Academic Staff and Researchers' Use of Electronic Resources in Tanzania: A Comparative Study

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ABSTRACT

This study compares e-resources usage by academic staff and researchers across universities in Tanzania. A descriptive cross-sectional design was adopted to administer questionnaire surveys to 170 academic staff and researchers in selected universities. Regarding data analysis, descriptive statistical analysis was done to construct frequencies and percentages alongside Chi-square testing to show differences and establish associations. The study has found a difference in access to and usage of e-resources for supporting teaching and research activities among the universities involved. The findings further indicate that open access resources are significantly used for teaching and research purposes, more so than the subscribed resources. Inability to access full text articles, inadequate searching skills, and slow Internet speed were the main challenges reported to undermine effective access to and use of e-resources. Despite these challenges, the impact of e-resources on teaching and research activities has been confirmed by the study. As a result, the study recommends that librarians closely interact with academic staff and researchers through outreach and marketing programmes to enhance the usage of these resources.

Keywords: *e-resources, online databases, internet resources, digital resources, Tanzania*

INTRODUCTION

The proliferation of information and communication technology (ICT) has brought noticeable effects in all walks of life including teaching and research (Muthurasu & Kannan, 2019; Eligi & Mwantimwa, 2017; Kalogiannakis, 2010; Papachristos et al., 2010). As summarised by Kalogiannakis (2004, pp. 345) "ICT is not only bringing changes to the world we live in, but also transforms the way we can learn, opening a new gateway to information, providing a new opening to a new potential for interaction and dialogue." Increased utilisation of computerised systems during the past three decades has changed the mode in which information is accessed, collected, stored, and used (Sharma, 2009). Clearly, the traditional model of providing access to print teaching and research resources continues to be replaced by a modern one that provides e-resources. In other words, the creation, storage, and access to information predominantly relies on resources in the contemporary period (Muthurasu & Kannan, 2019; Sharma, 2016; Nicholas et al., 2010). Similarly, the "ever-expanding growth in electronic information resources has significantly transformed the scholarly information landscape and information seeking behaviour of consumers" (Arshad & Ameen, 2018, pp.467). On this, Chetan (2016, pp.37) noted that:

> *Earlier, getting a copy of research paper was a very tough task for a researcher. But ICT proves to be a blessing for researchers. Today, there is no wait for a hardcopy of a journal or magazine. Everything is available on the cloud and without ICTs, libraries can't deliver the desired results. E-journals, e-books, theses, and newspapers are some of the major contributions of ICT to libraries.*

In fact, with the development of electronic systems including databases, the availability of e-resources for supporting teaching and learning is unquestionable. This indicates that e-information resources are, for most teaching staff and researchers, the lifeblood of their activities (Mishra, Das

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& Ramesh, 2019; Nicholas et al., 2010). As a result, e-resources are becoming more popular in teaching and research activities of academic and research communities (Muthurasu & Kannan, 2019; Tella et al., 2018; Mwantimwa, Elia & Ndenje-Sichalwe, 2017; Sharma, 2009). Some scholars such as Sharma (2009) contended that e-information resources and online database are replacing the print media (Sharma, 2009). With the mass-production of e-information, libraries have a wide range of resources to pick from and offer to their users.

The substantial investments being made by universities worldwide to ensure their communities' access to e-resources is clear evidence of the value these resources have (Muthurasu & Kannan, 2019). For example, university libraries have subscribed to different online databases such as IEEE, Taylor and Francis, Springer Link, SAGE publications, Wiley Online Library, Nature Publishing Group Journals, and many others (Santhi & Gopalakrishnans, 2016). In Tanzania, there have been various initiatives seeking to facilitate the institutions and individuals' coping with technological changes as reported by Manda (2005). For example, the use of CD-ROMS by the early 1990s was the first innovative programme geared towards the adoption of e-resources. In 2001, far-reaching attempts sought to introduce the use of full-text electronic journals in Tanzania's research and academic community. Most higher learning institutions in Tanzania have subscribed to different online databases such as EMERALD, Wiley, SAGE, Taylor and Francis, and EBSCO publications. These initiatives, notwithstanding some inadequacies in the utilisation of e-resources, have yielded positive results. In fact, libraries are finding it easier to enhance the quality of their collections with the help of e-resources. However, despite the ability of these resources to improve library collections, libraries continue to experience unsatisfactory usage levels of the information they provide. While this problem is known to exist, clarity is needed considering that studies to systematically compare the usage of e-resources by academics and researchers to support teaching and research productivity in Tanzania are missing. This is the gap that this study has attempted to cover.

Purpose of the Study

The present study seeks to examine e-resources access-points and means, purposes of their use, their perceived importance and factors that limit their usage.

LITERATURE REVIEW

Types of e-resources used

In general, academics and researchers access e-resources through their university websites, CD-ROMs, Internet, vendor databases and repositories (Dadzie & Van der Watt, 2015). These databases and websites offer access to e-resources in the form of e-books, e-journals, e-magazines, e-conference proceedings, and e-data archives (Bamidele et al., 2018; Mollel & Mwantimwa, 2019). These e-resources are accessed via subscription and open access modes. Using a cross-section survey method, Siwach and Malik (2019) conducted a study to examine the use of e-resources by science faculty and researchers in selected North Indian universities. Their results indicate that the databases mainly used were Science Direct, Springer Link, Taylor and Francis, Nature, Web of Science, Wiley Blackwell, SciFinder Scholar, Annual Reviews and Oxford University Press. Moreover, their findings indicate that the databases least used by the faculty members were Royal Society of Chemistry, Cambridge University Press, American Chemical Society, American Physical Society, Math SciNet, American Institute of Physics, Institute of Physics Portland Press and Project Euclid. These databases were subscribed to by the surveyed universities because most of them cannot be accessed without subscription. To investigate e-resource usage among scholars, Gupta (2017) observed that Springer Link was the most popular at Banasthali University. On the same note, most of the faculty members and research scholars

effectively used Science Direct, and Springer Link as noted by Nanda (2017). These findings were similar to those reported by Kumar and Reddy (2016) who found that Taylor and Francis, Science Direct, Springer Link and JECC were the popular and most used databases by academic staff and researchers.

Moreover, e-resources such as ACM, AGORA, TEAL, EBSCOHOST, HINARI, IEEE, IET, Science Finder, JSTOR, EMERALD, Scopus, ProQuest, ERIC, McGraw Hill e-books, Pearson e-books, and e-brary were heavily used by researchers and academic staff of different universities (Egberongbe, 2011; Santhi and Gopalakrishnans; 2016). Databases such as CMIT and Euromonitor were moderately known and used by researchers. Moghaddam and Tallawar (2008) noted that Elservier electronic journals were most popular and used by a large proportion (63.9%) of surveyed academics and researchers. In all, results from prior studies suggest that both subscribed and open access resources are utilised by academics and researchers. However, it is not easy to draw a conclusion on the most popular and frequently used types of databases. This is attributed to the fact that the extent of database usage depends on its accessibility at respective universities. The literature further demonstrates that programmes offered by universities determine the kind of databases to subscribe to, access, and use. Whereas some databases cut across different disciplines, others are special for certain disciplines such as engineering, social sciences, sciences, arts and many others.

E-resources access point

Access points of e-resources for researchers and academicians vary. While some researchers and academic staff access e-resources in their offices, libraries, and computer laboratories, others access them while home through personal computers, smart phones, and other gadgets. Findings from a study by Bamidele et al. (2018) showed that academics and researchers access e-resources at their university campus in their offices, computer laboratories, and libraries; and off campus. According to them, access to these resources is made possible through university libraries which have subscribed to diverse resources and databases. Examining the use of e-resources by life scientists at Sambalpur University in India, Sethi and Panda (2011) found that department computer laboratories, the central library, cybercafés, and homes were the main access point for use of e-resources. It is also worth noting that at some universities, subscribed e-resources and online databases were only accessed on-campus. IP address restriction to off campus users was the main explanation for this limitation (Mwantimwa et al., 2017). Thus, most of the researchers and academics are opting for open access resources and databases which are freely available and have very limited financial and legal implications compared to the subscribed ones. Indeed, open access resources can be accessed at any point in a convenient manner (Bala, Bansal & Sharma, 2018; Alphonce & Mwantimwa, 2019). Bellary & Surve (2019), through their study, noted that most of the academics preferred to use e-resources at their desk. The findings of extant studies suggest that the accessibility and usability of e-resources are determined by access points. In general, resources that are freely available are accessed at any point while those subscribed are accessed from predetermined points of access. Habiba and Chowdhury (2012) found that close to one third (30%) of responding users utilised e-resources at home while one fifth (20%) used them at their library. Other users accessed and used e-resources at workplaces and in cybercafés.

Purpose of using e-resources

Regarding the purpose for utilising e-resources, extant studies suggest a diversity of them. For example, Sharma (2009) found that a noticeable percentage of research scholars in the faculty of science (67.6) and engineering (69.2) in India utilised e-resources for teaching and research work. This shows that most of the teaching staff and researchers are dependent on e-resources to accomplish teaching tasks and research activities (Tella et al., 2018; Mwantimwa et al., 2017;

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Qasim & Khan, 2015; Rehman & Ramzy, 2004). Similarly, Shelton (2011) found that in UK universities, most people (87%) used e-resources in academic and research activities. In their investigation of e-resources usage by faculty and researchers in selected Indian Universities, Siwach and Malik (2019) observed that the most important purpose for utilising e-resources was writing research papers (mean = 4.62), writing research proposals/projects (mean = 4.38), and preparing for seminars, conferences, and workshops (mean = 4.35). Their findings further show that other purposes such as preparing teaching materials and lecture notes, guiding researchers and peers, exploring research grant opportunities, designing curriculum, and accessing general information held lesser significance (mean < 4). These findings are contrary to what was found by Rehman and Ramzy (2004) while studying the use of e-resources among health academics. Their findings suggested that health academics extensively used e-resources for preparation of lectures.

Other prior studies (e.g., Bamidele et al., 2018; Bala, Bansal & Sharma, 2018; Aladeniyi, 2017; Qasim & Khan, 2015; Nisha & Ali, 2013; Kalogiannakis, 2010) noted that e-resources were purposively used to up-date knowledge and collect different learning, teaching and research materials. In support of this, Sethi and Panda (2011) found that an overwhelming majority of people (71.9%) involved in life sciences primarily utilised e-resources to keep themselves up to date with their subjects. Bamidele et al. (2018) contended that e-resources have become major assets for research in universities. They also revealed that a significant proportion of their respondents mainly used the resources for research purposes, followed by teaching, notes preparation and assignments. Likewise, Deng (2010) observed that e-resources were fully integrated in Australian higher learning institutions to support learning and research. Accordingly, Mishra et al. (2019) conducted a survey involving health science researchers and found that the majority (85.7%) access and use e-resources for the purposes of research, teaching and learning. In general, the scholars have been found to use e-resources for preparing articles for presentations in seminars and publications, writing proposals for research and grants, and preparation for teaching (Mishra, Das & Ramesh, 2019; Aladeniyi, 2017).

Importance of e-resources to teaching and research activities

Available literature shows that researchers recognise the role of e-resources in teaching and research. It is evident that the impact of e-resources in research, learning and teaching is very positive (Dadzie & Van der Watt, 2015; Mollel & Mwantimwa, 2019). For example, Kalogiannakis (2010) insisted that teaching and learning are some of the fields that benefit greatly from the technological explosion (pp.9). The author further emphasises that the use of ICT resources modernises learning and teaching methods. Exploring the use of e-resources by academics at the University of Ilorin in Nigeria, Tella et al. (2018) revealed that the resources provide academics with up-to-date data and information. Findings from Bamidele et al. (2018) indicated that all responding academics (100%) from Nigerian universities agreed that e-resources contributed to their research outputs. Their findings signify that their research outputs have increased tremendously due to their usage of e-resources. Bala et al. (2018) found that e-resources are free of cost, saves time, are easy to access, and allows one to get all the information needed in one place. However, being free from financial and legal implications is a luxury only open access resources provide. Subscription resources are not free of costs and legal restrictions. In this regard, Bala et al. (2018) argued that the use of open access resources is boosted by the ease of availability and convenience for users. This corroborates the findings by Mishra et al. (2019) which reveal that the use of e-resources was associated with minimisation of time and financial resources spent. In addition to this, a study by Aladeniyi (2017) suggests that e-resources constitute an important source for current and timely data and information, ease of access, storage, and time saving.

More evidence is provided by Habiba and Chowdhury (2012) indicating that more than half of their responding staff cited ability to access up-to-date data and information as one of the values of e-resources. Besides this, the authors found that users could retrieve e-resources more quickly, get

links to other resources, easily access, and use information, and search full texts from different databases. Similarly, Sethi & Panda (2011) noted that the use of e-resources enhances users' competence, provides them with a wide range of information resources and instant access to current and up-to-date information. Bwalya and Ssebbale (2017) noted the importance of ease of access to information that is regularly updated with hyperlinks to offsite content which provides the latest information and thinking on a subject. Access to and use of ICT resources appear to overcome time and space restrictions (Papachristos et al., 2010), increasing participation in teaching and learning, enhancing performance (Stasinakis & Kalogiannakis, 2015), and offering flexibility to achieve goals of lifelong learning (Kalogiannakis, 2004). Surprisingly, various studies (Mishra et al., 2019; Tella et al., 2018; Sharma, 2009) have revealed that despite the great value of subscribed e-information resources, their usage by academics and researchers in developing countries is not satisfactory.

Limiting factors for e-resources use

The factors limiting access to and use of e-resources among academics and researchers slightly differ from one university to another. In general, several limiting factors are reported by different scholars from prior studies. For example, Kumar and Reddy (2016) revealed that most of the researchers faced various problems when it comes to e-resources use. It is documented that slow internet service, unfamiliar file formats, unreliable power supply, and inadequate access to subscribed e-resources and databases undermine effective use of the resources (Siwach & Malik, 2019; Alphonce & Mwantimwa, 2019; Bala et al., 2018; Tella et al., 2018; Mwantimwa et al., 2017; Aladeniyi, 2017; Sohail & Ahmad, 2017; Nanda, 2017; Kumar & Kumbar, 2015). In many cases, the availability of e-resources is not a problem. This is disclosed by Sharma (2009) who revealed that e-resources at Guru Gobind Singh Indraprastha University in India were sufficient for existing programmes. However, the infrastructure to support use was the main problem. Siwach and Malik (2019) associated inaccessibility of e-resources from home, limited numbers of titles, limited access to back issues, retrieval of junk and difficulties in finding relevant information, with ineffective utilisation of e-resources. To them, information overload, discomfort in online reading, instability of e-resources, limited access to computers, lack of assistance from library staff, difficult interface designs, lack of IT skills, credibility, quality, and lack of search techniques are factors that have a small influence on use of the resources. Inadequate ICT application knowledge and skills were also identified as limiting factors by Kalogiannakis (2010).

In addition, unfamiliarity with searching e-resources, inaccessibility of back volumes, lack of training and limited access to terminals were the other barriers to effective use of e-resources. A study by Sohail and Ahmad (2017) noted that blockage of websites contributes to underutilisation of e-resources. Isibika and Kavishe (2018) revealed a number of factors limiting effective usage of e-resources at Mzumbe University. These include lack of searching skills, network problems and limited computer skills. Bala et al. (2018), through their study, noted that open access resources are not always authoritative, hence the difficulties faced in ensuring that one gets quality information from them. Other factors that undermine the use of e-resources include limited time to access the resources, huge amounts of data and information, technical fault, lack of authenticity, lack of subject knowledge librarian (Mishra et al., 2019) and high cost of subscription (Aladeniyi, 2017). Further, problems such as unawareness of reputable e-resources, unavailability of back issues, time consumed to find relevant materials, difficulty in reading text on computer screen, and limited instruction programmes have been reported to limit effective use of e-resources (Arshad & Ameen, 2018).

Literature gap

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In view of the foregoing, there have been studies conducted on the use of e-resources in universities worldwide. However, studies systematically and comprehensively comparing e-resources usage by academics and researchers across universities are not accessible in Tanzania and globally. As such, questions regarding e-resources usage by academics and researchers across universities of different specialisations in Tanzania remain unanswered. It is against this background that this study was carried out to compare e-resources usage by academic staff and researchers across a number of universities in Tanzania.

METHODOLOGY

The study used a descriptive cross-sectional quantitative research design to assess academic staff and researchers' usage of online databases in selected universities in Tanzania. The study was conducted in ten selected universities namely the University of Dar es Salaam (UDSM), Ardhi University (ARU), Muhimbili University of Health and Allied Sciences (MUHAS), University of Dodoma (UDOM), Institute of Rural Development Planning (IRDP), Mbeya University of Science and Technology (MUST), Teofilo Kisanji University (TEKU), Sokoine University of Agriculture (SUA), State University of Zanzibar (SUZA), and Zanzibar University (ZU). These universities were purposely selected because they are all using e-resources for teaching and research. The study population comprised of academic staff and researchers working at these universities. Convenience sampling was used to select respondents from these universities for inclusion in the study.

Data for the study were collected using a survey questionnaire, interviews, and observations. A questionnaire was developed to capture information on the usage of e-resources, easiness of accessing these resources, and whether these resources have improved teaching and research productivity at the selected universities. Regarding data analysis, the quantitative data collected were analysed descriptively using Chi-square tests from the IBM Statistical Package and Service Solution (SPSS) (version 21). While descriptive statistics were used to describe different variables of the study, a Chi-square test was used to find the association between these variables and compare findings from different selected universities.

RESULTS

Socio-demographic characteristics

This study was conducted at 10 academic institutions from which a collective total of 170 potential respondents were selected for data collection. The study involved both private and public academic institutions as shown in Table 1 below

Table 1: Respondents by Institution

Institution (n = 170)	Frequency	Percent
UDSM	42	24.7
ARU	14	8.2
MUHAS	20	11.8
UDOM	24	14.1
IRDP	9	5.3
MUST	13	7.6
TEKU	8	4.7
SUA	25	14.7
SUZA	4	2.4

ZU	11	6.5
Total	**170**	**100**

According to the data in Table 1, of the institutions involved in the study, UDSM had the highest percentage of respondents (24.7%), followed by SUA (14.7%) and UDOM (14.1%). The data further shows that the smallest percentage (2.4%) of respondents was obtained at SUZA. The relatively high representation of UDSM can be attributed to the involvement of its constituent colleges in the study. The study involved all the constituent colleges of the university hence the higher number of respondents obtained. In other words, the number of respondents corresponds to the population of the institutions involved in the study.

The composition of respondents by socio- demographic characteristics

The study required respondents to provide social-demographic data which have been used to determine their composition by gender, age, level of education, and work experiences. These data were needed to clearly identify the sources of data for the study. In addition, this type of data is fundamental to the analysis and interpretation of findings on the main variables of a study. The data are summarized in Table 2 below.

Table 2: Gender, age, level of education and experience

	Frequency	Percent	Mean	Std. dev.
Gender				
Female	44	25.9	1.74	.439
Male	126	74.1		
Age Group				
20-29	24	14.1	2.44	1.032
30-39	80	47.1		
40-49	45	26.5		
50-59	9	5.3		
60+	12	7.1		
Level of education				
PhD	39	22.9	1.93	.621
Master degree	104	61.2		
Bachelor degree	27	15.9		
Responsibility				
Researcher	5	2.9	2.64	.572
Teaching staff	55	32.4		
Teaching and research	107	62.9		
Consultancies	3	1.8		
Working experience				
< 5yrs	51	30.0	2.24	1.227
5-10	71	41.8		
11-15	23	13.5		
16-20	7	4.1		
>20	18	10.6		

Regarding gender, male respondents (74.1%) outnumbered females (25.9%). The study reports differences in the distribution of the respondents based on age. In this regard, the study has found that just below half (47.1%) of the respondents were between 30 and 39 years, followed by those between 40 and 49 years who made up just over a quarter of all the respondents. The category with the least representation (5.3%) was the range of ages between 50 and 59 which was just behind the category of those with 60 or more years of age. The results seem to show that the

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universities have fewer young academic staff members and researchers and even fewer of those aged 50 and above.

In terms of academic qualifications of the respondents, the study has found that the majority (61.2%) were holders of masters degree, followed by PhDs (22.9%), and bachelor degrees (15.9%). These data indicate that majority of the study's respondents had already been involved in either academic or professional research activities, or general teaching activities. In other words, the study respondents can be expected to have experienced a need for online information databases to accomplish their research and teaching goals. As such, they were qualified to provide data needed by this study. As if confirming this assumption, when asked to indicate their professional responsibilities, the majority (62.9%) of the respondents said they had both teaching and research responsibilities. These were followed by those who only had teaching responsibilities who made up just above a third (32.4%) of all respondents. With these responsibilities, the respondents are likely to need online databases.

The study also sought to bring to light the composition of respondents based on work experience. This set of data was considered important because the more years people with the just mentioned job responsibilities spend working, the more research and teaching activities they carry out hence the greater likelihood of them using online databases. Over two fifths (41.8%) had work experiences of 5 to 10 years, while those with below 5 years of work experience accounted for 30% of the respondents. As would be expected, following observations made from the composition of respondents based on age, respondents with more than 11 years of work experience were fewer. In other words, the composition of respondents based on age and that based on work experience appear to roughly tally. All in all, the study involved respondents with a variety of characteristics key to producing informative results.

Teaching and research areas

Respondents were also asked to indicate their teaching and research areas. This set of data was deemed valuable in establishing the types of information the respondents were likely to use or the online databases they were likely to consult in the process of handling their responsibilities. The responses obtained have been used to generate the findings summarized in Table 3 below.

Table 3: Teaching and research areas

Teaching and research areas (n = 170)	Teaching		Research	
	Frequency	Percent	Frequency	Percent
Health science	19	11.2	19	11.2
ICT	19	11.2	17	10
Agriculture	6	3.5	9	5.3
Natural science	19	11.2	19	11.2
Business	19	11.2	18	10.6
Social science	66	38.8	71	41.7
Mathematics	3	1.8	1	0.6
Law	9	5.3	9	5.3
Engineering	10	5.8	7	4.1
Total	**170**	**100**	**170**	**100**

As shown in Table 3, over two fifths (41.7%) of the respondents worked in the area of social sciences while health sciences and natural sciences had 11.2% representation each, 10.6% were from the business area, and 10% were from ICT. Agriculture, Law, Engineering, and Mathematics contributed the lowest number of respondents in that order. The high representation recorded for

social sciences reflects the composition of many universities where social science programmes are generally big in terms of student intake capacity hence demanding more staff members.

Use of e-resources

Respondents were asked to indicate if they used e-resources. This was done ~~so as~~ to bring to light the extent to which online databases are used by individual universities. To reach this aim, the responses provided were computed based on individual universities involved in the study. To further explore this variable, a Chi-square test was run to observe if there was any significant difference in the extent to which the universities used these resources. These results are presented in Table 4 below.

Table 4: Use of e-resources

Institution (n = 170)	Frequency	Percent
UDSM	38	90.5
ARU	14	100
MUHAS	16	80
UDOM	17	70.8
IRDP	4	44.4
MUST	8	61.5
TEKU	5	62.5
SUA	21	84.0
SUZA	2	50.0
ZU	9	81.8
Chi-square test (Value = 38.843; df = 18; Sig. = .003)		

According to the results in Table 4, e-resources were most used at ARU (100%), followed by UDSM (90.5%), SUA (84%), ZU (81.8%), MUHAS (80%), UDOM (70.8%), TEKU (62%), and MUST (61.5%). The findings also show that SUZA (50%) was the second lowest user ahead of IRDP where 44.4% of the respondents indicated use of these resources. In general, these findings show that the usage of e-resources among institutions of higher learning differs. However, to verify if the difference that exists is significant, a Chi-square test was run. The results indicated a difference (p value < 0.05) in access to and usage of e-resources for supporting teaching and research activities among the universities involved.

Frequency of e-database use

Apart from knowing if respondents used e-databases, the study also required them to indicate how often they did so. This was necessary in establishing the extent to which these resources are used. To ensure more informative results, the respondents were asked to indicate how often they used individual databases that were known to be accessible to them through their higher learning institutions. The results are shown in Table 5 below.

Table 5: Frequency of using e-databases

Subscribed e-resources (n = 170)	Daily	2-3 days per week	4-5 days per week	Once a month	Do not use
ACSJM	6 (3.5%)	4 (2.4%)	2 (1.2%)	13 (7.6%)	145 (85.3%)
ASABE	2 (1.2%)	7 (4.1%)	6 (3.5%)	13 (7.6%)	142 (83.5%)
Cambridge University Press	4 (2.4%)	12 (7.1%)	18 (10.6%)	41 (24.1%)	95 (55.9%)
De Gruyter LIS Journal	6 (3.5%)	1 (0.6%)	7 (4.1%)	19 (11.2%)	137 (80.6%)

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Emerald	9 (5.3%)	12 (7.1%)	19 (11.2%)	33 (19.4%)	97 (57.1%)
IORMS	9 (5.3%)	8 (4.7%)	9 (5.3%)	16 (9.4%)	128 (75.3%)
IOP	1 (0.6%)	4 (2.4%)	3 (1.8%)	11 (6.5%)	151 (88.8%)
Royal College of Physicians	1 (0.6%)	4 (2.4%)	4 (2.4%)	9 (5.3%)	152 (89.4%)
Royal Society Journal Online	4 (2.4%)	6 (3.5%)	4 (2.4%)	9 (5.3%)	147 (86.5%)
PTRS	3 (1.8%)	1 (0.6%)	6 (3.5%)	6 (3.5%)	154 (90.6%)
Royal society of Chemistry	5 (2.9%)	7 (4.1%)	2 (1.2%)	6 (3.5%)	150 (88.2%)
Taylor and Francis Online	9 (5.3%)	18 (10.6%)	21 (12.4%)	22 (12.9%)	100 (58.8%)
Wiley Online Library	7 (4.1%)	21 (12.4%)	20 (11.8%)	22 (12.9%	100 (58.8%)
OECD Library	6 (3.5%)	19 (11.2%)	9 (5.3%)	13 (7.6%)	123 (72.4%)
Note: ASABE: American Society of Agricultural and Biological Engineers; IORMS: Institute of Operational Research Management Science; PTRS: Philosophical Transaction of the Royal Society; IOP: Institute of Physics; ACSJM: American Chemical Society Journal and Magazine					

The results show that none of the databases available at the higher learning institutions involved in the study were frequently used by a satisfactory number of respondents. The results show all the e-databases were used by a negligible number of respondents daily, with Taylor and Francis Online, Research Management Science, and Emerald the most used respectively by just 5.3% of respondents daily. Furthermore, very few respondents reported use of these databases 2 to 3 days a week. In fact, all the databases were used by way below one fifth of the respondents 2 to 3 days a week. According to the results, Wiley Online Library (12.4%), OECD Library (11.2%), and Taylor and Francis Online (10.6%) were the most used under this category. The results also show that 12.4% of respondents used Taylor and Francis 4 to 5 days a week, while Wiley Online Library was used by 11.8%, Emerald by 11.2%, and Cambridge University Press by 10.6%. Overall, the results show that majority of respondents did not use any of the databases presented in Table 5. Regarding the question on the use of free and open access resources, the responses of academic staff and researchers suggest that the majority (133; 78.2%) of them use free and open access resources. Overall, both subscribed and open access resources are used for teaching and research purposes among respondents in this study.

Ease of accessing e-databases

The study also sought to find out if access to e-databases was easy for academic and research staff members of the higher learning institutions. To find out how easy or difficult this was, the study required respondents to rate their access to the databases on a scale from very difficult to very easy. The responses are shown in Table 6 below.

Table 6: Ease of accessing e-databases

Institution (n = 170)	Ease of access database within institution			
	Very Easy	Easy	Difficult	Very Difficult
UDSM	2 (4.8%)	30 (71.4%)	8 (19%)	2 (4.8%)
ARU	1 (7.1%)	5 (35.7%)	7 (50%)	1 (7.1%)
MUHAS	4 (25%)	7 (45%)	2 (12.5%)	3 (18.75%)
UDOM	5 (20.8%)	5 (20.8%)	7 (29.2%)	7 (29.2%)
IRDP	1 (11.1%)	7 (77.8%)	1 (11.1%)	0 (0.0%)
MUST	1 (7.7%)	4 (30.8%)	7 (53.8%)	1 (7.7%)
TEKU	2 (25%)	1 (12.5%)	3 (37.5%)	2 (25%)
SUA	3 (12%)	16 (64%)	5 (20%)	1 (4%)
SUZA	0 (0.0%)	0 (0.0%)	0 (0.0%)	4 (100%)
ZU	0 (0.0%)	0 (0.0%)	5 (45.5%)	6 (54.5%)

Total	19 (11.5%)	75 (45.2%)	45 (27.1%)	27 (16.3%)
Chi-square test (X² =84.700; df = 27; Sig. = .000)				

The results show that very few respondents (11.5%) found accessing e-databases available to them very easy while over two fifths (45.2%) said it was easy, 27.1% found it difficult, and 16.3% said it was very difficult. In general, these findings indicate that over half (56.7%) of respondents found access to e-databases easy. In terms of individual higher learning institutions, the findings show that only MUHAS (25%), TEKU (25%) and UDOM (20.8%) had one fifth or more respondents that found access to these databases very easy while the rest had very few or no respondents that reported easy access to the databases.

In contrast, most of the respondents from IRDP (77.8%), UDSM (71.4%), and SUA (64%) found it easy to access the databases. In fact, these institutions contributed significantly to the total number of respondents who considered access to e-databases as easy. On the other hand, the study shows that over half (54.5%) of respondents from ZU and all (100%) from SUZA found accessing e-databases very difficult. Overall, the ease of access to e-databases differs among higher learning institutions as seen in Table 6. According to the Chi-square test conducted, the difference in ease of access to e-databases among the institutions involved in the study was significant as proven by the P-value of 0.000.

E-databases access point

Respondents were also asked to indicate the location from which they accessed e-databases. The results are shown in Table 7 below.

Table 7: e-resources access point

	Institution (F & %)										Total	Sig.
	A	B	C	D	E	F	G	H	I	J		
1	20	12	12	6	3	2	3	10	0	9	77	
	47.6	85.7	60	25	33.3	15.4	37.5	40	0	81.8	45.3	.000
2	5	3	8	3	0	3	1	6	0	0	29	
	11.9	21.4	40	12.5	0	23.1	12.5	24.0	0	0	17.1	.091
3	23	6	11	5	2	3	3	10	0	2	65	
	54.8	42.9	55	20.8	22.2	23.1	37.5	40	0	18.2	38.2	.202
4	31	13	16	21	3	10	5	17	0	0	116	
	73.8	92.9	80	87.5	33.3	76.9	62.5	68	0	0	68.2	.000
5	18	6	8	13	2	3	4	5	0	0	59	
	42.9	42.9	40.	54.2	22.2	25	50	20	0	0	34.9	.033
6	3	0	4	1	1	1	1	1	0	0	12	
	7.1	0	20	4.2	11.1	7.7	12.5	4	0	0	7.1	.086
1 = Library; 2 = Computer laboratory; 3 = Office computer; 4 = Personal computer; 5=Mobile device; 6= Internet café												
A = UDSM; B = ARU; C = MUHAS; D = UDOM; E = IRDP; F = MUST; G = TEKU; H = SUA; I = SUZ; J = ZU												

According to the data in Table 7, personal computers (68.2%), libraries (45.3%), office computers (38.2%), and mobile devices (34.9%) are important e-databases access points for the respondents at the institutions involved in this study. In fact, most of the respondents from all the institutions involved in the study except SUZA (0%), ZU (0%), and IRDP (33.3%) indicated personal computers as their tool for accessing these resources. The results also show that libraries are key e-databases access points for ARU (85.7%), ZU (81.8%), and MUHAS (60%) while they also play an important role at UDSM (47.6) and SUA (40%).

The data in Table 7 indicates that office computers were most used to access e-databases at MUHAS (55%), UDSM (54.8%), ARU (42.9%), SUA (40%), and TEKU (37.5%). The results also

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show that there are significant differences in the usage of libraries (.000), personal computers (.000), and mobile devices (0.033) to access e-databases among the institutions involved in the study. Overall, while the study findings reveal that academic staff members and researchers of the institutions in the study mainly used libraries, personal computers, and mobile devices; there are a variety of e-databases access points available to them.

Ways of learning about the availability of e-databases

Awareness of the presence of any resources is key to its usage. In the same way, the number of people aware of the presence of e-databases has a relationship with the number of those that will access them. As such, efforts to make people aware of the presence of these resources are vital. Respondents were asked how they came to know of the presence of the resources at their institutions to find out the efforts made by the institutions to enhance awareness about the databases they offer. The data in Table 8 below shows how academic staff and researchers learned about the presence of these resources.

Table 8: *Ways of learning about the availability of e-databases*

	Institution										Total	Sig.
	A	B	C	D	E	F	G	H	I	J		
1	15	8	12	7	2	4	4	6	0	0	58	
	35.7	57.1	60	29.2	22.2	30.8	50	24.0	0.0	0.0	34.1	.018
2	15	3	13	7	1	0	0	12	0	0	51	.
	35.7	21.4	65	29.2	11.1	0.0	0.0	48.0	0.0	0.0	30.0	000
3	15	10	12	1	1	3	0	9	0	0	51	
	35.7	71.4	60	4.2	11.1	23.1	0.0	36	0.0	0.0	30	.000
4	12	9	9	6	1	5	4	11	0	11	68	.000
	28.6	64.3	45	25	11.1	38.5	50	44	0.0	100	40	
5	9	3	4	3	0	2	0	4	0	1	26	.716
	21.4	21.4	20	12.5	0.0	15.4	0.0	16	0.0	9.1	15.3	
6	7	4	3	1	0	2	0	0	0	0	17	.074
	16.7	28.6	15	4.2	0.0	15.4	0.0	0.0	0.0	0.0	10.0	
7	3	6	5	2	0	4	1	0	0	0	21	.001
	7.1	42.9	25	8.3	0.0	30.8	12.5	0.0	0.0	0.0	12.4	
8	12	3	5	7	2	4	3	3	0	0	39	.445
	28.6	21.4	25	29.2	22.2	30.8	37.5	12	0.0	0.0	22.9	
9	16	1	9	11	1	1	4	9	0	0	52	.007
	38.1	7.1	45	45.8	11.1	7.7	50	36	0.0	0.0	30.6	

1 = Info literacy programme offered by library; 2 = Workshop organised by the library; 3 = Library website; 4 = Library staff; 5=Brochures; 6=Flyers; 7=Notice boards; 8=Social networks; 9=Friends
A = UDSM; B = ARU; C = MUHAS; D = UDOM; E = IRDP; F = MUST; G = TEKU; H = SUA; I = SUZ; J = ZU

The results in Table 8 show that library staff (40%), Information literacy programmes under institutional libraries (34.4%), friends (30.6%), workshops organised by libraries (30%), and library websites (30%) are responsible for many respondents' awareness of the e-databases available at their institutions. Based on individual institutions; library staff have been found key in creating awareness at UDSM (64.3%), TEKU (50%), MUHAS (45%), SUA (44%), and MUST (38.5%). The results also show that the extent of the roles played by different awareness creation means at each institution are different. The roles played by information literacy programmes, workshops organised by libraries, library websites, personal computers, and notice boards were significant in the study, while the extent of the roles played by social networks, flyers, and brochures are more or less the same across all the institutions involved in the study.

Role of e-databases in teaching activities and research productivity

The study also sought to determine the contribution of e-databases to the teaching and research activities of teaching staff and researchers of the respective higher learning institutions. Respondents were asked to indicate how they use the information they get from the e-databases they have access to. A summary of the responses is provided in Table 9 below.

Table 9: Ways e-resources improve teaching and research productivity

	Institution										Total	Sig.
	A	B	C	D	E	F	G	H	I	J		
Use in teaching												
1	38	11	16	20	5	10	7	21	0	11	139	.001
	90.5	78.6	80.0	83.3	55.6	76.9	87.5	84	0.0	100	81.8	
2	38	11	15	20	3	10	7	21	0	10	135	.000
	90.5	78.6	75	83.3	33.3	76.9	87.5	84	0.0	90.9	79.4	
3	27	10	14	19	4	6	6	18	0	1	105	.001
	64.3	71.4	70	729.	44.4	46.2	75.0	72.0	0.0	9.1	61.8	
4	16	4	11	14	2	4	3	10	0	2	66	.183
	39.0	28.6	55.0	58.3	22,2	30.8	37.5	40.0	0.0	18.2	39.1	
5	1	0	2	1	1	3	1	6	0	0	15	.329
	2.4	0	10	4.2	11.1	23.1	12.5	24	0	0	8.8	
1 = Preparing teaching notes; 2 = Access up-to-date references; 3 = Improve teaching methods; 4 = Update exam process and designing process; 5. Promote online discussion												
Research productivity												
1	34	13	15	19	4	8	5	19	1	9	127	.101
	81	92.9	75	79.2	44.4	66.7	62.5	76	25	81.8	75.1	
2	39	13	15	18	4	9	5	22	1	9	135	.004
	92.9	92.9	75	75	44.4	69.2	62.5	88	25	81.8	79.4	
3	28	14	12	17	3	8	4	21	1	2	110	.000
	66.7	100	60	70.8	33.3	61.5	50	84	25	18.2	64.7	
4	21	7	9	15	1	6	3	14	0	0	76	.011
	50	50	45	62.5	11.1	46.2	37.5	56	0.0	0.0	44.7	
5	33	12	13	15	4	9	4	19	0	7	116	.042
	78.6	85.7	65	62.5	44.4	69.2	50	76	0.0	63.6	68.2	
6	32	9	13	16	3	10	4	19	0	7	113	.051
	76.2	64.3	65	66.7	33.3	76.9	50	76	0.0	63.6	66.5	
7	15	6	11	11	1	4	1	13	0	0	6.	.043
	35.7	42.9	45	45.8	11.1	30.8	12	52	0	0	35.3	
8	1	2	1	3	1	3	0	6	0	1	18	.198
	2.4	14.3	5	12.5	11.1	23.1	0	24	0	9.1	10.6	
1 = Facilitate the proposal writing;2=Conduct literature review;3=Report writing;4=Timely submission of research report; 5=Access to secondary data; 6=Identification of research area; 7 = Helps in literature review; 8 = Help in identifying research gap A = UDSM; B = ARU; C = MUHAS; D = UDOM; E = IRDP; F = MUST; G = TEKU; H = SUA; I = SUZ; J = ZU												

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In terms of teaching activities, the findings in Table 9 show that, e-databases play an important role in the preparation of teaching materials (81.8%), provision of up-to-date references (79.4%), improving teaching methods (61.8%), and updating exam designing process (39.1%). The results also show that there is no significant difference in the role played by e-databases in the preparation of teaching notes, provision of up-to-date references, and improvement of teaching methods. Regarding research activities, the results show that e-databases play a major role in respondents' literature review activities (79.4%), proposal writing (75.1%), access to secondary data (68.2%), identification of new research areas (66.5%), report writing (64.7%), and timely submission of reports (44.7%).

The results also show that there is a significant difference in how e-databases contribute to research activities among the higher learning institutions involved in the study. However, the results show no significant difference in the contribution made by the databases in the identification of research gaps, identification of research areas, literature reviews, and proposal writing. In general, the results show that e-databases play a significant role in the research and teaching activities of the institutions of higher learning involved in the study.

E-databases on publications process

The study also required respondents to indicate how the use of e-databases improved their publication processes. This was meant to shed more light on the role of these resources in research. Based on the responses obtained, it can be reported that e-databases enhance the publication processes in the ways presented in Table 10 below.

Table 10: How e-databases improve publications process

	Institution										Total	Sig.
	A	B	C	D	E	F	G	H	I	J		
1	27	14	14	16	4	7	2	22	0	3	109	
	64.3	100	70	66.7	44.4	53.8	25	88	0.0	27.3	64.1	.000
2	11	9	4	10	0	6	2	9	0	0	51	
	26.2	64.3	20	41.7	0	46.2	25	36	0.0	0.0	30	.006
3	23	11	14	14	2	9	3	19	0	0	95	
	54.8	78.6	70	58.3	22.2	69.2	37.5	76.0	0.0	0.0	55.9	.000
4	18	9	11	13	3	8	2	17	0	1	82	
	42.9	64.3	55	54.2	33.3	61.5	25	68.0	0.0	9.1	48.2	.015
1 = Improved journal articles publishing; 2 = Improved books publishing; 3 = Dissemination of findings; 4 = collaborative publishing A = UDSM; B = ARU; C = MUHAS; D = UDOM; E = IRDP; F = MUST; G = TEKU; H = SUA; I = SUZ; J = ZU												

The results in Table 10 show that most of the respondents (64.1%) indicated e-databases improve the publication of journal articles while 55.9% reported that they help them in the dissemination of findings, 48.2% reported that they enhance collaborative publishing, and 30% noted that they improve book publishing. In general, the study shows that e-databases play an important role in improving research publication processes. Looking at individual institutions, the results show that researchers at ARU (100%) benefit the most from e-databases for publication of their journal articles, followed by SUA (88%), and MUHAS (70%). Regarding dissemination of research findings, the study shows that researchers at ARU (78%) benefit the most from e-databases in their dissemination of findings, followed by SUA (76%), and MUST (69.2%) while SUZA (0%) did not

benefit from the databases in this way. Overall, the findings show that there is no significant difference in the way e-databases improve publication processes of higher learning institutions.

Perceived importance of e-databases use

The question to gauge academic staff and researchers' perceptions of e-resources was important. Respondents were asked how they perceive the quality of research without the use of e-resources. Their responses show that the quality of research without the use of e-resources will suffer as cited by the significant proportion (137; 80.6%) of them. The respondents were further asked to indicate their perceived importance of e-resources, and their responses are shown in Table 11 below.

Table 11: Perceived importance of online databases

	Institution (F & %)										Total	Sig.
	A	B	C	D	E	F	G	H	I	J		
1	15	6	6	6	2	2	3	10	0	4	54	.170
	35.7	42.9	30	25	22.2	15.4	37.5	40	0	36.4	31..8	
2	9	0	2	6	2	1	1	1	0	0	22	.823
	21.4	0	10	25	22.2	7.7	12.5	4	0	0	12.9	
3	15	1	3	11	1	3	0	6	0	0	40	.161
	35.7	7.1	15	45.8	11.1	23.1	0	24.4	0	0	23.5	
4	13	5	8	10	1	0	1	8	0	0	46	.013
	31	35.7	40	41.7	11.1	0	12.5	32	0	0	27.1	
5	27	7	14	12	2	5	2	16	0	6	81	.037
	64.3	50	70	50	22.2	38.5	25	64	0	54.5	53.5	
6	9	1	7	6	1	1	1	8	0	4	38	.061
	21.4	7.1	35	25	11.1	7.7	12.5	32	0	36.4	22.4	

1 = Availability of relevance information; 2= Local accessibility; 3= Easy of access and use ; 4= Wide coverage; 5= Current resources; 6 = Reliable resources.
A = UDSM; B = ARU; C = MUHAS; D = UDOM; E = IRDP; F = MUST; G = TEKU; H = SUA; I = SUZ; J = ZU

The results in Table 11 indicate that respondents from the surveyed institutions consider e-databases important because of their provision of current resources (53.5%), availability of relevant information (31.8%), and wide subject coverage (27.1%). The databases are also perceived important due to their easier accessibility and use (23.5%), provision of reliable resources (22.4%) and ability to be accessed locally (12.9%). Most of the academic staff and researchers from the UDSM, ARU, MUHAS, UDOM, SUA and ZU perceived that online databases provide access to current resources. Regarding the availability of relevant information, local accessibility, ease of access and use, and reliable resources, the results reveal insignificant difference since p – values > 0.05 were returned across the surveyed institutions. Apart from that, the results show that a significant difference was found on wide coverage and current resources across the studied institutions.

Challenges academic staff and researchers face in accessing e-resources

The respondents were asked to outline the challenges they encountered when accessing and using e-resources to support teaching and research. Their responses are summarized in Table 12 below.

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Table 12: Challenges academic staff and researchers face in accessing e-resources

		Institution										Total	Sig.
	A	B	C	D	E	F	G	H	I	J			
1	27	5	11	9	5	4	3	15	1	3		83	
	64.3	35.7	55	37.5	55.6	30.8	37.5	60	25	27.3		48.8	.137
2	30	13	16	17	4	10	5	19	0	10		124	
	71.4	92.9	80	70	44.4	76.9	62.5	76	0	90.		72.9	.016
3	11	7	4	7	1	4	2	3	1	3		43	
	26.2	50	20	29.2	11.1	30.8	25	12	25	27.3		25.3	.480
4	28	7	9	5	1	2	1	11	0	8		72	
	66.7	50	45	20.8	11.1	15.4	12.5	44	0	72.7		42.4	.000
5	9	1	7	8	1	2	1	7	0	6		42	
	21.4	7.1	35	33.3	11.1	15.4	12.5	28	0	54.5		24.7	.140
6	15	6	11	11	1	4	1	13	0	0		6.	
	35.7	42.9	45	45.8	11.1	30.8	12	52	0	0		35.3	.043
7	16	4	11	14	2	4	3	10	0	2		66	
	39.0	28.6	55	58.3	22,2	30.8	37.5	40	0.0	18.2		39.1	.183

1 = Inability to access full text document; 2 = Slow internet speed; 3 = Shortage of computers; 4 = Unreliable power supply; 5=Lack of awareness; 6 = Time consuming to find relevant resources; 7 = Inadequate searching skills and knowledge

A = UDSM; B = ARU; C = MUHAS; D = UDOM; E = IRDP; F = MUST; G = TEKU; H = SUA; I = SUZ; J = ZU

The results show that slow Internet speed was cited by most of the academic staff and researchers (72.9%) across the universities. Challenges such as the inability to access full text documents and unreliable power supply appear to be critical at the UDSM, MUHAS, IRDP and SUA. Inadequate searching skills and knowledge was seen to undermine access to and use of e-databases and resources at the UDOM and MUHAS. Furthermore, shortage of computers and lack of awareness were found to limit access to and use of e-databases and resources at the surveyed institutions. A Chi-square test performed revealed a significant difference on the effect of slow Internet speed, unreliable power supply, and time constraints on usage of e-databases across the institutions.

DISCUSSION

This study sought to compare the usage of e-resources by academic staff and researchers across higher learning institutions in Tanzania. The study has revealed that the extent of usage of e-databases varies not only among institutions, but also across individual databases. Although the overall usage appears to be low and infrequent for each database, some (Taylor and Francis Online, Research Management Science, and Emerald) databases are used more frequently than others. These findings are in line with what Siwach and Malik (2019) found in their study that examined the use of e-resources by science faculty and researchers in selected North Indian universities. According to their study, the databases mainly used were Science Direct, Springer Link, Taylor and Francis, Nature, Web of Science, Wiley Blackwell, SciFinder Scholar, Annual Reviews and Oxford University Press. The use of these databases in the current study can be attributed to the presence of researchers that need the information they contain. In this case, the presence of respondents with natural science backgrounds in the current study may explain the

similarities of the databases reported in both studies. The infrequent use of e-databases reported in this study appears to be something that can be attributed to how easy researchers and academic staff of higher learning institutions considered access to e-databases.

Accordingly, the findings suggest that not all responding academic staff and researchers found access to e-resources easy. Considering that some of the researchers and academic staff found accessing these resources difficult, they would not be expected to access frequently. As a result, an insignificant number of academic staff and researchers frequently accessed and used the resources. Regarding e-databases access points, the findings show that the resources are accessed in various ways. However, among these, personal computers were found to be the most used for this purpose, followed by libraries, and office computers. In general, these findings support those from a study by Bamidele et al. (2018) which revealed that the majority of e-database users access them while on campus. In other words, the e-database users depended on institutional infrastructure to access these resources. This can be attributed to the fact that most of the e-databases made available through subscription are accessed on campus due to IP range restriction (Mwantimwa et al., 2017). However, the usage of personal computers by most of the respondents appears to suggest that e-databases access also happens in locations away from the campuses of institutions of higher learning. This also applies to respondents that indicate they use mobile devices to access these resources. In fact, the geographical restriction of access to these resources has been reported to encourage people to use open access databases.

Regarding learning about the availability of e-resources, the findings indicate that some of academic staff and researchers learn through library staff, information literacy programmes, colleagues, and library websites. On the importance of e-resources, the findings show that the resources have been found to play an important role in teaching and research. Access to and use of e-resources positively contributed to access to and use of up-to-date references, improvement of teaching methods and preparation of teaching materials. The findings suggest that not only have teaching activities been improved; research activities such as conducting literature review, proposal writing, accessing secondary data, identification of research areas, report writing, and timely submission of reports were also enhanced. A study by Aladeniyi (2017) supports the finding that e-resources constitute an important source of current and timely data and information, and offers ease of access and storage, and enhances time saving. Regarding research activities, access to and use of e-resources have improved the publication of journal articles and books, collaborative publishing, and dissemination of the findings. Across the institutions studied, the findings suggest that there is a significant difference in the way e-resources improve research activities. Overall, e-resources are perceived important due to their accessibility, relative ease of use and access to reliable information.

In addition, the study's findings suggest that the institutions are not immune to factors that undermine access to and use of e-resources by researchers and academic staff. For example, slow Internet connection was the biggest challenge across the surveyed institutions. Further, ineffective use of both subscribed and free and open access resources was associated with inability to access full text documents, time constraints to retrieval of relevant teaching and research resources, unreliable power supply, and shortage of computers. While unreliable power supply was a noticeable problem at UDSM, ARU and ZU; shortage of computers was observed at ARU. The findings also indicate that information literacy was not effectively provided to academic staff and researchers as some of them were found to have inadequate search skills and knowledge as supported by Kalogiannakis (2010). Problems such as unfamiliarity with searching for e-resources, lack of training and limited access to terminals were also documented by several extant studies (e.g. Sohail & Ahmad, 2017; Isubika & Kavishe, 2018; Kumar & Reddy, 2016).

CONCLUSION

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Although the findings reveal that e-resources users recognize their importance, the less frequent usage is something to worry about. The findings clearly indicate unsatisfactory use of e-resources. The findings suggest that efforts being made to subscribe to these resources are not going hand in hand with investment in infrastructure to enhance their access and usage. Though the present study has identified various challenges that contribute to this state of e-resources usage, inadequate ICT infrastructures, poor Internet services, poor searching skills and technophobia appear to have the greatest impact. Improvement of ICT infrastructure is likely to improve the usage of these resources, a development that is also likely to improve teaching and research activities in the country. To strengthen the usage, outreach programmes by librarians and an embedded librarian model are recommended for adoption, while ICT infrastructure, and off campus access should be improved.

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