E-resources in higher education: A review of research studies

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Abstract:

The aim of this paper is to provide a review of the recent studies on the use of e-resources by academics and professionals. The literature search rendered N= 63 literature and n= 32 articles were identified on the use of e-resources in higher education. During the past decade, there has been a steady growth in the research base on the use of e-resources. Most of these studies have been conducted in institutions of higher learning and focused mainly on primary research usage or the ways scholars use e-resources for teaching and research. These studies which include descriptive survey research and case studies succeed to draw many conclusions about the behaviour and preferences of users, although sometimes the conclusions are contradictory. In the present work, each study has been evaluated according to the following criteria: awareness regarding e-resources, preference of users, purpose of using e-resources, satisfaction with e-resources and problems encountered in using e- resources.

Key words: E-resources, Print resources, E-journals.

INTRODUCTION

Research is a process of steps used to collect and analyse information to increase our understanding of any topic/issue. It

is done by systematic investigation and study of materials and sources in order to establish facts or reach new conclusions. It is "a studious enquiry or examination; especially, investigation or experimentation aimed at the discovery and interpretation of facts, revision of accepted theories or laws in the light of new facts, practical application of new or revised theories or laws" (Merriam-Webster Online Dictionary). It consists of "creative work undertaken on a systematic basis in order to increase the stock of knowledge, including humans, culture and society, and the use of these stock of knowledge to devise new applications" (OECD, 2002). The aim of research is to seek answers to problems through the application of scientific methodology. The findings of researches enhance the expertise, provide a rich environment of teaching and benefit the society by preparing future generations to use the acquired knowledge to fulfil their responsibilities more effectively.

No meaningful research will be successful without the deliberate support of the library. "A library is not a building stacked with books – it is a repository and source of information and ideas, a place for learning and enquiry, and for the generation of thought and the creation of new knowledge (NKC 2007)." A library provides different kinds of services to its users. The services rendered by library include user education, compilation of reading lists and bibliographies, indexing and abstraction, lending materials (Nwalo, 2003), and providing a secure and pleasant reading and researching environment (Anyira, 2008).

The advancements in technology have, however, changed the way how information is collected, organized and disseminated. The explosive growth of Information and Communication Technologies (ICTs) during the 1990s revolutionized the way people access, communicate and retrieve information. The collection of the library is not limited to just print collections which require the user to visit the library. The collections have gone through many changes from traditional

print formats to the current digital formats. The information with their traditional print formats is now being added to with electronic information resources. A vast array of information is now available in electronic format. The development of ICTs now provides direct access to the library catalogue, on-line services to search/locate, order and receive copy of any article without visiting the library. It has abolished the constraints of space and time and made information access round the clock on click of mouse for reading and research. The access to electronic resources is not limited to those controlled information resources that are subscribed by the libraries, but they also include those available free over the World Wide Web.

This article presents a review of research studies highlighting the use of e-resources in higher education.

THE STUDY

This review focuses on recent studies on the use of e-resources in research. The following criteria have been used for all searches: (a) studies that have been published online between 2004-2016 in the English-language journals, (b) studies done in universities and colleges have been categorised into five parts: studies pertaining to awareness regarding e-resources, studies related with preference of users, studies associated with the purpose of using e-resources, studies pertaining to satisfaction with e-resources, and studies relating to problems encountered in using e- resources. In all 32 researches were identified from above categories.

ANALYSIS OF RESEARCH STUDIES

During the past decade, there has been a steady growth in the use of e-resources in higher education. Many researchers have shown interest in the use of e-resources in the teaching and research. A vast majority of research has mainly focused on the

use of e-resources by the different fields of academicians. In these researches major researches have focused on awareness regarding e-resources (Priyadarshini, et al., 2015; Thanuskodi, 2016; Viswanathan and Sasireka, 2016; Tyagi, 2011; Joshi, 2014; Walmiki et al. 2010; Raghuram and Vatnal, 2011; Dhingra and Mahajan, 2013), preference for e-resources over printed resources (Marcum and George, 2003; Kumbar et al., 2007; Madhusudhan, 2010; Kaur and Verma, 2009; Moghaddam and Talawar, 2008; Kumar and Mishra, 2011; Gowda and Shivalingaiah, 2009; Woo, 2005; Shuling, 2007), purpose of using e-resources (Ranganathan, 2013; Sujatha and Mudhol, 2008; Madhusudan, 2008; Eqbal and Khan, 2007; Navjyoti, 2007; Bajpai, 2014; Achonna, 2008; Hadagali et al., 2012**;** Kumber et al., 2014; Shukla and Mishra, 2011; Pandita, 2012), satisfaction with e-resources (Fatima and Tadasad, 2013; Shuling, 2007; Sujatha and Mudhol, 2008; Bhatt and Rana, 2011; Selvaraja and Sarasvathy, 2013; Singh, 2013), and on problems encountered in using e-resources (Sudhier and Seethalekshmi, 2011; Lakan, 2008; Bhatt and Rana, 2011; Madhusudhan, 2010; Pandita, 2012).
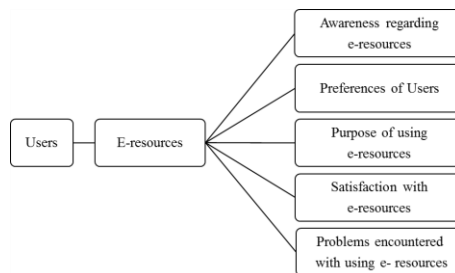

Fig.1: Showing review framework on e-resources

AWARENESS REGARDING E-RESOURCES

Awareness of electronic resources has been a major concern for academia, students and researchers in recent days (Obuh, 2009). It indicates user knowledge of the availability of e-resources and related services, and how to use them.

Understanding of how to search, locate, retrieve and use the appropriate resources for specific information needs is key to successful research. Priyadarshini, Jankiraman and Subramaniam (2015) conducted a survey to find the awareness in usage of e-resources among faculty members, research scholars and post-graduate students at Agricultural College and Research Institute, Madurai and it was found that majority of users were aware of available e-resources. Similar conclusion was made by Thanuskodi (2016) for social scientists of Alagappa University and its affiliated colleges, and by Viswanathan and Sasireka (2016) for faculty members and students of arts and science colleges in Tamil Nadu. Tyagi (2011) in his study found that majority of faculty (100%), research scholars (100%) and post graduate students (97.18%) at IIT Roorkee were aware of using e-resources, whereas only 36.61% population of undergraduate students were aware of using e-resources. Joshi (2014) conducted a survey on awareness and use of UGC-Infonet Digital Library Consortium E-Resources in faculty members, research scholars and post-graduate students of social sciences, science and humanities of Universities of Gujarat State and found that majority of users are aware and use the UGC-Infonet Digital Library Consortium E-resources. The study of Walmiki et al. (2010) reports similar conclusions for the faculty members of Karnataka state universities. A study by Raghuram and Vatnal (2011) on faculty members and research scholars of social science departments reveals that maximum number of faculty members (58.3%) learnt the UGC-Infonet programme through library orientation and 43.75% research scholars learnt from their teachers and research guide, whereas Dhingra (2013) reports that 36.06 percent faculty members at Punjab Agriculture University got the information about e-journals through University/library websites.

PREFERENCES OF USERS

E-resources play an important role in higher learning institutions. Marcum and George (2003) conducted a survey of 3,234 faculty members, under graduates and post graduates students and found that there was an increasing use of e-resources for academic and research purposes in the major universities and liberal arts colleges in USA, yet majority of faculty members and scholars prefer print resources for their work. Kumbar et al. (2007) examined the extent of use of periodical literature by agriculture scientists and found that most of the users considered print journals as better version than electronic journals. Madhusudhan, (2010) conducted a study on the use of e-resources by research scholars of Kurukshetra University and studied the usefulness of e-resources compared to that of conventional resources and found that electronic resources have become an integral part of the information needs of research scholars. He concluded that e-resources can be a good substitute for conventional resources, if the access is fast, and more computer terminals are installed to provide fast access to e-resources. Similar conclusion was made by Kaur (2006). The study of Moghaddam and Talawar (2008) disclose that the research students (Ph.D. and M.Phil.), post-graduates, research staff, academic staff and guest users have shown growing interest in the use of electronic journals at the Indian Institute of Science was due to free access to electronic journals. Kumar and Mishra (2011) reported that majority of research scholars at IIT, BHU prefer e-resources against print resources. Gowda and Shivalingaiah (2009) conducted a study on attitude of research scholars of humanities, social sciences and science disciplines in six universities in Karnataka and reported that the majority of the users expressed that the usage of print resources has decreased due to the easy availability of electronic resources. The use of e-resources varies among the respondents of various disciplines. Woo (2005) conducted an

online survey on post-graduate, under-graduates, students and staff of Dental, Education, Law, Medical, Music faculty in University of Hong Kong and reported that majority of the users (68.8 %) preferred to use online journals than print versions (31.2 %), but when reading of books is concerned results were found to be contrary as about 72% users preferred to use printed books over the electronic (28.2 %). Shuling (2007) in his study on teachers, post-graduates, under-graduates and staff of Shaanxi University of science and technology and concluded that the two types of resources cannot be completely substituted.

PURPOSE OF USING E-RESOURCES

A study conducted on research scholars of science department of Bharathidasan University, Trichurappalli by Ranganathan (2013) revealed that researchers were well aware of the use of e-resources for the research work. Sujatha and Mudhol (2008) reported that the majority of the respondents research scholars and post-graduates of college of Fisheries, Mangalore use e-resources for the purpose of thesis/project work or/and ongoing research work. Madhusudan (2008) conducted a survey on the use of electronic resources by research scholars and students of the University of Delhi which revealed that 78% of the research scholars and students expressed that the use of the University Grants Commission Information network (UGC-InfoNet) e-journals has created high dependency value on the research work. The study of Eqbal and Khan (2007) revealed that a high percentage of students of faculty of science (67.64%) and engineering (69.23%) were found to be using e-journals for academic and research work whereas 35.29% of science students use e-journals to update knowledge and 23.70% of engineering students use these for study. Navjyoti et al. (2007) reported that most of the research scholars (60%) of Panjab University were use e-journals for their research work. Bajpai

(2014) conducted a study on use of e-resources by faculty members and research scholars on IIT, Kanpur, and found that 70.58% research scholars made use of e-resources for the completion of their projects and assignments, 47.05% research scholars used e-resources for their study and research work, 52.94% research scholars were using e-resources for updating their knowledge and 52.94% research scholars did browsing without any purpose. On the contrary, a study conducted by Achonna (2008) on awareness, access and usage of e-journal resources of the library, by the students of Yaba college of Technology, Lagos Nigeria revealed that use of e-journal resources was low among students of engineering college. The study of Hadagali et al. (2012) on use of electronic resources by post-graduate students in different Universities of Karnataka state reported that e-sources have a positive impact on library users. Kumbar et al. (2014) conducted a study on utilization of e-resources by research scholars of science departments, Karnatak University and found that the majority of the respondents (93.4%) used e-resources for research work, 85.5% for finding relevant information in their area of specialization, 70.6% for publishing articles or book, 63% for getting current information and 61.9% for updating the knowledge in their respective subjects. Shukla and Mishra (2011) found that 88% of research scholars of BHU, IIT use e-resources for their research work, 38% for publishing article, 22% to keep up-to-date their knowledge and 30% for finding relevant information in their area of specialization. Pandita (2012) conducted a user survey on teachers, research scholars and students of Baba Ghulam Shah Badshah (BGSB) University and revealed that 58.67% respondents feel that their work has improved with the access to electronic resources.

SATISFACTION WITH E-RESOURCES

Studies have also focused on users' satisfaction with e-resources. Fatima and Tadasad (2013) in their study on post-graduates, M. Phil., research scholars and faculty members of social sciences, humanities, science and technology concluded that users had positive attitude with regard to books, newspapers and general magazines, but they were not completely satisfied with the collection of other library resources, especially resources used for research purposes. Shuling (2007) in his study on teachers, post-graduates, under-graduates and staff of Shaanxi University of science and technology found that 40-50 percent of the readers investigated were relatively satisfied in using the electronic information resources, 14.1 percent of the readers were not satisfied using the electronic information resources, and 4.3 percent of the readers were quite satisfied. Sujatha and Mudhol (2008) concluded that a large majority of teachers (51.9%) and research scholars (37.5%) of college of Fisheries, Mangalore were satisfied with e-resources. The study of Bhatt and Rana (2011) reveals that 43% professors/readers, 49.15% lecturers and 42.5% technical assistants of engineering academics of Rajasthan State were satisfied with e-resources. Selvaraja and Sarasvathy (2013) conducted a study on scientist, research scholars, project fellows and research associates at Research and Development institutes libraries in Mysore City, Karnataka and found that 75% of the users opined that the e-resources can satisfy their information needs up to higher extent, 21% of them replied that it satisfied up to moderate extent and 4% of them agree to be satisfied up to some extent. Singh (2013) conducted a study on the use of e-resources and services by users at Indian Institute of Management, Bangalore. The study reports that the majority of the students (82.93%), research scholars (89.47%) and faculty members (64.28%) are satisfied with the adequacy of e-resources.

PROBLEMS ENCOUNTERED WITH USING E-RESOURCES

Several studies have investigated various problems related with e-resources. Sudhier and Seethalekshmi (2011) in their study on students and research scholars of Faculty of Arts, University of Kerala reported that most departments (German, English, Philosophy, Russian) were not giving enough facility for the use of e-resources. Lakan (2008) brought forward that power outages, slow Internet services and insufficient computers were the factors affecting the provision and use of electronic information resources at Ahmadu Bello University (Nigeria). Bhatt and Rana (2011) analysed and evaluated the use of e-resources by the engineering academics of Rajasthan State. It revealed that academic staffs were using many types of e-resources. Some problems were also encountered in using e-resources like technical or hardware/software problems, low speed connectivity, high cost, doubts in permanence of e-journals and e-books archive. Madhusudhan (2010) revealed that the most common problem was that of slow access speed (62 per cent). In total, 44 per cent stated that it takes too long to view/download pages, and 42 per cent found it difficult to get the relevant information. Of the respondents, 28 per cent were of the opinion that too much information is retrieved, and 26 per cent stated that they could not make use of e-resources effectively due to lack of proper IT knowledge. Pandita (2012) stated the same for teachers, research scholars and students at Baba Ghulam Shah Badshah (BGSB) University, Rajouri. Shukla and Mishra (2011) found that 66% of research scholars of institute of technology treated the problem of low internet connectivity as the major infrastructural problem in accessing e-resources.

OVERVIEW

In these researches, 23 (71.8%) are descriptive survey research (Thanuskodi, 2016; Viswanathan and Sasireka, 2016; Joshi, 2014; Walmiki et al. 2010; Dhingra et al., 2013, Marcum and George, 2003; Kumbar et al., 2007; Madhusudhan, 2010; Gowda and Shivalingaiah, 2009; Helen, 2005; Shuling, 2007 Sujatha and Mudhol, 2008; Madhusudan, 2008; Bajpai, 2014; Achonna, 2008; Hadagali et al., 2012**;** Kumber et al., 2014; Shukla and Mishra, 2011; Pandita, 2012 Bhatt and Rana, 2011; Selvaraja and asarasvathy (2013), and nine (28.1%) are case study (Priyadarshini, et al., 2015; Tyagi, 2011; Raghuram and Vatnal, 2011; Kaur and Verma, 2009; Moghaddam and Talawar,2008; Ranganathan,2013; Navjyoti et al., 2007; Fatima and Tadasad, 2013; Singh, 2013). In all these researches 28 (87.5%) studies are Indian and only four (12.5%) studies are international (Marcum and George, 2003; Woo, 2005; Shuling, 2007; Achonna, 2008). In the presented review eight (25%) studies are related to awareness regarding e-resources, nine (28.1%) studies pertain to the preference for e-resources over printed resources, eleven (34.3%) studies are related to the purpose of using e-resources, six (18.7%) studies are related to the satisfaction with e-resources and five (15.6%) studies are based on the problems encountered in using e-resources.

CONCLUSION

A number of studies have shown that there is growing tendency of using e-resources among teachers and research scholars. Many studies have highlighted the advantages of e-resources against print resources (Gowda and Shivalingaiah,2009; Kumbar et al.,2007; Woo,2005; Houghton et al.,2004; Shuling,2007; Madhusudhan, 2010). E-resources are quick to access and they save time (Ellis and Oldman, 2005), and keep

up-to-date with the current happenings in the specific fields and related areas. Further, electronic information plays a significant role in enhancing the teaching and research activities and improving the productivity of an individual. There are many advantages of e-resources in enhancing and supporting teaching and research such as enabling users to save time, space and money, alongwith providing instant, easy access for better results. There are some studies which indicate that e-resources have potential to totally replace print resources (Madhusudhan, 2010; Gowda and Shivalingaiah, 2009) but some studies show vice-versa (Shuling, 2007). However, both resources are equally important for teaching and research. There is also a huge debate among scholars regarding which one is a better source of information. No doubt, e-resources are demand of time and very beneficial to researchers, but conventional print resources still exist and are helping in teaching and research. So, it is concluded that for better academic performance and research an ideal library should hold e-resources along with print resources.

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