Use of Internet by Faculty Members and Research Scholars in the 21st Century: A study of university libraries of Karnataka State, India

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ABSTRACT

The Internet is becoming more widely used by academic institutions to support the teaching, learning and research activities of faculty members and research scholars. The main aim of this study is to examine the impact of Internet on the users in university libraries of Karnataka State. The present study demonstrates and elaborates the various aspects of internet use, such as frequency of Internet use, place of access, purposes for Internet access, motivating factors to access Internet and most preferred search engines. It was found from the survey that the Internet has become a vital instrument for teaching, research and learning process of these respondents. Some suggestions have been given to make the service more beneficial for the faculty members and research scholars of the university libraries of Karnataka state under study.

Keywords: Internet Use, Faculty Members, Research Scholars. Universities, India

Introduction

The current digital revolution especially Internet technology integrated with treasure of information has gained significance as an indispensable tool in pursuit of knowledge and information. At the dawn of information age, professionals are experiencing new vigour in the field of information collection, processing and retrieval. The Internet considered as the electronic mobile library in cyberspace provides an almost universal infrastructure for accessing the information with almost global reach.

In the era of networked information, Internet the largest worldwide network of networks has emerged as the most powerful tool for an instant access to information (Rajeev Kumar and Kaur, 2005). Internet is undoubtedly, the worlds wonder network carrying information on almost any subject under the sun. Everybody today would like to be on Internet because of the wealth of information which lies there to be exchanged. It is known as the information superhighway.

The Internet or the Net, as it is better known has been perceived to be of several dimensions to its users, a medium of intercommunication between remote users, a mechanism to share information and work collaboratively, a means of publishing globally and a near exhaustive repository of information. The Internet plays an important role in teaching, learning and research processes. The usefulness of Internet lies in its ability to provide access to electronic information resources of library everywhere and at all times. It removes the constraints of time and space and also the dependence on conventional sources for learning. Faculty members, research scholars of universities of Karnataka increasingly depend on the Internet for their teaching / research activities and for information on recent / current developments in their study areas than on conventional sources.

Need for the study

Academic libraries have made a significant investment in electronic information resources and in computer-based technologies in general and the Internet in particular as a need on the part of librarians to provide technology mediated information services to the clientele. In a limited span of time, the Internet has become an integral unit for Library and Information Centres.

The current study is conducted to gather & measure and access the changing users attitude, and behaviour towards the Internet. It is necessary to examine the Internet facility provided at the campuses of the universities and to evaluate the use of Internet.

Scope of the Study

The present study has the following limitations:

- The study is restricted to use of Internet by the science and technology faculty of universities of Karnataka State.
- The study population consists of faculty members and research scholars.

Objectives of the Study

The objectives of the study are:

1. To highlight the importance of the Internet and its services over the traditional library services.
2. To identify the different purposes for which the Internet is used by faculty members and research scholars.
3. To study the various Internet resources and services used by the faculty members and research scholars on the Internet for various activities of teaching, learning and research.
4. To study the impact of Internet on users' research and teaching.
5. To suggest ways and means for the improvement of the Internet facility in the universities of Karnataka State.

Hypotheses

1. Internet provides faster and reliable information.
2. Users get most updated information.
3. Use of Internet has increased the contribution of research papers by the users to a great extent.
4. Internet has a positive impact on teaching / research activities of faculty members and research scholars at universities in Karnataka state.

Methodology

The researcher visited all the six State Universities of Karnataka. Questionnaires were distributed among the faculty members, research scholars. A total of 604 questionnaires were distributed among users and 471 duly filled in questionnaires were received, thus resulting into a response rate of 77.98 %.

Faculty members and research scholars are the target population for this study. The questionnaire method has been employed along with observation and interview to collect the data for the present study. Random sampling technique has been used. The data collected through questionnaires have been fed to computer, using SPSS (Software Package for Social Sciences).

Results and Discussion

Distribution of questionnaires in different Universities of Karnataka State

Table – 1 reveals university-wise distribution of questionnaires. The highest response has come from Gulbarga University with 80.95 % followed by Karnatak University with 80.91 %, Mangalore University with 80.00 %, Kuvempu University with 78.21 %, Bangalore University with 77.94 % and Mysore University with least 71.55 %.

Table – 1: University wise distribution of questionnaires

Sl. No.	Name of the University	No. of questionnaires distributed	No. of questionnaires received	Rate of response
1.	Bangalore University	136	106	(77.94 %)
2.	Gulbarga University	84	68	(80.95 %)
3.	Karnatak University	110	89	(80.91 %)
4.	Kuvempu University	78	61	(78.21 %)
5.	Mangalore University	80	64	(80.00 %)
6.	Mysore University	116	83	(71.55 %)
	Total	604	471	(77.98 %)

Figures in parenthesis indicate percentage

Category wise distribution of respondents

Table – 2 reveals the category-wise breakup of respondents. It is observed that, of the total 471 respondents, 231 (49.04 %) are faculty members, 240 (50.96 %) are research scholars.

Table – 2: Category wise distribution of respondents

Category	BU	GU	KU	KVU	MU	MYU	Total
Faculty members	59 (25.55)	33 (14.28)	37 (16.02)	30 (12.99)	36 (15.58)	36 (15.58)	231 (49.04)
Research scholars	47 (19.58)	35 (14.58)	52 (21.67)	31 (12.92)	28 (11.67)	47 (19.58)	240 (50.96)
Total	106 (22.50)	68 (14.44)	89 (18.89)	61 (12.95)	64 (13.59)	83 (17.62)	471 (100.00)

Figures in parenthesis indicate percentage

Geographical background of the respondents

Table – 3 depicts the users geographical background. It reveals that the majority of respondents, i.e., 207 (43.94 %) belong to rural area, whereas 167 (35.46 %) respondents belong to urban area. About 82 (17.41 %) respondents belong to semi urban, followed by only 15 (3.19 %) respondents belonging to cosmopolitan city.

Table – 3: Geographical background of the respondents

Category	Rural area	Semi urban	Urban area	Cosmopolitan City	Total
Faculty members	93 (40.26)	48 (20.78)	85 (36.80)	5 (2.16)	231 (32.72)
Research scholars	114 (47.50)	34 (14.17)	82 (34.17)	10 (4.16)	240 (34.00)
Total	207 (43.94)	82 (17.41)	167 (35.46)	15 (3.19)	471 (100.00)

Figures in parenthesis indicate percentage

Regular use of Internet

Internet is a network of networks. It is also considered as the backbone of the information superhighway. The usefulness of Internet lies in its ability to provide access to electronic information resources of library everywhere and at all times. It removes the constraints of time and space and also the dependence on conventional sources for learning. The faculty members and research scholars were asked certain questions to ascertain the awareness, usage and purpose of Internet access etc.

Users' were asked to give their opinion about the use of Internet. Table – 4 indicates that the majority of the faculty members, that is, 33 (91.67 %) from Mangalore university use Internet on a regular basis. About 27 (90.00 %) respondents from Kuvempu university, 51 (86.44 %) respondents from Bangalore university, about 29 (80.56 %) respondents from Mysore university, 29 (78.38 %) respondents from Karnatak university and about 24 (72.73 %) respondents from Gulbarga university indicated that they use Internet on a regular basis.

Among research scholars, the majority of respondents, i.e., 30 (96.77 %) from Kuvempu university indicate their use of Internet on a regular basis. About 27 (96.43 %) respondents from Mangalore university, 45 (95.74 %) respondents from Mysore university and 40 (85.11 %) respondents from Bangalore university, about 29 (82.86 %) respondents from Gulbarga university and about 42 (80.77 %) respondents from Karnatak university indicate that they use Internet regularly.

Table –4: Regular use of Internet

Uni.	Faculty Members				Research Scholars				Total			
	Yes	No	NS	Total	Yes	No	NS	Total	Yes	No	NS	Total
BU	51 (86.44)	5 (8.47)	3 (5.09)	59 (55.66)	40 (85.11)	7 (14.89)	0 (00.00)	47 (44.34)	91 (85.85)	12 (11.32)	3 (2.83)	106 (22.50)
GU	24 (72.73)	9 (27.27)	0 (00.00)	33 (48.52)	29 (82.86)	6 (17.14)	0 (00.00)	35 (51.48)	53 (77.95)	15 (14.15)	0 (00.00)	68 (14.44)
KU	29 (78.38)	1 (30.00)	7 (18.92)	37 (41.57)	42 (80.77)	10 (19.23)	0 (00.00)	52 (58.43)	71 (79.77)	11 (12.35)	7 (7.87)	89 (18.89)
KVU	27 (90.00)	3 (30.00)	0 (00.00)	30 (49.18)	30 (96.77)	1 (3.23)	0 (00.00)	31 (50.82)	57 (93.44)	4 (6.56)	0 (00.00)	61 (12.95)
MU	33 (91.67)	1 (2.78)	2 (5.55)	36 (56.25)	27 (96.43)	1 (3.57)	0 (00.00)	28 (43.75)	60 (93.76)	2 (3.12)	2 (3.12)	64 (13.59)
MYU	29 (80.56)	7 (19.44)	0 (00.00)	36 (43.37)	45 (95.74)	2 (4.26)	0 (00.00)	47 (56.63)	74 (89.16)	9 (10.84)	0 (00.00)	83 (17.62)
Total	193 (83.55)	26 (11.25)	12 (5.20)	231 (49.04)	213 (88.75)	27 (11.25)	0 (00.00)	240 (50.96)	406 (86.19)	53 (11.26)	12 (2.55)	471 (100.00)

Figures in parenthesis indicate percentage

NS – Not Sure

Place of the Internet access by the faculty members

The faculty members were asked to furnish information regarding the place from where they access Internet. Their responses in this regard are presented in table – 5. It reveals that the majority of the faculty members, i.e., 167 (86.53 %) access Internet in their departments. About 66 (34.19 %) respondents access Internet in the departmental laboratory. The number of the faculty who access Internet at home is 58 (30.05 %), where as about 45 (23.32 %) respondents access Internet at cyber café, and 41 (21.24 %) respondents access from central library.

Table – 5: Place of the Internet access by the faculty members

Place of access	BU n=51	GU n=24	KU n=29	KVU n=27	MU n=33	MYU n=29	Total n=193
Cyber Café	9 (20.00)	6 (13.33)	2 (4.45)	14 (31.11)	5 (11.11)	9 (20.00)	45 (23.32)
Department	46 (27.54)	23 (13.77)	25 (14.97)	16 (9.58)	30 (17.96)	27 (16.18)	167 (86.53)
Home	18 (31.03)	3 (5.17)	13 (22.41)	2 (3.45)	9 (15.53)	13 (22.41)	58 (30.05)
Central Library	6 (14.64)	14 (34.15)	4 (9.76)	8 (19.51)	5 (12.19)	4 (9.75)	41 (21.24)
Departmental laboratory	25 (37.87)	6 (9.09)	14 (21.21)	7 (10.61)	7 (10.61)	7 (10.61)	66 (34.19)

Figures in parenthesis indicate percentage

Place of the Internet access by research scholars

Table – 6 reveals that the majority of respondents, i.e., 139 (65.26 %) access Internet in the department. About 100 (46.95 %) respondents access Internet at cyber café. This is followed by 56 (26.29 %) respondents who access in the departmental laboratory, 45 (21.13 %) respondents who access in central library, the number of those who access Internet at home is 20 (9.39 %).

Table – 6: Place of the Internet access by research scholars

Place of access	BU n=40	GU n=29	KU n=42	KVU n=30	MU n=27	MYU n=45	Total n=213
Cyber Café	20 (20.00)	11 (11.00)	28 (28.00)	12 (12.00)	9 (9.00)	20 (20.00)	100 (46.95)
Department	27 (19.42)	14 (10.07)	27 (19.42)	18 (12.95)	21 (15.11)	32 (23.03)	139 (65.26)
Home	5 (25.00)	1 (5.00)	4 (20.00)	1 (5.00)	6 (30.00)	3 (15.00)	20 (9.39)
Central Library	10 (22.22)	19 (42.22)	5 (11.11)	15 (33.33)	2 (4.44)	4 (8.88)	45 (21.13)
Departmental laboratory	17 (30.36)	3 (5.36)	23 (41.07)	3 (5.36)	2 (3.57)	8 (14.28)	56 (26.29)

Figures in parenthesis indicate percentage

Purposes of accessing Internet by the faculty members

In the modern era Internet has created the way the people communicate with each other and the way information is accessed. It has rapidly become an established medium of communication and connects people across the globe, removing geographic boundaries and simplifying access to information. The rich resources on the Internet are beneficial to all educational endeavours supporting teaching and research and academic in higher education (Biradar, Rajshekhar and Sampath Kumar, 2006). Universities and other higher educational institutions, where academic dialogue and information resources are essential for professional success are without doubt the most likely to reap the benefits of the Internet.

The faculty members were asked about the primary use of Internet. The responses of faculty members are recorded in table – 7. It is observed that e-mail seems to be the most primary use of Internet since about 181 (93.78 %) respondents have said so. About 144 (74.61%) respondents mentioned research purpose. Access to e-resources is indicated by 134 (69.43 %) respondents, whereas 127 (65.80 %) respondents indicated teaching as their purpose. Browsing e-journals is the purpose of 122 (63.21 %) respondents. General information and entertainment record relatively lesser preference.

Table – 7: Purposes of accessing Internet by the faculty members

Purpose	BU n=51	GU n=24	KU n=29	KVU n=27	MU n=33	MYU n=29	Total n=193
E-mail	50 (27.62)	21 (11.60)	29 (16.02)	24 (13.26)	31 (17.13)	26 (14.37)	181 (93.78)
Entertainment	9 (28.12)	7 (21.88)	5 (15.62)	3 (9.38)	3 (9.38)	5 (15.62)	32 (16.58)
General Information	29 (28.43)	10 (9.80)	18 (17.65)	12 (11.76)	16 (15.69)	17 (16.67)	102 (52.84)
Browse e-journals	32 (26.23)	14 (11.48)	19 (15.58)	17 (13.93)	20 (16.39)	20 (16.39)	122 (63.21)
Access e-sources	40 (29.85)	22 (12.50)	20 (14.92)	14 (10.45)	22 (16.42)	16 (11.94)	134 (69.43)
Research	40 (27.78)	18 (12.50)	22 (15.28)	17 (11.80)	24 (16.67)	23 (15.97)	144 (74.61)
Teaching	33 (25.98)	9 (7.08)	10 (7.87)	21 (16.53)	24 (18.89)	20 (15.75)	127 (65.80)

Figures in parenthesis indicate percentage

Purposes of accessing Internet by the research scholars

Table – 8 reveals that the majority of respondents, i.e., 192 (90.14 %) indicated that e-mail is the primary use of Internet. About 176 (82.63 %) respondents indicated that they access Internet for research. Browsing e-journals is the purpose of 147 (69.01 %) respondents. This is followed by general information, which was sought by 120 (56.33 %) respondents, whereas access to e-resources is indicated by 94 (44.13 %) respondents. Entertainment and teaching record relatively lesser preference with 84 (39.43 %) and 32 (15.02 %) respondents respectively.

Table – 8: Purposes of accessing Internet by the research scholars

Purpose	BU n=40	GU n=29	KU n=42	KVU n=30	MU n=27	MYU n=45	Total n=213
E-mail	38 (19.79)	24 (12.50)	39 (20.31)	27 (14.06)	26 (13.54)	38 (19.79)	192 (90.14)
Entertainment	18 (21.43)	5 (5.95)	19 (22.62)	9 (10.72)	8 (9.52)	15 (17.86)	84 (39.43)
General Information	26 (21.67)	12 (10.00)	23 (19.16)	12 (10.00)	21 (17.50)	26 (21.67)	120 (56.33)
Browse e-journals	29 (19.73)	16 (10.88)	23 (15.65)	26 (17.69)	23 (15.65)	30 (20.40)	147 (69.01)
Access e-sources	21 (22.34)	10 (10.64)	24 (25.53)	7 (7.45)	12 (12.76)	20 (21.28)	94 (44.13)
Research	28 (15.91)	26 (14.77)	34 (19.32)	25 (14.20)	24 (13.64)	39 (22.16)	176 (82.63)
Teaching	5 (15.62)	4 (12.50)	5 (15.60)	7 (21.88)	5 (15.62)	6 (18.76)	32 (15.02)

Figures in parenthesis indicate percentage

Motivating factors in the case of the faculty members to access Internet

There are several factors that motivate the faculty members to access Internet. The responses in this regard are presented in table – 9. It reveals that the mean value for the factor to keep abreast with area of research interest is 1, i.e., it is an agreeable fact by all the universities. Mangalore university (CV = 52.16 %) respondents' opinion is more stable as compared to that of the respondents of other universities, and most variable opinion is observed in the case of the respondents from Gulbarga university. Respondents from all the universities agreed to the factor that *Internet provides faster and reliable information. Search engines provide user friendly interface*, which is almost an agreeable statement in all the universities and a similar response is again observed in the case of the faculty members *getting most updated information*.

It is further observed from table - 9 that the opinion given by the respondents regarding *sending papers to journals / conferences / seminars and wide range of online databases / e-journals* is agreeable. The respondents are uncertain about the statement regarding *expert assistance of library staff* ($\bar{X} = 3$). The CV is least for Mangalore university (CV = 46.42 %). Hence the opinion given by the Mangalore university respondents is stable, whereas the respondents of other universities and the respondents from Gulbarga university are most variable (CV = 77.77 %).

Table – 9: Motivating factors in the case of faculty members to access Internet

Motivating Factors		BU	GU	KU	KVU	MU	MYU
To keep abreast with area on research interest / course work	$\bar{X}$	1	1	1	1	1	1
	S.D.	0.81	1.07	0.80	0.66	0.64	0.90
	C.V.	69.88	82.49	64.03	55.36	52.16	73.47
Internet provides faster & reliable information	$\bar{X}$	1	1	1	1	1	1
	S.D.	0.70	1.09	0.85	0.66	0.94	0.91
	C.V.	56.83	76.57	64.30	49.57	62.74	72.51
Search engines provides user friendly interface	$\bar{X}$	2	1	1	2	2	2
	S.D.	1.05	1.03	0.85	1.04	0.80	1.15
	C.V.	66.85	72.44	65.17	58.87	49.83	71.59
Users get most updated information	$\bar{X}$	2	2	2	2	2	1
	S.D.	1.10	1.31	1.12	0.94	0.90	1.06
	C.V.	71.55	78.90	70.05	59.70	54.87	70.37
To send papers to journals / conferences / seminars	$\bar{X}$	2	1	2	1	2	2
	S.D.	1.00	1.16	1.14	1.14	1.18	1.18
	C.V.	60.58	87.28	70.24	72.45	61.58	77.42
Expert assistance by library staff	$\bar{X}$	3	2	3	3	3	3
	S.D.	1.70	1.23	1.87	1.66	1.46	1.61
	C.V.	54.77	77.77	69.15	60.71	46.42	56.14
Wide range of online databases / e-journals being provided by UGC – Infonet at University libraries	$\bar{X}$	2	1	2	2	2	2
	S.D.	1.13	1.03	1.50	1.33	1.24	1.34
	C.V.	60.99	72.44	78.05	62.45	58.59	69.86

Note: $\bar{X}$ – Mean S.D. – Standard Deviation C.V. – Coefficient of Variation
 1–Full extent 2–Some extent 3–Uncertain 4–Very limited extent 5–No influence

Motivating factors in the case of Research Scholars to access Internet

Table – 10 shows that the mean value for the factor *to keep abreast with area of research interest* is almost 1, i.e., it is an agreeable fact by almost all the university respondents. The CV is least for Kuvempu university (CV = 48.50 %), hence Kuvempu university users' opinion is more stable than that of other universities and most variable opinions are observed in the case of the respondents from Gulbarga university (CV = 75.47 %). For statements like *Internet provides faster and reliable information*, *search engines provides user friendly interface*, *users get most updated information* and *to send papers to journals / conferences / seminars* are agreeable to almost all respondents.

There is a mixed opinion for the statement *expert assistance by library staff*. The opinion given by the Mangalore university respondents is disagreeable ($\bar{X}=4$). The CV is least for Mangalore university respondents (CV = 37.98 %), and hence the opinion of the respondents of Mangalore university respondents is more stable, and most varied responses are received from the respondents of Bangalore university (CV = 74.20 %).

Table – 10: Motivating factors in the case of research scholars to access Internet

Motivating Factors		BU	GU	KU	KVU	MU	MYU
To keep abreast with area on research interest / course work	$\bar{X}$	1	1	1	2	1	2
	S.D.	0.68	1.12	1.05	0.80	0.67	0.87
	C.V.	60.25	75.47	74.99	48.50	50.68	53.13
Internet provides faster & reliable information	$\bar{X}$	1	1	1	2	2	1
	S.D.	0.83	1.31	0.94	0.88	0.92	.093
	C.V.	64.72	95.38	62.62	53.33	57.03	62.41
Search engines provides user friendly interface	$\bar{X}$	1	2	2	2	1	2
	S.D.	0.71	1.01	1.05	0.85	0.55	0.88
	C.V.	59.70	65.47	61.59	54.90	41.47	56.65
Users get most updated information	$\bar{X}$	1	2	2	2	2	2
	S.D.	0.93	1.39	0.98	0.85	0.85	0.93
	C.V.	71.70	77.17	58.85	53.62	45.68	52.09
To send papers to journals / conferences / seminars	$\bar{X}$	2	1	1	2	2	2
	S.D.	1.29	1.12	0.94	1.02	1.12	1.22
	C.V.	78.90	78.33	71.89	54.75	51.59	59.49
Expert assistance by library staff	$\bar{X}$	2	3	2	3	4	3
	S.D.	1.72	1.50	1.61	1.28	1.37	1.38
	C.V.	74.20	59.06	67.54	43.05	37.98	39.58
Wide range of online databases / e-journals being provided by UGC – Infonet at University libraries	$\bar{X}$	1	2	2	2	2	3
	S.D.	1.02	1.33	1.12	1.22	1.26	1.30
	C.V.	68.40	64.51	62.01	62.22	50.48	44.01

Note: $\bar{X}$ – Mean S.D. – Standard Deviation C.V. – Coefficient of Variation
 1–Full extent 2–Some extent 3–Uncertain 4–Very limited extent 5–No influence

Further table – 9 and table – 10 shows that mean value for the factor, Internet provides faster and reliable information is almost 1, i.e. it is an agreeable fact by the almost all the university users. Hence, the *Hypothesis: 1 – Internet provides faster and reliable information* is accepted.

Further table – 9 and table – 10 reveals that mean value for the statement, users get most updated information is almost 2, i.e. it is an agreeable fact by almost all the university users. Hence, the *Hypothesis: 2 – Users get most updated information* is also accepted.

Most preferred search engines by the faculty members

Scholars were asked about the most preferred search engine for their research / teaching.

Table – 11 reveals that the mean value for Google search engine is agreeable in the case of the respondents of all the universities in the state. Kuvempu university (CV = 55.48 %) respondents' opinion is more stable and Gulbarga university (CV The present decade has witnessed a tremendous growth in Internet. It has become the last resort for locating any kind of information. People are using Internet for commerce, education, general information,

entertainment and what not, for everything under the sun. Locating right piece of information through Internet is like finding a needle in the haystack. Thus, as a solution to this problem, Internet Search Engines appeared on the scene. Search engines are the web based programme or mechanism that aid users to search the entire Internet for relevant information they need, depending upon the given keywords. The faculty members and research = 103.41 %) respondents' opinion is most variable.

The opinion of the faculty regarding AltaVista, Lycos and MSN search engines is negative ($\bar{X} = 4$). It means respondents are using these search engines less frequently. There is a positive opinion by the respondents about Yahoo search engine. The CV is least for Mangalore university (CV = 66.07 %) respondents. Hence opinion is more stable from Mangalore university respondents and most variable in the case of Gulbarga university respondents (CV = 95.83 %).

Table – 11: Most preferred search engines by the faculty members

Search engine		BU	GU	KU	KVU	MU	MYU
AltaVista	$\bar{X}$	3	3	3	3	4	3
	S.D.	1.91	2.16	2.09	1.63	1.62	1.86
	C.V.	58.87	82.02	61.31	46.71	42.97	60.24
Google	$\bar{X}$	1	1	1	1	1	1
	S.D.	0.81	1.13	0.73	0.63	0.87	0.65
	C.V.	75.53	103.41	70.69	55.48	69.94	63.64
Lycos	$\bar{X}$	4	2	4	3	4	3
	S.D.	1.87	1.95	2.05	1.64	1.57	1.69
	C.V.	49.34	80.56	57.42	51.85	41.98	58.38
MSN Search	$\bar{X}$	3	3	3	3	3	3
	S.D.	1.98	2.14	1.80	1.65	1.44	1.77
	C.V.	60.82	82.94	65.34	51.16	42.76	60.18
Yahoo	$\bar{X}$	2	2	1	1	1	1
	S.D.	1.64	1.48	0.95	0.93	0.90	1.15
	C.V.	94.76	95.83	76.79	66.58	66.07	83.04

Note: $\bar{X}$ – Mean S.D. – Standard Deviation C.V. – Coefficient of Variation
 1–Most frequently 2–Frequently 3–Uncertain 4–Less frequently 5–Do not use

Most preferred search engines by research scholars

Table – 12 reveals that the mean values for Google and Yahoo search engines are agreeable, whereas the respondents' opinion about AltaVista, Lycos and MSN search engines is negative ($\bar{X} = 4$). This means the respondents are using these search engines less frequently.

Table – 12: Most preferred search engines by research scholars

Search engine		BU	GU	KU	KVU	MU	MYU
AltaVista	$\bar{X}$	3	4	3	4	4	4
	S.D.	2.03	2.01	1.78	1.55	1.44	1.49
	C.V.	61.93	52.43	60.17	41.87	36.61	39.62
Google	$\bar{X}$	1	1	1	1	1	1
	S.D.	0.79	0.94	0.96	0.31	0.38	0.78
	C.V.	74.39	76.68	73.47	30.47	35.28	59.93
Lycos	$\bar{X}$	4	4	3	4	4	4
	S.D.	1.96	1.96	1.95	1.12	1.25	1.38
	C.V.	50.30	51.88	64.43	29.59	31.69	36.49
MSN Search	$\bar{X}$	3	3	3	4	4	3
	S.D.	1.70	2.10	1.91	1.26	1.36	1.46
	C.V.	54.63	62.34	58.99	34.77	36.53	42.26
Yahoo	$\bar{X}$	2	2	2	2	2	2
	S.D.	1.40	1.69	1.05	1.19	1.45	1.25
	C.V.	89.87	77.01	66.86	62.69	57.28	58.20

Note: $\bar{X}$ – Mean S.D. – Standard Deviation C.V. – Coefficient of Variation
 1–Most frequently 2–Frequently 3–Uncertain 4–Less frequently 5–Do not use

Contribution of Research Papers

It is important to study whether contribution of research papers have increased after accessing and using electronic information resources. The responses are presented in table - 13. It reveals that the faculty members' opinion for the above statement is agreeable ($\bar{X} = 2$). Gulbarga university respondents' opinion is more stable compared to that of the respondents of Mysore university (CV = 64.42 %), which is most variable. Research scholars' opinion in this regard is agreeable ($\bar{X} = 2$). More stable opinions are received from Kuvempu university (CV = 47.98 %) respondents, whereas most varied opinions are received from Mysore university (CV = 64.88 %) respondents.

Table – 13: Contribution of Research Papers

Use of Internet has increased the research output / contribution of papers		BU	GU	KU	KVU	MU	MYU
Faculty members	$\bar{X}$	2	2	2	2	2	2
	S.D.	0.96	0.79	0.87	0.76	0.84	1.20
	C.V.	58.43	39.53	55.33	39.94	48.05	64.42
Research scholars	$\bar{X}$	2	2	2	2	1	2
	S.D.	0.90	1.00	0.93	0.93	0.83	1.13
	C.V.	57.34	56.59	56.86	47.98	60.87	64.88
ANOVA Test		F	0.757**	2.936*	0.098	0.830**	2.878*

Note: $\bar{X}$ – Mean S.D. – Standard Deviation C.V. – Coefficient of Variation
 1 – Strongly Agree 2 – Agree 3 – Uncertain 4 – Disagree 5 – Strongly Disagree
 * Significant at 5 % level ** Significant at 1 % level

It is observed from the data that library users agree ($\bar{X} = 2$) for the above statement. Further, the opinion of Gulbarga university users has 5 % significant difference, whereas other university users' opinion is not up to the significant level. Hence, the Hypothesis – 3: *Use of Internet has increased the contribution of research papers by the users to a great extent* is accepted.

Impact of Internet on users

Considering the convenience of use, time taken, search and accuracy of output users were asked about the impact of Internet as a source of information on their study / research / teaching. Their responses in this regard are presented in table – 13. It reveals that the mean value ($\bar{X} = 1$) in the case of faculty members is agreeable. The opinion given by Mangalore university (CV = 46.43 %) respondents is more stable compared to that of the respondents of other universities in the state. Most varied opinions are observed in the case of Gulbarga university (CV = 69.32 %) respondents.

The mean value ($\bar{X} = 1$) is also agreeable for research scholars. The opinion given by the Kuvempu university (CV = 41.26 %) respondents is stable, whereas most variable in the case of Karnatak university respondents (CV = 74.99 %).

Table – 14: Impact of Internet on users

Considering the convenience of use, time taken, search & accuracy of output, Internet has had a positive impact on my teaching / research		BU	GU	KU	KVU	MU	MYU	
Faculty members	$\bar{X}$	1	1	1	2	1	1	
	S.D.	0.70	0.92	0.62	0.81	0.64	0.75	
	C.V.	57.07	69.32	65.67	49.51	46.43	67.27	
Research scholars	$\bar{X}$	1	1	1	2	1	1	
	S.D.	0.73	0.87	1.05	0.63	0.55	0.65	
	C.V.	54.50	64.98	74.99	41.26	41.47	44.58	
ANOVA Test		F	9.689**	1.379	3.615*	4.956**	1.371	2.014*

Note: $\bar{X}$ – Mean S.D. – Standard Deviation C.V. – Coefficient of Variation
 1–Strongly Agree 2–Agree 3–Uncertain 4–Disagree 5–Strongly Disagree

* Significant at 5 % level ** Significant at 1 % level

Further, statistical analysis, i.e., One Way Analysis of Variance (ANOVA Test) is applied to know the variations with respect to universities and different types of users. It is found that 1 % significant difference is observed in the case of Bangalore university and Kuvempu university respondents, 5 % significant difference is observed for Karnatak university respondents. This explains impact of Internet on different types of users is significantly variable. Hence the Hypothesis – 4: *Internet has a positive impact on teaching / research activities of Faculty Members and Research Scholars at universities in Karnataka state* is accepted.

Major Findings of the study

The major findings of the study are;

1. The highest response has come from Gulbarga University with 80.95 % (Table-1).
2. It is observed that, of the total 471 respondents, 231 (49.04 %) are faculty members, 240 (50.96 %) are research scholars (Table-2).
3. It reveals that the majority of respondents, i.e., 207 (43.94 %) belong to rural area (Table-3).
4. Of the total 471 users surveyed, 406 (86.19%) respondents are using the Internet regularly. It reveals that the majority of respondents, that is, 60 (93.76 %) from Mangalore university constitute the highest percentage, and with 53 (77.95 %) respondents, Gulbarga university record the least use of Internet on a regular basis (Table-4).
5. It reveals that the majority of the faculty members, that is, 167 (86.53 %) access Internet in their departments and the majority of research scholars, that is, 139 (65.26 %) access Internet in the department (Table-5).
6. It is observed that e-mail seems to be the most primary use of Internet since about 181 (93.78 %) faculty members have said so and the majority of research scholars, that is, 192 (90.14 %) indicated that e-mail is the primary use of Internet (Table-7 & 8).
7. It is observed that Google and Yahoo search engines seems to be the most preferred search engines by the faculty members and research scholars (Table- 11 & 12).
8. The use of Internet has increased the contribution of research papers by the users to a great extent. Since, accept Karnatak University, all other universities have 1 % & 5 % significance level (Table-13).
9. It is observed from table-14 that accept Gulbarga and Mangalore university rest of the universities have 1 % & 5 % level of significance. There is an impact of Internet on teaching / research activities of faculty members and research scholars at universities in Karnataka State.

Suggestions

Based on the opinion given by the respondents and findings of the study, following suggestions have been made to improve the Internet facilities in universities of Karnataka State.

1. The majority of users prefer Internet as their first source to look for the needed information. They also agree that it has a significant impact on their teaching / research. Hence, the authorities of the universities in general and libraries in particular must make all out efforts to upgrade Information and Communication Technology (ICT) infrastructure for providing seamless broadband Internet access to users.
2. The responsibility of the library personnel is increasing day-by-day in a changed environment. But the present study / survey revealed that the library staff does not take keen interest to help users in accessing

Internet and also users have expressed their displeasure towards the library staff. These behavioural issues should be addressed by providing adequate training to the library staff about the use of Internet and first make them confident users. This will certainly bring about some change in their attitude.

3. Orientation / training programmes for the faculty members and research scholars should be conducted at regular intervals regarding the effective use of Internet.
4. Users access Internet from several places, like library, department, cyber café and home. However, it has been identified by the help of the survey that the users are facing difficulties in libraries as these are not having enough number of workstations. Libraries must make provision of workstations in commensurate with the number of library users. Non availability of computers results into users getting frustrated. Hence, it is recommended to the authorities of the university libraries to create necessary infrastructure facilities.
5. Trained personnel having Internet knowledge should be appointed to assist the faculty members and research scholars. It is also suggested by the respondents that the Internet Monitoring Board should be constituted.
6. To facilitate the Internet use, the directory of websites should be prepared and updated frequently.

Conclusion

The effective use of Internet in libraries in India has become a necessity with raising standard of education and competition. In India, the Internet is still in a developing stage (http://www.internetworldstat.com/global_internet_stats.htm). Access to it has become possible only in recent years; until now it is limited to some of the larger metropolitan cities. It is expensive both in monetary and technological terms but it is rapidly spreading. The present study indicates that the concerned authorities of the university should make attempts to provide the necessary infrastructure facilities such as high speed network connections to access Internet and to conduct training programmes for the library professionals and user orientation programmes for the effective use of Internet facilities.

The present study clearly shows that the users are very much interested in using Internet, because, they are aware about its importance in the changing environment. At the same time it helps the users to get access with the latest electronic information sources, in turn these sources are found most useful for the majority of the respondents. As a result, they are capable of publishing good number of articles at the national and international journals and also to participate at the national and international conferences / workshops / seminars etc.

In view of the above mentioned facts it is the prime responsibility on the part of the universities in general and the libraries in particular to provide better internet facilities for the users. It is also suggested that the personnel working in the university libraries has to maintain very healthy and friendly relation with the users, this in turn will enhance the use of available facilities in the university libraries of Karnataka State.

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Abbreviations Used

BU	-	Bangalore University	GU	-	Gulbarga University
KU	-	Karnatak University	KVU	-	Kuvempu University
MU	-	Mangalore University	MYU	-	Mysore University