Use of electronic information resources and facilities by humanities scholars

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Abstract
Purpose – The purpose of this paper is to assess the use of electronic information resources and facilities by humanities scholars at the University of the Punjab, Lahore, Pakistan.

Design/methodology/approach – A questionnaire survey of faculty from arts and humanities departments at the University of the Punjab was conducted. In total, 62 faculty and research staff participated.

Findings – The results correspond with previous studies conducted in other countries. The humanists still stick to the printed information sources but they pay good attention to electronic resources. Most of them have access to computer and internet at office and home. They are regular users of a variety of electronic technologies. Although faced with many problems, the humanists perceive that modern technology made their work easier.

Research limitations/implications – The study is based only on the humanities faculty in a large university of Pakistan. The survey should be replicated on a larger sample for generalization.

Practical implications – Keeping in view the positive trend of humanists towards modern technology, universities and libraries should give more funding to provide electronic resources and facilities in the arts and humanities discipline. Special training programmes for humanists should be organized.

Originality/value – This is the first study on this topic in Pakistan. The results can be useful to design services and facilities in humanities libraries and information centres in Pakistan and other developing countries.

Keywords Electronic media, Information, Communication technologies, Internet, Information services, Pakistan

Paper type Research paper

Introduction
Disciplines usually included in the humanities are languages, literature, linguistics, philosophy, religion, history, archaeology, music, arts, media studies and communication studies. Research in the humanities attempts to understand individual creation. The nature of the humanities determines that the process of
scholarship rests largely on the discovery and interpretation of information among a large and scattered mass which has grown up around artifacts over many years or even centuries. Several studies found that unsystematic research practices predominate in the humanities. The reason is the nature of the humanistic research – it is random, non-linear, non-sequential and serendipitous. The diversified nature of work in various subjects in humanities necessitates the provision of variety of information. Humanists are generally reluctant to delegate literature searching because of intangible or vague topics which are difficult to express in concise language or indexing terms. Stone (1982) lists materials necessary for the research in the humanities:

- primary materials (scores, works of art, texts, manuscripts, recordings, original literary works, technical records, etc.);
- all editions of texts, drafts, galley and page proofs, works of criticism; and
- retrospective coverage of journals.

The humanists quench their thirst for information from libraries and personal collections. The library is usually mentioned as a scholar’s laboratory. Libraries have been fulfilling the needs of humanists for centuries in a traditional way but the last three decades have brought a revolutionary change in library services. Modern information and communication technologies have had a profound impact on the ways in which information is stored and accessed. The technology revolution has given birth to the concept of global village and now distance is no longer a hurdle in accessing the desired information. People can interact with each other as if they are living in the same village and community. Similar to the other walks of life, digital technology has changed the academic environment. It has not only influenced the teaching style and research methods of academics, but also affected the sources and means they use in teaching and research. Many electronic resources are available in the library. The increase in information available on the internet has affected information-seeking behavior of researchers. Innumerable types of information, in a large variety of containers and in many different locations, are all available in one place.

This study is an attempt to explore the availability and use of electronic information technology by arts and humanities faculty in a large Pakistani university. The perceived impact of modern technology on research and teaching of humanists is also measured.

**Review of literature**

User studies continue to be an important area of library research, as studying the information-seeking behavior of specific user groups has contributed to the development of a variety of library services. Many research studies on the information-seeking pattern of arts and humanities scholars are found in the literature of library and information science. The internet and other modern facilities particularly in this discipline gained ground during recent years. The following review of literature published during last ten to 12 years is sufficient to understand the use pattern and behavior of humanists towards modern electronic information technology. The review covers surveys of researchers, faculty and students from all fields of arts and humanities throughout the world.
Bates’ (1996) two-year study found that most humanities scholars made little use of online databases. Scholars appreciated that the databases covered many topics, but complained about the difficulty of their search language and the lack of availability of desired resources. It is interesting to note that scholars regarded themselves as experts in their subjects and did not expect to learn anything new from the databases. McCann (1997) surveyed 58 faculty members of 16 humanities and social sciences departments at the University of South California to explore the academic use of electronic publications. A total of 63 per cent indicated some use of electronic publications while 74 per cent indicated they believe electronic publications will be important to their fields in the next five years.

After reviewing the research studies of the information-seeking habits of humanists Delgadillo and Lynch (1999) pointed out that most studies were carried out before the widespread influence of the internet in the 1990s. “Libraries had catalogs, databases, and abstracts online in the 1980s, but the explosion of the Internet and the rapid expansion of textual materials online had not yet occurred. In the previous discussions of formats and materials used by humanists, little use of online texts was reported. Humanists have used computers for word processing since the mid-1980s or so, ... but the availability of sophisticated computer technologies has not yet changed their habits of scholarship, although the technologies have changed the ways in which most scholars create the product of their research, the scholarly monograph.” Although humanists adapt to new technologies they do so slowly. “They have yet to confront the issues raised by digital collections, electronic journals, and the changing nature of research libraries within the context of a global digital society.”

Massey-Burzio (1999) investigated to what extent the humanities faculty value information technology and view its relation to their research and teaching. She concluded that they “definitely feel the pressure to use and deal with technology.” The humanities faculty appreciates the advantages of computer searches, but they feel it is uncomfortable and inconvenient to read off a computer screen for a long time. A citation analysis of US journals in history published between 1997 and 2000 showed that “although librarians and archivists continue to provide electronic access to scholarly online journals, primary sources, and rare secondary materials, these efforts do not play a significant role in the cited research of the history community. Only eight historians, in a pool of over 192, cited electronic resources” (Graham, 2000). A ten-year longitudinal study of a group of humanists, by Wiberley and Jones (2000), reveals that the senior scholars adopted new technology at a slow pace. “They normally began with the OPAC in their home library; then adopted word processing; next, while on administrative assignment, became regular e-mail users; and finally, did their own searches on bibliographic databases.” On the other hand, younger scholars adopted electronic information technology more readily than older ones. In a survey of 48 fine arts faculty at Texas Tech University, Reed and Tanner (2001) found that the faculty continued to use the familiar paper products even when remote access to the electronic version of the same product was available. Most of them considered books (75 per cent) important for their research as compared to electronic databases (20 per cent). The primary information sources were libraries (90 per cent), personal library (81 per cent), colleagues (69 per cent), internet (65 per cent), and bookstores (44 per cent).

Humanists are more likely to use digital media for secondary sources than for primary sources. Humanists routinely search online library catalogs, bibliographic
databases, repository web sites and general search engines in their quest for secondary sources (Palmer and Neumann, 2002). In a survey of 250 arts and humanities researchers, Education for Change Ltd, SIRU (University of Brighton) and The Research Partnership (2002) found that most of the participants considered books (93 per cent) and printed refereed journals (84 per cent) to be essential research tools. Only 22 per cent considered electronic journals and other electronic information services essential, though a further 43 per cent did use them, and 57 per cent of the respondents also expected to use electronic journals more, including 12 per cent who did not currently use them at all. Of the arts and humanities respondents, 72 per cent thought that physical access to materials was very important, and of those, 12 per cent believed that such access would increase in importance in future. In a survey of students’ use of print and electronic sources in their assignments and essays, Dilevko and Gottlieb (2002) found that the humanities students preferred print sources compared with the students of other disciplines.

Rose (2002) studied the technology’s impact on the art historians’ information use pattern. It was found that print and electronic journals, when available, were a regularly used resource by the 40 per cent respondents. The computer was mostly used for e-mail, CD-ROM, drawing programs for making maps and plans, material analysis, and storing images. Respondents also mentioned online catalogs as a valuable source for locating information. Ileperuma (2002) studied the information-gathering behavior of 151 arts scholars in six Sri Lankan universities. The study revealed that arts scholars were gathering the information for three basic types of activities i.e. teaching, research and administration. Although the respondents were spending 45 to 55 per cent of their time in the library but the majority mentioned that they try to seek information for keeping them update with current IT resources.

Tibbo (2003) surveyed 700 historians from 68 US universities to explore how they locate primary resource material in the digital age. She found that for many historians, the traditional methodologies for locating primary materials remained the most utilized. Of the historians, 98 per cent indicated that they found materials by following leads and citations in printed sources. On the other hand, 80 per cent of the history scholars used their own institution’s OPAC; 67 per cent searched other institutions’ OPACs via the internet; 58 per cent used bibliographic utilities such as RLIN and OCLC; 63 per cent said they looked for information directly on repository web sites; 44 per cent indicated that they searched the web for primary materials using a search engine. She concluded that there was a need for user education in regard to electronic search methodologies. In a study comparing scholars’ use of e-journals and databases in different disciplines, Talja and Maula (2003) classified humanities scholars as “low level users.”

Dalton and Charnigo (2004) surveyed 278 historians and found that informal means of locating information, especially references in the works of other scholars and book reviews, continue to be prominent. Browsing is still important. Print remains the principal format of the information used. But at the same time, most of the historians also used electronic sources. Only 16 per cent, or one in six, indicated that they used electronic databases rarely or never. The problems they experienced with electronic sources were primarily with the scope and indexing of the source, secondarily related to equipment or software. One-third of the complaints related to scope: sources did not include needed information or resources; sources did not cover the dates needed;
sources were not international enough, or as some put it, too Anglophone; sources did not offer full text. Another third were dissatisfied with the indexing terminology or indexing in general. Problems identified that related to equipment or software included poor search engines, slow response time, difficulty in navigation, and frequent format or interface changes.

In a survey of 18 humanities faculty in New Zealand, conducted by Buchanan et al. (2005), all participants reported a wide variety of experiences with digital libraries, electronic library catalogs and the web generally. There was a correspondence between high usage, strong search skills and a greater degree of satisfaction with digital library systems. Barrett (2005) interviewed ten graduate students in humanities departments at the University of Western Ontario. All except one strongly disagreed with the stereotype that humanists dislike electronic information technology. Conversely, participants described a variety of electronic information tools which they frequently make use of, including online journals, OPACs, discipline specific CD-ROMs, internet search engines, and web sites. The most common complaint participants had about electronic information technology was the lack of available primary sources. Several reported not feeling as confident or proficient with electronic resources as they could be. Several participants described a generation gap in their departments. The graduate students and younger faculty members tend to utilize electronic information technology far more than older faculty members.

Ge (2005) studied how the internet has affected the information-seeking behavior of social scientists and humanities researchers at Tennessee State University. The results showed that internet resources were playing an important role in the information-seeking process. The world wide web was the most used internet resource; anyhow, the researchers in social sciences were using more electronic resources as compared to humanists. Bass et al. (2005) noted the increased use of electronic sources and the limited use of personal reference and monograph collections. Formal information sources used by scholars included books, journals, library catalogs, databases, articles in popular and scholarly press, and the internet. A surprisingly large number of the survey respondents mentioned using Google Scholar and other internet search engines in their research. After interviewing 25 humanities scholars, Rimmer et al. (2006) stated that they often require the context and full text of the original documents whereas other disciplines are concerned more with the content, regardless of the structure. However, increasingly humanities scholars are using digital resources as a means of accelerating their information-searching habits as well as using digitized artifacts.

Harley (2007) surveyed 831 humanities and social sciences faculty in US higher education institutions. He found that the faculty used digital resources in their teaching to improve their students’ learning, to integrate primary source materials into their teaching, or to include materials or teaching methods that would otherwise be unavailable. They most commonly used Google-type search engines to find resources, including images. Faculty’s personal collections were the second most common source of resources. Online journals and public/free image databases were also high on the list of preferred ways of locating desired resources. “Faculty – including those active and enthusiastic in their use of digital resources – identified many obstacles to using these resources for teaching including how to find, manage, maintain, and reuse them in new contexts. One of the most cited obstacles to the effective use of digital resources was
the availability, reliability, and expense of the necessary equipment, both in the classroom and for personal use.”

Baruchson-Arbib and Bronstein (2007) compared the use of print and electronic information channels by 136 Jewish studies scholars in Israel. The participants used more books and journals than electronic resources. The study concludes that the scholars “on the one hand are disinclined to abandon their traditional ways; they still base their research on printed books and journals and find new information by browsing the library stacks and following citations. On the other hand, these scholars have adopted and integrated into their work practices new information technologies that can advance and facilitate their research; they will not use an information resource or technology just because it is there. Electronic information sources and newly developed information technologies have great potential to further humanistic research; it would be a profitable approach for libraries to design information services and sources that support the research practices and the information habits of humanists.”

In a recent study, Warwick et al. (2008) mentioned that information resources such as libraries, archives, museums and research centers, and the web pages that provide information about them are vital for humanities scholars. They consider university library web site to be the most important resource, even compared with Google. “Digital resources have not replaced physical information resources and the people who staff them, thus both types of information continue to require funding.” In the study of Sukovic (2008) the Australian humanists were involved in “netchaining” to find information, to aid access to a physical collection, to confirm information, and for purposes of current awareness. Netchaining combines aspects of networking, chaining, browsing, and web surfing in a new pattern. It is about establishing and shaping online information chains that link sources and people. In a web-based survey of 169 humanities scholars, Toms and O’Brien (2008) saw a significant change from previous studies that observed reticence among humanists to use electronic sources. It was found that web search engines were used as regularly as library catalogs and finding aids for locating both secondary and primary resources.

The following conclusions can thus be drawn based on the review of literature published during 1996 to 2008 regarding the use of electronic sources by humanities scholars, i.e. researchers, faculty, graduate students, etc.:

- The humanities scholars spend most of their time specified for information seeking in libraries.
- Books and journals remain the first priority for humanities researchers.
- They still prefer paper book to electronic copy of the same text.
- The widespread facilities of electronic information technology have attracted the humanists. They are regular users of word processing, e-mail, internet, library OPACs and online bibliographic and full text databases.
- They are late and slow adopters of new technology in comparison with scholars in science and technology.
- They mostly use information and communication technology for secondary sources rather than primary.
- They believe electronic technology will be useful in their future research.
Lack of availability of desired resources remains the major obstacle in their use of electronic technology.

The humanists are less skillful in using ICTs as compared to scholars in other disciplines and they need training.

**Objectives and methodology**

Having seen what others were doing in researching the use of humanities scholars as concerns information use, it was decided to assess the use of electronic information resources and facilities by humanities scholars at the University of the Punjab in Lahore, Pakistan. The objectives of the study were to explore:

- availability of computer and internet facility to arts and humanities faculty at the University of the Punjab;
- time spent on the use of internet by humanists;
- humanists’ training and skills in using computer and internet;
- humanists’ preference to electronic over print information resources;
- use of various electronic resources and ICT facilities in teaching and research;
- impact of electronic resources on information-seeking activities as perceived by the humanists;
- level of information needs fulfilled through online resources; and
- problems faced by the humanists in seeking information through electronic resources.

The study is based on a questionnaire survey with both open and close ended questions. The questionnaire was prepared after the literature search and discussions with subject experts. The population of the study consisted of all full-time academic and research staff (total 120) working in 19 arts and humanities departments of the University of the Punjab, Lahore, Pakistan. These departments were divided into three faculties:

1. Arts and Humanities;
2. Islamic Studies; and

Of the 120 faculty members, 21 were on leave and eight could not be contacted, therefore, the actual population of the study consisted of 90 potential respondents. The questionnaires were personally distributed among the sample by the researchers. Of these 90 faculty members, 62 responded giving a response rate of 69 per cent.

**Results analysis and findings**

*Personal profile of the respondents*

The first section of the questionnaire dealt with the personal information about the respondents. Of the 62 respondents, 73 per cent were male and 27 per cent were female. The data show that a large number of the respondents (52 per cent) were lecturers, 19 per cent Assistant Professors, 16 per cent Associate Professors, 5 per cent Professors and 6 per cent were Research Officers. Of the respondents, 42 per cent had a PhD.
degree, 24 per cent an MPhil and 34 per cent had a Master’s degree. A total of 29 per cent of respondents were with an experience of six to ten years, 27 per cent up to five years, 19 per cent of 11-15 years and 15 per cent were with an experience of 11-20 years. Only one respondent had an experience of 21-25 years, but 8 per cent of respondents had over 25 years’ experience. Most of the respondents (45 per cent) belonged to the age group of 31-40 years, 10 per cent were below the age of 30 years, 21 per cent between 41-50 years, 18 per cent were from the age group of 51-60 years and only 3 per cent were above 60 years of age.

Research productivity
The respondents were asked to mention their research productivity in terms of books and papers published. About 50 per cent of the respondents have not written any book in their subject area during the last ten years; 8 per cent have written only one book each, 15 per cent have written two books, 5 per cent have written three books, 2 per cent have written four books, 11 per cent have written five books and 7 per cent have written more than five books. Books apart, the majority of arts and humanities scholars (78 per cent) have published some articles during the last five years. A total of 34 per cent have written up to five articles each, 23 per cent have written six to ten articles, 10 per cent have written 11-20 articles, 5 per cent have written 21-30 articles and 7 per cent have written more than 30 research articles during the last five years.

Availability of computer and internet
The respondents were asked to mention the availability of computers to them either at home or at the office. It was found that 41 per cent had a computer at home, 28 per cent at the office, and 24 per cent had both one at home and at the office. Only 7 per cent claimed not have access to a computer. Thus, encouragingly, 93 per cent of humanities faculty members had access to computers either at home or the office. A total of 43 per cent respondents had internet access at their home and 31 per cent at office while 17 per cent had both access at home as well as the office. Only 9 per cent respondents did not have access to the internet, implying that overall a massive 91 per cent of respondents had access to the internet.

Time spent on the use of internet
The respondents were asked to mention the amount of time which they were spending on using the internet per day. It was found that 59 per cent respondents were using the internet for one to two hours per day, 25 per cent were using for less than one hour, 13 per cent were using for three to five hours, 2 per cent were using for six to ten hours and another 2 per cent were using for more than ten hours per day.

Training and skills in using computer and internet
Only 31 per cent respondents had received any formal training for computer and internet use, whereas, 69 per cent replied that they did not have any formal computer training. The respondents were also asked to rate their level of information-seeking skills while using the internet. Of the 62 respondents, 44 per cent rated their information seeking skill as “good”, 22 per cent as “fair”, 16 per cent as “very good”, and 13 per cent as “excellent”. Only 5 per cent respondents rated themselves as “poor” in information-seeking skills while using the internet.
Preference for electronic and printed resources

Respondents were asked to indicate their preference for electronic resources. It was found that 69 per cent of respondents preferred both print and electronic resources, 21 per cent showed preference for electronic resources over print resources, while 10 per cent showed non-preference for electronic resources (Table I).

Use of electronic resources and ICT facilities

The respondents were asked how frequently they use the electronic resources and ICT facilities. A list of 11 electronic resources and ICT facilities was provided and the respondents were asked to rank them on a five-point scale. The results show that the internet search engines were highly used (Mean 3.22), followed by the web pages and electronic/online journals with Mean scores 2.96 and 2.91 respectively. Electronic mail and audiovisual and multimedia collections were ranked as fourth and fifth (Mean 2.85 and 2.71). Online databases were ranked as sixth with the Mean score 2.68 (Table II).

To discover the differences in the frequency of use based on some independent variables, inferential statistics was applied. For independent variables having two groups, like gender, age, teaching experience and research productivity, independent samples t-test was applied while independent variables having more than two groups, like academic rank and academic qualification, one-way Analysis of Variance (ANOVA) was applied.

The calculations show that there is no difference based on age of the respondents on the extent of use in all online facilities except e-mail. Scholars above 40 years of age were more frequently using e-mail (Mean 3.26) as compared to scholars under 40 years (Mean 2.48) \((t = 2.509, p = 0.015)\). A similar difference was seen based on teaching experience of the scholars. Scholars having more than ten years experience were more frequent users of e-mail (Mean 3.33) than scholars having less experience (Mean 2.47)

<table>
<thead>
<tr>
<th>Preference</th>
<th>Per cent</th>
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<tbody>
<tr>
<td>Prefer print and e-resources</td>
<td>69</td>
</tr>
<tr>
<td>Prefer e-resources</td>
<td>21</td>
</tr>
<tr>
<td>Do not prefer e-resources</td>
<td>10</td>
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<tr>
<th>Rank</th>
<th>Resources/facilities</th>
<th>Mean</th>
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<tbody>
<tr>
<td>1</td>
<td>Search engines and portals</td>
<td>3.22</td>
</tr>
<tr>
<td>2</td>
<td>Web pages</td>
<td>2.96</td>
</tr>
<tr>
<td>3</td>
<td>Electronic journals</td>
<td>2.91</td>
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<tr>
<td>4</td>
<td>E-mail</td>
<td>2.85</td>
</tr>
<tr>
<td>5</td>
<td>Audio-visual and multimedia collections</td>
<td>2.71</td>
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<tr>
<td>6</td>
<td>Online databases</td>
<td>2.68</td>
</tr>
<tr>
<td>7</td>
<td>CD-ROM databases</td>
<td>2.45</td>
</tr>
<tr>
<td>8</td>
<td>Online library catalogues (OPAC)</td>
<td>2.42</td>
</tr>
<tr>
<td>9</td>
<td>Listserv or e-mail alert</td>
<td>2.42</td>
</tr>
<tr>
<td>10</td>
<td>Electronic bulletin board</td>
<td>2.38</td>
</tr>
<tr>
<td>11</td>
<td>File transfer protocols (FTP)</td>
<td>2.09</td>
</tr>
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</table>

Notes: 1 = Never, 2 = Rarely, 3 = Sometimes, 4 = Frequently, 5 = Very frequently
Gender had no effect on the use of all online facilities included in the survey. Significant differences on the use of some facilities were found based on research productivity. Scholars with up to five research articles during last five years were more frequent users of CD-ROM databases (Mean 2.81) compared with scholars with more than five publications (Mean 2.09) \( (t = 2.169, p = 0.035) \). Similarly, less productive scholars used more web pages (Mean 3.34) than more productive scholars (Mean 2.57) \( (t = 2.427, p = 0.019) \). Less productive scholars were more frequent users of search engines and portals (Mean 3.66) than more productive researchers (Mean 2.83) \( (t = 2.809, p = 0.007) \).

Academic qualifications appear to have no effect on the use frequency of electronic facilities. The results of ANOVA show that the scholars with PhD, MPhil and Master’s qualifications use these resources at statistically the same degree of frequency. However, academic rank does have an effect on the use of e-mail (F = 3.790, \( p = 0.009 \)) and online databases (F = 3.166, \( p = 0.021 \)). In using e-mail, there was a difference between assistant professors (Mean 3.30) and lecturers (Mean 2.40) and between lecturers and research officers (Mean 4.33). In using online databases, there was a significant difference between Professors (Mean 5.00) and all others.

**Effect of electronic resources on information-seeking activities**

To measure the effects of electronic resources on information-seeking activities during the last ten years, respondents were provided a list of statements to rank against a three-point scale. Most of the respondents (72 per cent) were of the opinion that the “number of requests to library staff for reference help” were the same, 17 per cent were of the view that these have decreased, while only 10 per cent mentioned the increase in such requests. A total of 55 per cent of respondents mentioned that the amount of time they were spending on getting information has decreased due to electronic resources, whereas 30 per cent mentioned no change in it and 13 per cent thought that the amount of time has increased. On the other hand, borrowing of material from the library was mentioned as the same by 63 per cent respondents, decreased by 24 per cent and increased by 14 per cent respondents. A total of 64 per cent of respondents mentioned that their number of visits to the library has decreased, 25 per cent mentioned it as the same and 10 per cent mentioned an increase in the number of visits.

The respondents were asked to mention about different information-seeking activities, whether they have become easier, difficult or about the same. The results show that 67 per cent respondents pointed out that collection and use of information have become easier, 28 per cent mentioned it was about the same and 5 per cent said that it has become more difficult. Similarly, 83 per cent of respondents mentioned that searching the information has become easier, and 9 per cent mentioned it was difficult and about the same respectively. A total of 90 per cent respondents pointed out that their communication with library staff and experts has become easier, and only 10 per cent said that it is about the same. A total of 66 per cent of respondents mentioned that types of resources they now use are about the same, 24 per cent said these are different, while 10 per cent declared them as entirely different (Tables III-V).

**Information needs fulfilled through electronic resources**

The results of the study show that 33 per cent respondents fulfilled 11-25 per cent of their information needs through the electronic resources and 31 per cent fulfilled 26-50 per cent share of their information needs. A total of 17 per cent mentioned less than 10
per cent fulfilment of information needs, 13 per cent mentioned 51-75 per cent, and only 6 per cent pointed out that they fulfilled more than 75 per cent of their information needs through the electronic resources (Table VI).

Problems in information seeking through electronic resources
The respondents were asked to mention the problems faced by them while seeking information using the electronic resources. They mentioned that as information is scattered in too many sources (90 per cent), due to the information explosion (87 per cent) so they found it difficult to search their required information without assistance. Other problems mentioned by them were “electronic resources are too expensive” (87 per cent), “lack of time for searching” (79 per cent), “non availability of electronic resources” (74 per cent), “lack of training to use the electronic resources/products” (71 per cent), “lack of computer hardware or software” (71 per cent), “lack of technical support” (68 per cent) and “language barrier (most of the electronic material is in foreign languages)” (35 per cent) (Table VII).

Discussion of results
The present research of information use by humanities scholars is the first study on this topic in Pakistan. The results correspond with the previous studies conducted in

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<th>Activity</th>
<th>Increased</th>
<th>Decreased</th>
<th>Same</th>
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<tbody>
<tr>
<td>Number of requests to library staff for reference help</td>
<td>10</td>
<td>17</td>
<td>72</td>
</tr>
<tr>
<td>Amount of time to get information</td>
<td>13</td>
<td>57</td>
<td>30</td>
</tr>
<tr>
<td>Borrowing material from library</td>
<td>14</td>
<td>24</td>
<td>63</td>
</tr>
<tr>
<td>Number of library visits</td>
<td>10</td>
<td>64</td>
<td>25</td>
</tr>
</tbody>
</table>

<table>
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<tr>
<th>Activity</th>
<th>Difficult</th>
<th>Easier</th>
<th>Same</th>
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<tbody>
<tr>
<td>To collect and use information</td>
<td>5</td>
<td>67</td>
<td>28</td>
</tr>
<tr>
<td>To search the information</td>
<td>9</td>
<td>83</td>
<td>9</td>
</tr>
<tr>
<td>To communicate with library staff and experts</td>
<td>0</td>
<td>90</td>
<td>10</td>
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<table>
<thead>
<tr>
<th>Resources</th>
<th>Entirely different</th>
<th>Different</th>
<th>Same</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type of resources you use</td>
<td>10</td>
<td>24</td>
<td>66</td>
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<table>
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<tr>
<th>Needs fulfilled</th>
<th>Per cent</th>
<th>Cumulative per cent</th>
</tr>
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<tbody>
<tr>
<td>Less than 10%</td>
<td>17</td>
<td>17</td>
</tr>
<tr>
<td>11-25%</td>
<td>33</td>
<td>50</td>
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<td>26-50%</td>
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<td>81</td>
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<td>51-75%</td>
<td>13</td>
<td>94</td>
</tr>
<tr>
<td>More than 75%</td>
<td>6</td>
<td>100</td>
</tr>
</tbody>
</table>

Table III. Impact of electronic resources on information-seeking activities (per cent response)
Table IV. Impact of electronic resources on information-seeking activities (per cent response)
Table V. Impact of electronic resources on information-seeking activities (per cent response)
Table VI. Information needs fulfilled through electronic resources
other parts of the world. A large majority of humanities scholars are not far from modern electronic technology as they have access to computer and internet at their offices and homes. Most of them are regular users of the internet. However, the missing thing is formal training, consequently humanities scholars have fewer skills to use new technology. As far as the preference of electronic resources over print material is concerned, the results show that the scholars like to use both formats at the same time. Their preference for electronic resources is not significantly different from print material. internet search engines are most popular facility among humanists. As revealed by other studies, online databases are not much used by the scholars in this field. However, the results show that the scholars use various electronic resources and ICT facilities to some extent.

The humanists stated that electronic technology had a profound impact on their information-seeking activities. Although, for their teaching and research, they still depend on print resources available in libraries, their personal visits to libraries have significantly decreased after the advent of technology. They feel that technology has made information searching, collection and use of information easier for them. Communication with librarians and experts has also been made easier by the modern technology. A notable finding of this study is that the humanists do not see any difference between the type of information resources they used before and after the availability of modern technology. The electronic technology fulfills the information needs of the researchers but there are still 81 per cent of the humanities scholars who can fulfill not more than 50 per cent of their needs. The problems the humanists face in retrieving and using electronic information are again the same as those which are faced by humanities scholars in other countries. Scattered information, lack of time for searching, lack of skills, non-availability of desired information and hardware and software are the major obstacles in using electronic resources and facilities.

**Conclusion and recommendations**

The results of this study reveal that the availability of electronic resources like electronic databases (online and CD-ROM), electronic journals, digital books, internet and e-mail has a great impact on the information-seeking behavior of the humanists. Although they still stick to the print resources, they do pay good attention towards electronic technology. They face many problems in retrieving and using electronic facilities, but they perceive that their work has become easier with technology. It can be

<table>
<thead>
<tr>
<th>Rank</th>
<th>Problem</th>
<th>Per cent</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Information is scattered in too many sources, so difficult to search without assistance</td>
<td>90</td>
</tr>
<tr>
<td>2-3</td>
<td>Electronic resources are too expensive</td>
<td>87</td>
</tr>
<tr>
<td>2-3</td>
<td>Information explosion</td>
<td>87</td>
</tr>
<tr>
<td>4</td>
<td>Lack of time for searching</td>
<td>79</td>
</tr>
<tr>
<td>5</td>
<td>Non-availability of needed electronic resource (e-journals and e-databases)</td>
<td>74</td>
</tr>
<tr>
<td>6-7</td>
<td>Lack of training to use the electronic resources/products</td>
<td>71</td>
</tr>
<tr>
<td>6-7</td>
<td>Lack of computer hardware or software</td>
<td>71</td>
</tr>
<tr>
<td>8</td>
<td>Lack of technical support</td>
<td>68</td>
</tr>
<tr>
<td>9</td>
<td>Language barrier (most of the electronic material is in foreign languages)</td>
<td>35</td>
</tr>
</tbody>
</table>

Table VII. Problems in information seeking through electronic resources
concluded that this image has changed from that in which humanists only prefer print materials and libraries.

To improve the provision of modern electronic technology for humanists in Pakistan the following recommendations are made:

• In depth studies should be conducted more frequently to find out the changes in use pattern as the technology is becoming more and more sophisticated day by day.

• Libraries should focus making available more and updated electronic resources in humanities as well. Special ICT training programs should be arranged for humanists.

• The university authorities should allocate sufficient funds to central and departmental libraries to acquire the latest information resources and upgrade their ICT equipments and facilities.

• The ICT revolution has enhanced the role of librarians as intermediaries. Although humanists prefer to work on their own, now they also need librarians’ help due to information overload and new forms of resources. Thus librarians working in humanities libraries should also enhance their skills in providing information in these areas.

• As humanists are facing the problem of scattered information and lack of time, so more tools and services should be developed for the organization and delivery of relevant information in minimum time as it is a practice in science and technology libraries.

If these recommendations are effected, then humanities scholars at the University of the Punjab, as well as elsewhere, will be able to become at the forefront in their chosen fields.

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