Study of the Internet Centers at the Central Libraries of Public Sector Universities of Jamshoro, Sindh, Pakistan

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Abstract

The main objective of this research study is to analyze the Academic Activities of the Students of the three Public Sector Universities at Jamshoro, Sindh, Pakistan with respect to the use of the three internet centers located in the central libraries. For the purpose of this study, factors to investigate the acceptance of internet centers in three universities have been undertaken i.e. Mehran university of Engineering and Technology (MUET), University of Sindh (UOS) and Liaquat University of Medical and Health Sciences (LUMHS).

This research study the constructs Behavioral Intention (BI), Attitude (ATT), Perceived Ease of Use (PEOU), Perceived Usefulness (PU), Technology Self Efficacy (TSE) Performance Expectancy (PE) and Facilitating Condition (FC) used to investigate for empirical findings. This study ascertained the internet centers/cafes available in the central/main libraries of the Universities of Jamshoro and their use and impact on the academic activities of the students.

This study is based on positivism philosophy, in which deductive approach and quantitative methods have been applied. This is a cross-sectional study, followed by survey-based strategy. In this research, Five-point Likert scale is used throughout the questionnaire where Technology Self-Efficacy (TSE) has positive and significant effect on Perceived Usefulness (PU) and Perceived Ease of Use (PEOU). PEOU has both positive and significant effects on Perceived Usefulness (PU) and Attitude. PU has positive and significant effect on Attitude and Behavioral Intention. Attitude had positive and significant effect on behavioral intention.

Keywords: TAM, UTAUT, PE, PEOU, BI

1. Introduction

The advent of Internet has brought forth a considerable change in the learning, teaching and research patterns. Internet has presented itself as an indispensable source of information and because it being ubiquitous, universal and flexible, the internet has found a permanent place in each household and educational institutions in the urban areas.

However, in the Pakistani context, the internet cannot totally obliterate the traditional instructional methods. It can and does supplement the traditional methods. Internet is another term for e- learning and for education on-line. it has become highly popular amongst our students, easy to use and not expensive if used in the premises of higher educational institutions.

Simply speaking, the word internet is a conjunction of two words: inter and net (networking) which together means "the interaction between networking of computers" [1]. The various information resources and services include electronic mail, web pages, lecture notes, video-conferencing, video text, video disc, tele-text, chatting etc. Therefore "the web has brought to the desk top not only metadata sources like bibliographic databases and table of contents, but in fact, full texts of journals, technical reports, course work, graphics, multimedia on the net" [1].

Our world is a world of emerging technologies. These have impacted all spheres of life. Libraries are considered as essential and connecting part of community and the technology revolution has also impacted on libraries. As libraries are an integral part of our community, they are equally affected by this technological revolution. Information Technology (IT) and Information and Communication Technology (ICT) are used synonymously, CT, the preferred term, is a "fusion of two technologies: electronics &communications" [2]. ICIMS therefore defined as the merger of telecommunication and electronics using computers for the input, retrieval, storage, transfer and disbursement of information [2]. University Libraries are adopting electronic habits, using the Internet, the websites and internet technology [3].

In this cutting-edge century, society is being known as a computerized society with the improvement of Information and correspondence innovation (ICT) into different fields like wellbeing, business, horticulture, training, at the work environment, and so forth. With the up degree of web 1.0 to web 2.0, it prompted the chance of two side correspondence with the overhauled site like wikis, blog, person to person communication destinations, full-scale blogging or social bookmarking, it has coordinated to the advancement of computerized advances. With the up degree of the spread of data from manual to computerized structure, the basic data client and searcher are confronting an incredible errand to get to the assortment of digitized design. Distinguishing proof and determination of data in this advanced world has become a troublesome assignment because of data blast and information brown haze. PC, cell phones contraptions have become a significant device in this computerized age [7].

2. Literature review

Some of the latest work in the field of use of internet in public sector universities. The collection of library provides the arrangement of sound basis with well-organized facilities as shown in Table 2.1. Which show the overall collection of Central University (CU) library. They also discuss the different libraries of different cites, Delhi University Library system (DULS) is an incorporated network of 30 libraries which includes five divisional libraries, four faculty libraries, four unique libraries, 13 Departmental libraries.

DULS has the biggest series of 1400000 books which include returned volumes of periodicals observed with the aid of Aligarh Muslim University (AMU) with 9,80,000 books and Banaras Hindu University (BHU) with 7,67,383 books.

Ramana (2003) discusses the development in the field of information technology (IT) of the central university (cu) in India, and this paper provides the results of a look at performed to survey the usage of it in central university libraries. It defines libraries series, contemporary periodicals, library personnel, users, budget, and infrastructural facilities and services of central university libraries. It discusses making plans / strategies followed for its implementation targets of library automation, individuals concerned in library automation making plans, steps taken for library automation implementation, elements taken into consideration in choosing library automation software program, and constraints faced in library automation. It covers computer systems and software program application used, computerized library operation, improvement of database, bibliographic standards used, computerized facts services, degree of participation in networks and computerized facilities provided to users, and so on [2].

Table 2.1: *Collection of central university library [2]*

S. No.	Name of University	Books	Back Volumes of periodicals	Theses	Audio-Visual materials	CD-ROM databases	Others
1.	AMU	9,80,000	20,000	8,448	—	—	—
2.	AU	32,357	6	—	—	—	2000
3.	BBAU	1,000	---	—	—	—	—
4.	BHU	7,67,383	1,01,756	8,684	—	—	7,201
5.	UOD	14,00,000	—	14,500	4,175	30	—
6.	UOH	1,82,000	69,000	2,800	—	25	—
7.	IGNOU	73,291	5,077	25	—	91	—
8.	JNU	3,07,058	1,48,552	—	6,311	—	—
9.	JMI	2,50,000	6,000	600	300	—	—
10.	NU	25,204	10,000	200	—	—	—
11.	NEHU	1,61,737	36,764	3,500	200	30	
12.	PU	1,00,000	5,000	1,329	—	8	1,976
13.	TU	8,800	250	—	60	21	—
14.	VB	3,59,601	60,771	550	—	—	23,225

3. Methodology

The quantitative methodology explores normally the researches that have been majorly conducted on the issues of contemporary businesses along with the authentication of theories and concepts that have been generated by different researchers, being involved of multiple factors [3]. The validity for broad views of theories applied that are commonly used in the research of social sciences and commercial studies are supported by the quantitative research [4]. The main purpose of its adoption in the social studies is its capability in the prediction of the causes that have an influential effect on different variables used in the research studies [3].

4. Data collection

Data were collected through self-administered process of survey including surface mail or personal visits where applicable. The researchers were met personally and given survey form and collected personally.

5. Data analysis

Data were analyzed using SPSS software of version 21. Descriptive statistics were also tested along with the frequency distribution of this study.

This research study is cross-sectional in which the collection of data has been done from the Public Sector Educational Universities of Jamshoro, Sindh province, Pakistan. The random sampling was adopted. The selected sample of this research study are students and staff using internet at internet centers which are the physical appearance of the population in the universities and higher education institutions of Jamshoro. A survey questionnaire was distributed among the internet users of public sector higher educational universities of Jamshoro, by personal visit. The items of the research survey questionnaire were adopted by the previous research studies. Five-point Likert scale was adopted in the instrument to give ease to the respondents that is in between 'Strongly agree' 'Strongly Disagree'.

6. Procedure of data collection

Data collection is based on the gathering information about the research domain by using the data collection instrument. For this purpose, the survey questionnaire instrument is used that is comprised of 30 items only. The items of questionnaire were concisely managed, so that it can be completed in 20-25 minutes by the respondents. This survey questionnaire instrument was distributed among the students and staff of public sector universities of Jamshoro, Sindh. Six hundred (600) questionnaires were administered manually and personally. The researchers visited the three main universities of Jamshoro and find high response rate from University of Sindh Jamshoro and its neighboring university Mehran University, a low rate of response is received from the Liaquat University of Medical and Health Sciences (LUMHS)**.** To get best response from the respondents the researcher visited personally to the concerned departments. With humble request the questionnaires were distributed among those respondents, which showed interest. However, for some respondents the researcher waited according to their availability.

7. Results

The current section deals with the various aspects of the results and composed in descriptive statistics and exploratory analysis of the results. The factor analysis along with its findings is also part of this research. For the testing of the linearity Pearson's correlation has also been presented.

7.1 Some of the frequency data about this Study

In this study, the various subjects were selected in respect of age, education, university or other characteristics such as gender and others. Table 7.1 shows the various characteristics or frequencies of this current study. In Table 5.1 a total of 258 questions were collected and there was no form considered as missing. The study is diversified into various categories. The mean for gender is 1.3721, for age 1.3062, for university 1.8450 and the highest mean is for education at 2.6357. The lowest standard variation is 0.48430 for gender and highest 0.81760 for university.

Table 7.1: *Frequency of this study*

		Gender	Age	Education	University
N	Valid	258	258	258	258
	Missing	0	0	0	0
Mean		1.3721	1.3062	2.6357	1.8450
Std. Deviation		.48430	.56764	.76334	.81760

Table 7.2 Presents the frequency of the Gender where 162 respondents were male and 96 were females. The percent of participants was 62.2% of males and 37.2 for females.

Table 7.2: *Frequency of Gender*

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Male	162	62.8	62.8	62.8
	Female	96	37.2	37.2	100.0
	Total	258	100.0	100.0	

In Table 7.3 age distribution is presented which shows that 193 respondents were from 20 to 29 years of age which means the age of the students of university. A total of 51 respondents were of age from 30 to 39 years of age. The respondents from 40 years to 49 years were 14. A highest percent of the respondents was of 74.8% for the subjects of 20 to 29 aged persons.

Table 7.3: *Frequency of Age*

Frequency	Percent	Valid Percent	Cumulative Percent
193	74.8	74.8	74.8
51	19.8	19.8	94.6
14	5.4	5.4	100.0
258	100.0	100.0	

In Table 7.4 The education distribution has been illustrated where only one subject was from college education and the rest of the respondents were of graduate and undergraduate. The maximum number of subjects were of bachelor with a frequency of 136 whereas 77 Master degree students were surveyed. Lastly a sum total of 44 subjects were MPhil or PhD students.

Table 7.4: *Frequency of Education*

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Intermediate	1	.4	.4	.4
	Bachelor	136	52.7	52.7	53.1
	Master degree	77	29.8	29.8	82.9
	M.Phil/PhD	44	17.1	17.1	100.0
	Total	**258**	**100.0**	**100.0**	

In Table 7.5, The respondents were selected from three universities of Jamshoro and the results have been shown in Table 7.5. The maximum subjects were selected as 109 from University of Sindh, Jamshoro with 42.2%, 80 from Liaqat University of Medical and Health Sciences (LUMHS) with 31% and 69 students from MUET with percentage of 26.7.

Table 7.5: *Frequency of University*

Frequency	Percent	Valid Percent	Cumulative Percent
109	42.2	42.2	42.2
80	31.0	31.0	73.3
69	26.7	26.7	100.0
258	100.0	100.0	

7.2 Descriptive statistics of the construct items

The variables used in this study are presented in this section. The statistics of these variables are namely Technology Self Efficacy, Perceived Ease of Use (PEOU), Perceived usefulness (PU), Performance Expectancy, facilitating conditions, Attitude towards using (ATU) and Behavioral Intention (BI).

7.2.1 Behavioural intention

The current study has used the BI so that the intention of the internet users can be measured. The internet users while using internet at internet centers then what is their intention while using internet. The six items measure BI on the basis of 5 Likert scale ranging from strongly agree to strongly disagree. Table 5.6 illustrates the descriptive statistics results and the measured items so that the normality can be explained. The results presented in the Table 7.6 shows that the BI value is in between 3.8359 (1.04245) and 3.8633 (1.05573). The normality values are in between the acceptable values of +1 and -1. The skewness ranges for the BI from -.758 to -1.321. The Kurtosis values are from .116 to 1.624. The standard error for the skewness is .152 and the Kurtosis error is .303.

Table 7.6: *Descriptive statistics of measured items of behavioral intention (BI) construct*

Mean	Std. Deviation	Variance	Skewness		Kurtosis	
Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic	Std. Error
3.8359	1.04245	1.087	-1.321	.152	1.624	.303
3.8633	1.05573	1.115	-1.034	.152	.625	.303
3.8516	.93800	.880	-.849	.152	.569	.303
3.8359	1.03490	1.071	-.758	.152	.116	.303

7.2.2 Attitude toward using

The second construct was Attitude towards using the internet for the students. Questions related to attitude were measured on the 5-point Likert scale shown in Table 7.7. The results indicate that mean scores are between 3.7490 (1.06471) to 4.0310 (.85472) and normality values are also within range. The skewness ranges for the ATU from -.806 to -1.193. The Kurtosis values are from .151 to 1.653. The standard error for the skewness is .152 and the Kurtosis error is from .302 to 304.

Table 7.7: *Descriptive statistics of measured items of Attitude (ATU) construct*

	N	Mean	Std. Deviation	Variance	Skewness		Kurtosis	
	Statistic	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic	Std. Error
ATU1	257	3.8482	1.00211	1.004	-1.193	.152	1.414	.303
ATU2	258	4.0310	.85472	.731	-1.077	.152	1.653	.302
ATU3	255	3.7490	1.06471	1.134	-.806	.153	.151	.304
ATU4	257	3.7977	1.12409	1.264	-1.008	.152	.380	.303
Valid N (listwise)	254							

7.2.3 Perceived usefulness

This construct perceived usefulness was measured using five Likert scale ranging from strongly agree to strongly disagree. The mean value for the perceived usefulness has been recorded from 3.9264 (1.03931) to 4.0581 (.94628). Table 7.8 is showing the resulting items of perceived usefulness. The table shows the values are near to 4 which means the high rank of internet usage. The skewness ranges for the PU from -1.086to -1.227. The Kurtosis values are from 1.040 to 1.495. The standard error for the skewness is .152 and the Kurtosis error is from .302 to .303.

Table 7.8: *Descriptive statistics of measured items of Perceived Usefulness (PU) construct*

	N	Mean	Std. Deviation	Variance	Skewness		Kurtosis	
	Statistic	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic	Std. Error
PU1	258	3.9264	1.03931	1.080	-1.214	.152	1.101	.302
PU2	258	4.0581	.94628	.895	-1.227	.152	1.495	.302
PU3	257	4.0272	.92873	.863	-1.086	.152	1.050	.303
PU4	257	4.0311	.93906	.882	-1.061	.152	1.040	.303
PU5	258	3.9341	1.00559	1.011	-1.186	.152	1.145	.302
Valid N (listwise)	257							

7.2.4 Perceived ease of use

Four items measured for this construct and the results are shown in Table 7.9, in which the maximum value for the mean is 4.0430 with 1.05631standard deviation and the lowest value of mean is 3.7004 with 1.05684 standard deviation. The value is near to the 4 considered as natural point. The values for this construct are also within the limits of normality values such as less than ±1. The skewness ranges for the PEOU from .895to -1.255. The Kurtosis values are from -.163 to 1.349. The standard error for the skewness is .152 and the Kurtosis error is .303

Table 7.9: *Descriptive statistics of measured items of Perceived Ease of Use (PEOU) construct*

	N	Mean	Std. Deviation	Variance	Skewness		Kurtosis	
	Statistic	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic	Std. Error
PEUU1	256	3.7930	1.03285	1.057	-1.255	.152	1.349	.303
PEOU2	257	3.7004	1.05684	1.117	-.737	.152	-.163	.303
PEOU3	257	3.8327	.89225	.796	-.895	.152	.804	.303
PEOU4	256	4.0430	1.05631	1.116	-1.213	.152	.937	.303
Valid N (listwise)	254							

7.2.5 Technology self efficacy

A five itemized construct is the Technology Self Efficacy, the mean value is recorded as 3.4883 (1.12366) to 3.8643 (.91305). The Technology Self-Efficacy is a new construct in this research model consisting of 4 items. The highest mean was TSE1 4.0430 and the lowest was TSE6 3.7004. This shows that the internet users have accepted the use TSE for the use of their research. The descriptive statistics for the Technology Self Efficacy construct are shown in Table 7.10. The skewness ranges for the TSE from -.694to -1.143. The Kurtosis values are from -.007 to 1.548. The standard error for the skewness is .152 and the Kurtosis error is from 0.302 to .303.

Table 7.10: *Descriptive statistics of measured items of Technology Self Efficacy (TSE) construct*

	N	Mean	Std. Deviation	Variance	Skewness		Kurtosis	
	Statistic	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic	Std. Error
TSE1	256	3.4883	1.12366	1.263	-.714	.152	-.253	.303
TSE2	258	3.7713	.96133	.924	-1.143	.152	1.548	.302
TSE3	257	3.7510	.96433	.930	-.694	.152	-.007	.303
TSE4	258	3.7752	.99992	1.000	-1.042	.152	.887	.302
TSE5	258	3.8643	.91305	.834	-1.088	.152	1.278	.302
Valid N (listwise)	255							

7.2.6 Performance expectancy

Performance expectancy contains four items, the mean value for this construct reported is from 3.9409 (1.00614) to 4.1260(.86195). The maximum mean is 4.1260 whereas the lowest is the 3.9409. The variance for the PE3 is reported as maximum 1.012. The skewness is towards negative skewed with a value of -.914. The standard errors for skewness and Kurtosis are .153 and .304 respectively. The descriptive statistics for performance expectancy are illustrated in Table 7.11. The skewness ranges for the PE from -1.217to -.914. The Kurtosis values are from .299 to 1.890. The standard error for the skewness is .153 and the Kurtosis error is .304.

Table 7.11: *Descriptive statistics of measured items of Performance Expectancy (PE) construct*

N	Mean	Std. Deviation	Variance	Skewness		Kurtosis	
Statistic	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic	Std. Error
255	3.9765	.98384	.968	-1.178	.153	1.261	.304
254	4.1260	.86195	.743	-1.217	.153	1.778	.304
254	3.9409	1.00614	1.012	-.914	.153	.299	.304
255	4.0471	.82633	.683	-.974	.153	1.890	.304
253							

7.2.7 Facilitating conditions

Another construct of this study is facilitating conditions containing four items in which the maximum mean is 3.9373 (.95776) and the minimum is 3.7176 (1.10772). The highest variance is 1.227 and the standard error for the skewness is .153 and the last Kurtosis error is .304 with a distinction of .305 for FC1.

Table 7.12: *Descriptive statistics of measured items of Facilitating Conditions (FC) construct*

	N	Mean	Std. Deviation	Variance	Skewness		Kurtosis	
	Statistic	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic	Std. Error
FC1	253	3.7708	1.08142	1.169	-1.089	.153	.657	.305
FC2	255	3.8784	.97049	.942	-1.030	.153	.883	.304
FC3	255	3.7176	1.10772	1.227	-.947	.153	.164	.304
FC4	255	3.9373	.95776	.917	-1.202	.153	1.361	.304
Valid N (listwise)	253							

8. Conclusion

The current study extends the TAM model and it explores the Perceived Ease of Use and Perceived Usefulness. The Behavioral Intention of internet users at internet centers has been perceived towards the internet usage in public universities of Jamshoro. A very little work is available on the topic such as internet usage at internet centers in universities at Jamshoro, Sindh, Pakistan. The current study is the first approach for such type of problems in a developing economy like Pakistan. The current study provides important information for the perceived intention of users using internet at public universities of Sindh.

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