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11-19-2021

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Handa, Tarvinder Singh and Singh, Jagtar, "Ascertaining Users' Attitude towards Information Technology Application: a comparative study of Himachal Pradesh University, Shimla and Punjabi University, Patiala" (2021). *Library Philosophy and Practice (e-journal)*. 6646.
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Ascertaining Users' Attitude towards Information Technology Application: a comparative study of Himachal Pradesh University, Shimla and Punjabi University, Patiala

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Abstract

The present study was carried out to ascertain the attitude of library users towards information technology applications in two university libraries, viz. Himachal Pradesh University, Shimla and Punjabi University, Patiala. Survey method of research was used based on random sampling. 391 responses were collected from three user categories, i.e., PG Students, Research Scholars and Faculty Members in the faculties of Social Sciences and Sciences. Five departments from each faculty were taken further to attain more insight into users' attitude. The simple percentage, Chi-square test, and Mann Whitney U test were used to analyze the data collected through a structured questionnaire. The study reveals that despite having constraints of in-house training facilities and minimal involvement of end-users in the decision-making of IT incorporation, there is positive attitude among the users. In conclusion, the study offers a few suggestions for the success of future IT initiatives.

Keywords: Library users' attitude, information technology application, university libraries, India

1. Introduction

In the 21st Century, information plays a vital role in the growth and development of human society. To access latest and authentic information, people approach different types of libraries. In the higher education sector, university libraries are considered credible centers of knowledge and information. Chaudhary (2018) opines that a university library is a vital component in the development of teaching, learning, and research activity and to accomplish the aims and objectives of higher education. In order to provide effective and efficient services to cater to the diversified teaching and research-related information needs of their clientele, the university libraries in India are adopting various information communication technologies (ICTs). As a result, there is a widespread change in the pattern of library services and their management.

Over the past three decades, university libraries in India have experimented with IT-based social, mobile, and dynamic technologies to develop a range of specified user-focused services. Consequently, there is profound impact on the growth and development of knowledge and enriching of human skills. The research in the field indicates that technology application has direct brunt on the daily life of students, and it plays an instrumental role in building positive and/or negative attitudes among them (Volk, Yip & Lo, 2003). A positive attitude will determine that a library is more likely to incorporate newer technologies in providing services, whereas a negative attitude will hamper the technological advancement process. Hence, there is a need to find out users' perspectives towards the prevailing information technology applications in university libraries.

2. Statement of the Problem

In the present study, the first concern is that libraries are facing financial crunches from the parent organizations and they have to cope up with their finances to buy the costly technological appliances to renovate service delivery. Therefore, the Himachal Pradesh University, Shimla and Punjabi University, Patiala are not an exception. Secondly, there are a few investigations carried out so far to ascertain the attitude of users towards the information technology application in libraries. Therefore, in order to plan the future course of ICT promotion from the managerial perspective, it becomes essential to conduct a user study to know the behaviour of users towards information technology applications in libraries.

3. Review of Literature

The term 'attitude' was first used exclusively with reference to a person's posture and facial expression. In psychology, attitude refers to a set of emotions, beliefs, and behaviours towards a particular object, person, thing, or event. Similar to this, Hogg and Vaughan (2005) explain that an attitude is "a relatively enduring organization of beliefs, feelings, and behavioural tendencies towards socially significant objects, groups, events or symbols."

The review of concerned literature defines that the waves of change are crashing on the shores of the library profession as new media, new tools, new techniques, and new expectations collide to cause excitement, anxiety, confusion, and concern (Murray, 2008). The proliferation of new technology has spurred the technological skills of librarians to help them become more efficient

organizers and planners (Boss, 2003). Similarly, users' exposure to ICTs, regular training, and peer influence were significant factors for positive attitudes among librarians towards the use of technology (Aiyebelehin *et al.*, 2017). Ossai (2010) pointed out that the students who used automated library services were better exposed to academic material and performed academically well compared to those who did not use automated library services. Technological change is a new norm for libraries to produce and disseminate books in various formats for the people who are blind or otherwise print disabled (McGrory & Williams, 2007). Stereotypes for the female gender and the library profession, in particular, maybe an impediment to the participation of librarians in IT initiatives (Carson & Little, 2014). Hence, perceived ease of use (Liu & Hsu, 2018) of technology and facilitating learning conditions were fundamental for improved user behaviour to learn, adopt and use new technology (Dowdy, 2020).

The literature review makes it evident that a successful implementation of IT systems in libraries requires not only heavy budgets on the infrastructure alone but also a substantial investment in the resources of user organizations.

4. Objectives of the Study

Following objectives are adopted in the present study:

- 4.1 To find out the attitude of users towards information technology application in university libraries.
- 4.2 To ascertain whether there is a difference in the attitude of users with regard to the university.
- 4.3 To examine whether there is a difference in the attitude of users with regard to the faculty in the university.
- 4.4 To assess whether there is a difference in the attitude of users with regard to the department of teaching, learning, and research.

5. Research Methodology

In order to find the attitude of users towards information technology, three types of library users, namely, PG Students, Research Scholars and Faculty Members of Himachal Pradesh University, Shimla and Punjabi University, Patiala, were subjects of this study. A structured questionnaire was distributed amongst 200 users in the faculty of Social Sciences and Science in each university. Five departments were further targeted from each university. In response to the

survey, 391 valid responses were received by the lead author. The scoring of questions was done on a reverse rating scale, i.e. 1 score strongly favouring the question and 5 score firmly rejecting the statement.

6. Data Analysis and Interpretations

To analyze the collected data Descriptive statistical method using the Statistical Package for Social Sciences (SPSS) software was used. To find the attitude of users, statistical techniques such as simple percentage, Chi-square test (Bagdonavicius & Nikulin, 2011; Voinov, V.; Pya, N. & Alloyarova, R., 2009) and Mann-Whitney U test (Wilcox, 2017) were used to interpret the collected data. The output of question statements in standard cross-tabulation table is described in the following sections:

6.1 Demographics of the Participants

The demographic characteristics of the subjects who participated in the survey included gender, category, age-group, university, faculty of affiliation and department. The survey reveals that female participants (59.10%) outnumbered male (40.90%) participants. Majority of the participants 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, whereas the least participation (1.80%) was from 56 and above. 51.20% of respondents were from Punjabi University, Patiala, whereas 48.80% of users belonged to Himachal Pradesh University, Shimla.

Table-1: Demographic characteristics of participants

Variable	Category	N	%age
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%
Age-group	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 Science	40	10.20%
Psychology	34	8.70%
Public Admin.	40	10.20%
Statistics	39	10.00%

6.2 Finding the Attitude of Users: Analysis of survey statements 1 to 4

Survey statements 1 to 2 were designed based on three-point Likert Scale and statements 3 to 4 were developed based on two-point Likert Scale technique. In order to find out the attitude of users and understand the significance of the relationship as per university, faculty, and department, survey statements 1 to 4 were analyzed using Pearson Chi-square statistical method.

Table- 2: Frequency distribution

Statement	Response	N	%age
1- Do you feel that people are masters and technology is a tool?	Yes	287	73.40%
	No	61	15.60%
	No opinion	43	11.00%
2- Do you think that libraries should adopt new technology as quickly as possible?	Yes	351	89.80%
	No	23	5.90%
	Don't Know	17	4.30%
3- Were you involved in the decision-making of information technology (IT) application in your library?	Yes	121	30.90%
	No	270	69.10%
4- Have you received any training in use of technology to access information?	Yes	108	27.60%
	No	283	72.40%

The frequency distribution of responses in table 2 indicates that the majority of users (73.40%) felt that technology is the mere tool and people are the masters. Nearly ninety percent users (89.80%) thought that libraries should adopt new technology as quickly as possible. 69.10% users replied that they were not involved in decision-making process of information technology application in their university library. Almost one-third (72.40%) users replied that they did not receive training in using technology to access information.

6.2.1 Attitude of Users as per University

Views of participants with regard to statement 1 to 4 were analyzed as per their university of affiliation:

Table- 3: Comparison of responses with respect to university

Statement	Response	University				Chi-square (p-value)
		HPU		PUP		
		N	%age	N	%age	
1- Do you feel that people are masters and technology is a tool?	Yes	143	74.9%	144	72.0%	χ^2 at 2 df = 0.623
	No	27	14.1%	34	17.0%	
	No opinion	21	11.0%	22	11.0%	

		N	%age	N	%age	N	%age	N	%age	N	%age	N	%age	N	%age	N	%age	N	%age	N	%age	Values
1- Do you feel that people are masters and technology is a tool?	Yes	31	77.5%	28	70.0%	32	82.1%	29	72.5%	35	87.5%	31	79.5%	28	70.0%	18	52.9%	29	72.5%	26	66.7%	χ^2 at 18 df = 27.598 (0.068)
	No	5	12.5%	6	15.0%	5	12.8%	5	12.5%	1	2.5%	7	17.9%	9	22.5%	12	35.3%	4	10.0%	7	17.9%	
	No opinion	4	10.0%	6	15.0%	2	5.1%	6	15.0%	4	10.0%	1	2.6%	3	7.5%	4	11.8%	7	17.5%	6	15.4%	
2- Do you think that libraries should adopt new technology as quickly as possible?	Yes	39	97.5%	35	87.5%	34	87.2%	37	92.5%	36	90.0%	37	94.9%	32	80.0%	31	91.2%	34	85.0%	36	92.3%	χ^2 at 18 df = 20.573 (0.302)
	No	0	0.0%	4	10.0%	3	7.7%	2	5.0%	0	0.0%	2	5.1%	5	12.5%	3	8.8%	3	7.5%	1	2.6%	
	Don't know	1	2.5%	1	2.5%	2	5.1%	1	2.5%	4	10.0%	0	0.0%	3	7.5%	0	0.0%	3	7.5%	2	5.1%	
3- Were you involved in the decision-making of information technology (IT) application in your library?	Yes	15	37.5%	13	32.5%	14	35.9%	19	47.5%	7	17.5%	7	17.9%	15	37.5%	9	26.5%	13	32.5%	9	23.1%	χ^2 at 9 df = 15.191 (0.086)
	No	25	62.5%	27	67.5%	25	64.1%	21	52.5%	33	82.5%	32	82.1%	25	62.5%	25	73.5%	27	67.5%	30	76.9%	
4- Have you received any training in use of technology to access information?	Yes	10	25.0%	11	27.5%	10	25.6%	18	45.0%	7	17.5%	4	10.3%	15	37.5%	10	29.4%	10	25.0%	13	33.3%	χ^2 at 9 df = 16.970 (0.049*)
	No	30	75.0%	29	72.5%	29	74.4%	22	55.0%	33	82.5%	35	89.7%	25	62.5%	24	70.6%	30	75.0%	26	66.7%	

*Significant at .05 level

6.3 Finding the Attitude of Users: Analysis of survey statements 5 to 13

In order 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 Attitude of Users as per Faculty

In order to understand the attitude of users towards IT application in libraries, the views of participants with regard to statement 5 to 13 were further analyzed as per the faculty:

Table- 5: Mann-Whitney U test comparing the ranks with respect to Faculty

Statements	Faculty	N (391)	Mean Rank	Sum of Ranks	Mann-Whitney U Test Results
5- How confident do you feel about using IT in your university library?	Faculty of Social Sciences	194	195.24	37876.50	$U = 18961.500$
	Faculty of Sciences	197	196.75	38759.50	$z = -.145$ $p = .885$
6- How helpful do you find computerization of library to be in your assignments?	Faculty of Social Sciences	194	192.30	37306.00	$U = 18931.000$
	Faculty of Sciences	197	199.64	39330.00	$z = -.707$ $p = .480$
7- Computerization in library has made my library dependent work:	Faculty of Social Sciences	194	198.41	38492.00	$U = 18641.000$
	Faculty of Sciences	197	193.62	38144.00	$z = -.440$

					$p = .660$
8- When I have an opportunity to learn a new technology I:	Faculty of Social Sciences	194	206.68	40096.50	$U = 17036.500$
	Faculty of Sciences	197	185.48	36539.50	$z = -3.170$
					$p = .002^{**}$
9- Do you think users must be given instructions in using new IT systems?	Faculty of Social Sciences	194	209.54	40650.00	$U = 16483.000$
	Faculty of Sciences	197	182.67	35986.00	$z = -2.606$
					$p = .009^{**}$
10 -Has the training you received in using technology for finding information been:	Faculty of Social Sciences	194	190.37	36931.00	$U = 18016.000$
	Faculty of Sciences	197	201.55	39705.00	$z = -1.032$
					$p = .302$
11- How would you rate the pace at which your library is progressing towards automation:	Faculty of Social Sciences	194	180.22	34963.00	$U = 16048.000$
	Faculty of Sciences	197	211.54	41673.00	$z = -2.880$
					$p = .004^{**}$
12- Do you think that each year IT application offers more efficient ways to carry out library operations?	Faculty of Social Sciences	194	197.78	38370.00	$U = 18763.000$
	Faculty of Sciences	197	194.24	38266.00	$z = -.348$
					$p = .728$
13- Whether you support IT application as more useful for developing university libraries in India?	Faculty of Social Sciences	194	189.26	36716.50	$U = 17801.500$
	Faculty of Sciences	197	202.64	39919.50	$z = -1.319$
					$p = .187$

****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)

Table 5 shows the results of Mann-Whitney U test that examined the attitude of users towards IT application in university libraries as per faculty. Most of the users in the faculty of social science as well as faculty of sciences were confident about using IT in the library ($U = 18961.500$, $p > .05$) and there was no significant difference in their attitude towards using IT. Users in both the faculties found computerization of library to be helpful ($U = 18931.000$, $p > .05$) in doing their assignments. Majority of the users in both the faculties felt ($U = 18641.000$, $p = .660$) that

computer application had made their library-dependent work more accurate. Users further replied that the training they received in using technology for finding information was ‘very good’ ($U = 18016.000$, $p = .302$). Majority of the users in both the faculties agreed that each year IT application offered more efficient ways ($U = 18763.000$, $p > .05$) to carry out library operations and they further supported IT application as more useful ($U = 17801.000$, $p > .05$) in developing university libraries in India.

On the other, when it comes to have an opportunity to learn about new technology (statement 8), the results of Mann-Whitney U test showed a significant difference ($U = 17036.000$, $p \leq .01$) in the attitude of users. A similar trend was also found when it comes to giving instructions in using new IT systems ($U = 16483.000$, $p = .009$) (statement 9) and with regard to rate of pace at which library was progressing towards automation ($U = 16048.000$, $p = .004$) (statement 11). However, majority of users in both the faculties replied positively as they felt excited to learn about new technology and advocated the provision of training in using new IT systems and perceived that the pace of IT application in libraries was ‘just right’.

6.3.2 Attitude of Users as per University

The views of participants, to understand their attitude with regard to statement 5 to 13, were further analyzed as per the university:

Table- 6: Mann-Whitney U test comparing the ranks with respect to University

Statement	University	N (391)	Mean Rank	Sum of Ranks	Mann-Whitney U Test Results
5- How confident do you feel about using IT in your university library?	PUP	200	200.80	40159.00	$U = 18141.000$
	HPU	191	190.98	36477.00	$z = -.941$
					$p = .347$
6- How helpful do you find computerization of library to be in your assignments?	PUP	200	207.10	41420.00	$U = 16880.000$
	HPU	191	184.38	35216.00	$z = -2.186$
					$p = .029^*$
7- Computerization in library has made my library dependent work:	PUP	200	192.58	38516.50	$U = 18416.500$
	HPU	191	199.58	38119.50	$z = -.643$
					$p = .520$
8- When I have an opportunity to learn a new technology I:	PUP	200	189.53	37905.50	$U = 17805.500$
	HPU	191	202.78	38730.50	$z = -1.981$

9- Do you think users must be given instructions in using new IT systems?	PUP	200	196.68	39335.50	$p = .048^*$ $U = 18964.500$
	HPU	191	195.29	37300.50	$z = -.135$
10- Has the training you received in using technology for finding information been	PUP	200	192.50	38500.50	$p = .893$ $U = 18400.500$
	HPU	191	199.66	38135.50	$z = -.660$
11- How would you rate the pace at which your library is progressing towards automation	PUP	200	185.85	37169.50	$p = .509$ $U = 17069.500$
	HPU	191	206.63	39466.50	$z = -1.911$
12- Do you think that each year IT application offers more efficient ways to carry out library operations?	PUP	200	204.44	40887.00	$p = .056$ $U = 17413.000$
	HPU	191	187.17	35749.00	$z = -1.699$
13- Whether you support IT application as more useful for developing university libraries in India?	PUP	200	208.44	41688.50	$p = .089$ $U = 16611.500$
	HPU	191	182.97	34947.50	$z = -2.510$
					$p = .012^*$

***Significant at .05 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)

The Mann-Whitney test results in table 6 indicate that there is no significant difference in the attitude of users, with regard to IT application in libraries as per the university. Most of the users in PUP and HPU were confident ($U = 18141.000$, $p = .347$) about using IT in library. The views of users further reflect that library computerization had made their library dependent work more accurate ($U = 18416.500$, $p > .05$). Most of the user in both HPU and PUP were of the view that users must be given instruction in using new IT systems ($U = 18964.500$, $p = .893$) in library and further reacted that the training which they received in using technology had been 'very good' ($U = 18400.500$, $p > .05$). Most of the users in HPU and PUP expressed that the pace at which their library was progressing towards automation was just right ($U = 17069.500$, $p > .05$) and

they further agreed that IT application, each year, offered more efficient ways to carry our library operations ($U = 17413.000, p = .089$).

Majority of the users both in HPU and PUP expressed that they support IT application as more useful for developing libraries in the country.

However, there was a slight difference in the attitude of users with regards to statements 6, 8, and 13 with Mann-Whitney test showing values: $U = 16880.000, p = .029$, $U = 17805.500, p = .048$, and $U = 16611.500, p = .012$, respectively. But majority of the users replied in positive as 48.70% users in HPU and 53.00% in PUP opined that computerization in library was helpful in completing their assignments. Similarly, 83.80% users in HPU and 90% in PUP replied that they felt excited upon getting a chance to learn about a new technology. Majority users further replied that they support IT application as useful tool to develop libraries.

7 Findings and Suggestions

The findings of our study revealed that library users in Himachal Pradesh University, Shimla and Punjabi University, Patiala revealed positive attitude towards information technology application. A positive attitude can be attributed to the adoption of modern gadgets viz. laptops, smart-phones and e-book readers by the new-age users. The results of this study are in line with the earlier studies carried out by Tingoy and Gulluoglu (2011); Al-Harby (2012) and Yalman and Tunga (2014). The study further reveals that there is no significant difference in the attitude of users in both universities as they felt that people were the masters and technology was merely tool to accomplish tasks. Ekmekci and Arda (2020) too considered technological artifacts as mere tools to perform purposes and ends by the humans. Majority of the users opined that libraries should adopt new technologies as quickly as they can afford them. The survey found that majority of students were not involved in the process of decision-making for IT application and also a few avenues of training in using IT for finding information were available to them.

The study did not find a significant difference between faculty of Social Science and Science users in terms of their attitude towards information technology application in libraries. The users in both faculties appeared to be confident in using computer and IT related devices and they found computerization of library operations to be helpful in doing assignments. The homogeneity of positive attitude was also apparent as per the department of the users. Majority of the users in all the departments were excited upon getting a chance to learn new technology as they felt that

computers and allied technologies had made their library-dependent work accurate than before. Garrod (2001) opines that training is a starting point in learning new technology and gaining skills. In the same tune, users advocated the provision of instructional programmes in using new IT systems. Atkinson (2020) opines that in order to support the goals and objectives of a university, academic libraries have shown great ingenuity in adopting and implementing a range of technologies to meet user needs. In line with this, users in both universities found that the pace of technological advancement in their library was relatively fast, and with the passing of each year IT applications were offering more efficient ways to carry out library operations. They also supported IT application as a useful tool for developing university libraries in the country.

Based on the findings of the present study, following suggestions are given:

1. The involvement of end-users in the decision-making of the IT application process will be more helpful in the selection and acquisition of suitable library management tools.
2. The provision of structured user training on the part of library authorities will be useful to the end-users in the process of learning to operate new IT systems.
3. To establish transparency in future IT incorporations and investments, taking users' feedback can be a deciding factor.
4. Periodic audit of existing IT infrastructure for its currency and relevance is necessary.

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