/N	Author's name	Ranks	Citations	Number of Publications	Years	Cites/Year	Cites/Paper	Cites/Author	H_index	G_index	HI_norm
32	E. Makoye	Lecturer	0	3 (13)	2	0	0	0	0	0	0
33	J. Kiria	Lecturer	0	2 (14)	4	0	0	0	0	0	0
34	K. Willium	Ass. Lecturer	0	2 (14)	4	0	0	0	0	0	0
35	J. Myava	Lecturer	0	1 (15)	2	0	0	0	0	0	0
36	N. Masawe	Ass. Lecturer	0	1 (15)	3	0	0	0	0	0	0
37	P. Pascoe	Ass. Lecturer	0	1 (15)	7	0	0	0	0	0	0
38	S. Kitilla	Ass. Lecturer	0	1 (15)	13	0	0	0	0	0	0
<b>Total</b>			<b>2690</b>	<b>253</b>		<b>268.9</b>	<b>312.2</b>	<b>218</b>	<b>89</b>	<b>161</b>	<b>74</b>
<b>Yearly Average of Citations</b>			<b>192.14</b>	<b>18.0</b>		<b>19.2</b>	<b>22.3</b>	<b>15.6</b>	<b>6.4</b>	<b>12</b>	<b>5.3</b>

**Source:** *Google Scholar 2021*

Findings in Table 6 indicate various SoB scholarly impacts based on citation counts for fourteen years. Dr. Ernest Mwasalwiba ranked number one with the highest citation scores of 924 with just 8 publications followed by Dr. Erasmus Kipasha with 398 citations in 14 publications. Dr. Hawa Tundui ranked number three with 193 citations with 20 publications. Dr. Kato Mushumbusi had a total of 190 citations and Dr. Nsubili Isaga 176 citations. Dr. David Meela and Dr. George Mofulu recorded the lowest citation score of 2 with 3 publications. Nevertheless, there were some academicians with publications but they had no citations. It should be noted, however, that if an academic staff shows weak citation metrics, this may be caused by a lack of impact on the field, working in a small field – therefore, generating fewer citations in total, publishing in a language other than English which restricts the citation field or publishing mainly in print books and journals (Harzing, 2007).

The results have shown that the most cited authors are distinguished from the ones with many publications. This means that some of the most prolific authors in terms of publications had few citations compared to some scholars with more publications. For example, Dr. Ernest Mwasalwiba who ranked number eight in terms of publications, with a low number of publications (8 publications), moved to the first position in a citation counts with 924 citations. This suggests that his publications were mostly read and used by other scholars, which might be due to the nature of subjects written, style of writing, relevance and the novelty of the topic or he has registered in online research platforms such as Research Gate or he has shared his publications through social media such as Facebook etc. On the other hand, Dr. Hawa Tundui who ranked number one in terms of publications dropped to number three in citation counts, whereas Dr. Emmanuel Chao who ranked number one in terms of the number of publications dropped to number 18 in citation counts with only 23 citations out of 19 publications. These results suggest that their publications might not be topical issues, lacking interest in the topic and might not be published in peer-reviewed journals which led to the invisibility of their works. These findings confirm the fact that one's citation counts depend on the number of publications and other factors such as the

visibility of journals where one publishes his or her work, quality of publications, author's integration into scientific networks, age of publications, the size of the scientific community and the subject or issues which one publishes (Lwoga & Sife, 2013).

#### 4.9.2 Citations Per Year (CPY)

The scholar's yearly impact in the publication is obtained by using the Harzing & Van der Wal (2009) formula:

$$CPY = \frac{NC}{NY} \qquad \frac{\text{No. of Total Citations}}{\text{No. of Years of Publishing}}$$

Where: **CPY** = Citations per year  
**NC** = Number of total citations  
**NY** = Number of years of publishing

For example, Dr. Ernest Mwasalwiba CPY:

Total number of citations = 924

Number of years of publishing = 11

$$\text{Dr Ernest Mwasalwiba CPY} = \frac{924}{11}$$

$$\text{Dr Ernest Mwasalwiba CPY} = 84$$

Results in Table 6 indicate that Dr. Ernest Mwasalwiba ranked number one with an average of 84 citations per year and maintained his first position because he had many citation counts compared to other scholars. The second one is Dr. Erasmus Kipasha with 44 citations per year, followed by Dr. Kato Mushumbusi with 21 citations per paper who shift from the fourth position in the citations counts to the third position in citations per year.

#### 4.9.3 Citations Per Paper (CPP)

The number of citations per paper of SoB academicians is calculated by using Harzing & Van der Wal (2009) formula:

$$CPP = \frac{NC}{NP} \qquad \frac{\text{No. of Total Citations}}{\text{No. of Publications}}$$

Where: **CPP** = Citations Per Paper

For example, Dr. Ernest Mwasalwiba CPP:

Total number of citations = 924

Total number of publications = 8

$$CPP = \frac{NC}{NP}$$

$$\text{Dr Ernest Mwasalwiba CPP} = \frac{924}{8}$$

$$\text{Dr Ernest Mwasalwiba CPP} = 115.5 \approx 116$$

Considering the number of citations given to each publication in Table 6, Dr. Ernest Mwasalwiba ranked the first with an average of 116 citations per paper, followed by Dr. Erasmus Kipasha with an average of 28 citations per paper, both maintaining their positions. Dr. Kato Mushumbusi ranked number three with 24 citations per paper who shifts from the fourth position to the third position. The average number of citations per paper indicates the extent to which certain publications generate interest in the scientific community.

#### 4.9.4 Citations Per Author (CPA)

The average citations per author is obtained through the following Harzing & Van der Wal (2009) formula:

$$\text{CPA} = \frac{\text{NC}}{\text{NA}} \quad \frac{\text{No. of Citations Per Each Paper}}{\text{No. of Authors}}$$

Where: CPA = Citations Per Author  
 NC = Number of Citations Per Each Paper  
 NA = Number of Authors

Taking into account the number of citations given to each author, the finding in Table 6 indicates that Dr. Ernest Mwasalwiba ranked the first with 874 CPA, followed by Dr. Erasmus Kipasha with 302 CPA both remaining in the top position in terms of quality of publications at SoB. Dr. Nsubili Isaga 141 ranked number three taking Dr. Hawa Tundui's position. This is because Dr. Tundui's citations emanate from many collaborative publications.

#### 4.9.4.1 Other Popular Research Indices which Measure Scholarly Impact and Productivity

SoB academicians were also ranked based on various indices including H-index, G-index, and HI norm.

#### 4.9.4.2 H-Index

According to Harzing & Van der Wal (2008), h-index is the most robust and accurate measure of productivity and impact. The findings in Table 6 indicate that Dr. Erasmus Kipasha had the highest h-index of 9. This means that his 9 publications had been cited 9 or more times each, and the rest of the papers had fewer than 9 citations. The second ones were Dr. Hawa Tundui and Dr. Nsubili Isaga with an h-index of 6 each respectively. This means that their six publications had been cited 6 or more times each.

#### 4.9.4.3 G-Index

Analysis based on a G-index gives more weight to the authors' highly cited publications.

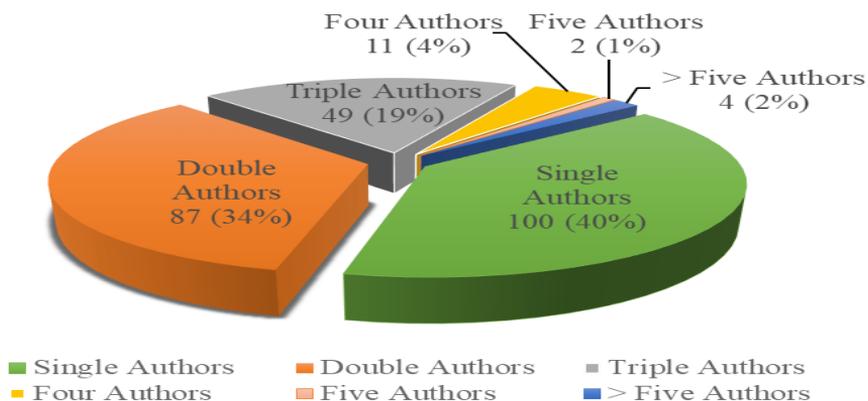
G-index has more power to distinguish publications with higher impact making it easier to differentiate the performance of authors. According to Egghe (2006) “[Given a set of articles] ranked in decreasing order of the number of citations that they received, the g-index is the (unique) largest number such that the top g articles received (together) at least  $g^2$  citations”. Findings show that Dr. Erasmus Kipesha ranked first with a g-index of 14, maintaining his first position twice. Dr. Hawa Tundui and Dr. Nsubili Isaga ranked number two with a g-index of 13 each (Table 6).

#### 4.9.4.4 Hi-norm (i10-index)

The HI-norm-index evaluates the effects of co-authorship by adjusting the total citations by the number of authors also called individual h-index (i10-index). HI-norm-index is calculated by using this formula: “normalize the number of citations for each paper by dividing the number of citations by the number of authors for that paper, and then calculate the h-index of the normalized citation counts”. The results in Table 6 show that Dr. Erasmus Kipesha continues to be the champion with the highest HI-norm of 9, followed by Dr. Nsubili Isaga who ranked number two with Hi-norm of 6. Four consecutive authors Dr. Tundui, Dr. Makorere, Dr. Mrope and Dr. Kibona ranked number three with Hi-norm of 4 each respectively. These findings imply that SoB academicians had considerable variation among themselves in research productivity and impact measures since no single academic staff at SoB managed to maintain the same rank in all metrics. Hence, these findings support the argument that research performance is a complex multifaceted endeavour that cannot be assessed using a single indicator (Lwoga & Sife, 2013).

#### 4.9.5 Authorship Pattern of Publications at SoB

The findings in Fig. 1 show that contributions of SoB publications were dominated by single-authored publications. This suggests that SoB academic staff do not prefer to undertake research and publications collaboratively. These findings are similar to those of Onyancha & Ocholla (2007), Lwoga & Sife (2014) and Ocholla et al. (2012) who report that academicians do not prefer publishing works and doing research collaboratively in Africa.



**Figure 2:** Authorship Pattern of SoB Publications

Source: Google Scholar 2021

#### 4.9.6 Degree of Collaboration in SoB

The degree of collaboration (DC) is the ratio of the number of multi-authored research papers to the total number of research papers (single author+ multi-authors). DC can statistically be calculated using Subramanyam (1983) formula:

$$DC = \frac{NM}{NM + NS}$$

Whereas DC = Degree of collaboration in a particular field  
 NM = Number of multiple-authored publications  
 NS = Number of single-authored publications

For example, in the year 2020, the single-authored paper was 3 and the multi-authored paper was 22.

$$DC = \frac{NM}{NM + NS}$$

$$2020, DC = \frac{3}{3+22}$$

$$2020, DC = 0.88$$

The degree of collaboration worked out for the 14 years under review ranged between 0.2 and 0.88 DC. The findings indicate that the year 2020 reported the highest DC of 0.88, followed by 2019 with a DC of 0.85. The years 2018, 2008, and 2017 had DC of 0.67, 0.66 and 0.64 respectively. However, the years 2010 and 2011 recorded the lowest DC of 0.2 respectively. The average collaboration of SoB academicians is 0.49 DC which is an indication of the low level of collaboration at SoB (Table 7). This corroborates Onyancha & Maluleka (2011) and Confraria & Godinho (2015) who report that research collaborations within African countries are still low when compared with extra-Africa collaborations.

Table 7: Degree of Collaboration in SoB

Year	NS	NM	Degree of Collaboration CC = NM/(NM + NS)
2007	0	0	0
2008	2	4	0.66
2009	3	1	0.25
2010	4	1	0.2
2011	7	2	0.2
2012	11	10	0.45

Year	NS	NM	Degree of Collaboration CC = NM/(NM + NS)
2013	9	13	0.59
2014	10	14	0.58
2015	14	8	0.36
2016	13	12	0.48
2017	8	14	0.64
2018	11	23	0.67
2019	5	29	0.85
2020	3	22	0.88
<b>Total</b>	<b>100</b>	<b>153</b>	<b>0.6</b>

Source: Google Scholar 2021

These results suggest that SoB academicians do not have a culture of doing research and publishing collaboratively. Inadequate collaboration may affect research and publication productivity. It is, therefore, emphasised that DRPS needs to insist on research collaboration to increase research productivity in SoB and at Mzumbe University at large. Collaboration in research is often recommended as it: enables researchers to share skills and techniques; enhances transferring of knowledge (especially tacit knowledge); brings about the cross-fertilization of ideas; provides intellectual companionship; plugs the researcher into a wider scientific network; and enhances the visibility of research works (Sife & Lwoga, 2014).

In one of the in-depth interviews, one respondent provided the following remarks:

...Research collaboration among ourselves is very important in our school because it will enable SoB academicians to share research writing skills, increase the visibility, growth of SoB literature, transfer of tacit knowledge and produce quality research output (SoB Senior Lecturer, June, 2021).

However, research collaboration should be carried out with care to avoid the possibility of having honorary or ghost authors in the publications. Honorary or ghost authors are the authors who are given authorship status in the publications without active participation in the intellectual work.

#### 4.9.7 Subject-wise Distribution of SoB Publications

Results in Table 8 indicate the top 20 most researched areas by SoB academicians for the fourteen years. The SMEs were the predominant areas of publication with a total of 32 publications. Business research had a total of 30 publications. The third was procurement with a total of 29 publications. Marketing and business industrial sector had a total of 27 and 22 publications respectively. Entrepreneurship and microfinance had only 20 publications each.

**Table 8: Subject-Wise Distribution of SoB Publications**

S/N	Subject	No. of Publications
1	Small and Medium Enterprises (SMEs)	32
2	Business	30
3	Procurement	29
4	Marketing	27
5	Business Industrial Sector	22
6	Entrepreneurship	20
7	Microfinance	20
8	Accounting and Beekeeping	15
9	Trade Credit and Supply	15
10	Finance	12
11	Women Entrepreneurship	11
12	Tanzania Firms/Enterprises	11
13	Bank Performance	11
14	Logistics and Supply Chain	11
15	Agricultural Sector Trade	10
16	Micro and Small Business	7
17	E-Tax System	7
18	Local Government	6
19	Economics	5
20	ICT	5

**Source:** *Google Scholar (2021)*

The findings suggest that SoB academic staff are more interested in writing on business issues such as SMEs. The SMEs researches are considered to be attractive and emerging topics that help to create awareness, introduce new skills and knowledge on how to conduct small business, introduce new products and how to market them (Pedraza, 2021). More research investments in this area may be an attempt to reduce the problem of lack of employment opportunities among those who would like to participate in the entrepreneurship business in Tanzania to alleviate poverty.

The findings further show that issues related to the Tanzania Development Vision 2025 and the Second National Five Years Development Plan (FYDPII 2016/17 – 2020/21) did not feature directly in their researches and publications. Also, contemporary issues like

Tanzania and the Fourth Industrial Revolution (4IR), poverty reduction, transforming Tanzania into a semi-industrialized nation, ICT and development and improvement of the quality of life and human wellbeing were not well-addressed in their researches and publications. This shows that SoB scholars did not publish their works in line with the Tanzania Development Vision 2025.

#### 4.9.8 Journals of Preference by SoB Academicians

Findings in Table 9 show the list of the top 15 journals in which SoB academicians published their paper articles. The table presents only those journals with four and above publications. The Uongozi Journal of Management and Development Dynamics (UJMDD) ranked the first with a total of 11 publications. The International Journal of Business and Economics Research had 8 publications. This is mainly because UJMDD is MU owned journal which suggests that the SoB academicians prefer publishing in their native journal. The Journal of Business and Management Sciences, and the Research Journal of Finance and Accounting had 7 publications each, followed by other journals.

**Table 9:** *SoB Academicians Journals of Preference (N=58)*

S/N	Journal	Website	No. of Publications
1	Uongozi Journal of Management and Development Dynamics	<a href="https://ujmdd.mzumbe.ac.tz">https://ujmdd.mzumbe.ac.tz</a>	11
2	International Journal of Business and Economics Research	<a href="http://www.sciencepublishinggroup.com">http://www.sciencepublishinggroup.com</a>	8
3	Journal of Business and Management Sciences	<a href="http://www.sciepub.com">http://www.sciepub.com</a>	7
4	Research Journal of Finance and Accounting	<a href="https://www.iiste.org">https://www.iiste.org</a>	7
5	ACRN Journal of Finance and Risk Perspectives	<a href="https://www.acrn-journals.eu">https://www.acrn-journals.eu</a>	6
6	Afrika Focus	<a href="https://brill.com">https://brill.com</a>	6
7	Journal of Strategic Innovation and Sustainability	<a href="https://articlegateway.com">https://articlegateway.com</a>	5
8	European Journal of Business and Management	<a href="https://iiste.org">https://iiste.org</a>	5
9	American Journal of Management	<a href="https://articlegateway.com">https://articlegateway.com</a>	4
10	European Journal of Business, Economics and Accountancy	<a href="http://www.idpublications.org">http://www.idpublications.org</a>	4

S/N	Journal	Website	No. of Publications
11	International Journal of Business and Commerce	<a href="https://www.ijbcnet.com">https://www.ijbcnet.com</a>	4
12	International Journal of Social and Administrative Sciences	<a href="http://www.aessweb.com">http://www.aessweb.com</a>	4
13	International Journal of Development and Sustainability	<a href="https://isdsnet.com">https://isdsnet.com</a>	4
14	International Journal of Economics, Business and Management Research	<a href="https://ijebmr.com">https://ijebmr.com</a>	4
15	Huria: Journal of the open university of Tanzania	<a href="https://journals.out.ac.tz">https://journals.out.ac.tz</a>	4

**Source:** *Google Scholar (2021)*

The findings further indicate that majority of SoB academic staff published their research and articles/papers in a wide range of foreign journals. The reason might be due to the visibility, prestige, and recognition which enable the researchers to get more citations. Furthermore, the results show that only two Tanzanian journals that is UJMDD and Huria: Journal of the Open University of Tanzania had 4 or more publications, which reveals the scarcity of relevant and peer-reviewed journals in the country. An in-depth interview with one of the senior lecturers in SoB regarding the journal of preference provided the following remarks:

...We prefer to publish our research findings in foreign journals rather than in local journals because they are of high quality, they have high visibility, and they are published by reputable and famous institutions. Additionally, most of them are indexed in academic databases like Emeraldinsight, Sage, Taylor, and Francis and therefore the possibility of our works to be cited is relatively high than the case with local journals ( SoB Senior Lecturer, June, 2021).

These findings corroborate that of Lancaster (1982) who reports that authors in the developing countries prefer to publish in foreign journals rather than in their native journals for the sake of gaining prestige and recognition.

## 5. Conclusion and Recommendations

### 5.1 Conclusion

Based on the findings of this study, it is concluded that the growth of research and publications has been very low at SoB for the period of 14 years, which is an indication that SoB scholars do not conduct research adequately and they also publish less. This may be associated with inadequate research collaborations, lack of friendly and favourable research policy, little awareness about online research platforms such as registering on

Google Scholar, Research Gate and ORCID among others, inadequate publishing skills and lack of interest in publications. This will not only lead to few senior academicians at SoB because they will not be promoted to higher ranks because of the failure to attain the required publication criterion but also there will be a low awareness about the research focus in this area of specialization.

## **5.2 Recommendations**

The study recommends the following:

- i. Since most of the SoB academicians published with UJMDD, the study recommends that the DRPS should fast-track registration or indexing the journal with reputable academic databases like AJOL, SAGE, Emerald, etc., for its contents to be visible worldwide.
- ii. It is also recommended that the DRPS in collaboration with librarians should prepare a comprehensive list of indicative reputable journals and databases where academic staff can use for publishing their scholarly works. This will minimise the possibility of SoB academicians to fall into a trap of publishing their works in predatory journals.
- iii. The study recommends that mentorship of junior staff by seniors should be compulsory and monitored. Every senior academic staff should be assigned at least two junior staff to mentor in research and publications. This can be enforced if this item will be taken as one of the objectives to be evaluated in the Open Performance Review Appraisal System (OPRAS) for senior academic staff at SoB.
- iv. Registration of academic staff in platforms that make scholarly publications visible online should be mandatory for every academic staff. Such platforms include Google Scholar, Research Gate, and ORCID just to mention a few. Such an endeavor will bear good fruits if librarians will be involved.
- v. Capacity building through frequent training on issues pertaining to paper writing, publications, and research proposals writing should be an order of every school, faculty, directorate, campus, and institute at the university. This will enable academicians to produce publishable scholarly works which in turn will promote both the university and an individual author.
- vi. DRPS should amend the research and publication policy with regards to mentoring juniors, academic staff, increasing research funds, and increasing the distribution of points each author should get for the collaborative works. This will help to increase research collaboration and mentorship as well as research and publication productivity at Mzumbe University.
- vii. Researchers should recognise that it is important to publish their research articles in journals that are widely visible such as e-journals and particularly open access journals which can be captured by popular scholarly academic databases to receive many citations.

### 5.3 Contributions of the Study

This study aimed at contributing to a better understanding of research productivity of SoB researchers at Mzumbe University for the period between 2007 and 2020. The findings of this study will be the basis for the provision of recommendations for future research activities in this field and will also help the management to create friendly and favourable environment, policy and other supportive factors regarding the research productivity at Mzumbe University. The study will also equip librarians and other academicians with basic knowledge on publication trends, coverage, quality and characteristics which are necessary for librarians in making informed decisions in library collection development for selecting journals and other scientific publications for the subscription in the library within the limited budget granted.

### 5.4 Suggestions for Future Research

- i. This bibliometrics analysis was limited to SoB. Therefore other studies should cover all MU schools, faculties, directorates and other campuses publications.
- ii. Future bibliometrics research should investigate factors that determine the research performance of individual academicians at SoB or of all Mzumbe University scholars.

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