International Journal of Education and Science Research Review
E-ISSN 2348-6457
Sep-Oct - 2017, Volume-4, Issue-5 P-ISSN 2349-1817
www.ijesrr.org Email- editor@ijesrr.org

Students' Attitude towards ICT in relation to their learning style (A study of Under Graduate Students of Margherita College)

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ABSTRACT

Importance of education in almost all walks of life has increased with the support of Information and Communication Technologies (ICT). The modern Information and Communication Technologies are technological tools and resources to communicate, and to create, disseminate, store and manage information. ICT enables self-paced learning to help all students to achieve high academic standards.

In spite of access to ICT in higher education, the effective usage of ICT for teaching-learning is comparatively less. Measuring students' attitude towards e-learning provides a beneficial construct to predict learning outcomes. This study was designed to examine the overall attitude of undergraduate students towards learning through ICT at Margherita College

The primary data was collected through a survey of 490 under graduate students of Margherita College. In order to assess the students' opinion about the use of Internet, hindrances faced and the level of satisfaction of users about the availability and coverage of ICT, 5 point rating scale and Regression model was used.

Keywords: ICT, Attitude, Students, College, Learning.

Introduction:

Information and Communication Technologies (ICT) refers to technologies for data acquisition, processing, storage and retrieval; it includes the electronic hardware, software, people-skills and processes for generating and transmitting information (Asaolu, 2006). The impact of ICT on sectors like banking, engineering, tourism, medicine etc have been enormous but the uptake of ICT in education is fraught with difficulties (Oliver, 2002). The developments in ICT should be put into service, both to improve the quality of learning and access to learning. The possibilities of e-learning have to be exploited to the fullest extent as we continue to improve the quantity and quality of education through the face-to-face mode. Similarly the traditional face-to-face mode can

be further improved by integrating ICT into the curriculum. This would require a continual programme of intensive and extensive exposure to new pedagogy of learning to teachers as well as students and also additional investment for providing new infrastructure (Panikker, 2007).

The Higher Education institutions around the globe have increasingly adopted ICT as tools for teaching, curriculum development, staff development and student learning (Kumpulainen, 2007). ICT is potentially a powerful tool for extending educational opportunities and can provide remote learning resources. Attitude plays a vital role in using technology as a strong tool for a positive change. According to Light (2009), ICT can help students deepen and construct their own knowledge, as well as develop complex thinking, when it is successfully integrated into a high-quality learning environment. It has become inevitable to implement technology integration in order to keep pace with the rapidly changing landscapes.

Keeping in view the growing importance attached to ICT at the ideological and policy levels, the present study made a humble attempt to examine the overall attitude of undergraduate students of Margherita College, Assam in terms of ICT awareness, skills and also assess the factors that influenced their use of Internet. The study also tried to understand how their attitudes to the Internet are shaped in a scenario where there is no formal systematic Internet training programme.

Review of Literature:

Kulik (1994) meta-analysis study revealed that on average, students who used ICT-based instruction scored higher than students without computers. The result also showed that students learn more in less time and they like their classes more when ICT-based instruction was included. **Attwell and Battle (1999)** examined the relationship between 64,300 sample students having a computer at home and school performance in the United States. The result showed that those students who have access to a computer at home for educational purposes demonstrate improved scores in reading and math. **Glenda Gay, et al (2006)** conducted an exploratory study to examine the attitudes and usage of ICT among undergraduate management students in Barbados. The result found that the students were generally favorable towards ICT. Males were more inclined to incorporate ICT in web based instruction compared to other teaching activities. Older students were more interested in using ICT only as a supplement to teaching activities. The study by **Inoue (2007)** on 174 male and female students found that students' attitudes toward information technology were highly positive. No differences were found in students' perceptions of computer technology experiences between females and males as well as among various academic status groups. **Deeksha Krishna and H.K.Sachan (2014)** conducted a study on Attitudes towards ICT among CAFF students in Fiji. The result showed that students have a positive attitude towards ICT and use

them to facilitate learning, although female students are more inclined towards ICT usage and likely to find that ICT help them at their studies.

Objectives of the study:

1. To study the purpose and identify the various factors that affects the students' use of Internet.
2. To find out the hindrances and problems faced by the users while accessing and using ICT.
3. To study the level of satisfaction of users about the availability and coverage of ICT.

Research Methodology:

The present study was conducted using stratified random sampling with a self administered questionnaire considering the streams as strata. The statistical report shows that the total enrollment for the session 2015-16 was 1226 students (Table 1). By taking 40% of Arts, Science and Commerce students' enrollment separately gave 490 undergraduate students. Out of 490 students, 262 male students and 228 female students were identified.

Table 1: Distribution of Students Enrollment for the session 2015-16

Stream	Class	Male	Female	Total	Sample (40% of Male students)	Sample (40% of Female students)	Total Sample
Arts	1st Sem	151	181	332			
	3rd Sem	150	132	282			
	5th Sem	101	128	229			
	Total	402	441	843	161	176	337
Science	1st Sem	34	20	54			
	3rd Sem	25	08	33			
	5th Sem	04	05	09			
	Total	63	33	96	13	25	38
Commerce	1st Sem	89	33	122			
	3rd Sem	80	23	103			
	5th Sem	50	12	62			
	Total	219	68	287	88	27	115
Overall Total		684	542	1226	262	228	490

The present tool measures the attitude scale towards ICT among undergraduate students. It was a Likert type summated rating scale. The items were constructed at five point rating scale. The options were Strongly Agree, Agree, No Comment, Disagree, and Strongly Disagree. Score 5 was given to "Strongly Agree" (SA), 4 to "Agree" (A), 3 to "No Comment" (NC), 2 to "Disagree" (D), and 1 to "Strongly Disagree" (SD). The score of each question were totaled as total score of opinions and constraints. The minimum score of a student is "6" and maximum is "30".

To test the association between gender and the various factors regarding the use of internet, chi-square test were performed with p-value. Chi-square test was applied at 5% level of significance and the conclusions were drawn in terms of p-values i.e. if p-values are less than 0.05 then it may be concluded that there is association between gender and the various factors regarding the use of internet. A linear univariate regression model of the form Y=A+BX is fitted to the total score of opinions and constraints evaluate the individual contribution of the selected variables. The data collected has been processed on the computer using Software Package for Social Sciences (SPSS).

Data Analysis and Discussion:

An analysis of data is the link between raw data and significant results leading to conclusions. The association of gender and chi-square values (p-values) according to the use of Internet viz; Computer Training, How to use Internet, Duration of use, Internet Skill, motivation from teachers, Use of PPT, Place, Frequency and purpose of Internet Access are described in Table 2.

Table 2: Association between Gender and Use of Internet

Sl. No.	Variables	Response	No. of respondents		Total (%)	*p-value*	*Sig.*
			Male (%)	Female (%)			
01	Computer Training	Yes	158 (60.3)	104 (39.7)	231(47.1)	0.000*	S
		No	101 (44.3)	127 (55.7)	259(52.9)		
02	How learn to use Internet	College	14 (5.3)	07 (4.3)	21(4.3)	0.067	NS
		Self study	173 (66.0)	133 (58.3)	306(62.4)		
		Friends	57 (21.8)	61 (26.8)	118(24.1)		
		External source	18 (6.9)	27 (11.8)	45(9.2)		
03	Duration of Internet use	Less than 1 year	44 (16.8)	116 (50.9)	160(32.7)	0.000*	S
		1 ---3 years	116 (44.3)	59 (25.9)	175(35.7)		
		Above 3 years	102 (38.9)	53 (23.2)	155(31.6)		
04	Internet Skill	Below average	45 (17.2)	52 (22.8)	97(19.8)	0.063	NS
		Average	183 (69.8)	159 (69.7)	342(69.8)		
		Expert	34 (13.0)	17 (7.5)	51 (10.4)		
05	Motivation from teachers	Yes	183 (69.8)	138 (60.5)	321(65.5)	0.030*	S
		No	79 (30.2)	90 (39.5)	169(34.5)		
06	Use of power point during seminar presentation	Yes	144 (55)	93 (40.8)	237(48.4)	0.002*	S
		No	118 (45.0)	135 (59.2)	253(51.6)		
07	Effective teaching method	Lecture only	39 (14.9)	20 (8.8)	59 (12.0)	0.087	NS
		Use of PPT	45 (17.2)	36 (15.8)	81 (16.5)		
		Both	178 (67.9)	172 (75.4)	350(71.4)		
08	Place of Internet Access	Home	190 (72.5)	159 (69.7)	349(71.2)	0.208	NS
		Cafe	34 (13.0)	35 (15.4)	69 (14.1)		
		College	31 (11.8)	23 (10.1)	54 (11.0)		
		All places	07 (2.7)	11 (4.9)	18 (3.6)		
09	Frequency of Internet use	Daily	94 (35.9)	66 (28.9)	160(32.7)	0.000*	S
		Twice a week	91 (34.7)	33 (14.5)	124(25.3)		
		Weekly	54 (20.6)	75 (32.9)	129(26.3)		
		Monthly	23 (8.8)	54 (23.7)	77 (15.7)		
10	Purpose of using Internet	Literature search	12 (4.6)	16 (7.0)	28 (5.7)	0.001*	S
		E-Mail	24 (9.2)	03 (1.3)	27 (5.5)		
		Project work	79 (30.2)	98 (43.0)	177(36.1)		
		Recommended course	24 (9.2)	12 (5.3)	36 (7.3)		
		Chatting	17 (6.5)	21 (9.2)	38 (7.8)		
		Examination results	19 (7.3)	11 (4.8)	30 (6.1)		
		Dictionary	12 (4.6)	09 (3.9)	21 (4.3)		
		All of the above	75 (28.6)	58 (25.4)	133(27.1)		

*Significant at 5% level of significance.

The study clearly depicts that out of 231 respondents majority (60.3%) male have availed computer course while 55.7% female have not undergone any training course (Sl. No. 1). It is understood from the result that the association between Gender and Computer Training is statistically significant (p=0.00). Regarding the use of internet (Sl. No. 2), it reveals no significant association (p=0.67) though majority of male (66.0%) and female (58.3%) have learn to access internet by themselves. It is found that majority of male respondents (44.3%) have been using Internet since last 3 years whereas 50.9% female respondents have experience of Internet use for 1 year only. The finding depicted a statistically significant (p=0.00) association between gender and duration of Internet use (S. No. 3). In case of Internet skill, the result reveals no significant association (p=0.063) as 69.8% male and 69.7% female students have rated themselves as average, while 22.2% female and 17.2% male are of the opinion that they are below average and 13.0% male and 7.5% female students think they are expert (Sl. No. 4). This finding can be connected to a study of college students in the U.S by Salaway, et al, (2006) where males have reported a much stronger skills than female. Coming to the association between gender and teachers' motivation the result were statistically significant (p=0.03) (Sl. No. 5). As regard the presentation of seminar paper (Sl. No. 6), majority of male (55.0%) students use power point but majority (59.2%) of female student does reading. The p- value (p=0.002) depicted a significant association between the two factors. It is also seen in Sl. No. 7 that the students' attitude towards effective teaching method is found to be insignificant (p=0.087). Majority of male (67.9%) as well as female (75.4%) prefer Lecture and use of PPT method for effective teaching. Sl. No. 8 of Table 2 highlights the location from where the Internet is mostly accessed. The result clearly depicts that a large majority of 72.5% male and 69.7% female access the Internet at home, while 13.0% and 15.4% students access from café. Only 11.8% male and 10.1% female access the Internet from the college. This study is confirmed by Harris, (1999) and Facer, et al, (2003). The frequency of computer use in the home is higher than at institutions and cafe and that student's explored different mode of learning with computers at home. Though there are no gender differences regarding the place of Internet access, the association is found to be statistically insignificant (p=0.208). Sl. No. 9 reveals gender difference regarding the frequency of Internet use. The association between them is found to be statistically significant (p=0.00). There is a direct correlation to a study conducted among secondary school students in England by Harris, (1999) that showed significant gender differences in terms of frequency use of Internet. In case of male students, majority (35.9%) use Internet, 34.7% twice a weekly, 20.6% weekly and 8.8% monthly while in case of female, 32.9% use weekly, 28.9% daily, 23.7% monthly and 14.5% twice a weekly. In response to the purpose of use, the study found gender difference as majority (30.2% male and 43.0% female) use Internet for preparation of project work/class seminar/assignment. Further, it is also seen from the table 2 (Sl. No. 10) that 28.6% male and 25.4% female use

Internet for several purpose like Literature search, E-mail, assignment, chatting, recommended course, examination results and dictionary. The relationship between gender and purpose of use is found to be statistically significant (p=0.00).

Table 3: Association between Gender and Opinion of students about the use of Internet

Sl. No.	Opinion	Gender	SD (%)	D (%)	NC (%)	A (%)	SA (%)	Total	*p-value*	*Sig.*
01	Easy to use	Male	03(100)	12(66.7)	04(26.7)	183(52.6)	60(55.6)	262(53.5)	0.068	NS
		Female	0 (0)	06(33.3)	11(73.3)	165(47.4)	46(43.4)	228(46.5)		
02	Improves language skill	Male	08(100)	17(73.9)	14(66.7)	175(53.4)	48(43.6)	262(53.5)	0.002*	S
		Female	0(0)	06(26.1)	07(33.3)	153(46.6)	62(56.4)	228(46.5)		
03	Independent learning and improves quality of work	Male	04(57.1)	07(70.0)	15(55.6)	170(51.2)	66(57.9)	262(53.5)	0.598	NS
		Female	03(42.9)	03(30.0)	12(44.4)	162(48.8)	48(42.1)	228(46.5)		
04	Commit to learn and Participate in learning activities	Male	02(66.7)	16(64.0)	27(75.0)	156(49.5)	61(55.0)	262(53.5)	0.039*	NS
		Female	01(33.3)	09(36.0)	09(25.0)	159(50.5)	50(45.0)	228(46.5)		
05	Increases level of confidence	Male	03(100)	09(64.3)	22(44.0)	134(51.7)	94(57.3)	262(53.5)	0.174	NS
		Female	0(0)	05(35.7)	28(56.0)	125(48.3)	70(42.7)	228(46.5)		
06	Provides valid and authentic information	Male	06(100)	14(77.8)	23(56.1)	134(51.9)	85(50.9)	262(53.5)	0.036*	S
		Female	0(0)	04(22.2)	18(43.9)	124(48.1)	82(49.1)	228(46.5)		

*Significant at 5% level of significance.

The data in Table 3 depicts that Association between Gender and Opinion of students about the use of Internet. A majority of male (55.6%) students strongly agreed that internet is easy to use. In reply to the point whether internet improve the language skill, majority of male (53.4%) students agreed with the point and indicating a significant association between gender and improvement of language skill (p=0.000). 55.0% of male students strongly agreed that the use of internet commit to learn and participate learning activities, which indicate a significant association with gender (p=0.039). Student opinion about the authenticity of internet information and gender also indicate a significant association (p=0.036).

Table 4: Association between Gender and Constraints in using ICT

Sl. No.	Constraints	Gender	SD (%)	D (%)	NC (%)	A (%)	SA (%)	Total	*p-value*	*Sig.*
01	Inadequate number of PC	Male	05(62.5)	72(55.0)	71(44.7)	99(60.7)	15(51.7)	262(53.5)	0.065	NS
		Female	03(37.5)	59(45.0)	88(55.3)	64(39.3)	14(48.3)	228(46.5)		
02	Poor network coverage	Male	30(100)	41(41.0)	73(41.5)	99(66.4)	19(54.3)	262(53.5)	0.000*	S
		Female	0(0)	59(59.0)	103(58.5)	50(33.6)	16(45.7)	228(46.5)		
03	ICT not in Syllabus	Male	09(64.3)	72(60.5)	89(50.9)	70(45.2)	22(81.5)	262(53.5)	0.003*	S
		Female	05(35.7)	47(39.5)	86(49.1)	85(54.8)	05(18.5)	228(46.5)		
04	Lack of time to use	Male	09(60.0)	65(61.9)	68(44.4)	79(48.5)	41(75.9)	262(53.5)	0.000*	S
		Female	06(40.0)	40(38.1)	85(55.6)	84(51.5)	13(24.1)	228(46.5)		
05	E-Resources not available in library	Male	08(100)	65(60.7)	74(42.0)	85(55.6)	30(65.2)	262(53.5)	0.000*	S
		Female	0(0)	42(39.3)	102(58.0)	68(44.4)	16(34.8)	228(46.5)		
06	Increase expenses	Male	09(90.0)	32(44.4)	94(49.5)	101(55.8)	26(70.3)	262(53.5)	0.009*	S
		Female	01(10.0)	40(55.6)	96(50.5)	80(44.2)	11(29.7)	228(46.5)		

*Significant at 5% level of significance.

The various constraints faced by the users in using ICT are depicted in Table 4. The association between gender and poor network coverage (p=0.000), ICT not in Syllabus (p=0.003), Lack of time to use (p=0.000) and E-Resources not available in library (p=0.000) and Increases expenses (p=0.009) are prove to be statistically significant. Inadequate number of PC (p=0.065) are not significantly associated with gender. 75.9% male found lack of time as a major barrier to using Internet and 45.7% female feel poor network coverage as the major problem.

Table 5 Univariate regression of opinion of students towards use of internet.

Sl. No.	Variables	R	R^2	Y=A+BX		p-value (Co-efficient)
				Constant (A)	Co-efficient (B)	
01	Easy to use	0.684	0.468	11.365	3.158	0.000*
02	Improves language skill	0.722	0.521	13.044	2.852	0.000*

03	Independent learning and improves quality of work	0.646	0.418	12.981	2.829	0.000*
04	Commit to learn and Participate in learning activities	0.728	0.530	12.531	2.984	0.000*
05	Increases level of confidence	0.638	0.407	13.917	2.561	0.000*
06	Provides valid and authentic information	0.696	0.485	13.684	2.623	0.000*

*Significant at 5% level of significance.

Table 5 reveals that the selected opinions of students towards the use of internet contributed significantly. 53.0% of students believed that the use of internet commit to learn and participate in learning activities and 52.1% of students believed that the use of internet improve the language skill.

Table 6 Univariate regression of students' view towards constraints of use of internet.

Sl. No.	Variables	R	R^2	Y=A+BX		p-value (Co-efficient)
				Constant (A)	Co-efficient (B)	
01	Inadequate number of PC	0.737	0.543	10.327	2.834	0.000*
02	Poor network coverage	0.692	0.479	11.555	2.468	0.000*
03	ICT not in Syllabus	0.699	0.488	10.847	2.690	0.000*
04	Lack of time to use	0.634	0.402	11.883	2.250	0.000*
05	E-Resources not available in library	0.457	0.208	13.646	1.717	0.000*
06	Increases expenses	0.543	0.294	11.915	2.203	0.000*

*Significant at 5% level of significance.

Table 6 indicated that the students' consideration of selected constraints that limited the use of internet contributed significantly. The analysis indicated that 54.3% of students viewed the problem of limited number computers in the institute as the reason of less use of internet. 48.8% of students commented that courses related to ICT are not included in the syllabus as mandatory that contribute the less use of internet.

Table 7: Association between Gender and Level of Satisfaction

Gender	Level of Satisfaction				Total	p-value	Sig.
	No Comment (%)	Least satisfied (%)	Average satisfied (%)	Fully satisfied (%)			
Male	43 (46.2)	18 (33.3)	157 (57.1)	44 (64.7)	262 (53.5)	.001*	S
Female	50 (53.8)	36 (66.7)	118 (42.9)	24 (35.3)	228 (46.5)		
Total	93 (100.0)	54 (100.0)	275 (100.0)	68 (100.0)	490 (100.0)		

*Significant at 5% level of significance.

As far as the level of satisfaction of the users are concerned, almost 65% male students are comfortable and fully satisfied with the services provided by ICT while close to 67% female are least satisfied. The association between gender and level of satisfaction is found to be statistically significant (p=0.001).

Conclusion:

ICT can be useful for learners of all kinds, because of the resources available on the Internet, applications that make it possible to explore subjects and the possibilities of networking among learners and teachers. Though the three year graduation course has not incorporate any ICT related activity as a compulsory subject, the present study found that all the participating students had positive attitude towards ICT; they felt confident in using computer, enjoyed using ICTs in their studies and believed in the benefits of e-learning. New learning spaces need to be created to address these concerns within institutions. Training in ICT need to be imparted to both students and the faculty members on regular basis at the beginning of each semester. This will surely enhance acquisition of knowledge and practical skills in computer.

Result from this study may benefit educational authorities and universities by suggesting factors that may affect undergraduate students' attitudes toward computer and Internet. It may also enable teachers to use suitable type of teaching method, strategies and techniques in presenting their lessons and instruction.

The present study provides only a glimpse of selected variables that affect the attitudes toward computer and Internet usage of undergraduate students. The sample size was not large enough to allow for cross validation of results. Additional research will be needed to validate the results of the current study. The study was conducted in a specific institution only. Replicating this study with a large and more representative sample of

undergraduate students from other institutions and with a more meticulous design is likely to shed more light on usage of computer and Internet attitude.

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Acknowledgement

I am grateful to Dr. Buddhin Gogoi, Principal, Margherita College, Margherita for permitting us to conduct the survey and to all the students who participated in the survey.

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