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Understanding Users' Attitude towards Information Technology Application in University Libraries

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ABSTRACT

In the present study, researchers aim to understand the attitude of users towards information technology application in two university libraries of north India, namely Himachal Pradesh University, Shimla and Panjabi University, Patiala. Survey method of research was used to collect data from the users. The sample consisted of 391 users, which included PG Students, Research Scholars and Faculty Members in the Faculties of Social Sciences and Sciences in both the universities. The data were collected through structured questionnaires and further analysed using the Chi-Square test and Kruskal-Wallis test. The data analysis and discussion reveals that despite a few number of library users being involved in the decision-making of IT application in libraries and availability of few training programmes on the know-how of IT systems, a positive attitude towards information technology application prevails among the library users in both the university libraries. In the end, some key recommendations are presented for deriving more benefits from future IT initiatives in libraries.

Keywords: User' attitude; Information technology (IT) application; Users participation; Decision-making; Training programmes; University libraries

1. INTRODUCTION

The University libraries across the globe are under tremendous pressure to deliver best services coupled with the latest state-of-the-art infrastructure and implementation of information communication technologies (ICTs), and in this context India is not an exception. Since their integration in libraries, ICTs have remained an indispensable catalyst in the effective and efficient rendering of services. The demand for implementing ICTs in libraries is ever-growing amidst the increasing importance of the delivery of digital content and management of electronic resources. As a result, there is widespread use of ICTs in academic libraries in general and university libraries in particular.

The ICTs, being tools for information management[1] hold a key role as change agents in the sustainable development of a nation[2] and libraries too are inevitable to this change. The implementation of ICTs has reinforced many new changes in the services pattern and delivery system along with functional style of academic libraries. Information technology in libraries has opened a new window of many new procedures[3] as the traditional operations in university libraries, i.e. acquisition, cataloguing, user services, reference services, bibliographic services, current awareness services, document delivery and inter-library loan, have been tremendously affected by information technology[4] and the concept of document management has transformed into information management[5].

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2. STATEMENT OF THE PROBLEM

In the 21st Century, there has been a widespread use of ICT tools in academic libraries to offer better services to their clientele. Though library budgets are shrinking yet the university libraries are trying to spend a larger portion of their fiscal share in incorporating latest ICT infrastructure. Therefore, the Himachal Pradesh University, Shimla (HPU) and Panjabi University, Patiala (PUP) are not an exception. The libraries of both universities are equipped with modern technologies to provide effective user services. Hence, it is important to know the quantum of technological advancement and innovation taking place in libraries of these universities. Until now, no significant studies have been conducted to assess the attitude of users with regard to prevailing information technologies in libraries. Further, to measure the success of technical advancements in libraries, it becomes necessary to know how well it is perceived by the actual users. For this purpose, conducting an attitudinal study to measure the ratio between the fiscal investments and their potential benefits becomes pertinent from the managerial point of view.

3. LITERATURE REVIEW

The term 'attitude' pertains to a settled way of thinking or feeling about something. Albert[6] defines attitude as "a mental and natural state of readiness organised through experience exerting a directive or dynamic influences upon individual's response to all objects or situations with which it is associated." Taiwo[7] on the other hand states that attitudes are "inclinations

and feelings, prejudices or bias, perceived notions, ideas, fears and convictions about any specific topic". The success level of a technological advancement in libraries does not depend largely on how well the system operates but also on how positively it is perceived by the end users.

The concerned literature in the field precisely reveals that users' attitude influences the application and subsequent actual usage of IT applications in libraries. Singh[8] argues that the smartness of readers pertaining to latest information technology developments had more influence on the computerisation of library services. Liu and Hsu[9] found that the perceived ease of use was deciding factor for improved user behaviour on the perceived usefulness of library micro-positioning services. Yoon's survey on undergraduate students revealed that interactivity of the system and ease of use significantly influenced the attitude of users and their further intention to use smartphone library applications[10] . Vincent[11] observed that emerging diverse user base makes it imperative that library managers not only find what services users seek but also find what users value most when they explore those services. Research consistency indicates that young users tend to have more mobile tools and use more social media than ever before[12]. More women users are emerging more techno-experts as they feel more comfort in using computer and internet services[13]. The technological change has become a norm for libraries serving people with special disabilities[14] .

4. OBJECTIVES OF THE STUDY

Following were objectives of the study:

- To find out the attitude of users towards information technology application in university libraries
- To ascertain whether there is difference in the attitude of users with regard to their gender
- To examine whether there is difference in the attitude of users with regard to their category
- To assess whether there is difference in the attitude of users with regard to their level of qualification.

5. METHODOLOGY

The population for the present study included the library users of two universities, namely Himachal Pradesh University, Shimla (HPU) and Punjabi University, Patiala (PUP). To assess the attitude of users towards information technology application in libraries, a sample of three user categories which include PG Students, Research Scholars and Faculty members was taken from the faculties of Social Sciences and Sciences of these two reputed universities of north India. The lead author collected the data as part of his Ph.D research. Structured questionnaire was distributed based on random sampling among 200 participants in each university. In response, 391 valid questionnaires (97.75 %) were received back from the library users of HPU and PUP. The scoring of the statements was done on reverse rating scale viz. 1 score strongly favoring the statement and 5 score strongly rejecting the statement.

6. DATA ANALYSIS

Descriptive statistical method using the Statistical Package for Social Sciences (SPSS) software was used to analyse the data. To understand the attitude of users, statistical techniques such as simple percentage, Chi-square test[15 -16] , and Kruskal-Wallis[17] were used to interpret the collected data. The output of question statements in standard cross-tabulation Table is described as follows:

6.1 Demographic Characteristics Of Participants

The demographic characteristics of the survey participants listed in Table 1 included gender, category and qualification. The survey reveals that female participants (59.10 %) outnumbered the male (40.90 %) participants. Majority of the respondents were PG Student (63.20 %) followed by Research Scholars (23.00 %) and Faculty Members (13.80 %). For age, the greatest number of academic participants was in the category of below 25 years (67.80 %), followed by 26-35 years (20.50 %). 51.20 per cent respondents belonged to Punjabi University, Patiala whereas 48.80 per cent users were from Himachal Pradesh University, Shimla.

Figure 1 describes the demographic percentage of users as per university of affiliation, their faculty in the respective university, department of teaching and research, gender, user category, qualification, and age-group.

Table 1. Demographic characteristics of participants

Variable	Category	N	Percentage (%)
Gender	Male	160	40.90
	Female	231	59.10
Category	P.G Students	247	63.20
	Research Scholars	90	23.00
	Faculty members	54	13.80
Qualification	Bachelor	247	63.20
	Master	90	23.00
	PhD	54	13.80
Age	Below 25 years	265	67.80
	26 - 35 years	80	20.50
	36 - 45 years	21	5.40
	46 - 55 years	18	4.60
	56 and above	7	1.80
University	HPU	191	48.80
	PUP	200	51.20
Faculty	Faculty of Social Sciences	194	49.60
	Faculty of Sciences	197	50.40
Department	Chemistry	40	10.20
	Economics	40	10.20
	Geography	39	10.00
	History	40	10.20
	Mathematics	40	10.20
	Physics	39	10.00
	Political Sc.	40	10.20
	Psychology	34	8.70
	Public Admin.	40	10.20
	Statistics	39	10.00

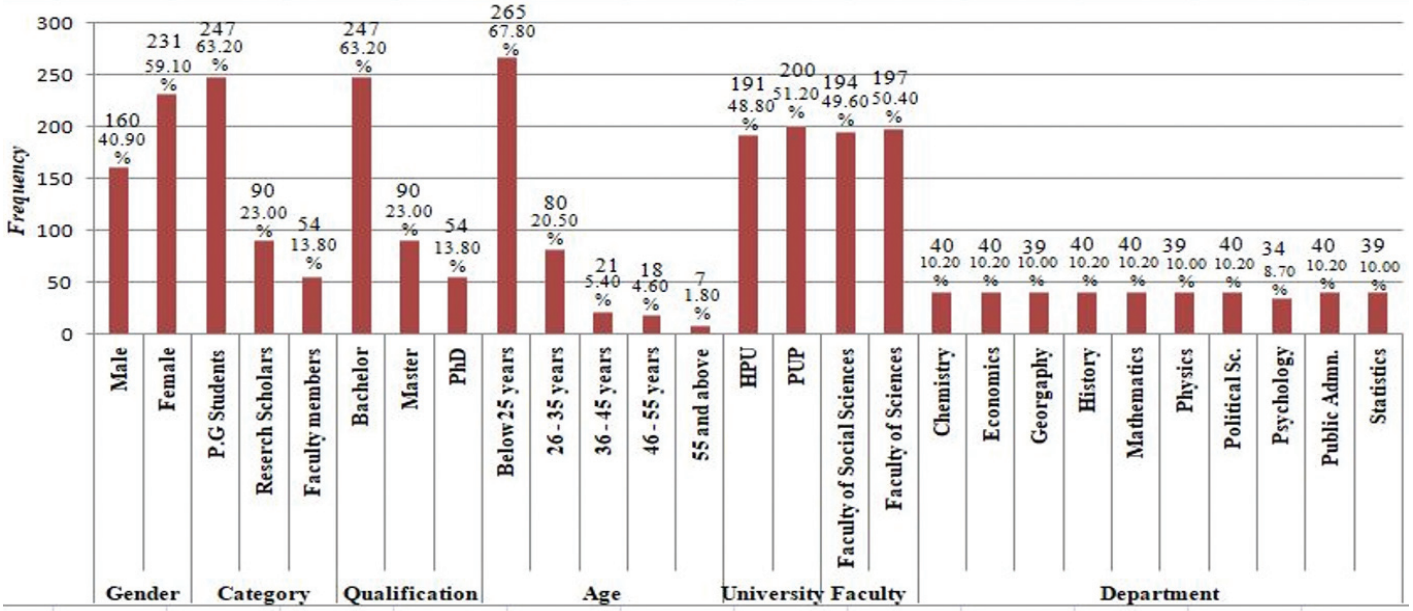

Figure 1. Demographic percentage of responses.

Table 2. Comparison of responses as per gender

Statement	Response	Gender				Chi-square (*p*-value) N=391
		Male		Female		
		N	Percentage	N	Percentage	
Do you feel that people are masters and technology is a tool?	Yes	116	72.5	171	74.0	χ^2 at 2 df = 0.649 (0.723)
	No	24	15.0	37	16.0	
	No opinion	20	12.5	23	10.0	
Do you think that libraries should adopt new technology as quickly as possible?	Yes	145	90.6	206	89.2	χ^2 at 2 df = 2.603 (0.272)
	No	11	6.9	12	5.2	
	Don't know	4	2.5	13	5.6	
Were you involved in the decision-making of information technology (IT) application in your library?	Yes	62	38.8	59	25.5	χ^2 at 1 df = 7.718 (0.005)
	No	98	61.3	172	74.5	
Have you received any training in use of technology to access information?	Yes	45	28.1	63	27.3	χ^2 at 1 df = 0.034 (0.853)
	No	115	71.9	168	72.7	

6.2 Analysis of Survey Statements 1 To 4 to Understand the Attitude of Users as per Gender and User Category

Survey statements 1 to 2 were designed based on three-point Likert Scale and statements 3 to 4 were designed based on two-point Likert Scale technique. To find out the attitude of users and understand the significance of relationship as per gender and user category, survey statements 1 to 4 were analysed using Pearson Chi-square statistical method.

6.2.1 Comparison of User Responses as Per Gender

Views of participants with regard to statement 1 to 4 were further analysed as per gender as shown in Table 2.

The Chi-square analysis reveals that there is no significant difference in the attitude of users (with *p*-value > 0.05) as majority of the male (72.5 %) and female (74.0 %) users felt that people are masters and technology is a tool which the humans use. 90.6 per cent male and 89.2 per cent female participants agreed that libraries should adopt new technology as quickly as possible. With regard to statement 3, there was a slightly significant difference in the attitude of users (with *p*-value <0.01) as per their gender. However, majority of male and female users admitted that they were not involved in the decision-making of IT application in library. Further, with regard to statement 4, there was no significant difference in the attitude of users (with *p*-value = 0.853) as majority of the male and female users replied they did not receive training in using technology to access information.

Table 3. Comparison of responses as per category

Statement	Response	Category						Chi-square (*p*-value) N=391
		PG students		Research scholars		Faculty members		
		N	Percentage	N	Age	N	Percentage	
Do you feel that people are masters and technology is a tool?	Yes	174	70.4	70	77.8	43	79.6	χ^2 at 4 df = 5.903 (0.206)
	No	39	15.8	15	16.7	7	13.0	
	No opinion	34	13.8	5	5.6	4	7.4	
Do you think that libraries should adopt new technology as quickly as possible?	Yes	213	86.2	86	95.6	52	96.3	χ^2 at 4 df = 9.236 (0.055)
	No	20	8.1	2	2.2	1	1.9	
	Don't know	14	5.7	2	2.2	1	1.9	
Were you involved in the decision-making of information technology (IT) application in your library?	Yes	81	32.8	32	35.6	8	14.8	χ^2 at 2 df = 7.865 (0.020**)
	No	166	67.2	58	64.4	46	85.2	
Have you received any training in use of technology to access information?	Yes	69	27.9	25	27.8	14	25.9	χ^2 at 2 df = 0.091 (0.956)
	No	178	72.1	65	72.2	40	74.1	

**Significant at 0.01 level

6.2.2 Comparison of User Responses as per Category

Views of participants with regard to statement 1 to 4 were further analysed as per category:

Table 3 clearly reveals the responses of users as per category. There was no significant difference in the views of users as per category as majority of PG Students, Research Scholars and Faculty Members (with *p*-value > 0.05) admitted that people were masters and technology was just a tool. Majority of the users (with *p*-value > 0.05) admitted that libraries should adopt new technology as fast as possible. However, a slight difference in the views of users (with *p*-value = 0.020) as per category was found with regard to statement 3. But majority of the users in all three categories responded that they were not a party in the decision-making process of IT application in libraries. Further, no significant difference in the views of users (with *p*-value > 0.05) was found as majority of users in all three categories replied that they did not receive training in using technology to find information.

6.3 Analysis of Survey Statements 5 To 13 to Understand the Attitude of Users as per their Qualification

To understand the attitude of users towards information technology application in university libraries, survey statements 5-13 were designed based on five-point Likert Scale technique.

6.3.1 Measuring the Attitude of Users as per their Level of Qualification

To have better understanding of the attitude of users towards IT application in libraries, the views of participants with regard to statement 5 to 13 were further analysed based on their qualification

The Kruskal-Wallis test, also known as a non-parametric test for testing whether samples originate from the same distribution, is often used for comparing two or more independent samples of equal or different sample sizes. When a group's mean rank is higher than the overall average rank, the observation values in that group tend to be higher than those of the other groups. The test results in Table 4 clearly reveal that there is no significant difference in the attitude of users towards IT application in libraries based on their level of qualification. Majority of the users having qualification of Bachelor's, Master's and PhD degrees found computerisation of library to be helpful in their assignments (χ^2 (2) = 1.169, p = 0.557). The majority of users opined that computerisation in library made their library related work more accurate (χ^2 (2) = 2.599, p = .273). Majority of the students in all three qualification levels revealed that they felt excited (χ^2 (2) = 5.705, p = .058) upon getting an opportunity to learn a new technology. Users in all three qualification groups agree that they must be given instructions in using new IT systems (χ^2 (2) =0.427, p = .808) as they further replied that the training they received in using technology for finding information was 'very good' (χ^2 (2) = 3.587, p = .166). The users replied that the pace at which their library was progressing towards automation was 'just right' (χ^2 (2) = 4.518, p =0.104) and they further opined that year-on-year IT application offered more efficient ways to carry out library operations (χ^2 (2) = .996, p =0.608). Majority of the users supported that IT application was more useful tool for developing university libraries.

However, the results of Kruskal-Wallis test that examined the attitude of users with regard to their level of feeling of confidence in using IT systems based on their level of qualification, showed a slight difference in the attitude (χ^2 (2) = 10.588, p =0.005). But, majority of the users in all education groups replied they felt quite confident about using IT in the library.

7. CONCLUSIONS

The outcomes of present study clearly reveal that there is positive attitude among the library users of Himachal Pradesh

Table 4. Kruskal-Wallis test comparing the ranks with respect to qualification

Statement	Qualification	N (391)	Mean rank	Kruskal-Wallis test results
5. How confident do you feel about using IT in your university library?	Bachelor	247	207.65	$\chi^2 = 10.588$ $df = 2$ $p = .005$**
	Master	90	185.51	
	PhD	54	160.19	
6. How helpful do you find computerization of library to be in your assignments?	Bachelor	247	199.99	$\chi^2 = 1.169$ $df = 2$ $p = .557$
	Master	90	186.53	
	PhD	54	193.52	
7. Computerization in library has made my library dependent work:	Bachelor	247	201.55	$\chi^2 = 2.599$ $df = 2$ $p = .273$
	Master	90	180.23	
	PhD	54	196.88	
8. When I have an opportunity to learn a new technology I:	Bachelor	247	190.86	$\chi^2 = 5.705$ $df = 2$ $p = .058$
	Master	90	199.31	
	PhD	54	213.97	
9. Do you think users must be given instructions in using new IT systems?	Bachelor	247	197.05	$\chi^2 = .427$ $df = 2$ $p = .808$
	Master	90	190.28	
	PhD	54	200.74	
10. Has the training you received in using technology for finding information been	Bachelor	247	189.70	$\chi^2 = 3.587$ $df = 2$ $p = .166$
	Master	90	199.01	
	PhD	54	219.80	
11. How would you rate the pace at which your library is progressing towards automation	Bachelor	247	187.34	$\chi^2 = 4.518$ $df = 2$ $p = .104$
	Master	90	213.71	
	PhD	54	206.09	
12. Do you think that each year IT application offers more efficient ways to carry out library operations?	Bachelor	247	198.09	$\chi^2 = .996$ $df = 2$ $p = .608$
	Master	90	197.88	
	PhD	54	183.33	
13. Whether you support IT application as more useful for developing university libraries in India?	Bachelor	247	197.76	$\chi^2 = 2.316$ $df = 2$ $p = .314$
	Master	90	183.58	
	PhD	54	208.67	

**Significant at .01 level

Answer codes to statement- 5: Very confident (i), Confident (ii), Undecided (iii), Less confident (iv), Not confident (v)

Answer codes to statement- 6: Very helpful (i), helpful (ii), Undecided (iii), Less helpful (iv), Barrier (v)

Answer codes to statement- 7: More accurate (i), Just accurate (ii), Undecided (iii), Less accurate (iv), Same as before (v)

Answer codes to statement- 8: Feel excited (i), Feel uncomfortable (ii), Feel helpless (iii), No impact (iv), No reaction (v)

Answer codes to statement- 9: Fully agree (i), Agree (ii), Undecided (iii), Partially agree (iv), Not agree (v)

Answer codes to statement- 10: Excellent (i), Very good (ii), Moderately good (iii), Poor (iv), Very poor (v)

Answer codes to statement- 11: Very fast (i), Fast (ii), Just right (iii), Slow (iv), Very slow (v)

Answer codes to statement- 12: Strongly agree (i), Agree (ii), Don't know (iii),Disagree (iv), Strongly disagree (v)

Answer codes to statement- 13: Strongly support (i), Support (ii), Don't know (iii), Oppose (iv), Strongly oppose (v)

University, Shimla and Punjabi University, Patiala with regard to information technology application in libraries. Majority of the users, irrespective of their gender, category and qualification, felt that people are the masters and technology is a mere tool to perform necessary tasks. Supporting this, Ekmekci and Arda[18] too considered technological artifacts as mere tools operated by humans for various means and ends. Technology is at core to the goals of libraries[19] to provide effective user services. To this tone, users further believed that libraries should adopt new technologies as quickly as they can afford to. The findings further revealed that majority of the users were not involved in decision-making of the IT application in libraries. It was hard to believe that library users in both the universities were not being provided training in the use of technology for finding information. Garrod[20] opines that training is a starting point in learning new technology and acquiring new skills.

The study further reveals that majority of the users replied that they were confident about using IT in the library

and they found computerisation of library to be helpful in doing assignments. The users believed that computerisation in library had made their library dependent work more accurate. The users felt excited when they got an opportunity to learn about new technologies. Majority users agreed that they must be given training in using new IT systems. Although there were not many avenues of providing user training in operating IT systems in libraries, whatever little instructions they received in using technology proved to be of good quality. The users further expressed that the pace at which their university library was progressing towards automation was just right. According to them, each year IT application offered more efficient ways to carry out library operations. The majority users strongly advocated the application of IT systems as a useful tool in developing university libraries in the country.

Innovation drives change, and driving change is fundamental in helping a library meet varied and evolving users' needs and improving their experience. Success rate of technological innovation in an organisational set-up will largely depend on how well that innovative advancement is perceived by the end-users in satisfying their day-to-day needs. In an era of fiscal deficit and ever shrinking library budgets, the cost-effectiveness of a technological innovation can only be achieved if the actual and anticipated users' needs are satisfied well. The results of this study advocate that there is positive attitude among the users with regard to information technology application in university libraries. It is further evident that there is no significant difference in the attitude of users with regard to gender, category and qualification in the respective university. However, based on the findings of present study, it is appropriate to suggest a few key implications for deriving more benefits out of the IT application initiatives in libraries:

- Library managers should ensure that there is more futuristic involvement of users in the decision-making of IT application in libraries
- Authorities should endeavour to take more initiatives to provide structured user training in operating new IT systems in libraries
- Users' feedback on the relevance and effectiveness of existing IT infrastructure shall be fundamental in establishing transparency in future IT investments
- Periodic expert audit of existing IT system should be in place to displace the obsolete programmes and bring in a change process
- Learning attitude among the stakeholders must be encouraged.

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