

PERii electronic journals: Assessing access and use by postgraduate students in the School of Education at the University of Dar es Salaam

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Abstract

This paper is based on the findings of a study that assessed the awareness of Programme for Enhancement of Resources Initiative (PERii) electronic journals, their use and challenges encountered by postgraduate students. The study was carried out at the University of Dar es Salaam and involved postgraduate students in the School of Education. A combination of questionnaire for postgraduate students and interviews for Reference Librarians was used to collect data. Findings revealed that the majority of the respondents became aware of PERii electronic journals through various sources. The resources are widely used, including for the exploration of ongoing scientific debates through peer reviewed papers. The challenges encountered are largely infrastructural, including inability to access resources from home, together with limited information and computer literacy. Recommendations for improving access and use of PERii electronic journals are given.

Keywords: E-resources, Postgraduate students, User studies, Tanzania

Introduction

The International Network for the Availability of Scientific Publications (INASP) is a non-governmental organisation based in Oxford, United Kingdom. INASP has been supporting institutional subscription to electronic journals through the Programme for Enhancement of Resources Initiative (PERii) programme. The programme started as a pilot study ran from November 2000 to December 2001 followed by the first full five-year phase (PERI) beginning in January 2002 before developing into a second five-year phase (PERii) that ended in 2013. The end of PERii programme marked the beginning of the new programme known as Strengthening Research and Knowledge Systems (SRKS) programme in April, 2013 (INASP-PERI, 2013), a five-year programme in which many of PERii's aspects have been continued under this new programme (INASP-SRKS, 2015). Through SRKS, INASP has continued supporting the institutional subscription to electronic information resources in developing countries including Tanzania.

PERii electronic information resources are provided under the PERii programme which includes electronic journals, electronic books and other electronic information resources. Through PERii, INASP, in conjunction with research partners, librarians and information scientists in developing

countries, subscribes to electronic information resources and makes them available at low cost (Adesoye & Amusa, 2013).

Tanzania, as one of the INASP partner countries (INASP,2013), has been exploiting this opportunity as well as subscribing to a number of journal databases available under the PERii programme, making them available to researchers, students, faculty members and others to access and use. Manda (2005) explains that the INASP's PERI project initiative in 2001 was the first attempt to introduce the use of full-text electronic journals to support research and academic activities in Tanzania. The University of Dar es Salaam is one of the institutions that has benefited from this initiative and its library has continued to serve as a co-ordinating centre in Tanzania (Manda, 2005; INASP, 2013).

Manda (2005) and Ahmed (2013b) indicated that students use electronic information resources to acquire information for research literature, to get information for working on their assignments, and as part of the learning process to increase knowledge; faculty members use electronic information resources to prepare teaching materials as well as acquire information for research literature. This use pattern signals that electronic information resources are important and widely used by students, faculty members, and researchers. The advantages of electronic information resources include flexibility in searching for these resources; they can be accessed anywhere at any time; they can be downloaded, stored and printed; they can be manipulated and many more (Adesoye & Amusa, 2013). Various publications report challenges to the access and use of electronic information resources to include slow internet connection, limited access to PCs, lack of skills in searching for electronic information resources, unstable power supply, limited range of titles of resources, inability to access electronic information resources subscribed to by the institution from home, and lack of awareness of the resources by most of the users (Ahmed, 2013a; Manda, 2005). A number of studies have been carried out on accessing and using PERii electronic information resources. However, most of the studies did not focus on a specific group, especially in the case of Tanzania. This has motivated this study to assess the access and use of PERii electronic journals by postgraduate students in the School of Education as a specific group and prominent users of PERii electronic resources at the University of Dar es Salaam.

Research objectives

The main objective of this study was to assess the access to and use of PERii electronic journals by postgraduate students at the University of Dar es Salaam. The study specifically intended to:

- Determine whether postgraduate students in the University of Dar es Salaam's School of Education (SoED) are aware of PERii electronic journals;
- Examine whether the postgraduate students access PERii electronic journals;
- Establish whether the postgraduate students use PERii electronic journals;
- Identify the challenges postgraduate students encountered when accessing and using PERii electronic journals.

The study would improve best practice among librarians who are responsible for managing the electronic resources by exposing the challenges encountered in the access and usage of these resources in addition to providing suggestions on how to improve the access to and usage of electronic journals. The study will also contribute to the existing literature on the importance of

accessing and using electronic journals that are subscribed to by various institutions particularly in a developing country context.

Literature review

PERii electronic information resources

PERii electronic resources are electronic information resources which are provided under the PERii initiative programme, which includes electronic journals, electronic books and other electronic resources. INASP in conjunction with research partners, librarians and information scientists in developing countries, subscribes to electronic resources on behalf of its partner countries (for example, African countries) and makes them available at a low cost (Adesoye & Amusa, 2013).

The PERii (now SRKS) initiative involves a number of stakeholders, including some university libraries in Africa, Asia, and Latin America, INASP and the donor communities with the aim of facilitating the acquisition of international information and knowledge by researchers through the acquisition of full-text online journals, current awareness databases and document delivery; providing training in the use, evaluation and management of electronic Information and Communication Technologies (ICTs); and improving access to research information through the establishment of institutional, national and regional online journal services for example, African Journals Online [AJOL] (Manda, 2005).

Utilisation of PERii electronic information resources in Tanzania has been maximised through the Consortium of Tanzania Universities and Research Libraries (COTUL). COTUL has facilitated the acquisition and availability of these resources on behalf of 41 universities and research institutions (EIFL, 2013).

Awareness of PERii electronic information resources

Awareness of the available electronic journals is important when it comes to accessing and using these resources. Manda's (2005) study reported high awareness of the resources within Tanzania's academic and research institutions and that the level of use was also related to awareness of the availability of the electronic information resources. In addition, Harle (2010) argues that maximising the use of electronic information resources requires users to be aware of their existence, to appreciate their scholarly value and to know how to access and search for them effectively. A study by Adesoye and Amusa (2013) found that awareness of electronic information resources helped the personnel in the tertiary health institutions to access and use these electronic resources. A high level of use of the available electronic information resources has been found by other researchers to be linked to high awareness of resources within the institution (Rosenberg, 2008). Since most of the users access and use electronic information resources when they are aware of their availability, checking for the awareness of these resources in developing a marketing approach for them is a sensible institutional move (Ahmed, 2013b).

On the other hand, Shija (2009) comments that most of the library users in Tanzania are not aware of electronic information resources and that PERii electronic journals are not well known by many of the academic institutions users who are the main beneficiaries. According to Shija (2009), this problem may be attributable to library staff lacking marketing skills appropriate for promoting their existing resources, including electronic information resources. Gakibayo, Ikoja-

Odongo and Okello-Obura (2013) contend that lack of use of electronic information resources at Mbarara University may be attributed to the lack of awareness amongst the students regarding the availability of the electronic databases and lack of awareness of the relevance and value of electronic information resources.

To improve the level of awareness of the electronic information resources available, various strategies have been used. These strategies include the promotion and marketing of these resources using flyers, emails, posters, newsletters, library websites, and so on; training the end-users and workshops with the aim of equipping users with necessary skills and knowledge to use the resources (Rosenberg, 2008; Harle, 2010; Shija, 2009). Islam, Alam and Sultana (2011) argue that training programmes and workshops on electronic journals should be arranged to increase awareness among the users and to inform them about the search interfaces, sophisticated retrieval skills and techniques of using electronic journals, as well as computer skills. On the other hand, training, such as Information Literacy training, has been suggested to be included into the curricula of universities to give more emphasis to the acquisition of learning skills; this can help generate information literate students and researchers (Kinengyere, 2007). Adesoye and Amusa (2013) support this view by arguing that Information Literacy training should be an integral part of the university in a bid to equip users with necessary skills for accessing and using electronic information resources.

Access to PERii electronic information resources

The availability of Information and Communication Technology (ICT) has transformed and facilitated teaching, learning and research. Increased access to reliable and up-to-date electronic information resources has been motivated by the availability of cheaper ICT hardware and increasing internet coverage in Sub-Saharan Africa (Smith *et al.*, 2007). The development and use of ICT and the availability of Internet services has enabled faculty members to prepare teaching materials using electronic information resources; students to study and learn using electronic information resources; and researchers to depend on the electronic information resources in the preparation of researches. However, access to electronic information resources depends on the availability and stability of ICT infrastructure (for example, computers, and adequate bandwidth), and awareness of the available resources.

The availability of computers and the Internet has enabled access to PERii electronic information resources in many of institutions of higher learning. According to Manda (2005), high level of access to PCs also determines high level of access to electronic information resources. Ahmed (2013) argues that academic community were faced with poor information technology (IT) infrastructure in accessing electronic information resources as well as associated cost of these services; however, with the increased availability of computers and Internet connection the majority of faculty members in Bangladesh started accessing electronic information resources from their office, home, and from the internet café. The availability of wireless Internet as well as the increase in the number of computers for public access in computer labs, libraries and residential halls has ensured greater accessibility to technology and electronic information resources at the university campuses (Ahmed, 2013b).

Use of PERii electronic information resources

Electronic information resources have been widely used by faculty members, students and researchers. A study by Ahmed (2013b) reports that faculty members of public universities in Bangladesh used electronic information resources for learning, teaching, research and obtaining current information. This outcome was also supported by the study by Manda (2005) which showed that academic staff use electronic information resources mainly for searching for literature for research purposes and teaching materials; students tend to use electronic information resources to get information for their research and assignments. Also, scholars have become largely dependent on electronic information resources and have adopted them as common tools in their academic activities as they use them for research purposes, learning and up-dating their knowledge in their research areas (Amjad, Ahmed, & Naeem, 2013). Moreover, the healthcare personnel in tertiary institutions in Nigeria use electronic information resources for professional and academic practices (Adesoye & Amusa, 2013).

Challenges in access and use of PERii electronic information resources

Various studies have reported a number of challenges regarding the access to and use of PERii electronic information resources. A study by Manda (2005) reported limited access to Personal Computers (PCs); slow internet connection; lack of skills in searching for electronic information resources; unstable electricity supply/frequent power cuts; high internet café charges; and the prevalence of software viruses. Similarly, Agber and Agwu (2013) and Shija (2009) also found the challenge of unstable power supply; network failure; and lack of adequate skills in accessing the resources and using computer. Other challenges include high cost of access and usage of online resources, non-subscription for relevant online resources by institutions; and lack of sponsored training from the institutions (Agber & Agwu, 2013); inadequate funds to support training, improve infrastructure and subscription; unreliable electricity; and poor infrastructure and connectivity (Shija, 2009). Ahmed's (2013a) study that was carried out in Bangladesh public universities, found challenges to accessing and using e-resources to include limited number of electronic journal titles with richer content, limited access to computers and slow download speed, inability to access electronic information resources from home, difficulty to find relevant information for their subjects and limited access to back issues of e-journals.

Research Methods

The study was conducted at the University of Dar es Salaam, Tanzania. It involved postgraduate students in the School of Education (SoED), as well as Reference Librarians of the University of Dar es Salaam Library. The postgraduate students were the target group of this study because they are the prominent users of electronic information resources at the University. The study determined to what extent postgraduate students were aware of PERii electronic journals in terms of access and use as well as challenges they encountered in the process of accessing, retrieving and using these e-resources. A cross-sectional research design was used as it allows for the use of more than one collection method. The study used self-administered questionnaires with both closed-ended and open-ended questions which were distributed to postgraduate students as well as semi-structured interviews held with Reference Librarians who assist students and other library users to access PERii electronic journals resources. This multiple approach facilitated the collection of deeper insights into the views of respondents.

A non-probability sampling approach, particularly purposive sampling was used, whereby only postgraduate students in SoED were involved in the study. This population was selected because,

according to the statistical report obtained from the University Library, they make the most use of the electronic journals at the University. SoED had a postgraduate population of 321 master's students and 32 doctoral students. Purposive sampling was used to select 100 postgraduate students from two departments thusly: 30 master's students and five PhD students from the Department of Education Psychology and Curriculum Studies, and 60 master's students and five PhD students from the Department of Educational Foundations, Management and Lifelong Learning. Also, all the six Reference Librarians responsible for assisting users to gain access to PERii resources were purposively selected for interviews. Both samples were selected because they constitute about one-third of their respective populations and, thus, making the sample consistent with advice from Kothari (2004) and Saunders, Lewis and Thornhill (2009). According to Kothari (2004), the size of sample should neither be excessively large, nor too small; it should be optimal. Saunders, Lewis and Thornhill (2009), on their part, state that the "sample size of 30 or more will usually result in a sampling distribution for the mean that is very close to the normal distribution" and that "the larger the absolute size of a sample, the more closely its distribution will be to the normal distribution". The study used the Statistical Package for Social Sciences (SPSS) software to analyse quantitative data with qualitative data subjected to content analysis.

Results and Discussion

Awareness of PERii electronic journals by postgraduate students

Ninety-five percent of respondents declared themselves to be aware of PERii electronic journals available at the University of Dar es Salaam: all the ten PhD students involved in the study claimed to be aware of PERii electronic journal; 85 master's students claimed to be aware of the resources whereas five master's students were not aware (these five respondents were, thereafter, excluded from further questions). Overall, this is consistent with the results of the study by Manda (2005) which reported high awareness of the electronic information resources within Tanzania's academic institutions. However, the findings are contrary to those of Shija's (2009) study on special libraries, which indicated a widespread lack of awareness. The elevated level of awareness among postgraduates might have been enhanced by the promotion and marketing taking place at the University, especially by the librarians who shoulder this responsibility as part of their job descriptions. Promotion and marketing have been suggested by Rosenberg (2008), Shija (2009) and Harle (2010) as important approaches to improving the level of awareness of these resources.

The Reference Librarians were also asked about how aware the users were of PERii electronic journals. Somewhat in contrast to the postgraduate students' responses, the Reference Librarians commented that not all the postgraduate students, as well as other users including the undergraduate students, staff and researchers, were aware of the PERii electronic journals available via the University's gateway; furthermore, low usage statistics of the resources tend to confirm the comments made by the Reference Librarians. The following is one of the responses from the Reference Librarian (hereafter identified as I):

Few are aware of PERii electronic journals: this can be evidenced by the low usage statistics and this information can be obtained from INASP co-ordinator (Reference Librarian I).

The respondents were also asked to indicate in what ways they were made aware of PERii electronic resources. Most of the respondents indicated that several means had an impact on them as indicated in Table 1:

Table 1: How postgraduate students become aware of PERii electronic journals (N = 95)

Way the postgraduate students become aware	Responses	Percent
Through the Library website	77	81.1
Through the Notice board	19	20
Through fliers	10	10.5
Through posters	10	10.5
Through colleagues	28	29.5
Through Library training (IL)	21	22.1
Through Library brochure	11	11.6
Through Library guide	20	21.1
Through the librarian	35	36.8
Through the supervisor (lecturers)	13	13.7

Source: Field Data (2014) Note: The responses were not mutually exclusive, hence the respondents were able to give multiple responses.

Of the postgraduate students who were aware of PERii electronic journals, 81.1 percent had gained information through the Library website, while 36.8 percent had benefited from information given by a Reference Librarian, a group which has been playing a significant role in marketing and promoting the resources. The library website is one of the promotion and marketing strategies reported to have a positive impact by the study by Rosenberg (2008). Other respondents reported that they become aware of PERii electronic journals through colleagues (29.5%); Information Literacy training (22.1%); library guides (21.1%); Library notice-board (20.0%); dissertation/thesis supervisors (13.7%); brochures (11.6%); fliers (10.5%); and posters (10.5%).

The Reference Librarians confirmed that the Library has been playing a significant role in marketing and promoting PERii electronic journals. The following is one of the comments from the Reference Librarians:

The resources are advertised on the UDSM Library Website; brochures about PERii resources are printed and distributed to the Library users; during Orientation sessions students/Library users are told about PERii resources which are available; and Information Literacy is used to let the Library users know about the resources and are taught how to access and use them (Reference Librarian II).

Regarding how they promote the resources, the Reference Librarians commented that the Library website lists the resources; they also use fliers, word of mouth, orientation sessions, brochures as well as using various exhibitions and displays.

Training on Access and Use

Only 30.5 percent of the respondents had received training on how to access and use PERii electronic journals despite the Library having been providing Information Literacy (IL) training. It may be that the majority of the students are reluctant to attend these training sessions. The

statistics obtained from the Library shows that the number of students who register for this training is always high but the attendance during the training session usually tends to be rather low. Also, the information obtained from the library indicate that the training is always provided free-of-charge to Library users but many students are reluctant to attend because they tend to dismiss the training as a non-beneficial routine Library training which would not add value to their studies. Moreover, the training is not integrated in the curriculum. The study by Kinengyere (2007) indicated that integrating IL into the University curriculum yields good results and makes students, as well as researchers information literate; also such integration helps to increase electronic information resources utilisation (Gakibayo, Ikoja-Odongo, & Okello-Obura, 2013).

Access to PERii electronic journals by postgraduate students

Of the respondents who were aware of PERii electronic journals, 95.8 percent reported having access to the journals whereas only 4.2 percent claimed not having access to PERii electronic journals. This finding confirms Ahmed’s (2013b) findings which indicated that the majority of faculty members had access to electronic information resources with only a few of them claiming not having access to such resources.

Those few respondents who did not have access to PERii electronic journals mentioned unreliable internet connectivity, frequency of power-cuts at the University, difficulty in accessing PERii electronic journals and lack of awareness as reasons for non-use of PERii electronic journals. These findings were also reported by Manda (2005), Ahmed (2013a), Agber and Agwu (2013), and Shija (2009).

Methods used in searching for PERii electronic journals

The respondents were asked to indicate the methods they used while searching for PERii electronic journals. The findings are as presented in Table 2:

Table 2: Methods used in searching for PERii electronic journals (N = 91)

Method	Responses	Percent
Keyword searching of electronic journal databases	57	62.6
Author searching from the electronic journal databases	37	40.7
Truncation	15	16.5
Boolean operators	2	2.2

Source: Field Data (2014) Note: The respondents could provide multiple responses

The majority (62.6%) of the respondents who knew about and used the resources employed keyword searching to locate suitable articles as Table 2 illustrates primarily because many of the respondents did not know the authors of the articles for which they were searching. As a result, they used keywords related to the topics of their search to retrieve articles that appear to best meet their information needs. Author searching is also used as reported by 40.7 percent of respondents reported using author search. Truncation as a search technique was used by 16.5 percent of the respondents whereas only 2.2 percent of the respondents used Boolean operators. The low use of these techniques may be attributed to non-attendance at Information Literacy training during which they could have been exposed to searching using truncation and Boolean operators.

Popular tools used by respondents in searching for PERii electronic journals

The respondents were also asked to indicate the tools they applied in searching for PERii electronic journals.

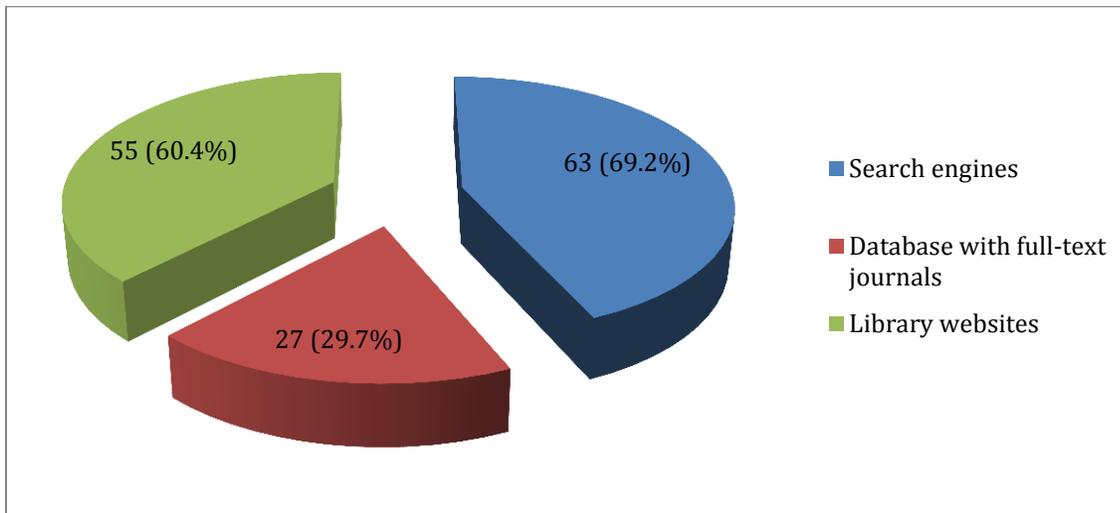


Figure 1: Popular tools used in searching PERii electronic journals (N = 91)

Source: Field data (2014) Note: The respondents could make multiple choices of tools

The most popular tools were search engines, for example, Google with 69.2 percent reporting this, as shown in Figure 1. This supports Ahmed’s (2013b) and Agber and Agwu’s (2013) findings to the effect that the most popular tool used was a search engine. The Library website was also popular, with 60.4 percent of the respondents claiming to use it by following a link which points directly to the journal database where users can search for electronic information resources directly. Only 29.7 percent of the respondents indicated using the database with full-text journals when searching for PERii electronic journal databases. This might be because the majority of the users did not know the names of PERii electronic journal databases. As such, they preferred to use other means of searching to meet their information needs.

The location from which PERii electronic journals are accessed

The respondents were also asked to indicate the locations from which they accessed PERii electronic journals; they were at liberty to provide multiple responses as indicated in Table 3:

Table 3: The place from which PERii electronic journals are accessed (N = 91)

Category	Responses	Percent
In the Library	69	75.8
In a computer lab	35	38.5
In a hostel	15	16.5
In the class room	26	28.6
In the Internet Cafe	17	18.7

Source: Field Data (2014) Note: The respondents could make multiple responses

The findings show that 75.8 percent of the respondents access the resources in the Library. This supports Ahmed's findings (2013b) that a significant number of faculty users accessed the electronic information resources from the university library. The Library is the principal place where postgraduate students access PERii electronic journals because the Library, as the coordinator for INASP-PERii in Tanzania (Manda, 2005; INASP, 2013), is the pioneer in marketing and promoting access to and use of electronic resources at the University of Dar es Salaam. Moreover, the Library has a number of computers Internet-connected in the Reference and Documentary Delivery Section for students to use free-of-charge. Therefore, it is the most convenient place for many of the students to access PERii electronic journals.

Other access points included a computer lab connected to the Internet as indicated by 38.5 percent the respondents; classrooms (28.6%); student hostel (16.5%) ; and an Internet café as indicated by 18.7 percent of the respondents. However, very few articles can be retrieved when someone is in an Internet café because it is outside the IP range of the University.

Reasons for accessing PERii electronic journals

The respondents were also asked to indicate their reasons for accessing PERii electronic journals. The respondents mentioned various reasons for accessing PERii electronic journals as presented in Table 4:

Table 4: Reasons for accessing PERii electronic journals (N = 91)

Category	Responses	Percent
They are reliable and up to date resources	52	57.1
They are easily accessed at anytime, anywhere	48	52.7
Free availability at the university campus	41	45.1
Articles can be downloaded and stored	37	40.7
Articles can be printed	24	26.4

Source: Field data (2014) Note: The respondents could make multiple responses

As with other studies, for example that of Ahmed (2013b), the respondents indicated that their main reasons for accessing PERii electronic journals included the perceived currency and reliability (57.1% respondents); easy accessibility at anytime and anywhere within the IP range of the University (52.7%); availability free-of-charge services at the university campus (45.1%); they are downloadable and easily stored (40.7%); and they can be printed out (as indicated by 26.4% of the respondents).

ICT device used to access PERii electronic journals

When asked to indicate which ICT devices they used to access PERii electronic journals, the respondents indicated various ICT devices as presented in Table 5:

Table 5: Devices used to access PERii electronic journals (N = 91)

Device	Responses	Percent
Computers in the Library	69	75.8
Computers in a computer lab	38	41.8
Personal laptop	43	47.3
Personal smart-phone	18	19.8

Personal iPad	17	18.7
Personal Tablet	6	6.6

Source: Field Data (2014) Note: The respondents could make multiple responses

The majority, 75.8 percent, indicated that they use computers in the Library. Indeed, the Library has computers for students to use free-of-charge when accessing electronic journals, which are located in the Reference and Documentary Delivery Section. Also, the students prefer to use computers in the Library because the Internet is available and, in the case of the power outage, the Library has a standby generator to provide power. Personal laptops are the second most popular device used for searching for PERii materials as reported by 47.3 percent of the respondents, a reflection of the growing level of ownership of personal laptops. Other ICT devices used include computers in the laboratory (as indicated by 41.8% of the respondents); smart-phones (19.8%); iPads (18.7%); and tablet devices (6.6%). The findings confirm that the greater availability of computers and other ICT devices has increased the level of access to PERii electronic journals; this finding is in accord with those of Manda (2005) and Agber and Agwu (2013).

Use of PERii electronic journals

Purpose of Use

Respondents indicated various purposes for using PERii electronic journals as shown in Table 6:

Table 6: Purposes of using PERii electronic journal resources(N = 91)

Purpose	Responses	Percent
Working on the assignments	63	69.2
For working on dissertation/thesis	54	59.3
For literature purpose	35	38.5
For research proposal writing	32	35.2
For research report writing	29	31.9
For current awareness	21	23.1
For leisure	6	6.6
For extra exploration of ongoing scientific debates	1	1.1

Source: Field Data (2014) Note: The respondents could make multiple responses

Working on an assignment was indicated by 69.2 percent of the respondents as the first reason for using the resources as most of respondents were master's students studying by coursework and dissertation. The use of PERii electronic journals as part of their dissertations or theses development is popular, as it was reported by 59.3 percent of the respondents. Master's students develop their dissertations after completing the coursework to fulfil the remaining requirement of their respective degree programme. Likewise, doctoral students are required to develop their theses and, therefore, they have been using PERii electronic journals to work on their theses. Some 38.5 percent of the respondents use PERii electronic journals for literary purposes; for proposal writing (35.2%); literature review writing and report review writing (31.9%); for current awareness (23.1%); for leisure (6.6%) and for extra exploration of ongoing scientific debates through peer-reviewed papers (1.1%).The findings are contrary to that of Ahmed's (2013b) study which found the major reason for using electronic information resources by

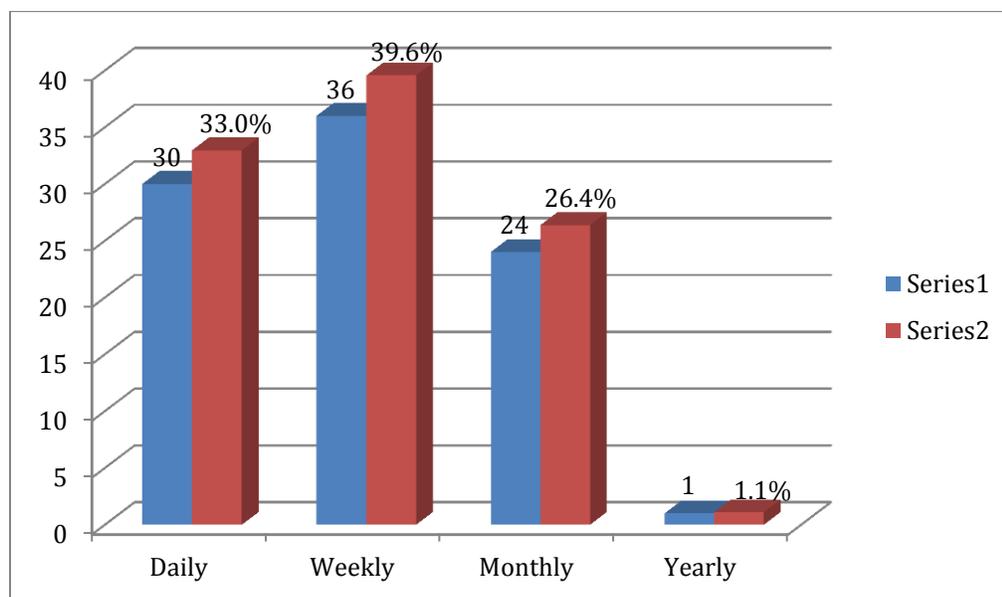
faculty members being for research, followed by learning, teaching and obtaining current information.

The Reference Librarians reported that PERii electronic journals are used for research purposes including proposal writing, literature review and report writing; working on assignments; preparing teaching materials; and for reference purposes. The following is one of the Reference Librarian’s comments:

The resources help students, for example, when they are writing their proposals and compiling their literature review. Also, they help the students when they are working on their assignments because the Library doesn’t have enough materials, so the resources supplement other materials and the fact that the resources are current, they are so useful. Moreover, the resources help in scholarly academic works, for example, they help lecturers prepare their lectures/teaching materials (Reference Librarian II).

Frequency of use of PERii electronic journals

The respondents were asked to indicate the frequency of use of PERii electronic journals and the findings are as presented in Figure 1:



Series 1 is number of respondents; Series 2 is percentage of respondents

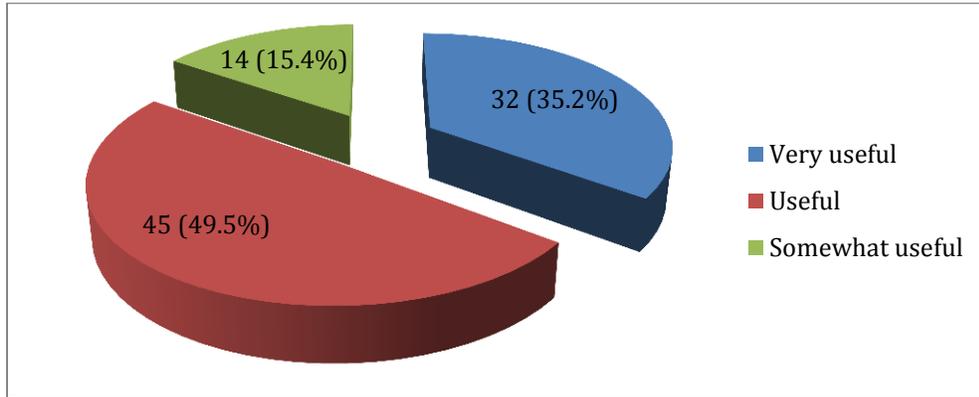
Source: Field data (2014) Note: The respondents could make multiple responses

Figure 1: Frequency of use PERii electronic journals (N = 91)

The majority (72.6%) of the postgraduate students use PERii electronic journals as follows: 33 percent on daily basis; 39.6 percent on weekly; 26.4 percent on monthly and 1.1 percent annually as indicated in Figure 1. This reveals that PERii electronic journals are important as they are widely used by postgraduate students for different purposes. This finding is somewhat contrary to the findings by Ahmed (2013b) who found the largest group of users of electronic information resources on daily basis to be faculty members.

Perceived usefulness of PERii electronic journal resources

The respondents were also asked to indicate the perceived usefulness of PERii electronic journals. The respondents responded positively regarding the usefulness of PERii electronic journals as Figure 2 illustrates:



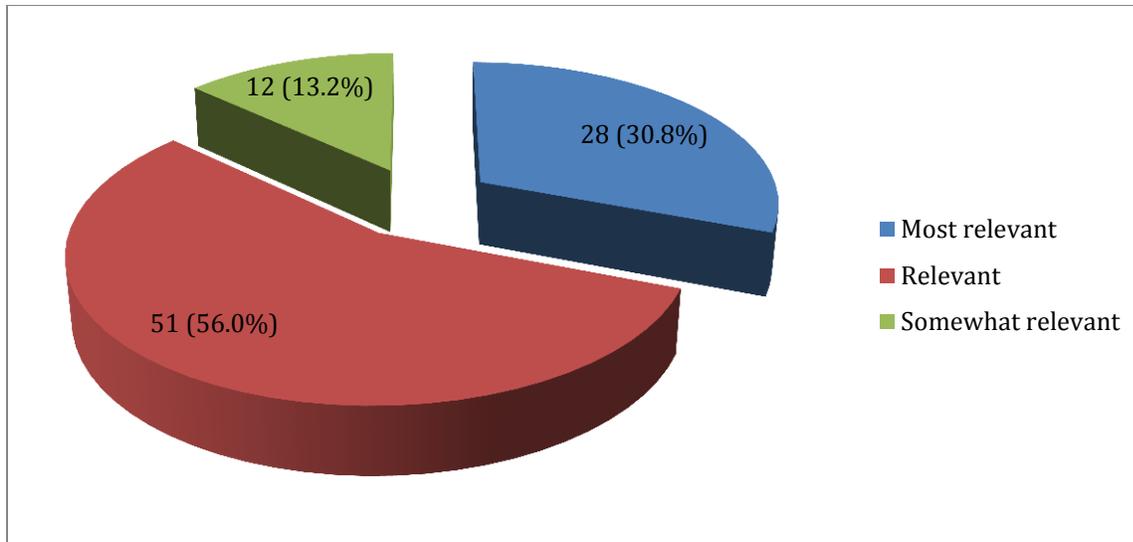
Source: Field Data (2014) Note: The respondents could make multiple responses

Figure 2: Perceived usefulness of PERii electronic journals (N = 91)

The results in Figure 2 show that 32 (35.2%) respondents reported that PERii electronic journal resources are very useful; 45 (49.5%) that PERii electronic journal resources are useful; and 14 (15.4%) respondents reported that PERii electronic journal resources are somewhat useful. None of the respondents responded that the resources are not useful at all. This reveals that PERii electronic resources are important and useful resources to postgraduate students at the University of Dar es Salaam.

Perceived relevance of PERii electronic journals

The respondents were also asked to indicate the relevance of PERii electronic journals. The respondents had positive responses to the question on the relevance of PERii electronic journals as Figure 3 illustrates:



Source: Field data (2014) Note: The respondents could make multiple responses
 Figure 3: Perceived relevance of PERii electronic journals (N = 91)

As Figure 3 demonstrates, the respondents were largely positive, with 86.8 percent of the respondents agreeing that PERii electronic journals are most relevant or relevant; 13.2 percent reported them as only somewhat relevant. None of the respondents regarded PERii resources as irrelevant resources. These findings are in accord with Rosenberg's (2008) study in which the majority of respondents in higher learning institutions in Ethiopia asserted that PERI resources were relevant to their subject interest.

Reasons for not using PERii electronic journals

The four respondents who indicated that non-use of PERii electronic journals gave as reasons their preference for printed sources as it was also reported by Rosenberg (2008), a lack of knowledge of how to gain access to the resources and a history of facing difficulties in locating the resources.

Challenges encountered in accessing and using PERii electronic journals

Respondents were also asked to consider the challenges they encountered when accessing and using PERii electronic journals. This question was answered by all the respondents who are aware of PERii electronic journals; multiple responses were possible and the respondents reported various challenges as shown in Table 7:

Table 7: Challenges encountered in accessing and using PERii electronic journals

Challenge	Responses	Percent
Power outage	64	67.4
Inadequate bandwidth	51	53.7
Limited access to computers	42	44.2
Slow download speed	48	50.5
Inability to access electronic journals from home	47	49.5
Difficulty to find relevant information	29	30.5

Lack of awareness on how to access PERii resources	37	38.9
I find making a search difficult	17	17.9

Source: Field Data (2014) N = 95 Note: The respondents could make multiple responses

A number of challenges were mentioned by the respondents in confirmation of findings from previous studies conducted by Manda (2005), Rosenberg (2008), Shija (2009), Agber and Agwu (2013) and Ahmed (2013a). Challenges reported by the respondents include power outage (67.4%); inadequate bandwidth (53.7%); slow download speed (50.5%); inability to access electronic journal resources from home (49.5%); limited computer availability (44.2%); lack of awareness on how to access PERii electronic journals(38.9%); difficulty in finding relevant information for some subjects (30.5%); and finding making a search difficult (17.9%).

The Reference Librarians, on their part, also reported various challenges that they faced in the provision of services of PERii electronic journals. These challenges included insufficient ICT infrastructure; power outage; inadequate bandwidth; the lack of access to resources outside the University; complaints that some of the resources are not relevant; complaints that some online resources fail to open; and insufficient funding. Comparing the two sets of responses, there was a consensus on the negative impact of inadequate network infrastructure and unstable power supplies. On the other hand, the Reference Librarians did not comment as strongly on matters of usage, which may suggest that postgraduate students do not pursue solutions to the difficulties they encounter by asking Reference Librarians for assistance.

Conclusion and recommendations

In the light of the findings, it can be concluded that PERii electronic journals are important and useful resources that support learning and research of the postgraduate students in higher learning institutions as the majority of the postgraduate students have reported that the resources are very useful and they actually access and use them. The resources have been found to be useful to the postgraduate students throughout their studies; they found them to be important, useful, and relevant resources for academic purposes and supplement printed resources available in the university library. Despite their importance, usefulness and relevance, there are various challenges to accessing and effective use of these resources such as power outage, inadequate bandwidth, limited access to computers, slow download speed, inability to find relevant information, lack of awareness on how to access PERii resources and failing to make a search altogether.

On the basis the study findings and conclusion, several recommendations can be made:

- a) Various methods for promotion and marketing of PERii electronic journals should be improved to raise the awareness on the availability of these resources. More efforts are needed to make sure that all members of the University community are aware of the resources and use them.
- b) Information literacy training should be integrated in the University' curriculum and should be made a compulsory course for all students in all disciplines. More training regarding the access to and use of PERii electronic journals (for example, Information Literacy training) should be provided regularly and its impact measured.
- c) The university should seek more funds to improve and develop ICT infrastructure for both the library and computer labs to help students access and use PERii electronic

information resources. The funds also should be used to buy other portable ICT devices in the library, such as tablets and laptops, and provide the opportunity for students and other Library users to borrow them at a given specific time when they want to access and use electronic journal resources.

- d) The University should ensure there is stable and reliable power by buying heavy-duty standby generators to overcome the problem of frequent shortage of power which hinder access and use of PERii electronic information resources. There should be also a fund to make sure that the generators are functioning properly whenever required. Also, the government should work hard to solve the general problem of power outage because it also affects network availability in case of Tanzania.
- e) PERii electronic journal resources should be capable of being accessed also outside the University campuses. The library should make the provision of passwords to *bona fide* users possible in order to allow PERii resources to be accessed from home or consider using an off-site validation service, such as the EZ proxy service supplied by OCLC.
- f) The University should ensure there is adequate bandwidth to facilitate the efficient accessing of electronic resources. Moreover, the University should make better use of the available bandwidth by shaping it so that services such as the ICT service offered by the Library receive a larger proportion of bandwidth than other services. This can even be adjusted to be time-dependent so that greater bandwidth is available in the library during the peak hour of usage.
- g) Subscriptions to more PERii electronic databases with information relevant to all courses pursued at the respective university should be added to solve the problems for those who fail to get resources related or relevant with their studies.
- h) The research should be conducted to investigate the impact and effectiveness of the present methods of marketing and promoting PERii electronic journals as well as the training provided; together with an investigation of what improved methods might be used to improve access and use of PERii electronic journals.

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