Use of ICT based resources and services in special libraries in Kerala

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Presents results of an investigation to study the contemporary use of Information and Communication Technology (ICT) based resources and services in special libraries in Kerala. The study was performed via a questionnaire survey of the library users and confined only to special libraries with ICT based resources and services. The study also investigated further areas, including: library professionals' help in the use of ICT based resources and services; any change in speed in academic/research work by using ICT; users' satisfaction with the application of ICT; reasons for their dissatisfaction; users' suggestions for training; and their opinion about the user education on ICT. The data collected were analysed and inferences made based on standard statistical methods. The results of the study revealed that the ICT based resource used by the largest percentage of users was the e-mail. The next most widely used resource was WWW, which was being used by nearly 60 per cent of the library users. A good number of the users were not satisfied with the application of ICT in their libraries and indicated 'inadequate ICT infrastructure' as their reason for dissatisfaction. Users proposed a variety of measures of formal orientation and training in ICT based resources and services to become more effective users.

Introduction

Information and Communication Technologies (ICT) are being increasingly used in library and information services for the acquisition, processing and dissemination of information. Libraries and information centres have been using ICT based resources and services to satisfy the diverse information needs of their users. However, these resources and services are not utilized fully. Under-utilization of these resources and services has been a cause of concern to librarians worldwide. The use of information and communication technologies has become increasingly important in special libraries. Special libraries are switching over to ICT based resources and services at an accelerated pace. E-journals, CD-ROM databases, online databases, e-books, web based resources and a variety of other electronic resources are fast replacing the traditional resources of special libraries.

Sharma presented the results of a case study on the role-played by information technology in special library environment in India. The paper discussed in detail the various library activities and services where Defence Science Library had used IT to provide better and enhanced resources and services. Moorthy and Karisiddappa in their study to assess the information infrastructure and use of electronic media in Indian libraries found that a good number of libraries were subscribing CD-ROM databases and were willing to migrate to online journals to satisfy the demands of their users. Ali in his study discussed the need of training for library professionals to make use of the ICT based resources and services optimally.

The study conducted by Hewitson showed a direct link between electronic information resource use and perceived information technology competency. In another study the author found that the Internet was the most widely used service and electronic indexes, abstracts and electronic journals were not heavily used. Vicente et al reported results of a study on the use of electronic information services by staff at Glasgow Caledonian University. They also found that the freely available Internet was the most widely used source, which some respondents viewed as a more appropriate source of vocationally oriented information than passworded databases. They stated that the non-use of electronic information sources was rare due to difficulty of access or use. Adams and Bonk found that the most common barriers in the use of electronic information resources were lack of sufficient resources, the absence of information about specific resources and lack of training. Rehman and Ramzy investigated the use of electronic information resources at the health science centre of Kuwait University and found that time constraints, lack of awareness, and low skill levels were among the primary constraints in the use of electronic information resources in libraries.
Special libraries in Kerala offer diverse information resources and services including selective dissemination of information and end-user training. They subscribe to e-journals, CD-ROM databases, online databases, web based resources and a variety of other electronic resources. They participate in library consortia and build digital libraries. In spite of a wide variety of ICT based resources and services available, it is observed that many of these resources and services are not fully utilized by the users. Therefore, a need was felt to conduct a study to assess the contemporary use of ICT based resources and services in special libraries in Kerala.

Objectives of the study

- To assess and compare the contemporary use of ICT based resources and services in special libraries in Kerala;
- To identify and analyse the specific factors that promoted or hindered the use of ICT based resources and services in special libraries in Kerala;
- To assess to what extent users were satisfied with the ICT based resources and services and what factors affect their use in special libraries in Kerala; and
- To suggest measures for improvement of the use of ICT based resources and services in special libraries in Kerala.

Methodology

A survey method based on a structured questionnaire was used for the study which was administered to library users. The purpose of questionnaire was to obtain data regarding the contemporary use of ICT based resources and services in special libraries in Kerala. This questionnaire was distributed to users with a cover letter indicating the significance of the study and the intended plans for the results. The study was confined only to special libraries with ICT based resources and services. The Directory of Libraries in India (2001), Directory of Scientific and Technical Libraries in India (1988) and Directory of Libraries in Kerala (1976) were used to identify the names, administrative status and addresses of libraries for the study. Since the directories were out dated, information was verified telephonically and through personal visits. Thirty one libraries that were using information and communication technologies were selected for the study. But despite several attempts one institute library did not permit data collection, so it was excluded from the list. Finally, 30 libraries were selected for the study. The thirty institutions belonged to four categories, viz., central government, state government, central government autonomous and state government autonomous. A total of 1431 questionnaires were distributed to users at various times during the months of September 2004 to March 2005. Finally, 1017 filled in questionnaires were received back. From these, 889 questionnaires were found to be usable, which comes to an overall response rate of 62.1 per cent.

Summary of results

Distribution of library users by designation

Users were asked to indicate their designations. The distribution of the users by designation can be seen in the Table 1. The users’ designations of some organisations vary. But for comparison and uniformity the designations were recorded according to the status, scale of pay and nature of duties into the common pattern of designations in scientific research institutions like principle investigator, scientist, technical officer, technical assistant, research fellow, research associate, supporting staff, etc.

It was found that 278 of the respondents (31.3 per cent) were scientists, 144 (16.2 per cent) technical officers, 126 (14.2 per cent) research fellows, 117 (13.2 per cent) technical assistants, 69 (7.8 per cent) principle investigators, 23 (2.6 per cent) research associates, 27 (3 per cent) supporting staffs and 105 (11.8 per cent) were others.

Distribution of library users by gender

The distribution of the users by gender can be seen in the Figure 1. The analysis shows that majority (58.3 per cent) of them were male and 41.7 per cent were female. As seen in Figure 1 majority of the library users of Central Government institutions (63.7 per cent), Central Government autonomous institutions (57.5 per cent), State Government institutions (55.2 per cent), and State Government autonomous institutions (53.4 per cent) were male.

Use of ICT based resources and services

Users were asked whether they use any of the ICT based library resources and services and the responses are summarised in the Table 2.
The electronic resource/tool used by the largest percentage of the users was the e-mail. Majority (65.6 per cent) of the users indicated that they accessed e-mail from the library. The next most widely used resource was WWW, which was being used by nearly 60 per cent of the users. It is also found that majority of them used floppy (52.2 per cent) and bibliographical databases (54.8 per cent). A good number of them used CD-ROM (47.6 per cent), printer (44.2 per cent), e-journals (45.4 per cent) and OPAC (41.6 per cent). All other resources and services received quite low use. Scanner (16.5 per cent), CD-Net server (21.4 per cent), full text databases (29.8 per cent), telephone (16.5 per cent) and library’s website (19.7 per cent) were used by few users. Magnetic tape (2.5 per cent), DVD (7.3 per cent), VCD (6.4 per cent), laptop computer (1 per cent), CD tower (6 per cent), e-books (0.2 per cent), fax (2.8 per cent), FTP (4.8 per cent), telnet (5.7 per cent), listserve (2 per cent), usenet/newsgroup (2.6 per cent) and WebOPAC (0.2 per cent) recorded low usage. It is also found that users of Central Government autonomous institutions were better in the use of various ICT based library resources and services.

Library professionals’ help in the use of ICT based resources and services

Majority (53.5 per cent) of the users opined that library professionals’ help was inadequate and 41.7 per cent of

Table 1 - Distribution of library users by designation

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<tr>
<td>Principle Investigator</td>
<td>17(7.2 %)</td>
<td>34(7.6 %)</td>
<td>4(13.8 %)</td>
<td>14(8 %)</td>
<td>69(7.8 %)</td>
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<tr>
<td>Scientist</td>
<td>61(25.7 %)</td>
<td>166(37.1 %)</td>
<td>7(24.1 %)</td>
<td>44(25 %)</td>
<td>278(31.3 %)</td>
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<td>Technical Officer</td>
<td>44(18.6 %)</td>
<td>61(13.6 %)</td>
<td>7(24.1 %)</td>
<td>32(18.2 %)</td>
<td>144(16.2 %)</td>
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<tr>
<td>Technical Assistant</td>
<td>49(20.7 %)</td>
<td>44(9.8 %)</td>
<td>2(6.9 %)</td>
<td>22(12.5 %)</td>
<td>117(13.2 %)</td>
</tr>
<tr>
<td>Research Fellow</td>
<td>34(14.3 %)</td>
<td>59(13.2 %)</td>
<td>-</td>
<td>33(18.8 %)</td>
<td>126(14.2 %)</td>
</tr>
<tr>
<td>Research Associate</td>
<td>6(2.5 %)</td>
<td>14(3.1 %)</td>
<td>-</td>
<td>3(1.7 %)</td>
<td>23(2.6 %)</td>
</tr>
<tr>
<td>Supporting Staff</td>
<td>1(0.4 %)</td>
<td>17(3.8 %)</td>
<td>-</td>
<td>9(5.1 %)</td>
<td>27(3 %)</td>
</tr>
<tr>
<td>Other</td>
<td>25(10.5 %)</td>
<td>52(11.6 %)</td>
<td>9(31 %)</td>
<td>19(10.8 %)</td>
<td>105(11.8 %)</td>
</tr>
<tr>
<td>Grand Total</td>
<td>237(100 %)</td>
<td>447(100 %)</td>
<td>29(100 %)</td>
<td>176(100 %)</td>
<td>889(100 %)</td>
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Figure 1- Distribution of library users by gender

The electronic resource/tool used by the largest percentage of the users was the e-mail. Majority (65.6 per cent) of the users indicated that they accessed e-mail from the library. The next most widely used resource was WWW, which was being used by nearly 60 per cent of the users. It is also found that majority of them used floppy (52.2 per cent) and bibliographical databases (54.8 per cent). A good number of them used CD-ROM (47.6 per cent), printer (44.2 per cent), e-journals (45.4 per cent) and OPAC (41.6 per cent). All other resources and services received quite low use. Scanner (16.5 per cent), CD-Net server (21.4 per cent), full text databases (29.8 per cent), telephone (16.5 per cent) and library’s website (19.7 per cent) were used by few users. Magnetic tape (2.5 per cent), DVD (7.3 per cent), VCD (6.4 per cent), laptop computer (1 per cent), CD tower (6 per cent), e-books (0.2 per cent), fax (2.8 per cent), FTP (4.8 per cent), telnet (5.7 per cent), listserve (2 per cent), usenet/newsgroup (2.6 per cent) and WebOPAC (0.2 per cent) recorded low usage. It is also found that users of Central Government autonomous institutions were better in the use of various ICT based library resources and services.

Library professionals’ help in the use of ICT based resources and services

Majority (53.5 per cent) of the users opined that library professionals’ help was inadequate and 41.7 per cent of
the users opined it was adequate and a very few (4.7 per cent) opined it was more than adequate.

As in Figure 2, a large majority (81.9 per cent) of the library users of Central Government institutions and majority (54 per cent) of the State Government autonomous institutions indicated that library professionals’ help in the use of ICT based resources and services was inadequate. However, majority (56.2 per cent) of the library users of Central Government autonomous institutions and a good number (41.5 per cent) of the users of State Government autonomous institutions indicated it was adequate. A good number (41.4 per cent) of the library users of State Government institutions opined that it was more than adequate.

**Impact of ICT on academic/research work**

Users were asked whether they have any change in speed in their academic or research work was impacted by using ICT based resources and services. The analysis shows that majority (54.3 per cent) of the users indicated...
that ICT was highly significant in their academic/research work and a good number (43.4 per cent) of the users indicated it was significant. ICT was not significant for a very few (2.2 per cent) users.

As seen in Figure 3, majority of the library users of Central Government autonomous institutions (59.3 per cent), State Government institutions (58.6 per cent) and State Government autonomous institutions (65.3 per cent) indicated that ICT was highly significant in their academic/research work. Majority (62 per cent) of the library users of Central Government institutions, and a good number (40.3 per cent) of the users of Central Government autonomous institutions indicated that ICT was significant.

Users’ satisfaction with the application of ICT

Users were asked to indicate to what extent they were satisfied with the application of ICT in their libraries. Four options were provided to indicate responses. The analysis shows that a good number (47.7 per cent) of the users were not satisfied with the present application of ICT in their libraries.

Figure 4 shows that majority (74.7 per cent) of the library users of Central Government institutions and 50 per cent of the users of State Government autonomous institutions were not satisfied with the application of ICT in their libraries. A good number (41.4 per cent) of the library users of State Government institutions indicated that they were satisfied with the application of ICT in their libraries. However, another 41.4 per cent of the users were not satisfied.

Reasons for users’ dissatisfaction with the application of ICT

The questionnaire survey listed seven possible reasons to users to indicate their dissatisfaction and also provided an “other” category with the opportunity for users to write additional reasons, if they indicated that they were not satisfied with the application of ICT in their libraries. They were asked to mark all the items they considered applicable in their cases. Table 3 lists the various reasons and the percentage of library users in each type of organisation.

A good number (42.4 per cent) of the library users indicated ‘inadequate ICT infrastructure’ as the reason for dissatisfaction. Other reasons were ‘users are not trained for ICT based information services’ (35.1 per cent), ‘Inadequately trained library professionals in ICT application’ (20.2 per cent), ‘Limited computer literacy
Figure 3- Change in speed in academic/research work by using ICT

Table 3 - Reasons for users’ dissatisfaction with the application of ICT

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<tr>
<td>Inadequate ICT infrastructure</td>
<td>161(67.9 %)</td>
<td>129(28.9 %)</td>
<td>12(41.4 %)</td>
<td>75(42.6 %)</td>
<td>377(42.4 %)</td>
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<tr>
<td>Limited computer literacy among library users</td>
<td>101(42.6 %)</td>
<td>20(4.5 %)</td>
<td>8(27.6 %)</td>
<td>27(15.4 %)</td>
<td>156(17.5 %)</td>
</tr>
<tr>
<td>Users are not trained for ICT based information services</td>
<td>158(66.7 %)</td>
<td>93(20.8 %)</td>
<td>8(27.6 %)</td>
<td>53(30.1 %)</td>
<td>312(35.1 %)</td>
</tr>
<tr>
<td>Inadequately trained library professionals in ICT application</td>
<td>89(37.6 %)</td>
<td>32(7.2 %)</td>
<td>12(41.4 %)</td>
<td>47(26.7 %)</td>
<td>180(20.2 %)</td>
</tr>
<tr>
<td>Inadequate publicity for the ICT based resources and services</td>
<td>60(25.3 %)</td>
<td>52(11.6 %)</td>
<td>-</td>
<td>27(15.3 %)</td>
<td>139(15.6 %)</td>
</tr>
<tr>
<td>Rigid ICT use policies implemented by the library</td>
<td>6(2.5 %)</td>
<td>20(4.5 %)</td>
<td>-</td>
<td>30(17 %)</td>
<td>56(6.3 %)</td>
</tr>
<tr>
<td>Discouraging attitude of library professionals towards their users</td>
<td>4(1.7 %)</td>
<td>19(4.3 %)</td>
<td>-</td>
<td>21(11.9 %)</td>
<td>44(4.9 %)</td>
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among library users’ (17.5 per cent), ‘Inadequate publicity for the ICT based resources and services’ (15.6 per cent), ‘Rigid ICT use policies implemented by the library’ (6.3 per cent) and ‘Discouraging attitude of library’ (4.9 per cent). Majority of the library users of the Central Government institutions indicated ‘inadequate ICT infrastructure’ (67.9 per cent) and ‘Users are not trained for ICT based information services’ (66.7 per cent) as the reasons for dissatisfaction.

Users’ suggestions for training

A total of 285 suggestions were given by the users in response to the open-ended question seeking suggestions about the areas in which training was required. For the purpose of data analysis, the suggestions and comments were grouped into five categories: database searching, Internet based information resources and services, information retrieval and dissemination, advanced searching and search query formulation and data mining from digital library. Table 4 gives the categories of suggestions. Of the 285 suggestions, 111 (39 per cent) were related to database searching. Users wanted training in database searching and data mining including CD-ROM, fulltext, online and multimedia databases. Seventy two suggestions (25 per cent) were related to Internet based information resources and services. Users wanted training in Internet based information resources and services including Internet tools/resources/utilities, etc. Fifty-one users (17.9 per cent) pointed out the need for training in information retrieval and dissemination in general. Twenty-seven users (9.5 per cent) wanted training in advanced searching and search query formulation. Twenty-four users (8.4 per cent) expressed the need for training in data mining from digital libraries.

Users opinion about the user education in ICT

To ascertain the level of user education/orientation, users were asked if the user education/orientation was “adequate”, “more than adequate”, or “inadequate”. The
analysis shows that majority (77.3 per cent) of the users indicated that the user education/orientation in ICT was inadequate.

As seen in Figure 5 a large majority (90.7 per cent) of the library users of Central Government institutions and majority of the Central Government autonomous institutions (69.1 per cent), State Government institutions (62.1 per cent) and State Government autonomous institutions (82.4 per cent) indicated that the user education/orientation in ICT was inadequate. A few (23.3 per cent) users of the Central Government autonomous institutions indicated that the user education/orientation in ICT was adequate.

**Users’ opinion about the need for workshops/orientation programs on ICT based resources and services**

In order to ascertain users’ perception on the need for workshops/orientation programs, the users were asked whether they ‘agree’ or ‘disagree’ or were ‘not sure’
that there was a need for workshops/orientation programs on ICT based library resources and services. The analysis shows that a large majority (88.1 per cent) of the users agreed that there was a need for workshops/orientation programs and a few (10.3 per cent) users were not sure.

As in Figure 6, most of the library users of State Government autonomous institutions (96 per cent), and Central Government institutions (91.1 per cent) and majority of the Central Government autonomous institutions (85 per cent) and State Government institutions (62.1 per cent) agreed that there was a need for workshops/orientation programs on ICT based library resources and services. About 37.9 per cent of the library users of State Government institutions have preferred the option ‘not sure’.  

Conclusion

From the analyses above, it is found that from all the categories of organisations a good number of the library users were either scientists or persons having similar designation. Majority of the library users were male. The electronic resource used by the largest percentage of users was the e-mail. The next most widely used resource was WWW, which was being used by nearly 60 per cent of the users. Central Government autonomous institutions were better in the use of various ICT based library resources and services. Majority of the users opined that library professionals’ help and the existing ICT facilities in their libraries were inadequate. However, they indicated that ICT was highly significant in their academic/research work. A good number of the users were not satisfied with the present application of ICT in their libraries and indicated that ‘inadequate ICT infrastructure’ as their reason for dissatisfaction. Large majority of the users agreed that there was a need for workshops/orientation programs on the use of ICT based resources and services. The analysis indicated that formal training and user orientation programs are the crucial steps that can facilitate effective use of ICT based resources and services in libraries. The findings of this study have provided useful insights for special libraries in Kerala to take appropriate strategies in a rational and systematic manner to increase the use of ICT based resources and services.

References