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Library Training to Promote Electronic Resource Usage: A case study in information literacy assessment¹

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Abstract

Purpose: Increasing the usage of electronic resources is an issue of concern for many libraries all over the world. Several studies stress the importance of information literacy and instruction in order to increase the usage.

Design/methodology/approach: The present article presents the results of implementing training programmes to encourage the use of the e-library.

Findings: Training sessions increase the usage of library e-resources significantly; however, the effect seems to be short-lived and training sessions alone may not increase the overall long-term usage.

Originality/value: The present paper presents a study of training sessions as means to increase awareness and usage of library e-resources. Implications for the planning of training are discussed.

Author keywords: library training, information literacy, usage, digital libraries, electronic libraries, e-libraries

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Introduction

Increasing the usage of electronic resources is an issue of concern for many libraries all over the world. Many users prefer to use popular Internet search engines over the systems made available by libraries (e.g. Georgas, 2013; Wu & Chen, 2014). Consequently, many library resources tend to be underutilized (e.g. Hong et al., 2002; Chen, & Chengalur-Smith, 2015). Stachokas (2014, p 100) stresses that a greater emphasis should be placed on information literacy, instruction and in-depth subject expertise. He argues that librarians need to change what they know, how they work, and how they are perceived in order to succeed. Agaba (2005) reveals that lack of training of staff and users is a challenging factor to the accessibility and utilization of e-journals, stating that, users find access to resources difficult and that staff may not have adequate skills to assist users.

Assessment of information skills or information literacy is typically found in case studies (Walsh, 2009). Measuring information skills or information literacy is no simple task and as stated by Walsh (2009: 25): “When deciding to design assessments tools for information literacy we must decide how to balance our needs for a test that is easy to administer with one that will truly assess the varied transferable information skills that information literacy implies”.

The usage of library resources is foundational to developing and demonstrating information skills and information literacy . Schilling and Applegate (2012) list commonly used methods of assessing library instruction, including “library usage”. They note that self-reported library usage is the common method for studying resource usage (see also Sobel & Sugimoto, 2012). One benefit of measuring demonstrated usage is that it can be tracked longitudinally. Tracking usage can be indicative of the potential for learning, although potential does not necessarily equal actual learning. While the larger goal is to improve student and staff information literacy skills, the first step is for them to use the library resources.

This paper presents the work of developing training programs for Kilimanjaro Christian Medical University College (KCMUCo). [KCMUCo](#) trains Health professionals in Tanzania, a country with a high burden of disease and the lowest ratio of physician per population (1 physician / 125,000 persons). It launched in 1997 with faculty of medicine and later expanded to incorporate more faculties. KCMUCo has less than 100 teaching staff members and enrolls more than 2000 students in health professions degrees ranging from Diplomas, Ordinary Degrees, Post Graduate Degrees and Doctor of Philosophy. It is among the top universities in the country and is well known for its advancement of the usage of Information Communication Technology (ICT) to deliver its curriculum.

The establishment of advanced and diversity of technologies and strategies to implement curriculum could not be possible without the support from Medical Education Partnership Initiative (MEPI), a ten million dollar programme awarded to KCMUCo in partnership with Duke University, in 2010. One of the KCMUCo-MEPI specific objectives was to transform the culture of teaching and learning by strengthening Information Communication Technology at the college. Through MEPI,

KCMUCo, has been able to upgrade its ICT infrastructure considerably with a Centralized Campus Area Network, Internet connection with Fiber Optic backbone, secure access to tablets for each medical student and faculty members, equipment for teleconferences which enhances communications all over the world and renovation of computers labs with 230 iMacs computers (About MEPI JF | KCMC Medical Education Partnership Initiative (MEPI), 2016)

Access and awareness of scholarly information has been a challenge at KCMUCo. KCMUCo shares physical library with Kilimanjaro Christian Medical Centre (KCMC) hospital, with a capacity of 100 users. The number of library users surpasses the number physical books and journals available. The majority of the print materials in the library were published before 2000 and very few were published after 2007. The library has been managed manually and no automated system is in place. KCMUCo has had access to Hinari, the programme from publishers and the World Health Organization that provides online access to scholarly resources, for a long time; however, very few people, including the library staff, are aware of it and know how to use it correctly. To this end KCMUCo embarked on a Hinari user awareness program with the help of two library experts from Duke University (MLA Hinari/Research4Life Grant) and University of Southern Denmark (Building Stronger Universities project).

This study presents the findings of a case study at KCMUCo and the next section outlines the existing, relevant literature. The following section presents the methods after which the results are presented. Finally, the results are discussed and conclusions are made.

Existing literature

The literature on library instruction offers some suggestions on the effect of training on the use of library resources as well as definitions of the electronic library and the role of training in that setting.

The electronic or digital library is defined by the Digital Library Federation (DLF) as follows:

Digital libraries are organisations that provide the resources, including the specialised staff, to select, structure, offer intellectual access to, interpret, distribute, reserve the integrity of, and ensure the persistence over time of collections of digital works so that they are readily and economically available for use by a defined community or set of communities (DLF, 1998).

The concepts electronic, digital and virtual library have been used as synonyms and as stated by Capaccioni (2015): “after the first terminological uncertainties (“electronic” library, “virtual” library, etc.), digital libraries have become an object of interdisciplinary study and today constitute a research field of LIS”. Oppenheim and Smithson (1999) define a digital library as an information service in which all the information resources,

functions of acquisition, storage, retrieval, access and displays are carried out through the use of digital technologies with the help of digital librarians.

Electronic resources have challenged the traditional structure of the library and many libraries now offer the best of print and electronic resources in a so-called hybrid library. However, it has been argued that the hybrid library is a "necessary transitional phase to the fully electronic library, not a final destination" (Stachokas 2014, p 28).

Stachokas argues that the transition from print to electronic needs to be planned very carefully to ensure that access to information is enhanced rather than reduced. The transition from print to electronic resources evolves in three stages: replacement, substitution and transference. Several areas need to be addressed in the development of the full electronic library.

Both Liew (2009) and Nguyen and Chowdory (2011, 2013) address the need for user training. Users may not necessarily request training in digital libraries, though they do address some barriers to using these resources, such as overcoming slow internet access, on their own (Mairaj & Naseer, 2013). However, Van Essen et al. (2014) recommend that more work should be done to make potential users aware of the benefits of the resources available. They continue by stating: "Education is a crucial component in taking the next step, to not only provide the information but to also give the knowledge about how to use it most effectively." Robertson (2014) also recognizes the need for creating awareness of the available resources and developing training material, as institutions need to market the resources more intensively.

Library Instruction

There are various types of library instruction. Koufogiannakis and Wiebe (2006) list the following forms:

- Traditional instruction (e.g. lecture, demonstration)
- Computer assisted instruction (e.g. web-based tutorials, videos, webinars)
- Self-directed, Independent learning (e.g. workbooks, manuals)
- Active learning (e.g. problem based learning, hands-on exercises)
- Learner-centred instruction (e.g. individual paper counselling, face to face support or instruction)

Regarding the choice of types of library training, unfortunately, Koufogiannakis and Wiebe (2006) are unable to make conclusions on which teaching method is the most effective. Comparative studies are lacking but we can use the existing literature to make tentative suggestions on the choice of teaching methods.

A few studies focus on e-learning (a.k.a. computer assisted instruction) and they find that e-learning courses are as beneficial as traditional library instructions or even more (Hess, 2014 and Mery, Newby & Peng, 2012) and students are generally satisfied (Kratochvil, 2011).

Finally, McClurg et al. (2015) and Davis (2003) stress the importance of faculty involvement in teaching information literacy.

Resource Usage

There are challenges in measuring the effect of training. Greer states that “many librarians grapple with effectively and meaningfully assessing information literacy instruction, and they may not be measuring the full range of student learning” (Greer et al., 2016: 290). Several studies use citation analysis to study the effect of library instruction. Hovde (2000) finds that the quality of student work increases. Hurst and Leonard (2007) found that students receiving library instruction cite a wider variety of resources, use a higher number of library resources, and cite more journal articles. Robinson and Schlegl (2004) find that the quality of student research is improved if students receive librarian instruction backed up by clear academic standards and enforceable penalties by the institution. Rafferty (2013) shows that graduate medical students cite resources more that were specifically highlighted during library instructions.

Others have studied the effect of instruction on resource usage. Novotny and Cahoy (2006) address the use of online resources after library instruction. While they do not address the amount or frequency of resource use, they undertake a usability study and explore how the students complete a number of tasks. They report subtle differences between those receiving instructions and those that did not, however, the differences cannot be attributed to receiving library instruction. In another study by Spievak and Hayes-Bohanan (2013), one-session of library instruction appears to increase on student usage of the library resources.

In this case we are not attempting to measure learning. We are focusing on usage although we know these two concepts are closely related. Fagan (2014) outlines various quantitative measures for the use of e-libraries:

- Database searches: database sessions is preferred over database searches due to inflated search numbers
- Full-text article requests: time of year and institutional effects can be taken in to account.
- Number of virtual visits to the library’s website, which might also include the idea of digital visibility.

Methods

The present study is a case study of a university that has access to many journals and databases but has offered very little training to staff and students on how to use these resources. This gives us a unique chance to analyse the effect of training on usage. At many institutions, training would be offered as access to electronic resources increased, making it difficult to set a baseline and to isolate the effect of training on usage. In this

study we are able to see the effect more clearly as it captures the usage activity pre- and post-training.

Information literacy assessment needs to take place in what Gammons and Inge (2017) terms the “institutional context.” Thus, most of the existing studies are case studies that include a relatively low number of participants. Gammons and Inge (2017) is one of the few exceptions. The present study is a case study including over 400 participants. While participants in the training sessions were not tested, looking at the overall institutional usage allows us to observe potential ripple effects of the training. For example a staff member taking part in training may draw on the learned skills in his or her future teaching, and thus a ripple effect is created. Consequently, this combination of a case study with quantitative methods allows for longitudinal tracking of direct and indirect effects of training on usage.

For the present project, there were several rounds of training for several different patron groups at KCMUCo.

In October 2016, a four-day course for PhD students and academic staff was held on conducting systematic reviews. The course did not only focus on the use of literature searching and/or Hinari, however, the course incorporated these elements in to the context of doing a systematic review. About 20 participants took the course including four librarians from KCMC/KCMUCO physical library.

In December 2016, 15 library staff from 5 neighboring universities and 10 from KCMUCo participated in a four-day workshop on literature searching and Hinari. The staff was split in to two groups to enable the library to remain open during the week.

Finally, in January 2017 academic as well as clinical staff, students and library staff were offered between two and four hour workshops in using Hinari, depending on their academic level and level of information literacy. On the basis of the offered training sessions, more than 300 undergraduate students doing research projects, and more than five faculty members participated. Bearing in mind that the workshops for students only lasted two-four hours many of the themes were introduced and not covered in detail. Focus was placed on accessing the information needed and time was provided for hands on activities. All KCMUCo library staff participated in the training, and three staff co-taught sections of the sessions for students.

A variety of types of library instruction exist. The main focus is student learning and the choice of type or technology should always be seen as means for achieving the highest possible learning. Although obvious, new technologies can overshadow this key point (Mery and Newby, 2014: p. xiii). We follow the classification by Koufogiannakis and Wiebe (2006). For the present training programme, active learning was chosen with many hands-on exercises built in to the courses.

The elements of training in all sessions followed the work by Emmons (2013) who outlines assignments, activities and exercises that can be adapted to a local context. Emmons follows the ACR IL competency standard. The following elements are outlined:

determining the information need, accessing the information needed, evaluation of information, use of information, economic, legal, social and ethical issues.

The first half of the short training sessions focused on accessing the information needed and the participants had hand-on practice with accessing databases and doing simple searches. The second half of the sessions focused on evaluation and use of information as well as economic, legal, social and ethical issues. These highly condensed sessions did not elaborate on determining the information need.

Finally, usage needs to be operationalized. Usage is measured as Hinari sessions in this study and the Hinari sessions can be considered a case of virtual visits to the library's website as suggested by Fagan (2014). Multiple measures are not available although they would have been preferable.

Results

To measure how the training sessions impacted Hinari and electronic resource usage, usage statistics were obtained through the Research4life programme. Figures 1-3 provide an overview of the number of Hinari sessions from the beginning of 2014 to mid-2017. All three figures are shown using the same scale to enable comparisons of usage. Hinari defines a session as a login that begins when a user logs in to Hinari with his/her institution's username and password and ends by either a logout or a timeout.

[Figure 1]

Figure 1 demonstrates that it was typical to have between 60 and 360 Hinari sessions per month in 2014 and 2015, which was before the intensive training sessions began. Considering the number of potential users and vast array of publications and databases available through Hinari, the average monthly usage is surprisingly low.

[Figure 2]

In 2016 usage statistics show that the number of Hinari sessions greatly increases from October to December, when training took place during two weeks in October and December. Interestingly, usage increases in November where training did not take place implying that the course did create awareness of Hinari in the following month as well.

[Figure 3]

Figure 3 illustrates the first 6 months of usage in 2017. Usage is notably higher in January, when training sessions to students, library staff and faculty members were offered. The effect of the training also seems to be visible in the following month whereas in the third month after training we are back at normal usage levels.

Consequently, offering extensive training during four months does result in an impressive increase in the number of sessions. However, the effect is not maintained on

a longer term. This implies that training should be offered regularly to maintain high usage levels or that other factors influencing usage should be considered. McClurg et al. (2015) and Davis (2003) stresses the importance of faculty involvement when teaching students information literacy. While the focus of this paper is on the impact of training sessions, other factors including the type of instruction offered, student assignments, and the academic schedule, may influence resource usage.

Discussion and conclusion

Before turning to the conclusions we need to take a look at possible constraints in the implementation of this novel training program. First of all, the study design allows us to analyse certain aspects whereas others are left untouched. By combining the case study design with quantitative analyses of usage we are able to track usage of all user and thus include any ripple effect usage. It also allows us to analyse actual usage instead of self-reported usage that may tend to over-report the usage. However, it does not allow us to analyse actual learning as an effect of the training. We are assuming that learning is tied to usage but we do not know enough about that relationship. Furthermore, the quantitative analyses allow us to do a large-scale analysis at the institution whereas most analyses of information literacy assessment include relatively few participants (recent examples include Michalak, Rysavy & Wessel, 2017; Trogden, Gratz, & Timms, 2016). However, the disadvantage of the large-scale analysis using data on usage is that we lack in-depth information on behavior, actual learning and so forth. The two approaches do supplement each other and much can be learned from both approaches.

In addition, there may be usage of resources that is not captured by Hinari statistics. There is an increased use of search engines like Sci-Hub. Sci-Hub contains academic articles available for direct download without requiring subscription or payment. The site bypasses publishers' paywalls using a collection of credentials belonging to educational institutions that have purchased access to the journals. Bohannon (2016) has shown that there are users of Sci-Hub from all over the world – including African countries. That usage is not included in our analyses.

Finally, we need to consider the presence and speed of internet. Obviously, a highspeed Internet connection is required. Thus, a prime issue that needs to be addressed is poor infrastructure. In the developing countries, adequate internet access is often not available or it is very unstable (Anwar & Shammim 2011). Manda (2005) studied the use of electronic resources in Tanzania by academics. He found that use was low, due to inadequate end-user training, slow connectivity, and limited access to PCs, poor search skills, and budget cuts.

From the available data in this study, it seems that training sessions are not able to increase the longer-term usage alone. One barrier may be that librarians lack the skills needed to be able to teach the programme and to assist students with problems in the use of electronic resources. The present collaboration implies training academic staff, students, as well as library staff to ensure sustainability. In January parts of the training was held by the local library staff. A possible perspective for staff skills could be the field of eResearch where, following Martin (2014), these skills are needed:

- Familiarity with e-research concepts
- Knowledge of current eResearch trends and policies
- Data literacy competencies
- Technological skills
- Competencies related to institutional research support
- Business skills

Consequently, the availability of training sessions needs to be considered in combination with staff skills so that the library staff can expand their skills continuously. However, more research is imperative within this area to cast light on the specific staff skills needed to meet the needs of staff and students. They may vary depending on academic level and maybe also discipline.

Libraries all over the world are struggling with low usage of subscription-based resources, as many users prefer Google. As a consequence, the library resources are not used at its fullest potential. This study indicates that offering training occasionally is not enough. Training should be offered frequently and academic as well as library staff should be prepared to inform and assist users. However, more studies are needed to specifically address characteristics of the successful training program and to what extend training can be a general program or must be customized to participants' immediate needs.

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