# Transforming Information Societies: Report on Survey Investigating the Use of Networked Information for Research and Scholarly Communication at SQU, Oman

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**Abstract**

This paper reports the results of a major survey that has been conducted in order to investigate the use of networked information for research and scholarly communication at Sultan Qaboos University, Oman. Sultan Qaboos University is considered as being representative of a particular type of university in a developing country; that is, one which operates with the socio-political environment of the Gulf States and within traditions of Arabic scholarship. This study has produced indicative data about how and why academics at Sultan Qaboos University utilize various types of networked information that are made available either internally through the university library's networked services, or externally through networked services supported by the Internet. In addition, the survey has generated data relevant to the roles of the academic library and librarians in supporting research and scholarly communication through the collaborative use of networked information. The paper will reflect on the results obtained from the survey, and the extent to which they might begin to reveal a use of networked information that emulates or differs from that which has been observed in universities with a tradition of western, liberal scholarship.

## Background

There is a large and steadily growing body of literature on the use of networked information for scholarly communication. The process of scholarly communication is recognised as a collaborative effort, involving researchers, publishers, librarians, readers and learned societies ( Milne, 1999). The literature variously examines the roles of each of these parties with a focus on digital/networked information support for research, electronic publishing, electronic journals and digital libraries. See for example (Arms, 1999; Borgman, 2000; Getz, 1997; Harter, 1997; Harter & Kim, 1996; Kling & Callahan, 2002; Kling & Covi, 1997; Rao, 2001). While the research on scholarly communication practices includes the use of networked information by academic research communities, no evidence of this research has been grounded in the Arab World or Oman in particular.

Sultanate of Oman is bounded by the gulf of Oman in the northeast and by the Arabian Sea and the United Arab Emirates in the northwest. It is also bounded by Saudi Arabia in the west and Yemen in the south. Internet services were first introduced to the country in 1997 (Burkhart, 1998). By 2002, Internet users in Oman recorded 120,000 (The World Factbook, 2003) from a total population of 2.5 million. Sultan Qaboos University (SQU) was opened in 1986 as the only public university in the country. Recently, some private universities and colleges have been established. Currently, the university consists of seven colleges: Agriculture and Marine Sciences, Arts and Social Sciences, Commerce and Economics, Education and Islamic Sciences, Engineering, Medicine, and Sciences. The

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Internet was made available to SQU in 1997. The use of networked information and related technologies at SQU has become common and is considered an essential asset in enhancing the educational system of the University. Today, every academic staff member in the university has a computer with access to the Internet and other networks (Sultan Qaboos University, 2003). There is, however, a substantial need to investigate the use of this technology for research and scholarly communication at the University, and in the wider region of the Arabic Gulf States.

## Objectives of the Study

The Primary objectives of this study are to:

- Investigate the extent to which SQU academics use networked information resources and services for research and scholarly communication and assess the library/librarian roles from the point view of the academics.
- Explore the academics' attitudes and perceptions toward the use of the Arabic language for the purposes of research and scholarly communication in a networked environment dominated by the English language.

## Literature Review

Networked information has greatly impacted on research and scholarly communication since the first use of email and the creation of electronically accessible texts such as e-journals. In particular the impact of networked information can clearly be seen in academic institutions, being the producers and the consumers of the scholarly publishing. Academics around the world have been constantly changing the ways in which they search for information, conduct research, communicate with each other, and disseminate their research findings. These constant changes are based on the development of networking technologies which have reshaped their methods of accessing and communicating information.

There has been a steadily growing body of research which investigates the impact of networked information on the processes of research and scholarly communication from diverse angles, such as: (1) empirical research on the impact of electronic resources or digital libraries on scholarly communication, (2) use and user behavior studies, and (3) research on citation behavior (bibliometric studies). While a fairly large body of literature has been devoted to addressing the impact of networked information on research and scholarly communication in the developed countries, there is a comparative scarcity of literature that has been dedicated to investigating the same issue in developing countries.

Since the present study took place in an Arabic academic environment, the existing literature was searched for studies and research that investigate the phenomenon in an Arabic context or similar contexts in developing countries. The literature was also examined to identify other studies relevant to the objectives of this study. For instance, studies that cover the use of networked information for teaching and instructional purposes–as opposed to research--were omitted.

The literature indicates that the first use of networked information in the form of email goes back to 1970s and e-journals to the 1980s (Tonta, 1995). There was little research, however, that investigated the practical implications of these technologies before the beginning of the past decade. Most of the research conducted before that period focuses on the use of the paper medium and traditional scholarly communication practices; the origins of the scholarly journal article stretch back to the seventeenth century (Fjallbrant, 1997). It is worthwhile mentioning that the current study examines the use of networked information in an academic setting in which the meaning of 'networked information' differs from that of 'electronic information'. That is, networked information includes all types of information that are accessible by means of networked computers without the restrictions of time or place.

While on the other hand, electronic information might include mediums as carriers of information such as PCs, Floppy discs, CDs, Flash Memories and other types of information storage hardware, but not necessarily accessible by means of networks.

Digital means of communication, such as e-mail, file transfer protocol, the World Wide Web, gopher, mailing lists, newsgroups, bulletin board systems and other networked information services have speeded up the "pace of scholarly exchange to be nearly instantaneous and have democratized the scholarly community into a global network" (Meszaros, 2002, p.32). Claims have been made that the Internet has emerged as the most powerful communication system for the scholarly community. The use of the Internet and online information services requires a personal computer at every scholar's desk in order that they have access to the expanding range of Internet services (Pavliscak, Ross, & Henry, 1997).

Costa and Meadows (1999) examined the impact of computer usage on scholarly communication by social scientists in Brazil and UK. Changes to scholarly communication patterns were found to be occurring, including the democratization of the international research community. No specific information networked services were measured, but the use of electronic information resources and their advantages in supporting scholarly communication were the main concern.

More recently, Brown (2001) described the role of computer-mediated communication in the research process of music scholars in the USA and Canada. He examined only two systems of CMC, email and electronic discussion groups. The majority of the participants were found to be using email, but the electronic discussion groups had not been widely adopted. However, as the study was narrow, the researcher suggested wider investigation that includes more CMC systems and various disciplines.

Kling and Covi (1997) carried out an empirical study on the way faculty and postgraduate students use digital libraries in eight major universities in the United States. Their focus was on the use of digital library services as part of a process of scholarly communication and routine research practice. They found the patterns of use vary from one discipline to another. Nevertheless, faculty members and doctoral students were enthusiastic about using digital sources of information.

Jeon-Slaughter (2001) completed a study based on in-depth interviews investigating how electronic journals improve scholarly communication. This study, limited to biomedical scholars, claimed many advantages that electronic journals have had on the practice of scholarly communication.

Djenchuraev (2003) has been working on a project that aims to develop a new model for scholarly communication in Kyrgyzstan, building on the premise that access to digital sources is distributed unevenly throughout the world. He found that the world is divided between the developed countries that lead advances in scholarly communication and developing countries in which "not only lack of access to the Internet is the major point, [but also] lack of proper training in information technology, low accessibility of scholarly information, lack of electronic access to libraries, few opportunities to publish research data in international peer-reviewed journals are just a tip of the problem iceberg"(Djenchuraev, 2003, p.1).

Similarly, Scaria (2003) stresses that the major barriers plaguing scholarly communication in the developing world are access and dissemination. The world development report originated by the World Bank (1999) addresses the fact that knowledge gaps exist between the developed and the developing countries and are expressed as problems of acquiring, absorbing, and communicating knowledge. Communicating knowledge involves taking into consideration information and communication technology, appropriate regulations, and ensuring access to information .

At the third conference on "Information Technology and Telecommunication in the Arab World" held in Cairo in August 2003, Amre Moussa, secretary General of the League of the Arab States, announced that "several Arab countries have already adopted national plans to promote infrastructure, encourage foreign and local investment, provide Internet services to schools, and establish free zones for Information and Communication technology (ICT), such as the Dubai Internet city, the Smart Village in Egypt, and the Silicon Hills in Jordan … there is an imperative necessity to expand Arab cooperation and to develop partnership projects in the field of telecommunication and information technology" (Moussa, 2003). A number of studies within the Arab world address the issues of information technology and its impact on education, but to date no studies have been identified which examine the issue of digital scholarly communication in these countries

The Sultanate of Oman, like other Arab states, faces problems in enhancing or adapting to new models of scholarly communication. Many of these problems derive from a lack of infrastructure for modern ICT services. A study investigating the trends of information communication technology in the Arab Maghreb, a group of Arab countries in the north of Africa, points out the constraints regarding Internet access. These are: high cost of connection, weak technical infrastructure, unskilled employees, and lack of information exchange (Djeflat, 2000).

Zahlan (2000) led a study in knowledge development in the Arab world with an emphasis on economic and industrial aspects. He covered four issues: investment in knowledge acquisition, policies and practices regarding the application of knowledge, connectivity between research workers, and connectivity between university professors and the community. His study did not directly address the issue of networked information or digital scholarly communication. Zahlan, however, indicated that Arab scholarly, scientific and professional organizations and communities generally operate at a low level of activity because of the little investment in improving connectivity.

With regard to providing access to electronic journals in the Arab world, Nasser and Abouchedid (2001) investigated the progress. Through a comparison with developed countries they found that the situation is quite unsatisfactory and that Arabic electronic publishing is dormant. The study, however, was exclusively limited to Lebanon. The sample population used for the study was also small, sampling only 21 academics who presented papers at a conference held at Notre Dame University in Lebanon.

## Methodology

A quantitative approach was used to collect data regarding the current levels of use of networked information for research and scholarly communication at SQU. It was decided that a questionnaire survey would play a major role in two ways. Firstly, it will provide an overview of the state of use of networked information for the purpose of research and scholarly communication. Secondly, many factors associated with this use of networked information cannot be adequately covered by other means of data collection techniques, especially when the researcher attempts to discover the relationship of a large number of variables as in the case of this study.

The methodology involved designing the questionnaire and piloting it to assure its final acceptance for the major distribution. The design of the questionnaire was largely sourced from the literature reporting on similar surveys conducted in similar settings, although investigating different matters.

The academic staff of Sultan Qaboos University served as the target population. The researcher targeted the participation of the whole population for the following reasons: (1) attempting to survey the whole population potentially allows every individual the opportunity to respond, thereby increasing the response rate and the validity of the study; (2) the study population does not exceed 1000 and does not necessarily require a random sampling

procedure; (3) it would be difficult to apply a random sampling procedure because the staff lists at SQU are only updated annually.

The population has the following characteristics: (1) all are academic staffs who are involved in teaching and conducting scholarly research, (2) all are located on-campus, (3) they are both males and females, (4) they are of various ages, (5) they are of various levels of academic appointments, (6) they are Arabs and non-Arabs, and (7) they come from different social and cultural backgrounds.

In December 2004 the major survey was undertaken at SQU. The final format and layout of the questionnaire was based on revisions made following the pilot survey. Ethical approval was received from the Curtin University of Technology Human Research Ethics Committee. In addition, the researcher contacted the office of the vice-president of SQU seeking approval and a supporting letter encouraging the academics of SQU to assist the research by completing the questionnaire.

The total number of questionnaires given out was (599). A week after the questionnaire was distributed; the researcher emailed a follow up letter using the academics' email addresses found in their college websites and the telephone directory of SQU. After two weeks the researcher found the response rate (190) was unsatisfying and relatively low. Therefore, a second follow up letter was sent again to encourage recipients of the questionnaire to respond. It was also decided that the researcher would extend the period of time allowed for the completion of the questionnaire. Two more weeks were allocated. Most importantly, the researcher decided to pay personal visits to the academics in their offices to increase the response rate.

Data colleted from the questionnaire were typed into an SPSS data file. From this file, frequencies of responses were calculated for each variable on the questionnaire. In addition, cross tabulations were performed to find significant differences associated with certain variables. Nevertheless, this paper only covers the frequencies of responses associated with the use of networked information for research and scholarly communication.

The response rate to the survey was 48% (287 out of 599 distributed questionnaires). The overall response rate to the whole number of the academics at SQU (765) is 37.5%. If 37.5% is considered to be the valid response rate, it is quite acceptable given that the response rate to academic surveys is generally low. (eJUST, 2002; Tomney & Burton, 1998; Weingart & Anderson, 2000)

## Findings

### User Profile

In the first part of the questionnaire (Part A) demographic features about the respondents were identified. Participants were asked to indicate the level of their academic appointments. The majority of the respondents 47% (n=135) were Assistant Professors while the rest of the respondents were almost evenly distributed between Associate Professors 22% (n=62) and Lecturers 18% (n=52), but Professors 4.9% (n=14) and Demonstrators 2.8% (n=8) represented a low percentage.

From the total number of the academics who are working at SQU (The Statistical Book of SQU 2003/2004), the majority of the academic staff is male (614) 80%, while females (151) represent 20%. This disparity might be explained by the cultural perspectives of the Arab societies which make females reluctant to hold academic positions. This study sampled nearly parallel percentage of male (84%) and female (16%), thereby accurately reflecting the total distribution of male and female at SQU.

Respondents were asked to indicate the level of their last degree obtained, ranging from Bachelor to PhD. However, almost 73% (n=209) of the respondents held PhD while just 22% (n=63) held Masters and nearly 5% (n=14) received only Bachelors. The majority of the respondents 68% (n=195) finished their last degrees in English speaking countries. In

contrast, those who finished their last degrees in Arabic speaking countries represented 19% (n=54) while the rest of the respondents 13% (n=38) had their last degrees from other countries, with France and Germany the most frequently indicated.

The majority of the respondents 76% (n=217) indicated Arabic as their first language while nearly 9% (n=25) indicated English as their first language and almost 18% (n=45) indicated other languages. Of the respondents, 50.5% (n=145) were from the Science disciplines which represent the colleges of Agriculture, Medicine, Engineering, and Science, whereas 49.5% (n=142) represent the Humanities and Social Science disciplines which are the colleges of Arts and Social Sciences, Commerce and Economics, and Education.

**Frequency of Use of Networked Information**

Of the respondents, almost 99% (n=281) indicated that they have their offices equipped with a networked computer including access to the Internet, and the same percentage of respondents use networked information for research and scholarly communication. The majority of the respondents 58% (n=163) describe their skills of using the networked information as intermediate and 38% (n=108) as advanced. Almost 42% (n=122) of the respondents have been using networked information for 1-5 years and 34% (n=98) indicated 6-10 years as their length of use. The majority of the respondents 72% (n=203) reported that use of networked information by academics was 'extremely important'.

**Table 1. Frequencies of use of networked information services.**

| How frequently do you u the following: | Never 1 | Rarely 2 | Yearly 3 | Monthly 4 | Weekly 5 | Daily 6 | Mean |
|---|---|---|---|---|---|---|---|
| Email | 2 .7% | 13 4.6% | 4 1.4% | 13 4.6% | 27 9.5% | 224 79.2% | 5.5 |
| Internet Search Engines | 5 1.8% | 5 1.8% | 5 1.8% | 27 9.6% | 76 27.0% | 163 58.0% | 5.3 |
| E-journals | 13 4.6% | 27 9.5% | 15 5.3% | 91 32.2% | 96 33.9% | 41 14.5% | 4.2 |
| Full-texts other than e-journals | 7 2.5% | 35 12.3% | 16 5.6% | 84 29.6% | 97 34.2% | 45 15.8% | 4.2 |
| Web-based Library Catalogues | 26 9.2% | 35 12.4% | 16 5.7% | 91 32.2% | 95 33.6% | 20 7.1% | 3.8 |
| Web-based Databases | 26 9.3% | 43 15.4% | 22 7.9% | 74 26.5% | 83 29.7% | 31 11.1% | 3.8 |
| Mailing Lists | 51 19.1% | 57 21.3% | 9 3.4% | 31 11.6% | 55 20.6% | 64 24.0% | 3.6 |
| Bulletin Boards (news groups) | 61 22.2% | 74 26.9% | 12 4.4% | 40 14.5% | 48 17.5% | 40 14.5% | 3.2 |
| Internet Chat | 107 38.4% | 91 32.6% | 7 2.5% | 29 10.4% | 33 11.8% | 12 4.3% | 2.3 |
| Video Conferencing (Teleconferencing) | 165 59.8% | 78 28.3% | 14 5.1% | 13 4.7% | 6 2.2% | 0 .0% | 1.6 |

Table 1, shown above, illustrates the statistical findings (percentages and frequencies) of a list of 10 networked information services that respondents were asked to indicate their frequency of use. It is found that the email was the most frequently used networked information service (mean score = 5.5) in which almost 80% of the respondents indicated that they use email in a daily basis, while the least frequently used service was

video conferencing recording a mean score of (1.6). Internet search engines are also given a high priority by the respondents, with more than half of the respondents 58% (n=163) using them on a daily basis. E-journals and other full-text sources were also found to be in high use, recording a mean score of (4.2) each. The rest of the networked information services, as indicated in the table, showed a relatively lower usage by the respondents. These results suggest a fair pace of change in integrating networked information with the learning societies in a developing environment.

**Purpose of use**

**Table 2. Frequencies of use of certain research and scholarly communication activities**.

| Scholarly Communication Activity | 1 | 2 | 3 | 4 | Mean |
|---|---|---|---|---|---|
| To communicate with academics or researchers at same institutions. | 15<br>5.3% | 24<br>8.5% | 89<br>31.4% | 155<br>54.8% | 3.35 |
| To keep current in an area of research. | 11<br>3.9% | 28<br>9.9% | 95<br>33.6% | 149<br>52.7% | 3.34 |
| To learn about conference announcements. | 14<br>4.9% | 40<br>14.1% | 112<br>39.4% | 118<br>41.5% | 3.17 |
| To provide or obtain updates on research. | 17<br>6.0% | 42<br>14.9% | 105<br>37.4% | 117<br>41.6% | 3.14 |
| To obtain bibliographic references. | 18<br>6.4% | 40<br>14.2% | 112<br>39.7% | 112<br>39.7% | 3.12 |
| To ask questions or provide answers. | 21<br>7.4% | 59<br>20.9% | 111<br>39.4% | 91<br>32.3% | 2.96 |
| To communicate with academics or researchers at different institutions globally. | 32<br>11.3% | 52<br>18.4% | 94<br>33.3% | 104<br>36.9% | 2.95 |
| To exchange documents or information about issues or topics in an area of research. | 31<br>10.9% | 50<br>17.6% | 112<br>39.4% | 91<br>32.0% | 2.92 |
| To communicate with publishers. | 59<br>21.0% | 73<br>26.0% | 86<br>30.6% | 63<br>22.4% | 2.54 |
| To communicate with academics or researchers at different institutions within the Arab states. | 55<br>19.5% | 90<br>31.9% | 100<br>35.5% | 37<br>13.1% | 2.42 |
| To communicate with academics or researchers at different institutions in Oman. | 66<br>23.4% | 74<br>26.2% | 104<br>36.9% | 38<br>13.5% | 2.40 |

Respondents were asked to indicate their use of networked information services for certain research and scholarly communication activities as identified by the researcher (see Table 2). A frequency scale was used to measure the academics' use of these research and scholarly communication activities. The scale used to measure these activities is: (1) Never Used, (2) Rarely, (3) Occasionally, and (4) Frequently. The result indicates that academics communicate with their counterparts and researchers at the same institution more than communicating with others at different institutions in Oman or within the Arab States. But, surprisingly, they communicate with academics and researchers globally more than those located with their own geographic region, including Oman. This response may indicate the

maintenance of communication with supervisors and other academics or students met while respondents were studying overseas. It may also be indicative of the developing technological infrastructure in the Arab States which hinder academics from taking full advantage of the scholarly communication within the Arab States. It should also be noted that 27% of the academics at SQU are non-Arabs and those academics arrive at SQU from different countries around the world to hold temporary academic positions. Therefore, scholarly communication with the external world is obviously to be expected in these cases.

Most of the respondents at SQU indicated occasional (39.4%) or frequent (32%) use of networked information to exchange documents or information about research topics. They also use networked information frequently (almost 40%) or occasionally (almost 40%) to obtain bibliographies. Moreover, the majority of them use networked information frequently or at least occasionally to provide or obtain updates on research and to ask questions or provide answers to research questions. In addition, the respondents widely use networked information to keep themselves updated in their areas of research including learning about conference announcements. Networked communication with publishers received equivalent response rate between frequent (22.4%) and never used (21%) and this activity recorded the lowest mean score.

It would appear on the basis of these results that academics at SQU make consistent use of networked information for a wide range of research and scholarly communication purposes.

**Library and Librarian Roles in Enhancing Networked Scholarly Communication**

In academic institutions, libraries usually play a major role in enhancing scholarly communication practice by developing and providing access to collections of both print and digital information resources. Most academic libraries in the developed countries are now maintaining websites with the intention of promoting access to the digital information sources available to their users. In addition, librarians are also being trained to meet the challenges brought by the continuous changes to information and communication technologies.

When respondents were asked to indicate whether all their networked information needs are accessible from their offices or labs (see Table 3), more than 75% either strongly agreed or agreed (Mean=3.9). Also, more than 60% of the respondents agreed or strongly agreed that the university runs occasional training sessions for the academics to use networked information. But, nevertheless, almost one out of four (N=74) were undecided on this matter, while more than 11% either disagreed or strongly disagreed. The respondents' attitudes were similar for the next statement which explored the extent to which SQU is committed to improving the process of networked scholarly communication. It was found that more than 60 % agreed or strongly agreed while less than 30% remained neutral on this point. When respondents were asked about the library website, more than half of them agreed or strongly agreed that the library website is comprehensive and easy to navigate. On the other hand, more than 30% were neutral.

In addition, almost 44% of respondents agreed or strongly agreed that the library web-based catalogue is clear and easy to use while nearly 36% could not decide. When respondents were asked to decide whether electronic journals in their fields were adequate, the majority 47% disagreed or strongly disagreed while only 29% agreed or strongly agreed. Furthermore, the greatest number of respondents (47%) disagreed or strongly disagreed in which the library does not send them updates through a networked medium such as email or mailing list. A similar percentage (43%) of respondents indicated that they are not informed by the library about the new networked information resources or services. Moreover, nearly 40% of the respondents disagreed or strongly disagreed that the library invites them to attend sessions on networked information while almost 38% were undecided on this matter. On the subject of librarian/academic collaboration, the majority of the respondents (69%) agreed or

strongly agreed that librarians are very collaborative and helpful when contacted for assistance. The overall satisfaction regarding the networked library services facilitated by the library was positive, with more than 40% of the respondents agreeing or strongly agreeing with the statement that they are 'overall satisfied with the networked information services facilitated by the library'.

**Table 3. Frequencies and percentages of the attitudes of the respondents toward the library/librarian support of the scholarly communication.**

| | 1 | 2 | 3 | 4 | 5 | Mean |
|---|---|---|---|---|---|---|
| I am able to access all networked information from my office or lab. | 5<br>1.8% | 27<br>9.6% | 36<br>12.8% | 134<br>47.7% | 79<br>28.1% | 3.9 |
| Librarians are very collaborative and helpful. | 5<br>1.8% | 15<br>5.4% | 66<br>23.6% | 138<br>49.3% | 56<br>20.0% | 3.8 |
| The university commitment to improving the process of electronic scholarly communication is highly appreciated. | 1<br>.4% | 19<br>6.8% | 80<br>28.6% | 129<br>46.1% | 51<br>18.2% | 3.7 |
| The university runs occasional training sessions for faculty members to use networked information. | 5<br>1.8% | 27<br>9.6% | 74<br>26.4% | 142<br>50.7% | 32<br>11.4% | 3.6 |
| The library website is easy to navigate and gives comprehensive instructions and information. | 11<br>3.9% | 39<br>13.8% | 89<br>31.6% | 115<br>40.8% | 28<br>9.9% | 3.3 |
| The library's web-based catalogue is clear and easy to use. | 9<br>3.2% | 36<br>12.9% | 110<br>39.3% | 104<br>37.1% | 21<br>7.5% | 3.3 |
| I am overall satisfied about the networked information services facilitated by the library. | 17<br>6.0% | 45<br>16.0% | 102<br>36.3% | 107<br>38.1% | 10<br>3.6% | 3.1 |
| Computer facilities and electronic equipment in the library are adequate. | 19<br>6.8% | 46<br>16.4% | 121<br>43.2% | 87<br>31.1% | 7<br>2.5% | 3.0 |
| The availability of networked information resources at the library is sufficient. | 18<br>6.5% | 74<br>26.7% | 100<br>36.1% | 73<br>26.4% | 12<br>4.3% | 2.9 |
| Electronic journals in my field are adequate and useful. | 40<br>14.4% | 93<br>33.5% | 64<br>23.0% | 67<br>24.1% | 14<br>5.0% | 2.7 |
| The library informs me about networked information resources and services that are newly available. | 44<br>15.6% | 77<br>27.3% | 76<br>27.0% | 70<br>24.8% | 15<br>5.3% | 2.7 |
| The library invites me to attend sessions on networked information. | 34<br>12.1% | 77<br>27.4% | 106<br>37.7% | 53<br>18.9% | 11<br>3.9% | 2.7 |
| I receive updates from the library through a networked medium such as email or group mailing lists. | 52<br>18.4% | 80<br>28.4% | 74<br>26.2% | 59<br>20.9% | 17<br>6.0% | 2.6 |

**Networked Information and the Arabic Language**

It can be hypothesized that scholarship published in Arabic is being discouraged in a networked environment that strongly privileges the use of English. If this is the case, then scholars who work primarily in Arabic, or who rely upon Arabic language texts to further their research may be heavily disadvantaged. Therefore, the survey included questions relating to the respondents use of Arabic in the networked environment, and their attitudes towards English and Arabic as their preferred language for scholarly communication purposes. These questions were directed towards the Arabic speaking respondents only.

**Table 4. Frequencies of the use of Arabic networked information services.**

| | Yes | No | It is not supported b Arabic | Total |
|---|---|---|---|---|
| Email Correspondence in Arabic | 102<br>51.0% | 87<br>43.5% | 11<br>5.5% | 200<br>100% |
| Arabic Mailing Lists(e.g., listserv) | 30<br>16% | 143<br>76.5% | 14<br>7.5% | 187<br>100% |
| Arabic Bulletin Boards (news groups) | 59<br>29.9% | 130<br>66.0% | 8<br>4.1% | 197<br>100% |
| Arabic Internet Chat | 58<br>29.7% | 132<br>67.7% | 5<br>2.6% | 195<br>100% |
| Arabic Video Conferencing (Teleconferencing) | 18<br>9.2% | 166<br>85.1% | 11<br>5.6% | 195<br>100% |
| Arabic e-journals | 52<br>26.4% | 130<br>66.0% | 15<br>7.6% | 197<br>100% |
| Arabic full-texts other than e-journals | 69<br>34.7% | 118<br>59.3% | 12<br>6.0% | 199<br>100% |
| Arabic Web-based Library Catalogues | 73<br>36.5% | 123<br>61.5% | 4<br>2.0% | 200<br>100% |
| Arabic Web-based Databases | 58<br>29.6% | 127<br>64.8% | 11<br>5.6% | 196<br>100% |
| Arabic Internet Search Engines | 95<br>48.2% | 97<br>49.2% | 5<br>2.5% | 197<br>100% |

A ‘yes’ and ‘no’ scale was used as well as an optional third value if respondents believed the service is not supported by Arabic at all (see Table 4 above). Of the 200 Arabic respondents who answered the first item, 51% correspond via email using Arabic language while 43.5% do not. It is the case that many of the most widely available and international email services such as Yahoo or Hotmail do not support the Arabic language in term of the user instructions, but a user can post a message in Arabic. Indeed there are some email services fully supported by Arabic and I assume that those who responded that Email services are not supported by Arabic (5.5%) are not aware of the recent availability of such services.

The majority (76.5%) of the Arabic speaking respondents do not use mailing lists employing Arabic. There are few Arabic based academic mailing lists available due to the comparative lack of use by Arabic speaking academics. Of the respondents, 66% indicated no use of Arabic Bulletin Boards. Currently, there are many public and specialized Bulletin

Boards supported by Arabic available via the Internet, but those launched for academic purposes are quite scarce.

The majority (67.7%) of respondents indicate that they do not use Arabic Internet chat services, with only 30% indicating use. Academics, however, can always, for instance, use MSN chat service or similar services using the scripts of the Arabic language.

Arabic e-journals were not available until very recently. A few of them are now available for specific disciplines, especially in the Humanities and Social Sciences. Of the Arabic speaking respondents, the majority (66%) do not use these e-journals while almost 26% use them and nearly 8% are unaware that they are supported by Arabic language or scripts. Similar result is shown for the Full-texts sources other than e-journals. The majority (59.3%) do not use them while almost 34.7% use them. Finally, Arabic internet search engines received better use in which users and non-users are almost equally divided (48.2% and 49.2% respectively).

Table 5, shown on the next page, reports on the Arab academics' attitudes toward the usability and the accessibility of the Arabic language in today's networked environment, dominated as it is by the English language. The respondents, therefore, were given twelve statements designed to allow them to express their attitudes by using the five-point Likert scale measuring from (1) strongly disagree to (5) strongly agree. The results are ranked in ascending order according to the value of the mean score.

As mentioned above, Arabic e-journals have not been accessible online except for a few journals which became available recently. Therefore, it is likely that the majority of the respondents would agree or strongly agree that the absence of Arabic e-journals and sufficient Arabic networked information is a reason why Arab academics favor English. Most of the respondents were, however, optimistic that networked scholarly information in Arabic will be increasing to a great extent in the next few years. The majority of the respondents also agreed or strongly agreed that sufficient availability of Arabic networked information would have increased their intellectual productivity and would have also encouraged them to think about publishing more scholarly works in Arabic language.

Almost 50% of the respondents would strongly encourage their colleagues and students to use English in writing and publishing. More than 50% of the respondents also believe that English substitutes for the extreme shortage of Arabic networked information. Nevertheless, if the Arabic networked information were sufficiently available, it would help the majority of the respondents to remain updated and current in their felids.

Most of the respondents (55.2%) report either 'agree' or 'strongly agree' that the Arabic language will not be able to contribute to human and scientific development unless it is made available electronically. In addition, nearly half of the respondents (48.6%) indicated that they would prefer to publish in Arabic if the language were adequately supported in the networked environment.

Almost 46% of the respondents believe that the domination of the English language will lead to the continuous decline of the Arabic language for academic purposes. The majority of the respondents 36% did not think that teaching in Arabic would become difficult even if Arabic networked information were not sufficiently available, while, on the other hand, 29% think it is getting difficult.

Table 5 has reported important results which very strongly suggest that the lack of sufficient Arabic networked information leads the academics at SQU to prefer English for research and scholarly communication purposes. The Arabic speaking academics who responded to this survey were general supportive of the proposition that the Arabic language is not currently sufficiently available in the networked environment to allow high impact research and scholarly communication to be conducted in the language. This in turn seems to be leading to at least some discouragement of the use of Arabic as a medium for teaching and learning.

**Table 5. Frequencies and percentages of the attitudes of the respondents toward the use of Arabic networked information.**

| | 1 | 2 | 3 | 4 | 5 | Mean |
|---|---|---|---|---|---|---|
| The absence of Arabic e-journals and sufficient Arabic networked information is a reason why Arab academics favour English. | 9<br>4.5% | 24<br>11.9% | 36<br>17.9% | 90<br>44.8% | 42<br>20.9% | 3.6 |
| The presence of Arabic networked information on the Internet will improve to a great extent in the next few years | 4<br>2.0% | 6<br>3.0% | 72<br>35.5% | 98<br>48.3% | 23<br>11.3% | 3.6 |
| Sufficient availability of Arabic networked information would have increased my intellectual productivity. | 8<br>4.0% | 26<br>12.9% | 49<br>24.3% | 82<br>40.6% | 37<br>18.3% | 3.5 |
| Sufficient availability of Arabic networked information would have encouraged me to think about publishing more in Arabic. | 12<br>5.9% | 34<br>16.8% | 49<br>24.3% | 73<br>36.1% | 34<br>16.8% | 3.4 |
| I strongly encourage colleagues and students to use English in writing and publishing | 6<br>3.0% | 26<br>12.9% | 70<br>34.8% | 70<br>34.8% | 29<br>14.4% | 3.4 |
| The availability of networked info sufficiently substitutes for the extreme shortage networked info in Arabic. | 12<br>6.0% | 47<br>23.5% | 40<br>20.9% | 67<br>33.5% | 34<br>17.0% | 3.3 |
| Sufficient availability of Arabic networked information would help me to remain current in my field. | 12<br>5.9% | 41<br>20.3% | 55<br>27.2% | 55<br>27.2% | 39<br>19.3% | 3.3 |
| Without being electronically available, the Arabic language will not be able to contribute to the human and scientific development. | 26<br>12.8% | 26<br>12.8% | 39<br>19.2% | 74<br>36.5% | 38<br>18.7% | 3.3 |
| I would certainly prefer to write and publish in Arabic if the language was sufficiently available in a networked environment. | 16<br>7.9% | 31<br>15.3% | 57<br>28.2% | 70<br>34.7% | 28<br>13.9% | 3.3 |
| The domination of Eng Lang will lead to the continuous decline of the Arabic language for the academic purposes | 25<br>12.4% | 40<br>19.8% | 42<br>20.8% | 64<br>31.7% | 31<br>15.3% | 3.1 |
| Teaching and learning in Arabic within my discipline is getting difficult due to the lack of networked info in Arabic | 20<br>10.0% | 53<br>26.4% | 64<br>31.8% | 47<br>23.4% | 17<br>8.5% | 2.9 |
| Learning the fields of sciences and technology nowadays in Arabic will risk the learners' academic and career future. | 35<br>17.8% | 51<br>25.9% | 70<br>35.5% | 31<br>15.7% | 10<br>5.1% | 2.6 |

## Summary and Conclusion

The survey's respondents provided important information regarding the use of networked information for research and scholarly communication in an Arabic environment. It is clear that the academic staff at the Sultan Qaboos University are provided with almost universal access to the Internet and associated networked information services, and that they are given at least a basic level of support from the University in terms of training and relevant infrastructure.

The respondents to the survey indicated a high degree of awareness of networked information services as an important part of their work related to the production, distribution and retrieval of research based information. The results of the survey also indicate that it is a

particularly important tool for maintaining contact with international colleagues, although they also indicate that the Internet is an important communication tool within both the University and immediate region.

It is also apparent that respondents were very positive in their attitudes to networked information services and its potential to impact upon the quality and quantity of their research. There is, however, concern over the collections of networked information resources currently provided by the SQU Library.

On the important issue of the place of Arabic as a language for scholarly exchange in a networked world, the survey results indicate some considerable ambivalence. Many of the twelve statements regarding this subject to which participants were required to respond indicate that opinions were quite divided, and many of the statements attracted a large number of 'neutral' responses.

There are some responses that indicate a general or at least majority sense of pessimism about the current state of Arabic for scholarly communication. For example, 59.2% either agreed or strongly agreed that they would have been more productive if there had been 'sufficient availability of Arabic networked information'; and 48.6% (+28.2% neutral) indicated that they would prefer to publish and write in Arabic if the 'language was sufficiently supported in a networked environment'. Crucially there is some indication that these attitudes are being transferred to a next generation, with 49.2% of respondents (+34.8% neutral) indicating that they encourage students to use English for writing and publishing.

There is also opposing evidence, however, in that the majority agreeing (33.5%) or strongly agreeing (17%) that networked information in English language 'substitutes' for the lack of Arabic networked information. The answer to this statement can be understood that English language covers for the absence of Arabic, and therefore whether Arabic networked information is sufficiently available or not, it will add nothing to the accessibility of networked information and the productivity of the scholarly works. This, however, showed conflicting evidence as to the impact of the domination of English in the networked environment and the respondents' attitudes toward the Arabic language.

Further ambivalence is also apparent in that 47% of respondents (+20.8% neutral) agreed or strongly agree that the domination of English will lead to the continued decline of Arabic for scholarly communication, but–in one of the most emphatic responses from this section of the questionnaire–59.6% (35.5% neutral) believed that the presence of Arabic on the Internet 'will improve to a great extent in the next few years'.

The inconsistency in these results may be due to the following reasons. Firstly, almost 96% of the Arabic speaking participants indicated that they speak English, and they are, therefore, able to both access and publish scholarly material in English. Secondly, 75% got their most recent degrees in English speaking countries. Therefore, English proficiency is likely to be valued in research and academic institutions such as SQU as English is the leading international language for learning and research. Thirdly, it has been calculated that English language makes 80% of the total size of the information available in the Internet compared to the rest of the languages. Arabic scholars are therefore far from the only language group who must adapt to this environment. In addition, the language of teaching at SQU is English except for the College of Arts and Social Sciences and the College of Education.

Altogether, the reasons mentioned above are adequate to at least potentially explain the ambivalence referred to. The participants would presumably prefer to see Arabic playing a greater role in transmitting scholarly information in a networked environment. This is undoubtedly in part because of their personal affection for their own language, but in addition most of the participants (55.2%) indicate that Arabic language–and therefore presumably Arabic speaking populations--will not be able to contribute to the human and scientific development unless it is adequately represented on the Internet.

It is probably not surprising, therefore, that respondents were also quite divided on the question of whether 'the domination of the English language will lead to the continuous decline of the Arabic language for academic purposes'.

The reasons for this ambivalence can only be examined by further qualitative research. The next stage of the research project will therefore involve a series of interviews with selected respondents to the initial survey. A primary purpose of these interviews will be to focus on the issue of the comparative efficacy of English and Arabic as languages for scholarly communication for researchers at Sultan Qaboos University.

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