

SUCCESSFUL TECHNOLOGY INTEGRATION IN TEACHER EDUCATION

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ABSTRACT

Technology opens vast opportunities that could never have been possible previously. Technology and education are pretty intertwined these days, and evolution of advanced information and communication technologies, have great importance in education. With the help of internet, multimedia, video conferencing and many more, teachers and students can feel the need of technology, in the effective transfer of knowledge. It is very necessary to make the classroom discussion more interesting, which can retain in students' memories for a long time and for this, the tutor must have used all modern technologies, while imparting knowledge. But to fulfill this purpose, a teacher must know about all the new technologies, available for use in the classroom instructions. Hence, it is very essential that, the teacher should be helped in equipping them, with the required technology competencies, of fulfilling their responsibilities and managing the affairs of the schools.

This paper would deeply explain the present scenario of the quality of the technology, used in the teacher education institutions, role of Technology's involvement, in both types of teacher education, i.e., pre-service and in-service, how to integrate technology and teacher education, with the barriers in technology integration, and a list of suggestions that can be used, to make technology integration successful in TE's institutions, in India.

KEYWORDS: Information Technology, Integration, Teacher Education, Pre Service & In- Service Training

INTRODUCTION

Technology integration means, the use of technological tools (computers, mobile devices like smart-phones and tablets, digital cameras, social media platforms and networks, software applications, the Internet, etc.), in general content areas in education, in order to allow students to apply computer and technology skills, to learning and problem-solving. Effective integration will be possible, only when an educational professional, possess good technology-skills and use them in their teaching, in such a way that there is a complete merge between technology and pedagogy.

The ultimate aim of technology integration in education is achieved, only when students will be able to select the perfect technology tool, to help them obtain information, in a timely manner to analyze and synthesize the information, and present it professionally.

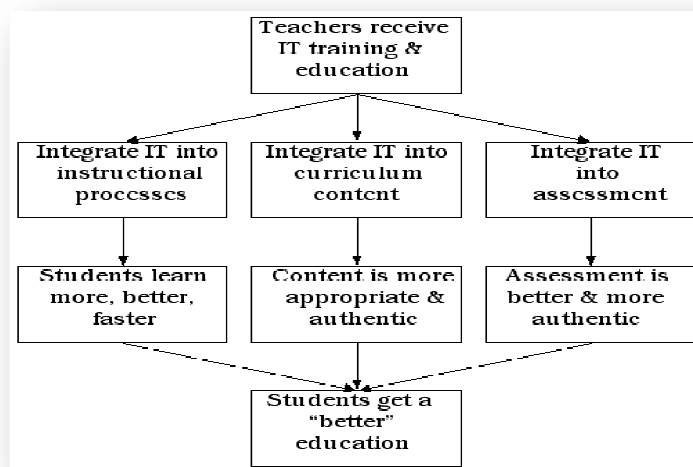


Figure 1

The International Society for Technology in Education (ISTE): Has established technology standards, for students, teachers and administrators in K-12 classrooms. The ISTE, a leader in helping teachers, become more effective users of the technology and offers this definition of, technology integration

"Curriculum integration with the use of technology, involves the infusion of technology as a tool, to enhance the learning in a content area or multidisciplinary setting. Effective integration of technology is achieved, when students are able to select technology tools, to help them obtain information in a timely manner, analyze and synthesize the information, and present it professionally. The technology should become an integral part of how the classroom functions—as accessible as all other classroom tools. The focus in each lesson or unit is the curriculum outcome, not the technology."

Carol A. Pope and Jeffrey N. Golubsay Said: "Teachers using technology in their classrooms are not only improving their instruction for their students; they are changing the very nature of that instruction" (cite journal Vol. 1 p. 1).

Researchers have demonstrated that, technology can help deepen students' content knowledge, engage them in constructing their own knowledge, and support the development of complex thinking skills. Constructivist method of teaching enhances student learning (Matzen& Edmunds, 2007) ^[4].

It is particularly important in teacher education, because of the close association between teacher education and school education, and that between school education and social living. One of the major changes that the schools have undergone over the past decade has been the evolution of technology use.

Now, it's necessary for a teacher to have knowledge about all the latest technology, which can be used in classroom instructions. However, only having the knowledge of technologies is not sufficient. A teacher needs to know, how to operate & integrate the tools effectively, and when to use a particular tool/technology in teaching or learning process, to increase the outcomes of learning. Effective teachers magnify the potential of the technology, to develop student's understanding and arouse their interest, to improve subject proficiency. Technology can be used strategically to provide better access for learning and concept clearance.

To ensure the good technologies, knowledge of a student teacher is necessary to provide them, a good quality teacher education, in all the teacher education institutions. So there must be a need, to frame technologies use based curriculum, at all the level of teacher education, including pre-primary to higher secondary. The investment in teacher training helps improve teaching and constitutes a way to leverage the achievements of students, in preparation for their future.

We can use technology in 3 ways, in Education:-

- Technology as a tutor (computer gives instructions and guides the user and reduce dependency on a teacher)
- Technology as a teaching tool and
- Technology as a learning tool.

Technology in Education is the foundation upon which a country develops. The Importance of technology within teacher education preparing teachers today requires critical examination of what it means to teach and learn, in increasing networked, technology-rich classrooms.

PRESENT SCENARIO

In India, today we have a large system of teacher education and the university departments of education, and their affiliated colleges, government and government aided institutions; private and self-financing colleges are running TE programs. Besides this, open universities are also engaged in teacher education. TEI's quality issue is a big challenge. Many surveys on TEI's revealed the truth that, teacher educators are not professionally trained to use the technology tools in education so, their competency level decreases due to their inefficiency stopping them from attaining their aspiration. The quality of pre-service education has actually shown signs of deterioration. For the up liftment in the status of Teacher Education, NCTE reframed the whole curriculum of all TE programs, with NCFTE-2010. The new TE curriculum includes, ICT as a compulsory subject to make student teachers more technology competent.

For pre-service training, the National Council of Teacher Education (NCTE), a statutory body of the Central Government, is responsible for planned and coordinated development, of teacher education in the country. The NCTE lays down norms and standards, for various teacher education courses, minimum qualifications for teacher educator's course, content and duration, and minimum qualification, for entry of student-teachers for the various courses.

To increase the knowledge, proficiencies and professional competencies, in a student teacher, the new Curriculum of teacher education involves technology integration, with the subject, Critical Understanding of ICT. But a large number of TE institutions, were not providing proper training, of the use of technology. The system still prepares teachers, who do not necessarily become professionally competent and committed, at the completion of initial teacher preparation programs. A large number of teacher training institutions, do not practice what they preach. It is very necessary, to check the inappropriate working with such type of TE institutions.

ROLE OF TECHNOLOGY IN TEACHER EDUCATION

Pre Service Teacher Education

Today, the teacher's role is not merely limited to reading books, for conceptual clearance, they might refer to internet technology and so, share the same with their students. For this, educators should be aware and informed about the

tools. Use of internet tools can be fun, attractive and pretty exciting.

By the use of technology, educator can:

- Develop an appreciation and an understanding, on the potential of technology
- To familiarize the teacher educator and student educator, with technology used in education, in recent time.
- Develop library and resource materials
- Design integrated curriculum activities
- Develop competency, by using technology through authentic experiences
- Learn to motivate students with technology
- Learn the benefits of technology, in the classroom.eg, - in preparing lectures, creating interest among students, making your teaching effective etc.
- Make the boring lectures far interesting, by delivering dynamic presentations
- Through advocating videos, a student's interest can be enhanced in a particular topic.
- Learn to organize smart classes.

In-service Teacher Education

It is a professional training or staff development effort, where professionals are trained, and discuss their work with others, in their peer group. It is the education; a teacher receives after he has entered into the teaching profession. It may be offered by, the govt. Programs, or by the effort of the corresponding TE institution, by the way of refresher courses, orientation courses, workshops, seminars, integration camps of teachers and correspondence courses.

“A teacher can never truly teach, unless he is still learning himself. A lamp can never light another lamp, unless it continues to bum its own flame.”-R.N. Tagore.

By giving training in using technology, in in-service teacher education program teachers can:

- Learnt the use of new tools and technologies in classroom teaching.
- To solve day to day problems like student drop outs, less enrollment in school etc., encountered by teachers in the classroom, with the use of new technology.
- Technology is seen as tools, to help teachers create more 'learner-centric' learning environments
- Technology training is beneficial for professional growth, of the teacher.
- Refresh knowledge, develop a wider outlook, benefit by the experiences of others, acquire new information and hence reorient him.

INTEGRATING TECHNOLOGY WITH TEACHER EDUCATION – HOW?

Teacher Education is concerned with preparing student educator, to become a good teacher; there is a great need to acquire a basic understanding of ICTs, including the internet. We need to expose student-teachers, with several types of

technologies, so that, they have a basic understanding about it and can develop skills in areas that interest them. For this, we need to include a rich quality of technology education, in the curriculum of TE course. The course curriculum in TE should cover the following:-



Figure 2

- **Basic Hardware Knowledge**– Teach handling of Computers, laptops, net books, tablets, audio recorders, radio, camera, Printer/peripherals, mobile phones, OHP, Projector etc.
- **Basic Software Knowledge**–Teach to use Public operating systems (e.g. Window/Linux), Basic, Application s/w like MS-Office, and other educational software.
- **Basic Knowledge of Internet and Web Based Tools, Resources Include Cyber Security:** -provide the training on the use of various search engines, E-Mail, Basic website, knowledge of Antivirus applications and use web tools for creating and maintaining institutional portals etc.
- Providing rich experiences of using ICT tools and technologies.
- Teach how technology can be integrated within a particular subject area
- To give knowledge about the latest ICT tools and technology which can be used in classroom teaching to make it more effective, interactive and interesting?

BARRIERSS IN TECHNOLOGY INTEGRATION

- Only few teachers are confident in using a wide range of available technologies.
- The way ICT is used in lessons is influenced by the teacher’s knowledge about their subjects, and how ICT resources can be utilized and related to it. If the teachers have no good command of their subject, then they can’t use ICT appropriately.
- Resistance to change and negative attitudes of teachers.
- Lack of supervision, on a teacher training institution by teacher education, monitoring authority’s like- NCTE, NAAC.

- Lack of resources in the TE institutions.
- Lack of govt. agency's initiatives, in providing quality training in pre-service and in-service teacher education.
- Language is a barrier, as most of the technology facilities, are available only in English
- Lack of requisite like, software and hardware, internet access, media specialists and trained teachers.
- Integrating technology into a curriculum can be truly time-consuming
- Inadequate knowledge and skills of educators.
- Accountability for TE programs is weak.
- Insufficient knowledge of technology-related-classroom management.
- Institutional barriers like leadership (e.g. - Unsupportive authorities, financial problems), school timetabling structure, and school planning can prevent effective integration of technology.

SUGGESTIONS FOR SUCCESSFUL INTEGRATION

- Teachers must have adequate access to functioning computers, and must be provided with sufficient technical support.
- Adequate time must be allowed for student educators, to develop new skills, explore their integration into their existing teaching practices and curriculum, and undertake necessary additional lesson planning, if ICTs are to be used effectively
- It should be made mandatory that, a teacher education institution should have a demonstration school, which should have certain facilities such as laboratories, resource room, libraries and other important audio-visual equipments. ^[5]
- Provide training for student educators, of the technology involved in subject pedagogy, and handling of various tools in a classroom situation.
- Refresher courses, orientation programs, seminars, conferences and workshops, should be encouraged for the professional growth of teacher educators.
- Creating a strong monitoring mechanism, whereby all institutions are subjected to a transparent accreditation process for quality assurance, by which services and operations of an educational institution offering teacher education, are evaluated by an external body.
- Regular, surprise and very strict inspection, by monitoring authorities should be done, to ensure quality in teacher education program.
- A qualitative resource material should be used by teacher educators, while training the student educator.
- The internship/teaching practice time period, should be increased so that, pupil teacher will become more confident and get familiar with, the use of technologies in real classroom situations.
- The teaching practice time period should be strictly monitored by monitoring authorities. For good mentoring of

the electronic attendance, should be imitated by the govt.

- Incentives (like- certifications, professional advancement, pay increases,) must be developed to promote, effective teacher participation, in continuing professional development in in- service level.

CONCLUSIONS

The goal of Technology literacy must be, to expose teachers to a wide variety of ICT resources – hardware, software as well as, digital learning resources. This requires an emphasis on using available free / public digital resources. Technology usage has been started, in teacher education institutions, but there is a long way to cover, before reaching the stage of seamless technology-integrated education. The technology skills of the teachers must be sharpened, to make them more proficient, as this is not only related to their own attitude, but also with the attitude of their students. As a conclusion, we can state that, integration of technology in teacher education works as a milestone, in the whole education system. Technology helps in the professional development of teacher-educators, by providing them a rich variety of experiences of advanced technology, in the form of ICT, which improve their skills of classroom teaching and the level of knowledge as well. Current studies show that, technology integration in teacher education helps to improve the professional skills in future teachers. But the path of such integration is full of barriers, which can be removed successfully by joint effort of stakeholders, Education Department and the Monitoring Authorities.

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