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Impact of Internet Access and Usage on the Student Activities on Computer-A Case Study of Punjabi University, Patiala, India

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Abstract

The purpose of this research is to investigate and understand if access to internet and the weekly internet usage rate impact the student's activities on computer. The activities that a student undertakes with the help of computers are of great significance as they can help in understanding the potential and limitations offered by the technology for use in the field of education. This paper brings out the three major kinds of activities that students undertake with computer: communication and group activities, self –learning activities and Information collection activities. The study further brings out the effect that access to internet and weekly internet usage rate has on the students' activities with computer. The instrument used in collecting data was the questionnaire. This study analyzed 306 students enrolled in various courses across many departments in Punjabi University, Patiala. The data collected were analyzed using Independent t - test and ANOVA. The results show that access to internet has no impact on the activities of students with computer. The findings for the impact of weekly internet usage on student activities on computer show that there is a non - significant relationship between weekly internet usage rate of students and the factors on self - learning activities, Communication and group activities and Information collection activities. The findings from this research can be used in designing future e - learning initiatives and development e - learning modules at an educational setting.

Keywords

Student Activities on Computer, Computer Technology, ICT, Internet Access, Weekly Internet Usage Rate

1. Introduction

The use of the internet for teaching and learning is rapidly increasing. It is a vital tool for educational purpose as it allows instant access to and dissemination of information. Students' computer and Internet activities and rates of use are of immense interest. The Internet is widely used for communication, researching, web surfing, wikis, blogging, gaming, completing assignments, to update knowledge and to supplement notes etc. The integration of the internet as a teaching learning tool in higher education has been growing rapidly.

The use of computers and internet has always been linked with improvements in people's everyday lives and education. The potential of these technologies to upgrade various aspects is quite great. These can range from improvement in access to information, facilitation of communication and getting tasks done more quickly. Computer and internet use rates also indicate the standard of living. Since the use of computers helps the students to gain computer literacy, the usage rates and activities on the computer may help in indicating how well prepared the generation of students are for entering a workforce where computer literacy is in demand. All the sectors of the society are directly or indirectly affected by the changes produced by the Computer and communication technologies. E - learning is usually defined as a type of learning facilitated by ICT for improving the quality of teaching and learning. A number of other terms such as, online learning, network and web - based learning,

virtual learning, distributed learning are also used. The expansion of technology has also had a huge impact on students' daily activities as well as on their interaction with technology. This research builds an approach to examine the activities of students on computers with reference to the access that they have for the internet and their weekly internet usage rate. This can be used as a stepping stone for understanding the students bent towards various internet activities and can be used as a basis for developing computer based curricula or projects for implementation of technology in education or learning purposes.

2. Literature Review

A wide range of activities can be conducted online web surfing, e - mail, live chat, wikis, blogging, and gaming can be among them and these activities can be social or solitary in nature [10]. The top five uses of the Internet by students were e - mailing friends, getting help with school work, talking with friends, e - mailing family, and IM [5]. Similarly, another study found that students spent almost 12 hours using the Internet for non - communication related activities per week, such as surfing or playing games [7]. A study on Children and adolescents reported that common use of computers includes playing games, completing school assignments, word processing, e - mail, and connecting to the Internet [3]. The most frequent activities online are school work, e - mail, games, and finding news and product information. The Internet supports a broad range of activities. Students make use of the Internet as a medium to communicate, to find information, to have fun, and to do homework. Electronic mail is the Internet application used most widely by adults [17].

The use of internet service and resources in the engineering colleges of Punjab and Haryana found that all the respondents make frequent use of internet as they have access to it either in the college or at homes. In the research it was found that more than 75% of the students were using the internet services for the educational and research process and Google and Yahoo were the most popularly used search engines [6]. The use of internet at the University of Maiduguri, Nigeria found that for close to 61% of the respondents internet was very important, 75% were using it for research and other uses were for entertainment, e - mail, news and lesson preparation [8].

The students use computers for various activities including listening to music, playing games, researching, chatting, and e - mailing [19]. Another study shows that students used the Internet for communication (90.6%), doing class assignments (43.5%), to update knowledge (32.9%) and to supplement the lecture notes (27%). The most used Internet services were e - mail followed by chatting and instant messaging [1].

The effect of demographics in terms of gender has been studied in previous researches. The recent researches suggest that the use of the technologies has become more widespread with less gender gaps. The difference between boys and girls in Internet use rates has closed, but there are differences by sex in the types of Internet activities [4]. Gender differences in overall use rates of the internet have disappeared yet gender differences persist in preferences for Internet activities, with males favouring entertainment and females favouring communication and educational assistance [18], [9], [14]. In the past, males have used computers and the Internet at significantly higher rates than females [2], [11] and have reported more experience and skill with these technologies [13]. Another study demonstrated that no significant difference exists between the male and the female students on the frequency of use of the internet and the information searched, thus they all were using the internet daily and were also using it to search information research projects, e - mails, random searches, music/videos and e - book [12].

The important variables like students' access to the internet and their internet usage rate have not been studied for their impact on students' activities. This research aims to fulfill this gap in the Indian context.

3. Research Objectives and Hypothesis

3.1. Objectives of the Study

1. To analyze the student activities on computer.
2. To analyze the effect of access to internet on activities on computer.
3. To analyze the effect of internet usage on activities on computer.

3.2. Hypothesis of Study

H1. There is no significant relationship between access to internet and student's activities on computer.

H2. There is no significant relationship between weekly usage of internet by students and student's activities on computer.

3.3. Period of Study

The study was carried out from 1 March 2014 to 31 March 2014 for collection of data and analysis.

4. Research and Methodology

4.1. Participants

The study used a survey approach to examine e - learning attitudes of the students. The target population was the students studying in the Panjabi University, Patiala, India. A total of 400 questionnaires were distributed among various faculties of the university. It included the Faculty of Commerce, Faculty of Fine Arts, Faculty of Engineering, Faculty of Science, and Faculty of Law.

4.2. Measurement

The demographic profile of the respondents such as name,

sex, age, and faculty (Department) of student was covered in the first section. This was followed by question related to access to the internet and the weekly internet usage. The next section evaluated the response of students in various activities on computer on a three point Likert scale.

4.3. Overview of Data Gathered

A total of 400 questionnaires were distributed, on final scrutiny 94 were dropped because they were incomplete and the remaining 306 questionnaire were retained for the further analysis. Thus the response rate was over 77%, which is a good rate. Table - 1 illustrates the overview of the sample profile. Microsoft Excel and SPSS were used to analyze the questionnaire data and the subsequent data analysis were undertaken using statistical approach i.e. ANOVA and Independent t - test.

4.4. Data Analysis

Section one discusses about demographic characteristics, i.e. gender, age, faculty of study. The sample size under study had students from all the major faculties of Punjabi University. There were 32.4% males and 67.6% female respondents in the sample.

All of the respondents of the survey were below the age of 26 years, 34.9% were less than 20 years and 63.2% were between 20 - 26 years. The discipline under study had 34.6% representation from Commerce and 8.2% from Fine Arts followed by 16.3% and 27.8% from engineering and science. Representation from Bio tech discipline was 13.1%. (Table 1).

Table 1. *Demographic Statistics.*

Descriptive Statistics	No. of Respondents	Percentage
Faculty		
Commerce	106	34.6
Fine Arts	25	8.2
Engineering	50	16.3
Science	85	27.8
Bio tech	40	13.1
Gender *		
Male	99	32.4
Female	207	67.6
Age*		
Less than 20	106	34.9
20 - 26 years	192	63.2
26 - 30 years	6	2.0

*N≠306 due to unmarked fields by respondents (Treated as Missing values in spss)

The results indicate that 81% students had easy access to internet only 19% faced the problem of not having easy access. In the survey, 52% people had said that they spend only up to 5 hours on the internet weekly, 22% spend 5 - 10 hours, 11% spend 10 - 14 hours and around 15% spend over 14 hours on the internet weekly.

Table 2. *Rotated Component Matrix.*

	Activities on computer	Component			
		1	2	3	4
V3.1	Communicating with family/friends	.119	.134	.088	.856
V3.2	Communicating with tutors/teaching	.682	.215	-.056	.244
V3.3	Doing a learning task collaboratively	.609	.040	.094	.012
V3.4	Doing a learning task individually	-.072	.688	.142	.229
V3.5	Gathering information	-.064	.146	.781	.030
V3.6	Exchanging information	.315	.002	.624	.345
V3.7	Listening to course material	.368	.492	.114	-.015
V3.8	Managing information	.495	.279	.348	.031
V3.9	Oral presentation	.573	.164	.352	-.116
V3.10	Planning a group learing task	.763	.129	.064	.099
V3.11	Planning a individual learning task	.324	.583	.105	.232
V3.12	Reading course material	.092	.733	.015	.050
V3.13	Revising for an exam	.487	.540	.029	.036
V3.14	Self - assessment exercises	.491	.482	.009	-.177
V3.15	Viewing course material	.174	.713	.157	-.160
V3.16	Writing an assignment	.371	.153	.470	-.324

Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalization.
a. Rotation converged in 5 iterations.

The section covering the activities on computer by students was analyzed on a Likert scale. Factor analysis was carried out for reducing the number of variables. This reduced the 16 variables into four factors after PCA with varimax rotation. (Table 2) The four factors were named as communication and group activities, self - learning activities, information collection activities and communicating with family (Table 3). The fourth factor due to insignificant correlation with the other three was dropped.

Table 3. *Factors after PCA on Activities on computer.*

Factor	Factors	No. of items
I	Communication and group activities	6
II	Self - learning activities	6
III	Information collection activities	3

Cronbach's alpha for checking the reliability of the scale was calculated. The value was 0.845 (>0.7) which shows that

the scale has good internal validity and is highly reliable. The three factors internally were reliable with Cronbach's alpha near to an expected range (Table 4).

Table 4. *Cronbach's alpha.*

Factor	Cronbach's Alpha	No of items
Items on Activities on computer	.845	16
Communication and group activities	.751	6
Self - learning activities	.759	6

To analyse the impact of access to the internet and the weekly internet usage on student activities on computer; Independent t - test and ANOVA were run respectively.

5. Results and Discussion

In order to analyse the effect of internet access on student activities Independent t - test was used for analysis. The results are depicted in Table 5. The variances of group were found to be equal during test of homogeneity for Self learning activities (.584>.05), and for Information collection activities (.073>.05) whereas for Communication and group activities, the value (.015) is less than.05 thus it has unequal variance. For the factor Communication and group activities, Self learning activities and Information collection activities at $p<0.05$ level the p - values are [t = - 1.906, p = 0.061], [t = - 1.058, p = 0.291] and [t =.723, p = 0.470] respectively.

The p - values here are greater than.05 for Communication and group activities, Self learning activities and Information collection activities, thus the null hypothesis is accepted, i.e. there is no significant difference in the student activities with the computer on the basis of their access to internet.

Table 5. *Independent Samples Test - Access to internet.*

		Levene's Test for Equality of Variances				
		F	Sig.	t	df	Sig. (2 - tailed)
Communication and group activities	Equal variances assumed	5.980	.015	- 2.159	278	.032
	Equal variances not assumed			- 1.906	67.446	.061
Self - learning activities	Equal variances assumed	.300	.584	- 1.058	279	.291
	Equal variances not assumed			- 1.014	78.453	.314
Information collection activities	Equal variances assumed	3.244	.073	.723	291	.470
	Equal variances not assumed			.658	73.477	.513

ANOVA conducted to analyse the impact of weekly internet usage rate on the activities of students on computer gave the following results (Table 6). The results of ANOVA revealed that factor on Communication and group activities at $p<0.05$ level [F (3, 274) =.707, p = 0.548], for factor self - learning activities [F (3, 275) =.082, p =.970] and Information collection activities [F (3, 286) =.634, p =.594].

Table 6. *ANOVA (Weekly Internet Usage)*

		Sum of Squares	df	Mean Square	F	Sig.
Communication and group activities	Between Groups	.525	3	.175	.707	.548
	Within Groups	67.792	274	.247		
	Total	68.317	277			
Self - learning activities	Between Groups	.059	3	.020	.082	.970
	Within Groups	65.950	275	.240		
	Total	66.009	278			
Information collection activities	Between Groups	.418	3	.139	.634	.594
	Within Groups	62.849	286	.220		
	Total	63.266	289			

The p - value for self - learning activities, communication and group activities and information collection activities is greater than. 05 thus the null hypothesis is accepted. The results show that no significant relationship exists between weekly internet usage rate of students and the factors on self - learning activities, Communication and group activities and Information collection activities done with computer.

6. Conclusions

The main contribution of this study is that it has thrown light on the activities that students carry out with computers and has given three major factors/types of activities that students do viz. Self - learning activities, Communication and group activities and Information collection activities. The research has revealed that internet access has no impact on the activities of students with computer and the weekly internet usage rate is also not a significant indicator of students' activities on computers. The results are in line with previous works [15] [16]. As the computer activities are mostly offline in nature, thus use of the internet shows no significant impact. These results can further be used as inputs for proper implementation of technology in any educational setting. These findings suggest that readiness of students with

respect to the technology can be understood by studying the level of understanding and usage of computer technology and internet by students.

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