E-resources: use and search strategies adopted by users of Dr Y.S. Parmar University of Horticulture and Forestry

Nazir Ahmad Bhat
Sher-e-Kashmir University of Agricultural Science and Technology of Kashmir, Srinagar, India, and
Shabir A. Ganaie
Department of Library and Information Science, The University of Kashmir, Srinagar, India

Abstract

Purpose – The purpose of this paper is to identify the most popular places, gadgets, searching tools and techniques adopted by users of Dr Y.S. Parmar University of Horticulture and Forestry (DYSPUH&F), Nauni, Solan, Himachal Pradesh, while searching electronic information resources (EIRs).

Design/methodology/approach – A survey was conducted with the help of a structured questionnaire used as a data collection tool.

Findings – It is found that department/office chamber (42 per cent), hostel (29 per cent) and home (26 per cent) prove to be the most popular places of access. Majority of users use laptops to access and read EIRs. Among all popular platforms, users of DYSPUH&F library prefer to use "search engines", and "Google" proves to be the number one search engine. Majority of users search the information through "title" followed by "keywords/subject terms". The users are not yet well-versed with most of the advanced search techniques, as less than half of them are able to use only Boolean operators, and less than 10 per cent of them claim to know other search techniques. Majority of users have learnt to use information search and retrieval skills through self-study.

Research limitations/implications – Only one agricultural university of northern India was surveyed; hence, the results cannot be generalised for the entire northern region of the country.

Practical implications – The findings will help the library authorities to see what are the prime areas of concern so far as the search discourse and accessibility of e-resources is concerned.

Originality/value – No such survey has been conducted in the University till date.

Keywords E-resources, Electronic information resources, Gadgets used, Place of use, Search platforms, Search tools & Techniques

Paper type Research paper

Introduction

Dr Yashwant Singh Parmar University of Horticulture and Forestry (DYSPUH&F) is a hillside agricultural university situated at Nauni, Solan, Himachal Pradesh, India. Nauni is 14 km away from Solan town. Solan town known as Mushroom city of India is one of the district headquarters of Himachal Pradesh. The university was established in the year 1985. The university comprises two faculties known as "College of Horticulture" and "College of Forestry", both located in the same campus at Nauni. The College of Horticulture grants education and awards BSc, MSc and PhD degrees in seven main agricultural/horticultural disciplines, i.e. entomology, floriculture & landscape architecture, food technology, fruit science, molecular biology & biotechnology, plant pathology and vegetable science. The College of Forestry grants education and awards BSc, MSc and PhD degrees in seven disciplines, namely, tree improvement & genetic resources, silviculture & agroforestry, forest products, soil science & water management, environmental science, social sciences and basic sciences. The university under its surveillance runs five "Regional Hill Research Stations (RHRS)", four Krishi Vigyan Kendras and a number of satellite research stations and research & development centres (Dr Y.S. Parmar University of Horticulture & Forestry, 2015).

Problem

Libraries in India have started to add a good number of electronic information resources (EIRs) to their collection. Moreover, plenty of information is available free-of-cost over the World Wide Web for use across the Internet. This has had an impact on the choice of users so far as the place of access and gadgets used to access EIRs are concerned, which needs to be determined for the sake of planning the optimum utilisation of costly resources. The information stands acutely scattered across private or public platforms, and these platforms serve information in a variety of and diversely different display and delivery modules. The user as such finds him/herself in a state of confusion and chaos while searching the pieces of information specific to his/her requirement. It is believed that users suffer

The current issue and full text archive of this journal is available on Emerald Insight at: **www.emeraldinsight.com/0160-4953.htm**

Collection Building
35/1 (2016) 16–21

[DOI 10.1108/CB-08-2015-0015]

Received 1 August 2015
Revised 1 August 2015
Accepted 10 November 2015

wastage of time, do away with less qualitative information or return from the library quite disappointed. The libraries are supposed to take utmost care of its users by helping them to gain the skills necessary for identification of most appropriate search platforms/tools to start their search and use the advanced search techniques to locate and retrieve information of their utmost relevance. As such, the libraries must endeavour to identify the search strategy commonly adopted by their users to search the e-resources and lay efforts to assess their competence in using the search tools and techniques. It is also very important to measure the level of variation among various categories of users so that appropriate measures could be taken to address their individual problems. The study in hand is an effort in this direction with DYSPUH&F as a field of study.

Literature review

The findings of some research studies relevant to the objectives under study have been paraphrased or quoted under relevant subheadings as follows:

Place of use

The majority (60-85 per cent) of the library users browse and use e-resources from their departments. For this purpose, the students are seen to use the Internet nodes available in their departmental computer labs, and the teachers mostly use such nodes in their official chambers. The next most popular place for use of e-resources happens to be the library browsing centres or central university computer labs. The other places where the users tend to access and use e-resources are hostels, home and other off-campus locations such as Internet café, etc. However, there are clear indications that the places used to access e-resources varies from one category of users to another (Chirra and Madhusudhan, 2009; Davidson and Kyrillidou, 2010; Kaur and Verma, 2009; Salaam and Aderibigbe, 2010; Kumar and Kumar, 2013; Trivedi and Joshi, 2008).

Search platforms

The majority of the users use search engines such as "Google" to search the information across the Internet. A good percentage of them use subject-specific gateways such as PubMed and home pages of individual e-resources. However, the users are seen to use a combination of platforms. The search and navigational features that the databases have are not fully utilised by users. They want to have a single search interface (federated search platforms) for searching and accessing different electronic resources without wandering from site to site. (Bhat and Mudhol, 2014; Madhusudhan, 2007; Nelson *et al.*, 2009; Salahudheen *et al.*, 2011; Thanuskodi, 2011; Williams *et al.*, 2010). Nikam and Kumar (2013) found some users search e-articles through "recent issues of journals", "full text database from publisher or aggregator", "bibliographic databases" and "citations or bibliographic references".

Search engines

Google is the starting point or a fundamental tool to start any search for information on the Internet and has become quite reliable. Many users have reported that they start their search with Google to find even the content that they know already exists; for example, a particular Web site that connects to full-text books, professional associations (academic or non-academic) or government institutions. Google provides a simpler (user-friendly) interface to search information on the Web (Haridasan and Khan, 2009; Jadoon *et al.*, 2011; Koovakkai and Noor, 2006; Kumar, 2012; Madhusudhan, 2007, 2010; McMartin *et al.*, 2008).

Google and Yahoo! are the most popular search engines, as they are most frequently and widely used search engines (Alshare *et al.*, 2005; Asemi, 2005; Bhat and Mudhol, 2014; Haridasan and Khan, 2009; Kaur and Manhas, 2008; Kumar, 2010; Ali P.M. and Nisha, 2011; Ali P.M., 2005; Nikam and Kumar, 2013; Patitungkho and Deshpande, 2005; Sethi and Panda, 2012; Swain and Panda, 2009). The other search engines commonly used by users to search information across Web are Altavista, Askjeeves, Excite, HotBot, Infoseek, Khoj, Lycos, MSN, Scirus and Web Crawler (Asemi, 2005; Bhat and Mudhol, 2014; Haridasan and Khan, 2009; Kumar, 2010; Madhusudhan, 2007; Ali P.M., 2005; Patitungkho and Deshpande, 2005; Kumar, 2012). It has been observed that the users in India are using "meta search engines" less frequently, with Dogpile and Ixquick appearing at Ranks 1 and 2 (Kumar and Kumar, 2013).

Search approaches

The most popular search approach of users proves to be "keyword". The second most used option is "author" approach, followed by "subject", "journal title" and "title of the article". The least preferred method of search is "date of publication" (Haridasan and Khan, 2009; Nisha and Ali P.M., 2012; Madhusudhan, 2007; Ali P.M. and Nisha, 2011; Ali P.M., 2005; Sethi and Panda, 2012; Williams *et al.*, 2010). Salahudheen *et al.* (2011) with a slight variation observed that a large number of respondents (61.11 per cent) search for articles with the help of "keywords", while 26.39 per cent search through "journal title", 8.33 per cent through "article title" and only 4.17 per cent search through "author". The order, in which these approaches are used, found by Nikam and Kumar (2013) is title of articles (mean = 2.82), subject (mean = 2.76), journal titles (mean = 2.73), keywords (mean = 2.70), author (mean = 2.53) and abstracts (mean = 1.76). Some respondents are of the opinion that searching by keyword will not yield more relevant information than searching by subject, or that using keywords alone will not produce the correct level of specificity (Chirra and Madhusudhan, 2009).

Search tools and techniques

The library users in India are not yet found to use the advanced search techniques like that of Boolean operators (multi-field search), wild cards, truncation marks, phraseal search and other such features offered by online databases, due to lack of skill (Chowdhury, 2004; Joshi and Sharma, 2009; Kandpal *et al.*, 2013; Majid and Tan, 2002; Munnolli, 2005; Salahudheen *et al.*, 2011). A small percentage (27.27 per cent) of users of Guru Nanak Dev University Library were found capable of correct usage of Boolean operators and meta-searching techniques, and only 4 per cent of respondents were capable of using wildcard/truncation facilities (Kaur *et al.*, 2012). Kumar (2010) concluded that less than half of the students and faculty members of four technical institutes at Rohtak, Haryana, were not even aware of the search techniques and approaches like that of truncation marks, Boolean operators and keywords.

Source of education

Majority of the respondents declared that they got the skill of using e-resources through "self study" and "trial & error". Colleagues' guidance and help from friends also played an important role in gaining the skill. Only a small percentage of respondents agree that "training courses" and "help from library staff" play an important role in this regard. Information sources, like that of "articles" and "references in database" also act as agents responsible for their awareness about e-resources (Bhatt and Rana, 2011; Mulla, 2011; Ali P.M. and Nisha, 2011; Kumar and Kumar, 2013). Mulla (2011), however, found that the most popular method of acquiring the necessary skills to use electronic resources is "guidance from library staff".

Objectives

The study was carried out with following objectives in mind:

- to identify the popular places and gadgets of use;
- to determine the most popular platforms of access and tools of search;
- to explore the widely used search approaches;
- to work out the percentage of users able to use the advanced search techniques; and
- to find out the source of education for gaining such skills.

Scope

An Indian agricultural university, namely, "Dr Y.S. Parmar University of Horticulture and Forestry, Nauni, Solan, Himachal Pradesh" is the scope of study. The university consists of two colleges, i.e. "College of Agriculture and Horticulture" and the "College of Forestry". Only one faculty, i.e. "Faculty of Agriculture and Horticulture" was taken as a sample, a 50 per cent representative of total population under study. The population under study comprised teachers and postgraduate students. The "College of Agriculture and Horticulture" at its main campus has a faculty of 60 teachers. The postgraduate student enrollment in the academic year 2015 was found to be of 40 MSc and 40 PhD students. Keeping in view the nomenclature of Agricultural Universities of India, the term "Scientists" instead of "Teachers" has been used, without any difference in meaning. For the sake of clarity and individualisation, the student community was categorised into two distinct categories and named as PhD scholars and Masters (MSc).

Methodology

The data about the subjects (faculty members and postgraduate students) were ascertained from National Information System on Agricultural Education Network, an online portal maintained by Indian Agricultural Statistics Research Institute. The population under study was determined after cross-checking it with actual staff positions and enrollment record of the university. The sample size was determined with the help of Krejcie and Morgan table, which corresponds to 103 for a total population of 140 subjects under study. Keeping in view the generalised response rate of respondents, questionnaires (more by 20 per cent) in print form were administered to all Scientists, PhD scholars and Masters, with an internal distribution of 60, 40 and 40, respectively. The questionnaires were distributed personally among the subjects and collected back within a week's time. The data were loaded into Microsoft Excel, a worksheet specially designed for the purpose in consultation with a statistician. The data analysis facility of MS Excel was used to derive necessary descriptive statistics.

Findings

To draw an overall trend about the objectives set for the study, the data have been analysed with the help of MS Excel. The findings are presented with the help of tables and charts as under:

Place of use

The responses of users with respect to place at which they preferably use the e-resources are given as Figure 1.

The users tend to access and use the EIRs at all of the places asked for. Department/office chamber (42.31 per cent), hostel (28.85 per cent) and home (25.96 per cent) prove to be the most popular places of access and use. Even a good percentage (21.15 per cent) of users love to access and use e-resources from the Internet café. Only 20.19 per cent of users come to library for accessing and using e-resources indicates that users either do not have time to come to library or are strong advocates of facilitating the access at their workplaces.

Gadgets used

Figure 2 highlights the facts about the gadgets used by respondents.

The majority (71.15 per cent) of users use laptops to access and read EIRs. The other two most popular gadgets used for the purpose are desktops and the mobile, as indicated by 57.69 per cent and 56.73 per cent of users, respectively. The tablet and e-book reader have not yet become much popular in the university.

Figure 1 Place used for browsing e-resources

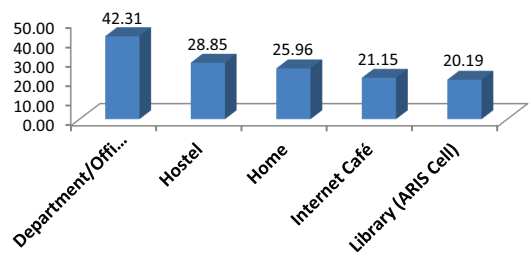
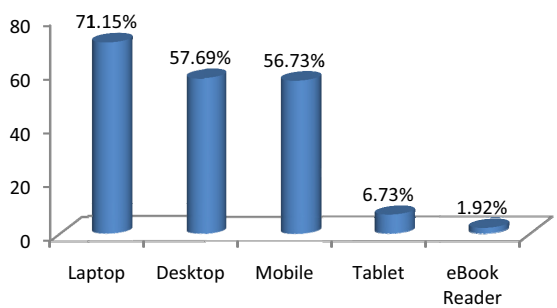


Figure 2 Gadgets used by scientists to access and read e-resources



Platform of access

The detail about the platforms used to access or browse e-resources by the users of DYSPUH&F library is shown as Figure 3.

The data indicates that the most popular platform the users use to access or browse the EIRs is "search engine" (used by 63.46 per cent). Good percentages of respondents (50.96 per cent) and (30.76 per cent) also respectively use the "university website" and "e-resources" homepage for the purpose. The platforms facilitating remote access on anytime, anywhere basis and federated search across all the e-resources from a single stop have not yet been subscribed by the university, and that is why users are not seen to have used these two platforms.

Popularity of search engines

The respondents were asked to mark their choice among five leading search engines. It is evident from Figure 4 that Google is the poplar most search engine among all with all users (100 per cent) using it as a first priority. Alongside Google, some (25.96 per cent) of them use Yahoo! as well. The users are seen little inclined towards rest of the search engines.

Search approaches

The majority (79.80) of users are searching the information through "title" approach, followed by "keyword/subject term" (58.65 per cent). Also, a good percentage (45.19 per cent) of them search it through "author" approach. On an average, 40 per cent of users adhere to a single approach, 28 per cent use two approaches and about 18 per cent use three approaches. Among the combined approaches, the title and author (14.42 per cent) and title and keyword (13.46 per cent) are the most commonly used approaches (Figure 5).

Search techniques

To assess the skill of users, a question was posed to measure their ability with the different search techniques. It is found that the library users of DYSPUH&F mostly conduct simple searches and are not well-versed with most of the advanced search techniques. Only some users (43.62 per cent), however, expressed their ability to use Boolean operators (AND/OR/NOT) (Figure 6).

Figure 3 Platform used to gain access to e-resources

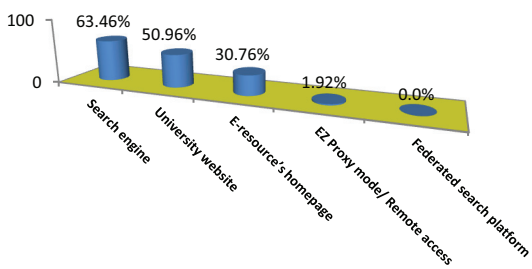


Figure 4 Preference with regard to search engines used

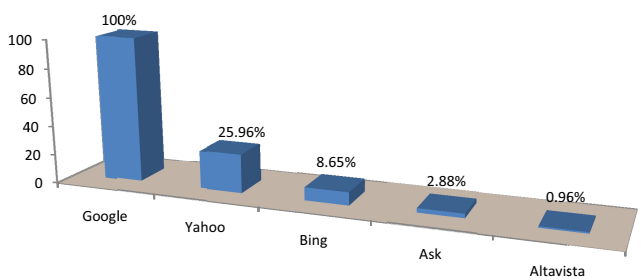
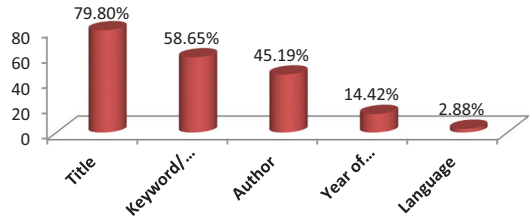


Figure 5 Search approaches used to search e-resource



Source of education

Whatsoever, their level of information literacy, the majority (68.26 per cent) of users revealed that they have learnt to search the information through self-study. The colleagues/classmates (marked by 40.38 per cent) also seem to have played an important role in imparting such skills among users. It is discouraging to note that only 34.61 per cent of users have gained information search and retrieval skills from library course, despite it being continuously offered to both PhD and Masters' students. Probably, the users also do not feel a need to avail assistance from the library staff for this purpose (Figure 7).

Discussion

The findings of this study at large resemble the findings of most of the research studies reviewed in the literature review section. Department/office chamber (42.31 per cent), hostel (28.85 per

Figure 6 Search techniques used to refine the search results

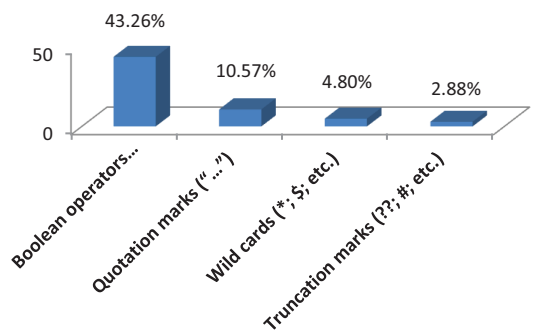
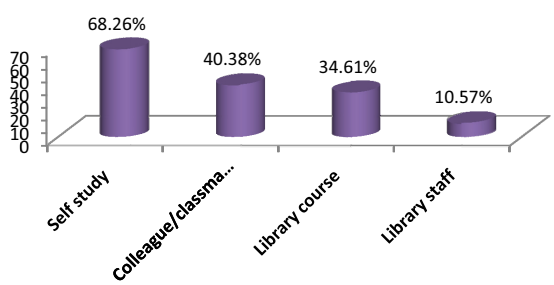


Figure 7 Source of learning to access and use e-resources



cent) and home (25.96 per cent) prove to be the most popular places of access and use and the library as the least popular place. The majority (71.15 per cent) of users use laptops to access and use EIRs. The other two most popular gadgets used for the purpose are desktops (57.69 per cent) and the mobile (56.73 per cent). The most popular platform the users use to access or browse the EIRs is "search engine". Good percentages (50.96 per cent) and (30.76 per cent) also use the "university websites" and "e-resources" homepage. However, the subject gateway (the second most popular platforms evidenced by the literature review) is not used by academics of DYSPUH&F. Again, on the analogy of the generalised choice of most of the library users at global level, "Google" proves to be the popular most search engine among all scientists and students of the university with all (100 per cent) of them using it as first priority, followed by "Yahoo" as second choice. However, the fact that majority (79.80) of users are searching the information through "title" approach, followed by "keyword/subject term" (58.65 per cent) is contrary to the findings which substantiate that "keyword" approach is the most popular search approach across the literary world. However, the result that users do not rely on a single approach point is homogenous to the findings of reviewed research studies. The library users of DYSPUH&F like their counterparts in other parts of the country, as understood from the reviewed literature, are not well-versed with most of the advanced search techniques and resort to search information through simple search slots. Some (43.62 per cent) users, however, are seen capable of using Boolean operators (AND/OR/NOT). The findings indicate that the majority (68.26 per cent) of users have learnt to use information search and retrieval skills through self-study, that colleagues/classmates also play an important role in educating the users and the astonishment that only 34.61 per cent of users have gained such skills from library course are again symbiotic with findings of the research studies covered in the literature review section.

Conclusion

The users of DYSPUH&F are inclined to use e-resources at their workplace or place of residence and show a tendency to use more portable and lightweight gadgets to use e-resources. They tend to rely on the most convenient search platforms, i.e. search engines like that of "Google". The users seem to be unaware of the efficiency of the other subject-specific gateways, have inadequate knowledge about the appropriate search approaches and are less skilled to use the advanced search techniques. This implies that the mechanism for user education in the university needs to be improved. This is substantiated by the fact that "self study" is the most common mode of education for attaining whatsoever level of information literacy.

Suggestions

The university authorities must ensure access to e-resources from the places where the scientists and the students work during working hours (departments, office chambers, fields, etc.) or the places where they spent their leisure time (home, hostels, etc.). A need is felt to organize regular user education programmes to impart skills among library users towards efficient use of e-resources and enhance there awareness about the available e-resources. Such training programmes should be conducted at regular intervals of time, and they should cover all the categories of users (faculty members, scholars and students) every time the programme is conducted.

References

Ali P.M., N (2005), "The use of electronic resources at IIT Delhi Library: a study of search behaviours", *The Electronic Library*, Vol. 23 No. 6, pp. 691-700.

Ali P.M., N. and Nisha, F. (2011), "Use of e-journals among research scholars at Central Science Library, University of Delhi", *Collection Building*, Vol. 30 No. 1, pp. 53-60.

Alshare, K., Miller, D. and Wenger, J. (2005), "An exploratory survey of student perspectives regarding search engines", *Delta Pi Epsilon Journal*, Vol. 47 No. 2, pp. 75-82.

Asemi, A. (2005), "Information searching habits of internet users: a case study on the Medical Sciences University of Isfahan, Iran", *Webology*, Vol. 2 No. 1, available at: www.webology.ir/2005/v2n1/a10.html

Bhat, I. and Mudhol, M.V. (2014), "Use of e-resources by faculty members and students of Sher-E-Kashmir Institute of Medical Science (SKIMS)", *DESIDOC Journal of Library & Information Technology*, Vol. 34 No. 1, pp. 28-34.

Bhatt, S. and Rana, M.S. (2011), "E-information usage among engineering academics in India with special reference to Rajasthan State", *Library Hi Tech*, Vol. 29 No. 3, pp. 496-511.

Chirra, R. and Madhusudhan, M. (2009), "Use of electronic journals by doctoral research scholars of Goa University, India", *Library Hi Tech News*, Vol. 26 No. 10, pp. 12-15.

Chowdhury, G.G. (2004), "Access and usability issues of scholarly electronic publications", in Gorman, G. and Rowland, F. (Eds), *Scholarly Publishing in an Electronic Era*, Facet Publishing, pp. 77-98, available at: www.cis.strath.ac.uk/cis/research/publications/papers/strath_cis_publication_315.pdf

Davidson, C. and Kyrillidou, M. (2010), "The value of electronic resources: measuring the impact of networked electronic services (MINES for Libraries®) at the Ontario council of university libraries (a bimonthly report from ARL, CNI, and SPARC)", pp. 41-47.

Dr Y.S. Parmar University of Horticulture & Forestry, Solan, HP, (2015), available at: www.yspuniversity.ac.in/ (accessed 12 December 2015).

Haridasan, S. and Khan, M. (2009), "Impact and use of e-resources by social scientists in National Social Science Documentation Centre (NASSDOC), India", *The Electronic Library*, Vol. 27 No. 1, pp. 117-133.

Jadoon, N.A., Zahid, M.F., Mansoorulhaq, H., Ullah, S., Jadoon, B.A., Raza, A., Hussain, M., Yaqoob, R. and Shahzad, M.A. (2011), "Evaluation of internet access and utilization by medical students in Lahore, Pakistan", *BMC Medical Informatics and Decision Making*, Vol. 11, available at: www.biomedcentral.com/1472-6947/11/37

Joshi, M.K. and Sharma, S. (2009), "Students' use of various information sources and need for information literacy education in Kurukshetra University", *Library Herald*, Vol. 47 No. 1, pp. 46-59.

Kandpal, K.N., Rawat, S.S. and Vithal, K.S.R. (2013), "Use of r-resources by undergraduate students of NTR College of Veterinary Science, Andhra Pradesh", *DESIDOC Journal of*

Library & Information Technology, Vol. 33 No. 5, pp. 394-398.

Kaur, A. and Manhas, R. (2008), "Use of internet services and resources in the engineering colleges of Punjab and Haryana (India): a study", *The International Information & Library Review*, Vol. 40 No. 1, pp. 10-20.

Kaur, A., Sarman and Rani, S. (2012), "Information literacy among the students in the electronic environment: a case study of Guru Nanak Dev University, Amritsar", *SRELS Journal of Information Management*, Vol. 49 No. 1, pp. 21-38.

Kaur, B. and Verma, R. (2009), "Use of electronic information resources: a case study of Thapar University", *DESIDOC Journal of Library and Information Technology*, Vol. 29 No. 2, pp. 67-73.

Koovakkai, D. and Noor, H. (2006), "Electronic information use among the faculty", *Library Herald*, Vol. 44 No. 4, pp. 313-320.

Kumar, B.T.S. and Kumar, G.T. (2013), "Search engines and their search strategies: the effective use by Indian academics", *Program: Electronic Library and Information Systems*, Vol. 47 No. 4, pp. 437-449.

Kumar, D. (2010), "Faculty use of internet services at a university of agriculture and technology", *Library Philosophy and Practice (Online)*, available at: http://unllib.unl.edu/LPP/devendrakumar1.htm (accessed 21 August 2014).

Kumar, P. (2010), "Information literacy survey of faculty and students of Math Asthal Bohar, Rohtak", unpublished doctoral dissertation, Kurukshetra University, Kurukshetra.

Kumar, S. (2012), "Impact of internet search engines on OPAC users: a study of Punjabi University, Patiala (India)", *Program: Electronic Library and Information Systems*, Vol. 46 No. 1, pp. 56-70.

McMartin, F., Iverson, E., Wolf, A., Morrill, J., Morgan, G. and Manduca, C. (2008), "The use of online digital resources and educational digital libraries in higher education", *International Journal on Digital Libraries*, Vol. 9 No. 1, pp. 65-79.

Madhusudhan, M. (2007), "Internet use by research scholars in university of Delhi, India", *Library Hi Tech News*, Vol. 24 No. 8, pp. 36-42.

Madhusudhan, M. (2010), "Use of electronic resources by research scholars of Kurukshetra University", *The Electronic Library*, Vol. 28 No. 4, pp. 492-506.

Majid, S. and Tan, A.T. (2002), "Usage of information resources by computer engineering students: a case study of Nanyang Technological University, Singapore", *Online Information Review*, Vol. 26 No. 5, pp. 318-325.

Mulla, K.R. (2011), "Use of electronic resources by faculty members in HKBK College of Engineering: a survey", *Library Philosophy and Practice, (e-journal)*, Paper 000.

Munnolli, S.S. (2005), "Harnessing the online resources: a case study of Science Direct in India", *The International Information & Library Review*, Vol. 37, pp. 353-363.

Nelson, M.L., Harlow, M.A. and Kvenild, C. (2009), "Implementing federated search at the University of Wyoming", *Online*, Vol. 33 No. 2, pp. 26-31.

Nikam, K. and Kumar, D. (2013), "Evaluating the effective use of electronic journals by the academia: a study", *DESIDOC Journal of Library & Information Technology*, Vol. 33 No. 2, pp. 125-130.

Nisha, F. and Ali P.M., N. (2012), "Awareness and use of e-journals by IIT Delhi and Delhi University library users", *Collection Building*, Vol. 32 No. 2, pp. 57-64.

Patitungkho, K. and Deshpande, N.J. (2005), "Information seeking behavior of faculty members of Rajabhat universities in Bangkok", *Webology*, Vol. 2 No. 4, available at: www.webology.ir/2005/v2n4/a20.html

Salaam, M.O. and Aderibigbe, N.A. (2010), "Awareness and utilization of the essential electronic agricultural library by academic staff: a case study of university of Agriculture, Abeokuta, Nigeria", *Chinese Librarianship: an International Electronic Journal*, Vol. 30, available at: www.iclc.us/cliej/cl30SA.pdf

Salahudheen, E., Shibu, K.M. and Anas, K. (2011), "Use of e-journals by PG students of the faculty of medicine at Aligarh Muslim University, Aligarh: a study", *Gyankosh: The Journal of Lib. & Info. Managemen*, Vol. 2 No. 2, pp. 35-45.

Sethi, B.B. and Panda, K.C. (2012), "Use of e-resources by life scientists: a case study of Sambalpur university, India", *Library Philosophy and Practice (e-journal)*, Paper 681, available at: http://digitalcommons.unl.edu/libphilprac/681

Swain, D.K. and Panda, K.C. (2009), "Use of electronic resources in business school libraries of an Indian state", *The Electronic Library*, Vol. 27 No. 1, pp. 74-85.

Thanuskodi, S. (2011), "Usage of electronic resources at Dr T.P.M. Library, Madurai Kamaraj University: a case study", *DESIDOC Journal of Library & Information Technology*, Vol. 31 No. 6, pp. 437-445.

Trivedi, M. and Joshi, A. (2008), "Computer and internet use by health care professionals in a rural medical college in India", *Library Philosophy and Practice*, available at: http://unllib.unl.edu/LPP/trivedi-joshi.htm

Williams, P., Nicholas, D. and Rowlands, I. (2010), "E-journal usage and impact in scholarly research: a review of the literature", *New Review of Academic Librarianship*, Vol. 16 No. 2, pp. 192-207.

Corresponding author

Nazir Ahmad Bhat can be contacted at: nazir69@skuastkashmir.ac.in