Critical analysis of ICT usage and influences in higher education

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Abstract
Information and communication technology has played a major role now days in the teaching and learning methods. The ICT had replaced the traditional teaching and learning methodologies. It is a force that has great influence in the information technology covering all areas in the society - banking, business, education, engineering and medical and so on. As per “The National Information Technology” policy the information technology should be used for education, creation of wealth, poverty eradication, job creation and global competitiveness. The main purpose of this study to examine the methodologies used in learning utilization of ICT. Also, it highlights a comparative analysis between teachers using ICT & students using ICT. Finally, this paper brings out how the usage of ICT influences the higher education teaching and learning methods.

Keywords: ICT, Traditional Teaching, Learning Methodologies, Global Competitiveness, Higher Education

1. Introduction

Information and communication technology play a major role in human life in the form of social, cultural, economic and educational developments. It brings transformation of life in the way we are using it. In India the information and communication technology bring transformation in the area of education systems. In that area earlier they followed the traditional way of teaching. In this method the interaction between the teacher and learner was very less. But the information and communication technology that has come about has eradicated the old method of teaching.

1.1. Definition of ICT

Information and communication technology is an umbrella term that includes any communication device or application including radio, television, cellular phones, computer and network, hardware and software and satellite systems as well as the various services and applications
associated with them, such as videoconferencing and distance learning (research report the linked world) Jager and lokman1999 also state that ICT as a generic term refers to technologies which are being used for collecting, storing, editing and passing of information in various forms.

### 1.2 ICT in Education

Information and communication technology are used in various ways in the area of education. Now a days the ICT provide interactive kit to the learners. It makes it easy to understand the subject. It also provides individualization and interactivity with the teachers and learners. It provides the path for the learners to participate in interaction with others and make them confident.

### 2. Literature Survey

#### 2.1 ICT impacts on education

Technological feathers cover all the realm of the society. Even the education field is not exempted from these technological impacts. As per today’s scenario, all the schools, colleges, universities (private and government) have their own websites; more so they have web portal instruction too. TalSoffer, 2008 did research on web supported instruction in higher education. The information technologies, which in the recent decade started penetrating every field of our daily life, have entered education as well. The researcher suggests that the integrating of instructional technology into higher education is a “must needed” trait for all universities. The researcher states that technology innovation based upon the web support instruction “interface “and the secondly focuses on the depth of “usage patterns” within the web supported interface (i.e integrating web supported learning materials and communication activities). So the design factor is the only reason to activate the ICT.

#### 2.2. Literacy level

The ICT technologies like internet are based upon various factors. The literacy level of the user is the initial factor to access the ICT technologies. Qiu, 2003 quotes: “The ICT (internet) users in the society need to be “wealthy, educated” young males more heavily concentrated in major coastal cities”. Qui also states that geography and gender are also the major factors. The internet used behavior is based upon the three aspects: 1. adoption 2. amount of usage 3. type of usage (Zpan et.al,2010). So the media, especially the ICT technologies are used based upon the main needs and capacity of the users. But the mass media are considered as on information distribution system of a community; it’s structural characteristics are thought to mirror and reinforce that of the community (Donohue, Tichepor, 1978). The researcher says that ICT technologies like internet, network, mobile are considered as information distributors as well as reflecting what society is. The amount of internet usage and type of usage, basic preferences and how much ICT technologies provide information to the users were studied. The internet (media) choice depends both in terms of use of media and in terms of preference for different media as source of information (Olien.et.al.1978). So the information seeking from the internet depends on education as one of the factors. Education is to help improve the utility values of the internet as information research.

#### 2.3 ICT and classroom

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The adaptation of ICT in the field of education has slowly changed the classroom and class teacher environment. Comparatively now in most of the colleges teachers are using laptops for taking classes which we have already discussed in the compatibility technology. The compatibility process is applicable into the classroom technology.

The faculty members feel comfortable with laptop environments and acknowledge that the laptop is a simple tool and it should not change fundamentally what they teach in class. Markhall and Kevin M, 2003 did research on the laptop environment in the higher education class room and found that the small group of faculty members are actively embracing the new technologies immediately. A large group of people took the favourable stand and saw the approach as good. But what is needed is information and training before integrating the laptop into their classes. A small group did not support the new technology. In the laptop environment they applied the diffusion of innovation method. Those who immediately adopt the new technology are called as early adopters. Those who take time to practice the new technology are listed under the early majorities group. But the ICT tool is to help take classes efficiently. In certain areas the ICT could help to explain easily to the students. Whenever the adaptation is there, the adaptation of technology should be comfortable for the early adopters. The early adopters of both teachers and students feel that technology is wanted for specific application based upon the findings of McCormide, 1999. He states that approximately 60% of today’s students are visual dominant learners. As per this statement the ICT is a very good tool for the students to teach efficiently.

E-communication gives way to students to participate highly in interaction with the faculty on one – to one communication. E-communication gives confidence to students to take part in interaction. During online classroom set up, students are involved in participation in the interaction with their class teacher rather than in the traditional setup (Partee, 1996). Compared to traditional method of teaching, in the current scenario, education is becoming learner centered (Anson,1999). Finally the laptop- environment, along with classrooms encourages the interaction with only teachers, but also others. ICT technology adaptation basically means how much it is useful for the adopters. Based on that only, it will be adopted by the adopters. Roger, 2000 lists certain points as reasons for adaptation 1. Personal productivity aids 2. Enrichment add-ins 3. Paradigm shift. Mary and Wilger, 1998 argue that most of the faculty members and organizations adopt the new technology for their personal productivity aids and environment add-in. whenever the new technology was adopted by the organization; first they would check whether it is useful for the end user, after that only the technology might be adopted. The new technology adaptation not only stresses the development of technology, it also provides the solution for the society. Bijker and Law 1992 say that any new technology/development is not just a matter of engineering or optimal solution to technical problems; it also provides solution for the society.

2.4 Technology transfer

Technology transfer is not an easy task because whenever there is innovation, barriers would also develop. Basically the technology transfer happens between the producer and receiver. Scott D. Johnson; Elizabth Faye Gatz and Donhicks,1997 say: ‘the technology transfer is from the innovators to end users of the technology. In between the technology transfer, it can be restricted by the economic, political, and cultural differences between the developers and the receiver. When the
technology transfer is in the hands of the end user, if the technology fulfills their needs, then it will be easily transferred to the end user.

3. Methodology

Making a comparative analysis between teachers using ICT and students using ICT for their teaching learning methods.

4. Findings and discussion

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<tr>
<th>S.No</th>
<th>ICT</th>
<th>Interactive measurement</th>
<th>Variance (all medium)</th>
<th>Subject knowledge gain</th>
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Figure 1: Analysis of the Faculties

4.1 Analysis of the Faculties

1. None of the faculty knows what is meant by ICT even though they are using it during their classes.
2. 100% of the faculty accepts that ICT gives more interactive measurement compared to traditional way of teaching.
3. 100% of the faculty is using multimedia content for their classes. They not only use one content at a time, they also use text animation audio video at the same time.
4. 80% of the faculty accepts that ICT provide and encourage the learners to gain subject knowledge through ICT.
5. 100% of the faculty accepts that ICT is encouraging the learners to gain knowledge in independent way of learning.
6. 80% of the faculty accepts that ICT helps to develop their soft skills and projects.
7. 60% of the faculties accept that ICT helps to develop their analytical skills and projects.

4.2 Analysis of the Students

Table 2: Analysis of the Students

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Figure 2: Analysis of the Students

4.2 Analysis of the Students

1. 40% of the students know what ICT means, rest 60% of the students do not know about even though they learned through ICT.
2. 40% of the students say that ICT does not provide interactive measurement in their classroom but 60% of the students accept the statement.
3. 90% of the students accept that through ICT the faculty members are using multimedia content for their classes.
4. 60% of the students accept that through ICT they can gain subject knowledge.
5. 60% of the students accept that through ICT they are encouraged to learn in an independent way of study of their curriculum.
6. 80% of the students accept that through ICT their creative skills and project ability have been increased.
7. 60% of the students do not accept that ICT based learning encourages their analytical skills and projects.
5. Discussion

- Comparing between fig 1 and fig 2, there is a variance of the acceptance of interactive measurements. 100% of the faculty members accept that ICT provide interactive learning and teaching but 60% of the students only accept this statement. The rest 40% of students do not accept. If any technology is adopted it should give the solution for the society. It is also applicable for ICT adaptation in education. Because the traditional method of teaching is not much interactive, we adopt the ICT in the education system (Bijker and Law 1992) (Partee,1996) It also gives more confidence in their interactions (McCornide, 1999).

- Comparing between fig 1 and fig 2, there is a variance of the acceptance of multimedia content usages in the class room.100% of the faculty members accept that they use multimedia content for their classes but 60% students only accept, rest of the 40% of students do not accept. It shows that faculty members might not be aware of that content provided to the learners, because the adaptation is a new method in teaching, it will take time (Markhall and Kevin M,2003).

- Comparing between fig 1 and fig 2, there is no variance of the acceptance of ICT as a provider of subject knowledge between teachers and students. 80% of the faculty members and students accept that by using the ICT, students are encouraged to learn the subjects effectively (Markhall and Kevin M,2003).

- Comparing between fig 1 and fig 2, there is a variance of the acceptance of ICT content to motivate the students to learn individually. 80% of the faculty members say that it stimulates the students to learn individually but 60% of the students only accept this statement. Whatever the multimedia content used for the class that’s just a tool (Markhall and Kevin M, 2003), it will not change the content. So the learners expect that teachers explain in detail. It’s also reflecting in their analytical skills and projects.

- Comparing between fig 1 and fig 2, there is no variance of the acceptance of ICT content to motivate the students to think about and help to develop their soft skills and project. 80% of the faculty members and students accept that ICT motivate the students in the area of skill development and projects. Because now almost more than 50% of the learners are visual dominant learners (McCornide, 1999).

6 Conclusion

ICT information and communication technology are tools providing content to the learners. It also helps the students to develop their subject knowledge and their soft skills and analytical skills. But the adoption the new technology is basically based on the support of the Government schemes, economic and cultural support and sufficient training for the faculty and students (Scott D. Johnson; Elizabeth Faye Gatz and Donhicks; 1997). If its adopted meaningfully the teaching and learning become easy and useful and it will provide quality in higher education in the future.

7 References
