

Incorporation of Information Technology Tools in Teaching Learning Process Advantages and Limitations

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Abstract— All changes and developments arise from education. The use of information technology in education has become more certain than just an option. Enhancing knowledge through information is the role of information technology in today's informed world. The way teachers teach and the way students learn have been changed by advances in information technology. Teachers need resources that help them utilize information technology as a medium for their instruction in the classroom that enhance teaching learning process. Nowadays technology influences the students. The core idea is to identify information technology tools and to integrate them in teaching learning process.

Keywords—higher education; teacher; student; teaching learning process; information technology tools;

I. INTRODUCTION

The incorporation of Information Technology (IT) in education has brought so many positive changes. For effective learning, the education sector stakeholders have found ways of integrating the use of IT in the everyday learning processes. The society doesn't view IT only as an economic variable and political lever, but as a possibility for changing education through IT. One can suppose proposed patterns of IT in education as center on nature of knowledge, functional techniques and a controlling criterion in society.

II. LITERATURE REVIEW

A. Higher Education

Growth of knowledge economy and globalisation seem to have made a major change in perception of knowledge empowerment [1]. Higher education has made a enormous role in guiding, outlining and achieving positive changes [2].

B. Information Technology Tools

There are more number of information technology tools available for the use in teaching learning process. They are summarized below [3].

Clickers: Answer can be provided by each student individually once the teacher asks the question in the class.

Interactive whiteboard: Both student and teacher discuss a topic that is displayed in the class.

Kindle: An eBook can be bought for reading by all students.

Tablets: Handouts can be saved digitally by students.

Khan Academy: This academy is founded by Khan. He is a graduate of MIT and Harvard Business School. Micro lectures and exercise programs can be taught virtually.

Coursera: Professors of Stanford University Andrew Ng and Daphne Koller founded Coursera. Students study online courses through video-lectures and assignments every week.

NPTEL: It is acronym for National Programme on Technology Enhanced Learning. This is developed by Indian Institute of Technology. Students study online course within 40 hours.

MIT-OCW: It is acronym for Massachusetts Institute of Technology OpenCourseWare. Students get reference materials to clarify fundamental concepts and to know latest trend in the subject

EdX: This is developed by MIT and Harvard University. The best use of technology in the classroom and research on teaching learning process have been encouraged by EdX. Few information technology tools seem to be useful for teachers and students. They are listed below [4].

C. Teacher Tools

Nearpod – <http://www.nearpod.com>

Nearpod helps in developing quiz and drawing activity.

Typeform – <http://www.typeform.com>

Typeform help teachers for survey and review.

Kahoot! – <https://getkahoot.com/>

Kahoot! assist teachers in review of students reports.

Socrative – <http://www.socrative.com/>

Quizzes and surveys can be developed with the help of Socrative.

Jing for Screencasting – <http://www.techsmith.com/jing.html>
Screenshots and screencasts can be created by using Jing for Screencasting.

D. Student Tools

Prezi – <https://prezi.com>

Slide share can be absorbed with movement by students.

Booktrack Classroom – <http://booktrackclassroom.com/>

Text can be added with soundtracks by students.

Zaption – <https://www.zaption.com>

Link, question, and survey can be added by students by students.

Piktochart – <https://magic.piktochart.com>

Images, text, and charts can be clubbed to develop an infographic by students.

Thinglink – <https://www.thinglink.com/edu>

Image, map, and photograph can be added by students.

E. Role of IT Tools in Education

The factors that resist acceptance of incorporation of information technology in education are level of education, years of teaching experience, tech savvy, and support from institution. The factors such as self improvement, mutual benefit, technical compatibility and experience are considerably dominating their apparent ease of using educational technologies [5]. The aim of technology amalgamation is to accomplish learning goals and enhance learning [6]. Because of much diversion, information technology tools in class rooms results in low level of learning amongst students [7]. Teleconferences, virtual symposiums, and telementoring have underlying needs in the educational system [8]. Technical Colleges try to apply the role of IT in Educational activities and administration systems [9]. The incorporation of virtual learning environments, the implementation of course management systems and the offering of Massive Open Online Courses have been introduced as new, dynamic and globalized way of promoting teaching and research [10]. Higher education struggles to seize opportunities and overcome obstacles by utilizing IT tools [11]. Without a mature integration in educational contexts, incorporation of IT in Education, results no added value to the teaching/learning processes. Blended learning is a new direction to find how to integrate IT tools to real classes so that the quality of teaching and learning will be really improved [12]. Educator resistance is found to be as a key barrier to technology adoption and use [13].

III. TEACHING LEARNING PROCESS

Role of higher education institutions is multi-faceted as of today. Modes of teaching and learning also change significantly over the decade [14].

A. Changes in Learning Process

The possibility of change in the following learning process may occur by integrating IT in education.

- Blended Learning: Integration of online solution with teaching in classroom. 'Moodle' is an example for blended learning.
- Constructivism: Students perceive meaning based on experience.
- Learner-centered learning environment: More emphasis is given on knowledge, skills, and attitude.

B. Shift in Teaching Learning Process

It is stated that the eight shifts reflect the effects of information technologies on teaching and learning process [15].

- From lecture to coaching: Teachers use up more time for facilitating learning by students instead directing them.
- From whole-class to small group: Small group of students interact with teacher.
- From better students to weaker students: Students who mostly need help can work with teacher.
- Towards different students learning different things: Students learn content with instruction by teacher.
- Towards much affianced students: Interactive technologies engage students for more effective learning.

- Towardsevaluation based on progress: Skill based exercises in factual status results tasks.
- From aggressive to accommodating: Teachers guide students on collaborative projects.
- From verbal thinking to visual and verbal thinking: Teachers assist students to access information they require.

C. Ways the Teahers Use IT Tools

Teachers Use The Information Technologies to:

- Interesting way of presentation.
- Qualitative material search guidance.
- Use of time effectively.
- Students coaching.
- One to one instruction.
- Collaborative learning direction.
- Learning material preparation.
- Helping students to overcome the learning problem.

IV. ADVANTAGES AND LIMITATIONS

The incorporation of IT tools in Teaching Learning Process has both advantages and limitations.

A. Advantages

- Usage of images that improve retentive memory of students.
- Teachers ensure understanding by students.
- Students' attendance and concentration through interactive class.
- Asynchronous learning and one to one instruction.
- Information-rich resources and enhanced content.

B. Limitations

- Students' imaginations can be reduced.
- Students' critical thinking can be limited.
- Students' analytical skills can be condensed.
- Possibilities of superficial understand of a concept.
- Vision problem due to computer-based learning.
- Visit of unwanted sites.
- Shift towards internet than learning resources.
- Copying from the internet.
- Less use of oral skill.
- Limited exercise of hand writing.

V. CONCLUSION

Teaching quality technical content with the use of an appropriate information technology tool improves learning process. Teachers can use information technology tools to ensure comprehension by students. Students will be able to utilize information technology tools as learning resources to know latest developments in real field application related to the concept taught in the class room.

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