

# ANALYSIS OF STUDENT ACTIVITIES ON COMPUTER - A STUDY ON PANJAB UNIVERSITY, INDIA

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## ABSTRACT

The purpose of this research is to investigate and understand how students are using computer. The activities that a student undertakes with the help of computers which might be fulfilling some academic or non academic purpose, is of great interest. It will help in understanding the limitations and potentials offered by the technology for use of computer in classroom. This paper brings out the three major kinds of activities that students undertake with computer; self – learning activities, Information collection tasks and communication and group activities. The study further analyses the effect of demographics i.e. gender, age and faculty (department) of students on the activities with computer. The results show that gender has no impact on the activities of students with computer. The age impacts only the activities related to Information collection by using computer where as the faculty of student significantly impacts all the activities viz. self –learning activities, Information collection tasks and communication and group activities. The findings from this research can be used in designing future e-learning initiatives and development e-learning tools.

## Keywords

Students' activities on computer, computer technology, ICT , gender, age , faculty(department) of student

## 1. INTRODUCTION

Students' computer and Internet activities and rates of use are of immense interest. The use of computers and internet has always been linked with improvements in people's education, and everyday lives. These technologies have the potential to upgrade various aspects. These can be improvement in access to information, getting tasks done better or more quickly and facilitation in communication. Computer and internet use rates are also the indicators of the standard of living. Since the use of computers helps students gain computer literacy, the use rates and activities on computer may help in indicating how well prepared the generation of students are for entering a workforce where computer literacy is in demand. Computer and communication technologies are producing changes of great magnitude that virtually affects all sectors of society directly or indirectly. The intentional use of networked information and communications technology in teaching and learning is commonly referred to as e-learning. A number of other terms such as online learning, virtual learning, distributed learning, network and web-based learning are also used. The changes in the field of Information and Communication Technologies (ICT) have revolutionized the business as well as the educational sector across the globe. This research builds an approach to examine the activities of students on computers as a stepping stone for understanding the preparedness of students towards e-learning with specific reference to Panjab University, Chandigarh India. Demographic variables such as gender, age and faculty of

students' has always shown an impact on all education activities of students. The research investigates the effect of demographic variables on activities of student on computer.

## 2. RESEARCH OBJECTIVES AND HYPOTHESIS

### 2.1 Objectives of the study

1. To analyze the student activities on computer.
2. To analyze the effect of demographics on activities on computer.

### 2.2 Hypothesis of Study

H1: There is no significant gender difference in student's activities on computer.

H2: There is no significant age difference in student's activities on computer.

H3: There is no significant difference in student's activities on computer on the basis of faculty (department) of student.

### 2.3 Period of Study

The study was carried out from July 2012 to Oct 2012 for collection of data and analysis.

## 3. RESEARCH AND METHODOLOGY

### 3.1 Participants

The study used a survey approach for examining student's activities on computers. The target population for the research was the students studying in the Panjab University campus. A total of 500 questionnaires were distributed among various faculties of the university. It included Faculty of Arts, Faculty of Science, Faculty of Business Management, Faculty of Engineering, and Faculty of Law. Ten departments were covered across the five faculties.

### 3.2 Measurement

Demographic profile of the respondents such as sex, age, faculty (department) of student was covered in the first section. The next section evaluated the response of students on various activities on computer on a three point Likert scale.

## 4. Data Analysis

### 4.1 Overview of data gathered

A total of 500 questionnaires were distributed. 23 questionnaires were dropped because they were not fully filled and the remaining 477 questionnaire were retained for further analysis. The response rate was over 95% which is an exceptionally good rate. SPSS and Microsoft Excel were used for analyzing the data. Statistical approach like Independent t-test and ANOVA were used.

### 4.2 Data Analysis

The details regarding the demographic characteristics (Table 1), i.e. gender, age, faculty of study are discussed in section one. The sample size consisted of sample units from all the major faculties of Panjab University. The gender distribution in the sample survey was more or less balances with 45.1 % males and 54.7 % female respondents.

Most of the respondents in the study belonged to the age group of 20-26 years. The faculties under study had 36.7 % representation from business management and 19.5 % from Arts followed by 15.5% and 15.1% from Law and Engineering technology. Representation from science faculty was 13.2 %.

**Table 1: Demographic statistics**

Descriptive Statistics	No of Respondents	Percentage
<i>Faculty/Department</i>		
Arts	93	19.5
Business Management	175	36.7
Engineering Technology	72	15.1
Law	74	15.5
Science	63	13.2
<i>Gender *</i>		
Male	215	45.1
Female	261	54.7
<i>Age*</i>		
Less than 20	160	33.5
20-26 years	299	62.7
26-30 years	8	1.7
Above 30 years	4	0.8

\*N ≠ 477 due to no response from respondents (treated as missing value in spss)

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

**Table 2: Rotated Component Matrix**

		Component		
		1	2	3
V3.1	Communicating with family/friends	.138	<b>.543</b>	.134

V3.2	Communicating with tutors/teachers	.101	<b>.778</b>	-.060
V3.3	Doing a learning task collaboratively	.043	<b>.620</b>	.293
V3.4	Doing a learning task individually	<b>.387</b>	.043	.387
V3.5	Gathering information	.197	-.077	<b>.803</b>
V3.6	Exchanging Information	.018	.335	<b>.749</b>
V3.7	Listening to course material	.348	<b>.460</b>	.339
V3.8	Managing information	.243	.343	<b>.565</b>
V3.9	Oral presentation	.355	<b>.483</b>	.265
V3.10	Planning a group learning task	.414	<b>.559</b>	.095
V3.11	Planning a individual learning task	<b>.549</b>	.361	.036
V3.12	Reading course material	<b>.701</b>	.029	.220
V3.13	Revising for an exam	<b>.649</b>	.332	.030
V3.14	Self assessment exercises	<b>.622</b>	.331	.159
V3.15	Viewing course material	<b>.728</b>	.033	.252
V3.16	Writing an assignment	.378	.233	<b>.409</b>

Extraction Method: Principal Component Analysis.

Rotation Method: Varimax with Kaiser Normalization.

a. Rotation converged in 7 iterations.

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

Factor	Factors	No of items
I	Self-learning activities	6
II	Communication and group activities	6
III	Information collection tasks	4

Cronbach's alpha for checking the reliability of scale was calculated. The value was 0.868(>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 expected range (Table 4).

**Table 4: Cronbach's alpha**

Factor	Cronbach's Alpha	No of items
Items on Activities on computer	.868	16
Self-learning activities	.754	6
Communication and group activities	.735	6

Information collection tasks	.678	4
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The ranking on the basis of mean score was done for all the activities on computer. The highest ranks were given to Gathering of information and exchanging of information followed by doing a learning task. This was followed by viewing of course material and writing assignments on computer. The last rank was given to communication with tutors through computer. To analyze the impact of demographics on student activities on computer ANOVA and independent t-test were run.

### 5. Results and Discussion

In order to analyze the effect of gender on student activities Independent t-test was used for analysis (Table 5). The variances of group were found to be equal during test of homogeneity for Self learning activities (.225>.05) and Communication and group activities (.224>.05) whereas for Information collection tasks the value (.005) is less than .05 thus it has unequal variance.

For the factor Self learning activities, Communication and group activities and Information collection tasks at p<0.05 level the p-values are [t = -.458, p = 0.647], [t = -.870, p = 0.385] and [t = -.478, p = 0.633] respectively. The p-values here are greater than .05 thus the null hypothesis is accepted i.e. there is no significant gender difference in the student activities on computer.

**Table 5: Independent Samples Test**

		Levene's Test for Equality of Variances		T	df	Sig. (2-tailed)
		F	Sig.			
Self learning activities	Equal variances assumed	1.478	.225	-.458	475	.647
	Equal variances not assumed			-.453	433.931	.650
Communication and group activities	Equal variances assumed	1.484	.224	-.870	475	.385
	Equal variances not assumed			-.861	435.643	.389
Information collection tasks	Equal variances assumed	7.962	.005	-.488	475	.626
	Equal variances not assumed			-.478	408.279	.633

The results of ANOVA conducted to analyze the impact of Age of student on activities of students on computer showed that no significant positive relationship between age of student and activities on computer exists (Table 6).The results of

ANOVA revealed that p-value for factor on self-learning activities at p<0.05 level [F (3, 467) = .893, p = 0.445], for factor Communication and group activities [F (3, 467) = 1.489, p = 0.217] and Information collection tasks [F (4, 469) = 9.043 p = 0.000]. The p-value for self-learning activities and communication and group activities is greater than .05 thus the null hypothesis were accepted whereas for information collection tasks the value is less than .05 hence null hypotheses rejected. The results show that no significant relationship exists between age of student and the factor on self-learning activities and Communication and group activities. Information collection tasks have a significant relationship with age of student. This can be further seen in the correlation analysis, which shows that a positive significant correlation exists between age of student and factor on information collection tasks on computer. (Table 7)

**Table 6 - ANOVA (age)**

		Sum of Squares	df	Mean Square	F	Sig.
Self learning activities	Between Groups	.807	3	.269	.893	.445
	Within Groups	140.639	467	.301		
	Total	141.446	470			
Communication and group activities	Between Groups	1.169	3	.390	1.489	.217
	Within Groups	122.294	467	.262		
	Total	123.463	470			
Information collection tasks	Between Groups	7.591	3	2.530	9.043	.000
	Within Groups	130.666	467	.280		
	Total	138.257	470			

**Table 7: Correlation Table**

		Information collection tasks
Age	Pearson Correlation	.231**
	Sig. (2-tailed)	.000
	N	471

For studying the difference between the activities of students on the basis of the faculty of student ANOVA was conducted. The results of ANOVA (Table 8) revealed that for factor on self-learning activities at p<0.05 level [F (4, 472) = 5.831, p = 0.000], for factor on Communication and group activities [F

(4, 472) = 8.751, p = 0.000] and Information collection tasks [F (4, 472) = 21.280, p=0.000].

The p-value for the three factors i.e. Self-learning activities, Communication and group activities and Information collection tasks were all significant at .000; which is less than .05 thus the null hypothesis are rejected. The results show that a significant relationship exists between faculty of student and the activities of students on computer.

**Table 8: ANOVA (faculty of student)**

		Sum of Squares	df	Mean Square	F	Sig.
Self learning activities	Between Groups	6.707	4	1.677	5.831	.000
	Within Groups	135.734	472	.288		
	Total	142.441	476			
Communication and group activities	Between Groups	8.634	4	2.159	8.751	.000
	Within Groups	116.424	472	.247		
	Total	125.058	476			
Information collection tasks	Between Groups	21.591	4	5.398	21.280	.000
	Within Groups	119.727	472	.254		
	Total	141.319	476			

## 6. LITERATURE REVIEW

A wide range of activities can be conducted online web surfing, e-mail, live chatting, wikis, blogging, and gaming can be among them and these activities can be social or solitary in nature [7]. 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 [4]. In a similar study it was found that students spent almost 12 hours using the Internet for non communication-related activities per week, such as surfing or playing games [5]. A study on Children and adolescents reported that common use of computers include playing games, completing school assignments, word processing, e-mail, and connecting to the Internet [2]. 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 [11]. 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 gap. Difference between boys and girls in Internet use rates has closed but there are differences by sex in the types of Internet activities [3]. Gender differences in overall use rates of internet has disappeared yet gender differences persist in preferences for Internet activities, with

males favouring entertainment and females favouring communication and educational assistance [12] [6] [10]. In the past, males have used computers and the Internet at significantly higher rates than females [1] [8] and have reported more experience and skill with these technologies [9]. The effect of age and faculty of student has not been studied yet. Since no work has been done with respect to students activities on computer with respect to Indian context their research aims to fulfill this gap.

## 7. 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 tasks. The most preferred activities on computer include communication, information collection and completion of assignments which are again in congruence with research of [4] [11]. The research has revealed that gender doesn't really influence the activities carried on with the computer. However age has an impact on information collection task by students. The faculty (department) of student is a significant criterion for determining the types of activities that students pursue with the help of computers. These results can further be used as inputs for proper implementation of technology at any education setting as these findings suggest the readiness of students with respect to the technology also depict the level of understanding and usage of various facets of computer and internet usage.

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