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Relationship of OPAC users' satisfaction with their demographic characteristics, computer skills, user education, user assistance and user-friendly OPAC

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Abstract

Purpose – The main aim of this paper is to identify whether user demographic characteristics, computer skills, user education, user assistance and user-friendly OPAC (online public access catalog) have an impact on their satisfaction in the context of users in an Indian university setting.

Design/methodology/approach – The survey method was utilized and a questionnaire was designed to collect data. The study is based on a sample of the 384 questionnaires from the three universities located in the Union Territory of Chandigarh and Punjab State. To analyze the data collected, SPSS package (version 14.0) was used, and also to produce requisite cross-tabulations. Chi-square testing was performed to determine the association of user satisfaction with the variables covered in the study.

Findings – The findings highlighted that overall there was a low degree of satisfaction among the users. With the exception of academic majors, in general, there were no significant differences between satisfaction and user demographic characteristics. Overall satisfaction was significantly higher for those who were possessed with adequate knowledge on OPAC, and had received staff assistance, as well as necessary education on OPAC. The study showed that satisfaction with ease of usage of OPAC was higher. It was also found that users were well-equipped with computers and had attained skills while frequently searching the web, however, it was also revealed that mere possession of computer skills was not sufficient for efficient use of OPAC, resulting in the attainment of a high level of satisfaction.

Originality/value – The paper brings out the fact of how user demographic characteristics, computer skills, user education, user assistance, and user-friendly OPAC, influence user satisfaction in a university educational set up. The findings will be beneficial for increasing user satisfaction levels in order to retain existing OPAC users because OPAC will continue to be a necessary tool for accessing quality academic information available in both print and electronic format.

Keywords India, User satisfaction, Computer skills, OPAC, User demographic characteristics, Web search

Paper type Research paper

Introduction

Since the beginning of the twentieth-century, advanced developments in information communication and technology (ICT) have been developed and are developing at a rapid pace worldwide. The advent of the internet and the web has made the transmission and

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accessibility of information in various formats from anywhere throughout the world significantly easier. Recent advancements in web technologies have given the opportunity for publishers to provide access to their published information through subscription or gratis via the web. Using the internet, one can obtain bibliographies to help with literature searching, searching databases, conducting a citation search or reviewing literature for higher degrees (Mutula and Wamukoya, 2007). ICT has also impacted every aspect of library functions and services. It had a very positive impact on libraries for storage, processing and access to information. The increasing trend of web searching has affected the search of OPAC (online public access catalog) and other library systems. The use of the web is also rising at a rapid pace in most developing countries.

While the INFLIBNET (Information and Library Network) has taken initiatives to computerize the functions of libraries and link the important libraries and information centers of the country, academic libraries in India, a developing country, have not been automated fully until recently, and some are still behind, This process is still continuing (Raza and Amarnath, 2007; Bansode and Periera, 2008; Kumar and Biradar, 2010). Library users in India access academic information on the web within or outside a library environment. Studies have reported that users avail themselves of available web resources to satisfy their information requirements (Sharma *et al.*, 2011; Arya and Talukdar, 2010; Mohamed and George, 2010; Bansode and Pujar, 2008; Trivedi and Joshi, 2008; Islam and Panda, 2007; Kumar and Kaur, 2006; and Mahajan, 2006). Consequently, they approach the OPAC similarly.

Indian academic libraries are thus facing the dual challenges. First, situations of significant lack of ICT infrastructures occur frequently and, second, the detrimental impact of library users of approaching searches in libraries with the experience of web searching. Since the development of the OPAC, users have faced various kinds of problems in using it throughout various types of libraries across the globe. Users are reported to be generally not fully satisfied with the OPAC. In a recent study by Kumar and Vohra (2013), using three Indian university libraries in the Punjab region, it was reported that there was a low satisfaction level among various users. Similar observations were reported from the three universities with respect to user satisfaction, despite the fact that the OPACs of different library software provided some different features and facilities.

In view of this, the present study was planned to investigate the idea of whether satisfaction levels of users varied with respect and in accordance with their demographic characteristics, computer skills, user education, user assistance and user knowledge on OPAC use, as well as the availability of a user-friendly OPAC. The study was carried out on the same sample of the previous study in the three same universities namely the Panjab University, Chandigarh, the Punjabi University, Patiala, and the Guru Nanak Dev University, Amritsar. In fact, this is a study complementary to the recent work of Kumar and Vohra (2013). Therefore, it is presumed that the present study will be instrumental in providing useful information regarding user satisfaction while searching on OPAC in academic libraries of India and other under-developed nations.

Literature review

A large number of studies have been conducted in different countries on the use of OPAC in their libraries. For the present study, the researcher focuses on a review of literature only to obtain parameters of OPAC user satisfaction.

Cherry and Clinton (1989) conducted a survey of user satisfaction with the OPAC at the University of Toronto. The results of the study indicated that graduates and the faculty reported a higher degree of overall satisfaction than undergraduate students. Overall, the users were satisfied with brochures/printed aids and formal instructions as primary means of learning OPAC use. Those who used the OPAC more than 19 times felt the greatest satisfaction. Further, Cherry and Clinton (1992) in another study covering five different online public access catalogue systems of five Ontario University Libraries to determine their satisfaction with computer library catalogue, found that, overall, 44.0 percent of the participants reported owning a computer and even non-owners were experienced with computer applications. Overall, computer owners and those who had used another OPAC were less satisfied with OPAC. The study by Hildreth (2001) highlighted that no association has been found between satisfaction with search results and actual search performance. There was also no significant association between gender and satisfaction with search results, nor was there any relationship with subject majors. The study further reported that users' perception of ease and system usefulness exert a stronger influence on satisfaction with results than actual search performance. Guha and Saraf (2005) conducted a study using the verbal protocol method at the British Council Library, Kolkata, to determine how users interacted while searching on the OPAC and whether they were satisfied or dissatisfied or confused. The results revealed that most users actually showed dissatisfaction and were confused while using the OPAC. Further, those who expressed satisfaction did not really use the OPAC for very long. Ansari and Amita (2008) examined the applicability and utility of the OPAC in five libraries in New Delhi and found that only about one-third of the users were fully satisfied with the use of OPAC. In a very recent study by Kumar and Vohra (2013) undertaken in three Indian university libraries in the Punjab region, it was found that one-fifth of the users were satisfied with their OPAC usage. There were no significant inter-university differentials. In contrast to the above research studies, however, Oduwole *et al.* (2002) conducted a study on the use of OPAC at the University of Agriculture, Abeokuta, Nigeria, and reported that a larger majority of end-users conducted their searches themselves and were totally satisfied with the OPAC. Ortiz-Repso *et al.* (2006) noted that about 50.0 percent of respondents pointed out that they were satisfied with the OPAC, while only 8.6 percent claimed that they were fully satisfied.

Among other works on the topic, there were only two studies, i.e. Cherry and Clinton (1989, 1992) which were focused on user satisfaction while all the other studies included only one or two items on user satisfaction. In the real sense, these studies were conducted on the use of OPAC and other related issues. It is clear from the literature review that there is a lack of studies on user satisfaction with respect to OPAC usage. Thus, it is indicative of research gaps on the subject and making it imperative to conduct further studies in this area. The present study was planned to identify whether user demographic characteristics, computer skills, user education, user assistance and user-friendly OPACs had any influence on user satisfaction. No study has been undertaken to date in university libraries of India or other countries on these parameters.

Research hypotheses

The main purpose of the present study was to identify and detail the relationship between user satisfaction on OPAC usage with respect to user characteristics, computer skills, user education, use of any assistance, and user-friendliness. Therefore, to fulfill the purpose of the study, the following null hypotheses were formulated:

H1. There is no significant difference between satisfaction of OPAC usage and users' demographic characteristics.

H2. There exists no significant relationship between satisfaction and users' computer skills.

H3. Availability and usage of the available assistance has no significant relationship with user satisfaction with the OPAC.

H4. No significant relationship exists between satisfaction and user education

H5. Knowledge of OPAC use bears no significant relationship with user satisfaction.

H6. There exists no significant relationship between satisfaction and the problems encountered by users.

H7. User-friendly OPAC has no significant relationship with user satisfaction.

Methodology

The present study employed the survey research methodology and was conducted on a random sample of 500 respondents, who were administered the questionnaire covering different user categories, namely, faculty members, research scholars and postgraduate students, drawn from three universities of Punjab region. Out of 500, 384 (76.8 percent) responded. The sample was taken out of a total of 12,430 users of the three university libraries. The study applied the proportionately stratified random sampling method, to arrive at a representative sample for each category of users from every university. The data for this study were collected in April 2009 through a closed-ended questionnaire as the data collection tool. However, informal interviews and observations were also utilized as additional tools to supplement the data. The data collected were analyzed with the help of SPSS statistical software (version 14.0). The cross-tabulations were also prepared on SPSS to present the data. To determine the association of user satisfaction in relation to user characteristics, computer skills, user education, user assistance and user-friendly OPAC, the Chi-square test was used and a level of statistical significance (p) of less than 0.05 was adopted.

Data analysis and results

Demographic characteristics of the respondents

Among 384 respondents, on the basis of their user category, 240 (62.5 percent), 89 (23.2 percent) and 55 (14.3 percent), respectively, were postgraduate students, research scholars and faculty members. According to discipline, there were 120 (31.3 percent) respondents belonging to the Social Sciences, 100 (26.0 percent) belonging to the Basic Sciences, and 83 (21.6 percent) belonging to the Applied Sciences, with 81 (21.1 percent) belonging to the Humanities. Gender-wise representation showed almost equal

distribution with 194 (50.5) respondents being male and 190 (49.5 percent) being female. On the basis of age, 267 (69.5 percent), 85 (22.1 percent), 21 (5.5 percent), and 11 (2.9 percent) respondents, were in the age groups of below 25, in the 26-35 age group, in the 36-45 age group and in the age group of above 45, respectively.

Computer skills and OPAC use

Table I illustrates that users were well-equipped with computers. A majority possessed adequate (excellent and above average) knowledge on computer usage for general purpose. Similarly, a majority accessed the web for their academic requirements. It was found that a large group regularly (very frequently and frequently) used OPAC to locate information for required documents. There were 30.2 percent and only 8.9 percent, respectively, who used it occasionally and rarely. There were also nearly one-sixth who never used it and moreover 4.2 percent were totally unaware of the existence of the OPAC.

Satisfaction and user demographic characteristics

The following are the results regarding the relationship between users' satisfaction level and their demographic characteristics. The 80 respondents who were unaware or non-users of OPAC were thereafter omitted from the analysis. Also for the purposes of analysis, the frequencies on "Very Satisfied" and "Satisfied" categories were combined.

It was found that only a small percentage (22.0 to 25.7) from the three categories of respondents stated that they were satisfied with the use of OPAC. However, a majority from the three categories were moderately satisfied to totally dissatisfied. The

Computer skills	*n*	%
Knowledge on computer use		
Excellent	54	14.7
Above average	137	35.7
Average	153	39.8
Below average	33	8.6
Extremely poor	7	1.8
Total	384	100
Web searching		
Very frequently	87	22.7
Frequently	141	36.7
Occasionally	96	25.0
Rarely	43	11.2
Never	17	4.4
Total	384	100
OPAC use		
Unaware	16	4.2
Very frequently	31	8.1
Frequently	123	32.0
Occasionally	116	30.2
Rarely	34	8.9
Never	64	16.7
Total	384	100

Table I.
Computer skills and OPAC use

gender-wise analysis revealed that just a small portion (27.8 percent male; 20.4 percent female) felt that they were satisfied with OPAC workings. The age group-wise analysis showed that 14.3 percent of the above 45 age group and a little more than 22.0 percent from other age groups tended to be satisfied. According to the results of the Chi-square, the *p*-values for user category, gender and age group, respectively, were found to be insignificant at the 0.088, 0.561 and 0.329 levels (>0.05). Regarding the academic majors of the respondents, 9.2 percent from Basic sciences, 20.0 percent from Humanities, 30.8 percent from Social sciences and 32.8 percent from the Applied sciences, felt that they were satisfied with the OPAC service. According to the results of the Chi-square test, there were significant variations at the 0.000 level (<0.05) (Table II).

Therefore, the above Chi-square results suggest that there were no significant differences for user demographic characteristics, except across academic majors. Thus, the null hypothesis "There is no significant difference between satisfaction on OPAC usage and users' demographic characteristics" is almost accepted.

Satisfaction level and computer skills

Table III presents the relationship between the level of user satisfaction and computer skills. A greater percentage of respondents have possessed adequate knowledge on computer use. Similarly, a large group accessed the web. The Chi-square analysis represents that *p*-values for computer knowledge and web searching, respectively, are 0.014 and 0.000 ($<$ 0.05). In view of these findings, the null hypothesis that "there exists no significant relationship between satisfaction and computer skills among users" is rejected and the research hypothesis is verified as it implies a significant relationship.

Satisfaction level and user assistance

The cross-tabulations shown in Table IV indicate that a *p*-value of 0.001 for both kinds of user assistance, i.e. on-screen help and staff assistance, is statistically significant at the 0.05 level. The results reject the null hypothesis that availability and usage of the available assistance has no significant relationship with user satisfaction for OPAC use. The findings revealed that among the respondents those who sought the assistance of library staff for OPAC usage felt more satisfied than those who did not seek staff assistance. Among 304 respondents, 145 were unaware of the existence of on-screen help on OPAC and these respondents were excluded from the analysis. Overall, those who found the on-screen help difficult to use reported that they were more dissatisfied with OPAC.

Satisfaction and user education

The survey showed the fact that in terms of user education, the university libraries under study conducted only a user orientation program which also has a component on OPAC use. Table V presents the relationship between satisfaction level and orientation received. Out of 304 respondents, only 76 (25.0 percent) attended the orientation. A large group of these respondents stated that the orientation helped them in using OPAC in a better way. According to the Chi-square results, a significant relationship was found ($p = 0.00 < 0.05$), thus rejecting the null hypothesis that no significant relationship exists between satisfaction and user education on OPAC.

Table II.
Satisfaction level in relation to user categories, academic majors, gender and age group

	Satisfaction level												
	Fully satisfied		Satisfied		M. satisfied		Dissat.		Very dissat.		Total		
User characteristics	*n*	%	*n*	%	*n*	%	*n*	%	*n*	%	*n*	%	χ^2 results
User category													
Faculties	0	0.0	9	22.0	9	22.0	21	51.2	2	4.9	41	100	χ^2 value = 13.756
Scholars	3	4.3	15	21.4	32	45.7	17	24.3	3	4.3	70	100	df = 18
PG	3	1.6	44	22.8	72	37.3	60	31.1	14	7.3	193	100	$p = 0.088$
Academic majors													
Basic sci.	0	0.0	6	9.2	22	33.8	26	40.0	11	16.9	65	100	χ^2 value = 35.910
App. sci.	1	1.4	22	31.4	28	40.0	18	25.7	1	1.4	70	100	df = 12
S. sci.	5	4.8	27	26.0	33	31.7	35	33.7	4	3.8	104	100	$p = 0.000$
Humanities	0	0.0	13	20.0	30	46.2	19	29.2	3	4.6	65	100	
Gender													
Male	4	2.5	41	25.3	59	36.4	50	30.9	8	4.9	162	100	χ^2 value = 2.982
Female	2	1.4	27	19.0	54	38.0	48	33.8	11	7.7	142	100	df = 4
													$p = 0.561$
Age													
<25	6	2.8	47	22.2	84	39.6	60	28.3	15	7.1	212	100	χ^2 value = 13.572
26-35	0	0.0	16	22.5	26	36.6	26	36.6	3	4.2	71	100	df = 12
36-45	0	0.0	4	28.6	1	7.1	8	57.1	1	7.1	14	100	$p = 0.329$
>45	0	0.0	1	14.3	2	28.6	4	57.1	0	0.0	7	100	

Notes: $n = 304$. PG = Postgraduates, App. = Applied, Sci. = Sciences, S = Social, M = Moderately, Dissat. = Dissatisfied

Computer skills	Satisfaction level												χ^2 results
	Fully satisfied		Satisfied		M. satisfied		Dissat.		Very dissat.		Total		
	n	%	*n*	%	*n*	%	*n*	%	*n*	%	*n*	%	
Computer skills													
Excellent	0	0.0	9	20.9	15	34.9	16	37.2	3	7.0	43	100	χ^2 value = 30.833
A. average	1	0.9	36	30.8	39	33.3	33	28.2	8	6.8	117	100	df = 16
Average	2	1.7	20	16.9	48	40.7	41	34.7	7	5.9	118	100	$p = 0.014$
B. average	3	14.3	3	14.3	8	38.1	7	33.3	0	0.0	21	100	
E. poor	0	0.0	0	0.0	3	60.0	1	20.0	1	20.0	5	100	
Web searching													
V. freq.	1	1.3	23	29.5	37	47.4	14	17.9	3	3.8	78	100	χ^2 value = 64.978
Freq.	3	2.4	31	25.2	37	30.1	45	36.6	7	5.7	123	100	df = 16
Occ.	2	3.1	3	4.6	31	47.7	24	36.9	5	7.7	65	100	$p = 0.000$
Rarely	0	0.0	11	35.5	8	25.8	12	38.7	0	0	31	100	
Never	0	0.0	0	0.0	0	0.0	3	42.9	4	57.1	7	100	

Notes: $n = 304$. A = Above, B = Below, E = Extremely, M = Moderately, V = Very, Freq. = Frequently, Occ. = Occasionally, Dissat. = Dissatisfied

Table III.
Satisfaction level and computer skills

Table IV.
Satisfaction level and user assistance

User assistance	Satisfaction level: Fully satisfied *n*	%	Satisfied *n*	%	M. satisfied *n*	%	Dissat. *n*	%	V. dissat. *n*	%	Total *n*	%	χ^2 results
Ease of on-screen help (n = *159)*													
V. easy	0	0.0	0	0.0	1	100.0	0	0.0	0	0.0	1	100	χ^2 value = 46.764
Easy	3	11.1	12	44.4	8	29.6	2	7.4	2	7.4	27	100	df = 20
M. easy	0	0.0	15	31.9	14	29.8	17	36.2	1	2.1	47	100	$p = 0.001$
Diff.	0	0.0	6	10.0	27	45.0	24	40.0	3	5.0	60	100	
V. diff.	1	4.2	0	0.0	9	37.5	11	45.8	3	12.5	24	100	
Staff assistance (n = *304)*													
Always	1	2.9	17	48.6	6	17.1	11	28.6	1	2.9	36	100	χ^2 value = 46.050
Usually	1	1.9	16	30.8	19	36.5	13	25.0	3	5.8	52	100	df = 20
Occ.	0	0.0	14	14.6	43	44.8	33	34.4	6	6.3	96	100	$p = 0.001$
Rarely	2	2.4	21	24.7	34	40.0	21	24.7	7	8.2	85	100	
Never	2	5.7	0	0	11	31.4	20	57.1	2	5.7	35	100	

Note: M. = Moderately, V. = Very, Occ. = Occasionally, Diff. = Difficult, Dissat = Dissatisfied

Orientation helpful	Satisfaction level: Fully satisfied *n*	Fully satisfied %	Satisfied *n*	Satisfied %	Moderately satisfied *n*	Moderately satisfied %	Dissatisfied *n*	Dissatisfied %	Very dissatisfied *n*	Very dissatisfied %	Total *n*	Total %	χ^2 results
Strongly agree	1	5.6	7	38.9	7	38.9	1	5.6	2	11.10	18	100	χ^2 value = 42.401
Agree	0	0.0	12	24.5	17	34.7	19	38.8	1	2.0	49	100	df = 16
Neutral	2	28.6	0	0.0	1	14.3	4	57.1	0	0.0	7	100	$p = 0.000$
Disagree	0	0.0	0	0.0	1	50.0	1	50.0	0	0.0	2	100	
Strongly disagree	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	
Total	3	3.9	19	25.0	26	34.2	25	32.9	3	3.9	76	100	

Note: $n = 76$

Table V.
Satisfaction level and user education

Satisfaction level and knowledge on OPAC

Table VI demonstrates that the Chi-square test results can be tabulated to evaluate the relationship between users' knowledge on OPAC and satisfaction levels. The results showed that a *p*-value is found to be significant at the 0.00 level, thus rejecting the null hypothesis that knowledge on OPAC use bears no significant relationship with user satisfaction. It was also found that only a small number have acquired adequate skills on OPAC use. It is clear from the Table that a majority of those who tended to be "dissatisfied" to "very dissatisfied", possessed inadequate knowledge on OPAC use.

Satisfaction level and problems faced

Respondents were asked to indicate whether they faced problems using OPAC through the most frequently used access points (Title and Author). Out of the respondents, 56 did not frequently use any search option and these respondents were omitted from the analysis. It was found that out of 248 users 60.0 percent (137) faced problems even while searching through the most used access points. The results show a *p*-value of 0.000, indicating a statistical significance at the 0.05 level (Table VII). Hence, the null hypothesis that there exists no significant relationship between satisfaction and the problems encountered by users is rejected. It is clear from the table that those who faced problems in searching OPAC were comparatively more dissatisfied.

Satisfaction level and user-friendly OPAC

User-friendliness of OPAC is an important factor toward its use as well as for user satisfaction. Therefore, the relationship between users' level of satisfaction and user friendly OPAC was determined. According to results of the Chi-square analysis, a significant relationship was noticed at the 0.000 level (< 0.05). Hence, the analysis rejected the null hypothesis that user-friendly OPAC had no significant relationship with user satisfaction. Table VIII shows that a low percentage felt that that OPAC is user-friendly and further those who experienced OPAC as user-friendly, tended to be more satisfied.

Discussion

The results of the study showed that the only significant differences were noticed among academic majors, while no significant differences were found for user satisfaction among various age groups, genders and academic levels. It was observed that a small group of users from four disciplines were satisfied with OPAC use. While the users belonging to Basic Sciences are comparatively less satisfied with OPAC use and on an average, the users from Applied Sciences were more satisfied than those from other disciplines. It can be inferred that subject majors of the user has an effect on the satisfaction level. On other hand, the age, academic level and gender did not influence user satisfaction. Even satisfaction level was seen to be unaffected in case of academic status. These findings contrast with the earlier ones of Hildreth (2001) that no associations were discovered between satisfaction and gender of the respondents or their subject majors. The previous study, and the present one, share similarities, only for the parameter of gender; while in other cases, these studies have shown marked differences. This may be due to the increased impact of computer literacy and greater prevalence of the web, because the earlier study had been carried out more than a

Knowledge	Satisfaction level											
	Fully satisfied		Satisfied		Moderately satisfied		Dissatisfied		Very dissatisfied		Total		χ^2 results
	n	%	*n*	%	*n*	%	*n*	%	*n*	%	*n*	%	
Excellent	2	11.1	9	44.4	5	27.8	3	16.7	0	0.0	19	100	χ^2 value = 50.257
A. average	1	1.8	22	40.0	14	25.5	16	29.1	2	3.6	55	100	df = 20
Average	0	0	24	18.9	57	44.9	42	33.1	4	3.1	127	100	$p = 0.000$
B. average	3	3.8	10	12.5	30	37.5	28	35.0	9	11.3	80	100	
E. poor	0	0.0	3	13.0	7	30.4	9	39.1	4	17.4	23	100	
Total	6	2.0	68	22.4	113	37.2	98	32.2	19	6.3	304	100	

Notes: $n = 304$. A = Above, B = Below, E = Extremely

Table VI.
Satisfaction level and knowledge on OPAC

Table VII.
Satisfaction level and problems faced in the most used access points

Problems faced	Satisfaction level											
	Fully satisfied		Satisfied		Moderately satisfied		Dissatisfied		Very dissatisfied		Total	
	n	%	*n*	%	*n*	%	*n*	%	*n*	%	*n*	%
Yes	3	2.2	20	14.6	56	40.9	52	38.0	6	4.4	137	100
No	3	2.7	38	34.2	37	33.3	30	27.0	3	2.7	111	100
Total	6	2.4	58	23.3	93	37.5	82	33.0	9	3.6	248	100

Note: $n = 248$

χ^2 results
χ^2 value = 31.239
df = 8
$p = 0.000$

User-friendly OPAC	Satisfaction level											
	Fully satisfied		Satisfied		M. satisfied		Dissatisfied		Very dissatisfied		Total		χ^2 results
	n	%	*n*	%	*n*	%	*n*	%	*n*	%	*n*	%	
Very easy	6	46.2	6	46.2	0	0.0	1	7.7	0	0.0	13	100	χ^2 value = 33.207
Easy	0	0.0	39	75	7	13.5	6	11.5	0	0.0	46	100	df = 16
M. easy	0	0.0	11	9.4	77	65.8	26	22.2	3	2.6	117	100	$p = 0.001$
Difficult	0	0.0	10	9.8	25	24.5	58	56.9	9	8.8	102	100	
V. difficult	0	0.0	2	10	4	20	7	35	7	35	20	100	
Total	6	2.0	68	22.4	113	37.2	98	32.2	19	6.3	304	100	

Notes: $n = 304$. M = Moderately, V = Very

Table VIII.
Satisfaction level and user-friendly OPAC

decade ago and the electronic environment in libraries has changed drastically since the early 2000s.

Significant relationships were observed between computer skills and user satisfaction, but an inverse association was detected. The users who had adequate knowledge of computer use tended to be less satisfied. Similarly, frequent web searchers were less satisfied with OPAC, as a result the users with high computer skills had more expectations from OPAC and also wanted greatly sophisticated OPAC features. These findings corroborate those of Cherry and Clinton (1992) that computer literate users were generally less satisfied with OPAC. As more and more OPAC users become more computer literate, the greater is their demand for more sophisticated OPAC features and this trend has been increasing and would probably increase. Further, this study showed a significant relationship between satisfaction and user education on OPAC. The results indicated that those who had attended an orientation in a majority of the cases felt more satisfied. This finding coincides with the study conducted by Cherry and Clinton (1989) that, overall, those users were satisfied who received formal instruction as primary means of learning about OPAC use.

The study revealed a significant relationship between user assistance and satisfaction level. It was found that among the respondents those who sought the assistance of library staff on OPAC felt more satisfied than those who did not seek any staff assistance. This finding supports an early study by Cherry and Clinton (1989) which concluded that users who were given assistance while searching OPAC reported a higher degree of satisfaction. It was also found that overall those who used and felt on-screen help easy to use tended to be more satisfied. The results of the study correspond to the earlier study by Cherry and Clinton (1992) that for those who reported learning from on-screen help, the overall satisfaction was high. It can be deduced that staff assistance and user-friendly on-screen help had a positive impact on user satisfaction level. It was apparent that there existed a significant association between users' knowledge on OPAC and satisfaction levels. The results indicated that only a small number had acquired adequate skills on OPAC use and, correspondingly, just a small group had experienced satisfaction to some extent. Therefore, it can be inferred that a better knowledge on OPAC leads to higher levels of satisfaction.

It was noted that there was a significant relationship between satisfaction and the problems encountered by users. The study found that a majority of the users faced problems even while searching an OPAC. The level of satisfaction was low among those who faced problems in searching OPAC. Thus, it can be implied that the fewer or less severe problems faced while using OPAC, the greater the satisfaction level of users. Furthermore, there was also a strong relationship of user satisfaction with a more user-friendly OPAC. Only a small number experienced OPAC to be user-friendly and among those who felt OPAC to be user-friendly there was a greater tendency to be more satisfied. The findings are in agreement with previous research carried out by Hildreth (2001) that users' perception of ease of use exerts a stronger influence on satisfaction with search results than the actual search performance. It can be deduced that a user-friendly OPAC increases the level of satisfaction among users.

Conclusion and recommendations

The findings of the present study revealed that overall there was a low degree of satisfaction among the users on OPAC use. Except for academic majors, there were no

significant differences between satisfaction and user demographic characteristics. As this finding is not definitively conclusive, one cannot draw an appropriate observation. There is, however, the suggestion for further investigation on this aspect. Overall satisfaction was significantly higher for those who possessed adequate knowledge on OPAC and received staff assistance as well as user education. It was also found that satisfaction with ease of use of OPAC was greater among these users as compared to those who cited moderate to very difficult use of OPAC. However, the number of observations was small to an extent. It can be hypothesized that user education is the most important factor which improves user knowledge on OPAC and, in turn, a good working knowledge about OPAC leads to relative ease of its use. Consequently, user-friendly OPAC raises the level of satisfaction among the users. Thus, for raising the level of satisfaction, university libraries should develop user education, on-screen help, user skills and user-friendly OPACs to raise the level of satisfaction considering today's library users who are web savvy within or beyond the walls of libraries.

It is generally accepted that user satisfaction is a measurement of effectiveness and efficiency of any service in an organization. OPAC is one essential service among many to discover library resources. Therefore, it is necessary for university libraries to improve OPAC user satisfaction for retaining existing users.

The OPAC has an important place in a library and it can play a crucial role in the present scenario as a specialized searching facility for academicians. The internet or web alone cannot be a substitute of library resources. Library resources and databases or library systems have quality information. Previous studies of Brophy and Bawden (2005) and Sorensen and Dahl (2008) had found that library databases are superior for quality academic information. Libraries are subscribing to a number of databases all over the world. University libraries in less developed nations such as India have access to certain databases, aggregators, and publisher-based electronic resource packages. In order to find required information in an organized way through these e-resources available, these should be classified and integrated with OPAC.

Library users in developing countries, even in the present scenario of the digital age, prefer printed academic material, in addition to academic resources in the electronic form. It is a fact that accessibility through online resources is easier and faster, but readability is still felt to be easier via the print document. Therefore, printed material maybe more effective than online sources for users who are used to reading print materials (Kumar and Kumar, 2010; Islam and Panda, 2007; Agboola, 2010).

Printed material or traditional resources will continue to remain an essential component of the university library for supporting advanced learning, instruction, and research processes even in the fast changing academic environment. For identifying the availability and location of a print document required by an individual in a large collection in a university library system, it would be essential to have a tool in the form of OPAC for guaranteeing ease of location and access to documents. In summary, the OPAC will continue to be a necessary tool for accessing quality information available in the print or electronic format.

References

Agboola, I.O. (2010), "Use of print and electronic resources by agricultural science students in Nigerian universities", *Library & Information Science Research*, Vol. 32 No. 1, pp. 62-65.

Ansari, M.A. (2008), "Awareness and use of OPACs in five Delhi libraries", *The Electronic Library*, Vol. 26 No. 1, pp. 111-129.

Arya, S. and Talukdar, K.D. (2010), "Use and effectiveness of internet services and resources in the Delhi College of Engineering Library: a case study", *Library Hi Tech News*, Vol. 27 No. 3, pp. 12-19.

Bansode, S.Y. and Periera, S. (2008), "A survey of library automation in college libraries in Goa State, India", *Library Philosophy and Practice*, available at: http://unllib.unl.edu/LPP/bansode-periera.pdf (accessed August 26, 2011).

Bansode, S.Y. and Pujar, S.M. (2008), "Use of internet by research scholar at Shivaji University, Kohlapur", *Annals of Library and Information Studies*, Vol. 55 No. 2, pp. 123-126.

Brophy, J. and Bawden, D. (2005), "Is Google enough? Comparison of an internet search engine with academic library resources", *Aslib Proceedings*, Vol. 57 No. 6, pp. 498-512.

Cherry, J.M. and Clinton, M. (1989), "A profile of users background and user satisfaction with the University of Toronto and the implications for user training and user interfaces", *Proceedings of the 52nd ASIS Annual Meeting, Washington, DC, October 30-November*, pp. 121-128.

Cherry, J.M. and Clinton, M. (1992), "OPAC at five Ontario Universities: a profile of users and user satisfaction", *Canadian Library Journal*, Vol. 49 No. 2, pp. 123-133.

Guha, T.K. and Saraf, V. (2005), "OPAC usability: assessment through verbal protocol", *The Electronic Library*, Vol. 23 No. 4, pp. 463-473.

Hildreth, C.R. (2001), "Accounting for users' inflated assessment of on-line catalogue search performance and usefulness: an experiment study", *Information Research*, Vol. 6 No. 2, available at: http://informationr.net/ir/6-2/paper101.html (accessed April 2011).

Islam, A. and Panda, K.C. (2007), "Web-based information retrieval trends of researchers: a case study of Sambalpur University (India)", *The Electronic Library*, Vol. 25 No. 6, pp. 757-765.

Kumar, B.T.S. and Biradar, B.S. (2010), "Use of ICT in college libraries in Karnataka, India: a survey", *Program: electronic library and information systems*, Vol. 44 No. 3, pp. 271-282.

Kumar, B.T.S. and Kumar, G.T. (2010), "Perception and usage of e-resources and the internet by Indian academics", *The Electronic Library*, Vol. 28 No. 1, pp. 137-156.

Kumar, R. and Kaur, A. (2006), "Internet use by teachers and students in engineering colleges of Punjab, Haryana, and Himachal Pradesh States of India: an analysis", *Electronic Journal of Academic and Special Librarianship*, Vol. 7 No. 1, available at: http://southernlibrarianship.icaap.org/content/v07n01/kumar_r01.htm (accessed June 2011).

Kumar, S. and Vohra, R. (2013), "User perception and use of OPAC: a comparison of three universities in Punjab Region of India", *The Electronic Library*, Vol. 30 No. 5, pp. 36-54.

Mahajan, P. (2006), "Internet use by researchers: a study of Panjab University, Chandigarh", *Library Philosophy and Practice*, Vol. 8 No. 2, available at: www.webpages.uidaho.edu/~mbolin/mahajan2.pdf

Mohamed, H.K. and George, S. (2010), "Web based information retrieval pattern of doctoral students in Calicut University", *Annals of Library and Information Studies*, Vol. 57 No. 4, pp. 394-402.

Mutula, S.M. and Wamukoya, J.M. (2007), *Web Information Management: A Cross-Disciplinary Textbook*, Chandos Publishing, Oxford.

Oduwole, A.A., Oyesiku, F.A. and Labulo, A.A. (2002), "On-line public access catalogue (OPAC) use in Nigerian academic libraries: a case study from the University of Agriculture", *Abeokutta, Library Herald*, Vol. 40 No. 1, pp. 20-27.

Ortiz-Repiso, V., Bazan, V., Ponsati, A. and Cottereau, M. (2006), "How researchers are using OPAC of the Spanish Council for Scientific Research Library Network?", *The Electronic Library*, Vol. 24 No. 2, pp. 190-211.

Raza, M.M. (2007), "Use of IT in university libraries of Punjab, Chandigarh and Himachal Pradesh: a comparative study", *The International Library & Information Review*, Vol. 39 Nos 3/4, pp. 211-227.

Sharma, U.C., Chawla, R. and Madaan, P. (2011), "Internet usage by the faculty and the students in professional colleges at Mathura region: an empirical study", *International Journal of Information Dissemination and Technology*, Vol. 1 No. 2, pp. 77-85.

Sorensen, S. and Dahl, C. (2008), "Google in the research and teaching of instruction librarians", *The Journal of Academic Librarianship*, Vol. 34 No. 6, pp. 482-488.

Trivedi, M. and Joshi, A. (2011), "Computer and internet use by health care professionals in a rural medical college in India", *Library Philosophy and Practice*, available at: www.webpages.uidaho.edu/,mbolin/trivedi-joshi.pdf (accessed July 2011).

Further reading

Raitt, D. (1985), "Online catalogues: the facts, the features, the future", In *Proceedings of 8th Essen University Library Symposium: The Future of Online Catalogues, September 30 -October 3, 1985, Essen, Germany*, Gesamthochschulbibliothek, Essen, pp. 393-411.

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