A Study on Faculty Perspectives on Ict Integration in Teaching Learning Process

Y Srinivasa Rao [a], M Anil Ramesh [b], V Vishnu Vandana [c]

[a] *Anurag Group of Institutions & Research Scholar, Rayalaseema University, India.*

[b] *Siva Sivani Institute of Management, Hyderabad, India.*

[c] *Anurag Group of Institutions, Hyderabad, India.*

 Abstract

Even after much efforts to introduce and integrate information and communication technology in educational institutions, majority of the learning process is still predominantly 'teacher' controlled i.e., the teachers have a major role in the content and control of the class room. For the learner to become prepared and empowered adequately to face the future challenges, it is needed that the institutions should work towards transforming the education process from teacher centeredness to learner centeredness that enables the students to be more aware and responsible. The current study aims to understand the use of ICT based activities of faculty in the class rooms and their attitudes towards ICT and any underlying differences based on their disciplines.

Keywords: ICT, Attitude towards ICT, ICT in higher education

Introduction

Education plays a major role in developing cutting-edge knowledge, creating a facilitating environment to innovate and to build the upcoming generations to march confidently into the future. Even after much efforts to introduce and integrate information and communication technology in educational institutions, majority of the learning process is still predominantly 'teacher' controlled i.e., the teachers have a major role in the content and control of the class room. For the learner to become prepared and empowered adequately to face the future challenges, it is needed that the institutions should work towards transforming the education process from teacher centeredness to learner centeredness that enables the students to be more aware and responsible.

Information and communication technology (henceforth called ICT) has become a principal driver in enabling the education to achieve the aimed results. The evolution of ICT, has provided the opportunity to transform the passive student learning experience of traditional class rooms to an active learning platform with knowledge sharing and collaboration becoming more easy and affordable. But, to achieve this, the researchers have claimed that there is a need to change the role the teacher, adapt teaching learning practices, and professionalism in the education system.

Apparently, the responsibility of integrating technology in the teaching learning process in the class rooms lies more with the teacher. In this regard, (Fullan 2001) identified the three dimension of use of adaptive material, new teaching approaches and change of beliefs of teachers for educational innovation. It is observed that the willingness and attitude of teachers to adopt and integrate the ICT innovations in the class rooms is the personal willingness of teachers to adopt and integrate innovations into their classroom practice as the fundamental quality for successful innovation. (Niederhauser et al. and Becker et al 2001) observed that the attitudes of the teachers played a major role in the teaching methodologies followed by them.

The teachers were classified as instrumental teachers who had traditional beliefs about their role in the classroom and viewed ICT as instrumental value which did not bring significant change in their teaching styles whereas the innovative teachers used more open-minded approach of using multimedia and other interactive exercises that resulted in more active learning approaches.

The United Nations Educational, Scientific and Cultural Organization (UNESCO) uses the term ICTs, or information and communication technologies, to describe: "…the tools and the processes to access, retrieve, store, organize, manipulate, produce, present and exchange information by electronic and other automated means. These include hardware, software and telecommunications in the forms of personal computers, scanners, digital cameras, phones, faxes, modems, CD and DVD players and recorders, digitized video, radio and TV programmes, database programmes and multimedia programmes" (Anderson, 2005). The millennial generation has seen a rapid growth in the ICT development with many new technologies that have changed the way the people communicate and study. Thus it presents a greater challenge to the faculty to adapt to the needs of the present generation learners who are surrounded by digital devices in every field.

Keeping these scenarios, the present study explores the following objectives with respect to few higher education institutions of twin cities of Hyderabad, Telangana state, India.

1. To identify which ICT tools are being used in the teaching learning practices in higher educational institutions.

2. To understand the attitudes of faculty towards ICT in teaching learning practices.

3. To know if there is any difference in the use of activities and materials of ICT by the faculty based on their functional departments.

4. To study if there is any difference in the attitudes and perceptions of faculty towards ICT based on their functional departments.

Based on the objectives two hypothesis were framed for the study:

H01: There is no difference in the use of activities and materials of ICT by the faculty based on their functional departments.

HA1: There is difference in the use of activities and materials of ICT by the faculty based on their functional departments.

H02: There is no difference in the attitudes of faculty towards ICT based on their functional departments.

HA2: There is difference in the attitudes of faculty towards ICT based on their functional departments.

Methodology

The participants of the questionnaire survey were 100 faculty from eight disciplines of higher education of twin cities of Hyderabad. 68 of the respondents were male while 32 respondents were female. 4 of the faculty were under the age of less than 25 years, 68 between age group of 25 years to 45 years, 28 above 45 years age group. 72 percent of the respondents were Post graduates and 28 percent were doctorates. Chemical Engineering (8), Civil (8)Chemical (4), Mechanical (24), MBA (8), Pharmacy (20), Humanities and sciences (8), Others (20). The participants were with varying teaching experiences with 12 less than 5 years, 40with 5 to 10 years, 32 respondents with 10 years to 15 years' experience and 16 respondents above 15 years of experience in teaching.

A structured questionnaire was circulated to the faculty consisting questions with sub categories of ICT usage in teaching learning process, their attitude towards ICT, infrastructural support provided in the institution and their perceptions towards use of ICT in empowering faculty in the teaching learning process. Data collected was analyzed using ANOVA to study if there were any differences in usage, attitude and perceptions of faculty among different functional departments.

Faculty Experience in teaching ICT

Table No.1 Faculty Experience in teaching ICT

Faculty's Experience in teaching ICT	Less than 1 year	Between 1 to 3 years	Between 4 to 6 years	Above 6 years
For the past how many years have you been using ICT for teaching	20	32	16	32

From the above table it is understood that 20 percent of the respondents have less than 1-year experience in teaching using ICT, 32 percent have experience between 1 to 3 years, 16 percent with 4 to 6 years' experience and 32 percent have above 6 years' experience in teaching ICT.

ICT usage and equipment available for usage of ICT in the class rooms

Table no 2: ICT usage and equipment available for usage of ICT in the class rooms

ICT Usage and equipment	Never or almost never	Several times a month	At least once a week	More than twice a week	Every class in a day
How often do you use computers in your classes?	16	20	32	24	8
How often do you use computers with the internet in your classes	24	24	28	20	4
Students are equipped with computers and/or Internet in class rooms	44	20	8	28	0
Both, Faculty and students, use computers and/or Internet in class	36	4	16	44	0

From the above data it is observed that 32 percent of the respondents use computers once in a week, 28 percent of the faculty use the computer with internet facility at least once a week, 44 percent of the respondents said that students are never equipped with computer and hardware, and 44 percent said both faculty and students use ICT more than twice a week.

ICT based activities and material used for teaching

Table 3: ICT based activities and material used for teaching

ICT based activities and material used for teaching	Never or almost never	Several times a month	At least once a week	More than twice a week	Every class in a day
Browse/search the internet to collect information to prepare lessons	4	28	24	24	20
Create your own digital learning materials for students	12	24	28	20	16
Use ICT to provide feedback and/or assess students' learning	16	32	20	24	8
Communicate online with parents	52	16	16	16	0

Download/upload/browse material from the College website	24	24	12	32	8
Download/upload/browse material from a learning platform	24	36	12	20	8
Share subject related video lessons	28	32	8	16	16
Webinars	32	24	16	28	0
Social media for content sharing	24	20	12	28	16
Write blogs about the subjects / topics you teach	52	16	4	28	0
Conduct an online live discussion forum after college hours	64	4	8	24	0
Post your classroom video for students' reference after the class	48	12	8	28	4

The above table gives the usage patterns of ICT among the faculty for the teaching learning process. It is observed that most of the activities are being attempted more than twice a week by majority of the faculty. Writing blogs, communicating with parents online, posting video lectures, and conduct online live discussions after class hours are not yet being adopted by majority of the faculty members.

Faculty Attitude towards ICT Implementation in teaching learning process

Table 4: Faculty attitude towards ICT implementation in teaching learning process

Faculty attitude towards ICT implementation in Teaching – Learning	Strongly Disagree	Disagree	Doesn't make a Change	Agree	Strongly Agree
I am interested to use ICT in teaching-learning process.	4	0	0	44	52
I need to develop my skills and knowledge of ICT	8	0	4	68	20
I am interested in teaching-learning process through ICT but I don't have access.	16	16	12	32	24
I don't need to use ICT in my teaching-learning	48	24	0	16	12
I feel that I am ready to integrate ICT into the teaching-learning process	4	4	24	40	28
It makes my work easier	4	0	4	52	40

Interpretation: 96 percent of the faculty are interested to use ICT in teaching learning process,88 percent of the faculty feel that they need to develop their skills and knowledge in ICT, 56 percent of the

respondents feel that they are interested in teaching-learning process through ICT but don't have access, 28 percent of the faculty feel that they don't use ICT in teaching learning, 68 percent feel that they are ready to integrate ICT in teaching learning, 92percent of respondents feel that ICT makes their work easier.

Hypothesis testing:

ANOVA was performed to test if there was any difference in the usage of ICT tools by the faculty in the teaching learning practices based on their disciplines. The hypothesis was tested at 0.05 significance level. The significance values for the subcategories in the use of activities and materials of ICT in the teaching learning process is given in the table no. 5 and the Faculty attitude towards ICT is presented in table 6.

H01: There is no difference in the use of activities and materials of ICT by the faculty based on their disciplines

ICT based activities and material used for teaching.

Table 5: ICT based activities and material used for teaching.

Faculty Use of ICT in teaching learning process	p-Value
Browse/search the internet to collect information to prepare lessons	0.058292
Create your own digital learning materials for students	0.004819
Use ICT to provide feedback and/or assess students' learning	1.1545510
Communicate online with parents	0.000271
Download/upload/browse material from the College website	3.23175
Share subject related video lessons	1.17326
Webinars	1.04564
Social media for content sharing	0.00026
Write blogs about the subjects / topics you teach	3.21948
Conduct an online live discussion forum after college hours	6.51728
Post your classroom video for students' reference after the class	0.012728

From the above table, it is observed that there are no significant differences in the usage levels of ICT by faculty based on their disciplines for browsing internet to prepare lessons, to provide feedback, download material from college websites, share subject related video lessons, webinars, writing blogs and conduct online live discussion forum after college hours as the p-value for these categories is above 0.05.

There is a difference between various disciplines in create in digital learning materials for students with p=0.004819 <0.05, communicate online with parents with p= 0.000271< 0.05, use social media for content sharing with p=0.00026 <0.05 and Posting classroom vide for students reference after the class with p=0.012728 <0.05. In 7 out of the 11 parameters tested there was no significant difference was observed hence H01 is accepted and it is concluded that there is no significant difference in the ICT usage in teaching learning processes based on their disciplines for few parameters.

H02: There is no difference in the attitudes of faculty towards ICT based on their disciplines

Table 6: Faculty attitude towards ICT implementation in Teaching - Learning

Faculty attitude towards ICT implementation in Teaching – Learning	P-Value
I am interested to use ICT in teaching-learning process	5.12936
I need to develop my skills and knowledge of ICT	8.26304
I am interested in teaching-learning process through ICT but I don't have access	1.37877
I don't need to use ICT in my teaching-learning	5.30825
I feel that I am ready to integrate ICT into the teaching-learning process	0.000211
It makes my work easier	1.32437

From the above table it is observed that there is no significant difference in the faculty attitude towards ICT implementation in teaching learning for interest to use, developing skills and knowledge, having interest but not having access to ICT, not needed to use ICT and the easy ness of using ICT as the p-values for these factors are greater than 0.05.

In 5 out of 6 parameters tested results show that there is no significant difference in the faculty opinion in their readiness to integrate ICT into the teaching learning process based on their disciplines as the p value is more than 0.05. Hence H02 is accepted and it is concluded that there is no a significant difference in the readiness to integrate ICT in teaching learning process based on their disciplines.

Findings

The results of the study show some significant differences in the faculty usage and attitude towards ICT in the higher education institutions. It is observed that though most of the faculty are using ICT in their teaching learning practices to a certain extent, the usage of ICT in more interactive platforms can be further increased.

The study can be further enhanced by observing the differences based on their other demographical factors and institutional parameters.

References

Albert Sangrà & Mercedes González-Sanmamed , The role of information and communication technologies in improving teaching and learning processes in primary and secondary schools, 2010, ALT-J, 18:3, 207-220, DOI: 10.1080/09687769.2010.529108

Becker HJ, Ravitz J. The influence of computer and internet use on teachers' pedagogical practices and perceptions. Journal of Technology Education. 1999; 31, 356–84. Anderson, J. IT, e-learning and teacher development. International EducationJournal, ERC 2004, Special Issue, 2005, 5(5), 1-14.

Fullan M. The new meaning of educational change. New York and London: Teachers College Press; 2001.

Jan Barnes1 & Steve Kennewell, Investigating teacher perceptions of teaching ICT in Wales, Educ Inf Technol DOI 10.1007/s10639-016-9549-y

Kennewell, S., Developing an ICT capability for learning. In Y. Katz (Ed.), Learning in school, home and community: ICT in early and elementary education , 2003, (pp. 75–83). Boston: Kluwer Academic Press

Montrieux H, Vanderlinde R, Schellens T, De Marez L, Teaching and Learning with Mobile Technology: A Qualitative Explorative Study about the Introduction of Tablet Devices in Secondary Education. PLoS ONE, 2015, 10(12),: e0144008.

Niederhauser D, Stoddart T. Teachers' instructional perspectives and use of educational software. Teaching and Teacher Education. 2001; 17(1), 15–31.

Pavla Slechtova , Attitudes of undergraduate students to the use of ICT in education, Procedia - Social and Behavioral Sciences 171 , 2015, 1128 – 1134

Thomas a. Litzinger, Lisa R. Lattuca, roger g. Hadgraft, Andwendy C. Newstetter, Engineering Education And The Development of Expertise, Journal Of Engineering Education, January 2011, Vol. 100, No. 1, pp. 123–150

www.unesco.iiip