

# Students' Perception on Use of ICT in Higher Education with Reference to North Coastal Districts of Andhra Pradesh

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## Abstract

This paper aims at significance of use of Information and Communication Technology (ICT) in higher education for better learning by students and appropates that students' perception on use of ICT in higher education is very high through a survey conducted among 439 students studying various UG and PG courses. This paper consists of Introduction, Objectives of study & Hypotheses, Methodology, Data analysis, Findings, Conclusions, Recommendations and Bibliography sections. In introduction section, clear description about ICT has been discussed and the need of use of ICT in higher education has been highlighted. Objectives and Hypotheses section mentions the objectives of the study and states different hypotheses to be tested in forth coming sections. Methodology section deals with the sample size and the method adopted for gathering responses. Review of literature section mentions details of previous research conducted by various researchers in subject area. Data analysis section analyses the data collected from students using Ch-Square method and tabulates the calculations used for testing the hypothesis drawn. Finding section confirms the hypothesis drawn earlier using the results from Chi-Square distribution table. Conclusion section deals with the conclusion drawn from the results of survey conducted. In recommendations section, the author mentions his recommendations to make sure the implementation of ICT successful in higher educational institutions. In bibliography section, the author mentions details of papers/articles referred.

**Keywords:** ICT, E-Learning, Higher Education

## Introduction:

ICT is an acronym for Information and Communication Technology. The use of ICT in higher education means learning imparted through computer networks to students. Use of ICT in education shifts learning from conventional teacher centred learning to student centred learning. With the use of ICT in education, knowledge modules based on the personalized needs of students can be hosted on computer networks for access and learning by students at the pace and time convenient to them. The rapid development of communication technologies particularly the internet and the reduction in prices of computer hardware paved the way for introduction of ICT in higher education. ICT consists of the hardware, software, networks, storage media, processing, transmission and presentation of information

(voice, data, text, images), as well as related services. ICT can be divided into two components, Information and Communication Infrastructure (ICI) which refers to physical telecommunications systems and networks (cellular, broadcast, cable, satellite) and the services that utilize those (Internet, voice, mail, radio, and television), and Information Technology (IT) that refers to the hardware and software of information collection, storage, processing, and presentation.

*Need for ICT in higher education*

For any country, the development depends on knowledge and skills it's people possess. Knowledge and skills can be acquired by means of education only. It is the responsibility of government of any country to provide education to the people living in that country, thereby making them contribute to the country's overall development. For this the government sets up number of universities and institutions across the country to enable the people to enrol for various courses. Government should also meet the aspirations of working population to update their skills and knowledge. This section of population cannot join any university or institution and attend the classes regularly. They can enrol for courses offered in distance or correspondence mode so that they can simultaneously do their respective jobs and continue their studies. They need flexibility to learn at the pace and time convenient to them. In modern days of competition, as the students need to learn more and more, it is very difficult for the teachers to cover everything in the stipulated time in conventional class room teaching. Teachers need a mechanism so that they can share knowledge with students any time even beyond teaching hours and students also need flexibility to learn at the pace and time convenient to them so that they can better understand the concepts and gain more skills in short time. Introduction of ICT in teaching pedagogy by universities and institutions meet both the requirements i.e flexibility in learning for working population as well as regular students.

***Objectives of the study:***

1. To find out students perception on the use of ICT in higher education
2. To find out whether students differ in their perception on the use of ICT in higher education on the basis of certain background variables.
3. To find out whether students differ in their perception on the use of ICT in higher education on the basis of ICT familiarity.

***Hypothesis of the study:***

1. Students' perception is very high on the use of ICT in higher education.
2. Students don't differ in their perception on the use of ICT in higher education on the basis of certain background variables.
3. Students don't differ in their perception on the use of ICT in higher education on the basis of ICT familiarity.

**Methodology**

Survey method has been adopted for conducting the study. A structured multiple choice based questionnaire has been formulated aimed at knowing one's perception on the use of ICT in higher education and hosted in web. The size of the sample was taken approximately 5000 students studying various under graduate and post graduate courses in higher educational institutes located within north costal districts of Andhra Pradesh i.e Srikakulam, Vizianagaram and Visakhapatnam. Using a software tool, the link containing the

URL to the questionnaire has been forwarded to email IDs of these students with a request to cooperate with the author in conducting the study by responding to the questionnaire with apt answers. Students have been requested to mark one of four options i.e 1) prefer conventional class room Learning 2) Don't prefer conventional class room Learning at all, 3) prefer Use of ICT in Learning 4) Don't prefer use of ICT in learning at all. Out of 5000 students to whom requests were sent, responses have been received from 439 students. The break up of students from whom responses have been received vis a vis courses are given as follows.

Table 1

*Course wise students break-up.*

Sl.No	Course	No of Students
1	B.Tech	155
2	MBA	110
3	MCA	76
4	M.Sc	63
5	B.Pharmacy	35

*Source: field survey 2011-12*

### **Review of literature**

With the help of ICT, students can now browse through e-books, sample examination papers, previous year papers etc. and can also have an easy access to resource persons, mentors, experts, researchers, professionals, and peers-all over the world. This flexibility has heightened the availability of just-in-time learning and provided learning opportunities for many more learners who previously were constrained by other commitments (Young, 2002). Wider availability of best practices and best course material in education, which can be shared by means of ICT, can foster better teaching. ICT also allows the academic institutions to reach disadvantaged groups and new international educational markets. As well as learning at anytime, teachers are also finding the capabilities of teaching at any time to be opportunistic and able to be used to advantage. Mobile technologies and seamless communications technologies support 24x7 teaching and learning. Choosing how much time will be used within the 24x7 envelope and what periods of time are challenges that will face the educators of the future (Young, 2002). Thus, ICT enabled education will ultimately lead to the democratization of education. Especially in developing countries like India, effective use of ICT for the purpose of education has potential to bridge the digital divide. 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 (Raji and Godsy, 2012). The researchers further stated that the diffusion of Internet exemplifies the reality of globalisation, and education needs to be geared towards enabling our students to thrive in this new world order. "Blended learning" using ICT (especially Web-based systems) combined with lectures, books, and other traditional media and ways of teaching is already the norm in higher education sector of many developed countries (Collis & Wende, 2002). Das (2007) remarked that information and communication technology is an important instrument, which can transfer the present isolated, teacher centred, book-centred learning environment into a rich student-centred environment. This new learning environment developed by ICT is called Interactive Learning Environment. G.L.Gulhane (2011) conducted a survey on use of ICT among B.Ed students and found that after introducing ICT, significant changes were found among teacher trainees A large number of trainees were

found to use ICT and Internet for their seminars, assignments, and review of related literature. He further observed that teacher trainees had very high perception on use of ICT and more than 68% of them were found to use ICT for designing and delivering seminars. Madhulika Goyal and Sahana Murty of IIT, Mumbai conducted study to note students perception on ICT enriched course and found that the use of ICT in the teaching learning process was responsible for several affective components such as students' overall attitude towards the course, both positive as well as negative. Students' views about ICT use in the course spilled over to their perception of the learning process in general. Successful incorporation of ICT in a course crucially depended on a number of factors such as use of relevant ICT resources to provide hands-on activities for learning, and instructor's competencies in using the ICT. It helps if students are given the opportunity to familiarize themselves with the technologies. Finally, the researchers noted that there were strong interdependencies between students' notions of ICT used in a course and their perceptions of traditional elements of the course, such as the instructor, and amount of time students need to commit to the course. Studies on the role of ICT in the teaching learning process have to consider all these elements in an integrated manner.

### **Data Analysis**

Students' responses on the perception on the use of ICT in higher education have been compiled and analysed using Chi-Square method. Chi-square is a method of statistical analysis assessing goodness-of-fit between values you obtained in your data collection compared to what results would be if chance alone were operating. By comparing the observed and expected values, the statistician can determine if two variables are associated. It is important to examine the observed value, the expected value, Chi-square value of each cell, the overall chi-square value and the P-value while interpreting Chi-Square results.

Table 2

*Chi-Square Values Calculation for each course*

Course	Variables	O.Value for Yes	O.Value for No	E.Value for Yes	E. Value for No	Chi.Squar e value for Yes	Chi.Squar e value for No	Total Chi.Squar e
BE	Class room learning	40	43	49.26	33.74	1.74	2.54	9.21
	Use of ICT in learning	52	20	42.74	29.26	2	2.93	
MBA	Class room learning	22	34	29.53	26.47	1.92	2.14	8.27
	Use of ICT in learning	36	18	28.47	25.53	1.99	2.22	
MCA	Class room learning	15	25	20.53	19.47	1.49	1.57	6.47
	Use of ICT in learning	24	12	18.47	17.53	1.66	1.75	
M.Sc	Class room learning	14	20	18.35	15.65	1.03	1.21	4.87
	Use of ICT in learning	20	9	15.65	13.35	1.21	1.42	
B.Pharmacy	Class room learning	6	12	9.77	8.23	1.45	1.73	6.55
	Use of ICT in learning	13	4	9.23	7.77	1.54	1.83	

From students' responses, observed values have been recorded for Yes and No options for Class room learning and Use of ICT in learning respectively. Corresponding expected values have been calculated using the formula  $((\text{Sum of row} * \text{sum of column}) / \text{total sample value})$ . Corresponding Chi-square values have been calculated using the formula  $((\text{Expected Value} - \text{Observed value})^2 / \text{Expected value})$ . Total Chi-square value has been calculated by summing up individual Chi-Square values. Total Chi-Square values for B.Tech, MBA, MCA, M.Sc and B.Pharmacy courses are 9.21, 8.27, 6.47, 4.87 and 6.55 respectively. For all courses Degree of Freedom (DF) is 1 as the degree of freedom is calculated as number of variables minus one. Alpha-level is selected as 0.05 such a way that even if we repeat the data collection process 100 times on different people, we would get false-positive only 5 times, which is very low. From standard Chi-Square table, selecting degree of freedom on the left and alpha level across the top, significant Chi-Square value has been found as 3.841. Any number at or above the chi-square value in the table is said to be significant.

### **Findings**

From table 2 as the individual Chi-Square values for courses i.e 9.21 for B.Tech , 8.27 for MBA, 6.47 for MCA, 4.87 for M.Sc and 6.55 for B.Pharmacy are greater than 3.841 Chi-Square value found from Chi-Square table at 0.05 alpha level and degree of freedom 1, it is found that Chi-Square values obtained for above courses are significant, meaning the variables i.e Classroom learning and Use of ICT in learning and students' preferences are associated. It is further observed that individual Chi-Square values for No use of ICT in learning are high among Chi-Square values for all courses. These values are 2.93, 2.22, 1.75, 1.42 and 1.43 for B.Tech, MBA, MCA, M.Sc and B.Pharmacy courses respectively. This means that significantly less number of students preferred no use of ICT in learning. Hence first and second hypothesis stated i.e Students' perception is very high on the use of ICT in higher education and Students don't differ on their perception on the use of higher education on the basis of certain background variables are found to be true. Third hypothesis i.e Students don't differ on their perception on the use of higher education on the basis of their familiarity with ICT is also found to be true as for all courses Chi-Square values are in favour of use of ICT in higher education.

### **Conclusions**

It is concluded from the sample that students from north costal districts of state of Andhra Pradesh irrespective of their academic background, are in favour of use of ICT in higher education as use of ICT in education enables students to learn at the pace and time convenient to them and can repeatedly access the content delivered by faculty for clear and better understanding. This conclusion can be substantiated by the works of Jerome Bruner (1960) who showed through his studies that effective learning takes place through a spiral path rather than just linearly. This implies that a teacher should regularly repeat and revise what he has taught before, for reinforcing and retention of learning by students.

### **Recommendations**

For effective use of ICT in higher education to benefit the students with clear and better learning, faculty play very vital role and contribute to the success of learning through ICT in higher educational institutions. Their attitude needs to be changed in favour of use of ICT with proper training mechanism. User friendly content authoring tools and Learning Management Systems (LMS) are to be deployed to help the faculty in content development and interaction with students. Similarly prices of Laptops, tablet PCs, desktop PCs, internet access etc need to come down so that majority students can afford them and make best use of ICT in learning. Government shall encourage use of ICT in education by giving subsidies and interest free loans to institutes and colleges run especially privately for purchase of necessary hardware required for use of ICT.

### **Authors' note**

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