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FUTURE OF INTEGRATED TECHNOLOGY IN EDUCATION

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Abstract

Technology innovation is an important feature of teaching and learning in the 21st century. Integration of new technologies into education has been a chief concern in many countries. The introduction of technology to the field of education has entirely changed the traditional way of teaching and learning by revamping and practicing technology in the field of education. These innovative practices include use of computers, audio-visual aids, web portals, internet browsing, digital textbooks, mobile connectivity, video conferencing and webinars, etc. With advancements in technology and the push from industry to have a well-educated and highly specialized workforce, the importance of the integration of technology has reverberated throughout education (Barcelona, 2009; Proserpio & Gioia, 2007). No doubt Government of India is investing a huge sum of money on equipments as well as on teacher training, yet adaptation of technology in each and every classroom is a topic of research. This study took into account all such factors which affect the use of technology in education.

INTRODUCTION

> "**Technology has a major role to play in raising standards in learning across the curriculum, provided teachers know how to adapt their pedagogies in order to maximize the potential gains offered by learning technologies"** -
>
> -National Association of Advisors for Computer in Education

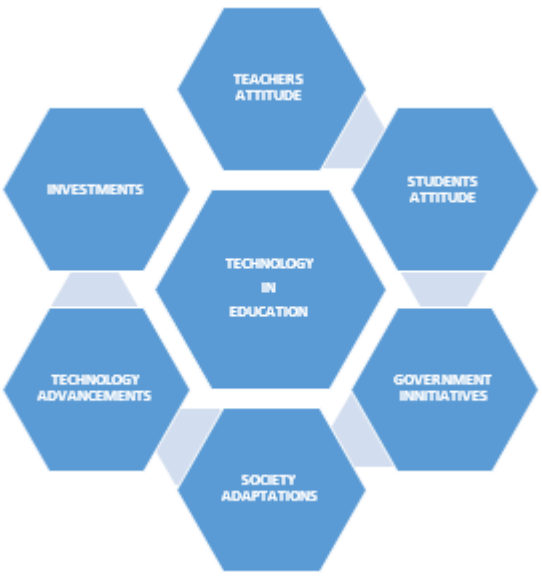
Education is the most powerful weapon to transform any nation, to lead it on the way to progress and make this world a better place to live. On the other hand, technology has become a part and parcel of our life. Mobile phones, internet, tablets, iPads, various applications, social media have made technology accessible to everyone. According to recent research findings, with the introduction of ICT in education numerous changes happened in schools (Howard, 2009). Almost two decades have passed since the introduction of ICT into the classrooms; India has made striking advancement within a short time.

In 2014, our present President Pranab Mukherjee had said "There is a need to propagate technology use in the dispensation of education. A fast digitalizing world holds scope to usher in sweeping changes in pedagogy and teaching-learning structures. Our efforts in harnessing new technology are at a nascent stage. We cannot afford to lose time. We have to leverage our advanced technological institutions and leadership position in IT,"

The role of technology in education is vital. Now the educational institutions all over the world are integrating ICT with the teaching – learning process in order to provide knowledge and skills to the learners to meet the challenges of educational environment. It is only through education and the integration of ICT in education that one can teach students to be participants in the growth process in this era of rapid change. Smart classes, audio visual aids, virtual classes, e-learning, education through social media, web references etc. all concepts are technology evolved and commonly used. However, the future of this depends on many factors including investments on men and machine along with attitudes of educators and learners.

CONCEPT OF INTEGRATED TECHNOLOGY

According to National Center for Education Statistics (NCES), "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.''



Technology in Education includes:

1. **Computer Education**
2. **Use of ICT**
3. **Use of Smart board**
4. **online portals of teaching**
5. **e-learning**
6. **e-tabs**
7. **Web text/audio/video references.**
8. **e-books, blogs & wikis**
9. **Power Points Presentations**
10. **Video conferencing**
11. **Education through Public Broadcasting**

INITIATIVES BY GOVERNMENT OF INDIA

Government of India has also been taking many extra miles to meet this need of era and spending huge amount every year to furnish schools with technological equipments to improve learning experiences of children.

The Information and Communication Technology (ICT) in schools have been subsumed in the Rashtriya Madhyamik Shiksha Abhiyan (RMSA). Now ICT in Schools is a component of the RMSA. The Information and Communication Technology (ICT) in Schools was launched in December, 2004 and revised in 2010 to provide opportunities to secondary stage students to mainly build their capacity on ICT skills and make them learn through computer aided learning process.

The scheme has essentially four components-

- .Establishment of smart schools, which shall be technology demonstrators.
- Development of a e-content, mainly through Central Institute of Education Technologies (CIET), six State Institutes of Education Technologies (SIETs) and 5 Regional Institutes of Education (RIEs), as also through outsourcing.
- Teacher related interventions, such as provision for engagement of an exclusive teacher, capacity enhancement of all teachers in ICT and a scheme for national ICT award as a means of motivation
- Partnership with State Government aTeacher related interventions, such as provision for engagement of an exclusive teacher, capacity enhancement of all teachers in ICT and a scheme for national ICT award as a means of motivation.nd Union

Territories Administrations for providing computer aided education to Secondary and Higher Secondary Government and Government aided schools

The details of the scheme are as follows-;

- Annual recurring expenditure has been revised from 1.34 lakh to Rs. 2.70 lakh. The recurring cost will be provided for a period of 5 years from the year of sanction. Under the revised scheme, there is a provision of a suitably qualified full time computer teacher in each secondary and higher secondary school. In case of higher secondary school having computer related subjects as elective, there would be need for a post graduate in computers teacher.
- There are provisions for in-service (induction and refresher) training for all teachers in secondary and higher secondary schools to enable them to impart ICT enabled teaching.
- 150 smart schools would be sent up by State Government and UTs at the district level using a grant of Rs. 25 lakh for a schools and a recurring grant of Rs. 2.5 lakh per year. This would enable provision of at least 40 computers in each such school.
- There is a provision to strengthen SIETs to contribute to e-content development.

Coverage

 The scheme currently covers both Government and Government aided Secondary and Higher Secondary Schools. Financial assistance is provided for procurement of computers and peripherals, educational software, training of teachers, development of e-contents, Internet connectivity & set up of smart schools. So far, 87033 government and government aided secondary and higher secondary schools have been approved for coverage under ICT in Schools Scheme.

Financial Assistance and Cost Norms

 Financial assistance is given to States, CIET and SIETs on the basis of the approvals accorded by Project Approval Board (PAB) chaired by Secretary (School Education and Literacy). The project cost is shared between Centre and States in ration of 75:25 except for the NER states including Sikkim where it is 90:10.

Smart School

 Under the existing Information Communication Technology in School Scheme as against the target of setting up of 150 more such schools, this Ministry has approved for coverage of 63 Smart School so far. The Smart Schools are being established in the Districts by conversion of one of the existing State Government schools to serve as a role model and Technology Demonstrator among the neighbourhood schools.

National Award for Teachers Using ICT for Innovation in Education

 Under the ICT in Schools, to promote computer enabled learning and usage of ICT in teaching in Government and Government aided Secondary and Higher Secondary Schools has provision for instituting the National Award for innovative use of ICT to motivate the Teachers and Teacher Educators for innovative use of ICT in teaching-learning.

 The National Award for Teachers using ICT for innovation in education for the year 2010, 2011, 2012 and 2013 was given away to the 9 awardees along with the National Teacher Award on Teachers Day.

Adaptation Responses to Integrated Technology in Education

Lal Chhavi (2014) found that the ICT user teachers' attitude towards ICT is highly positive in comparison to ICT non-user teachers but they have also positive attitude towards ICT in relation to their school teaching subjects. The findings of study revealed that the vast majority of secondary school teachers have positive attitude towards ICT in relation to their school teaching subjects for many reasons.

According to a survey published by Central square foundation (2015) with the sample size of 1110 teachers of India revealed that there are gaps in availability and understanding of technology along with willingness to adopt in the classroom. 70% of untrained teachers indicated their need for ICT training.

According to Pearson Voice of Teacher Survey (2015), some of the major challenges faced by teachers are lack of training support, lack of trained staff to maintain technological equipments along with facing difficulties in use of technology in the classroom. Sample was taken from schools of all India including government and private schools. **Ganesan1& Krishnakumar found in their study on Attitude of Teacher Educators towards ICT** that Majority of Teacher Educators in the sample have favourable attitude towards ICT. 10% of teacher educators have unfavorable attitude,

30 % of teacher educators have moderate attitude and 60 % have favourable attitude towards ICT. However the study also reveals that special training programmes on ICT should be organised for them. The regulatory bodies should monitor the implantation of ICT in teacher education curriculum at all the levels.

Kulkarni, in their research on Study on Secondary School Teachers 'Attitude towards Using New Technologies in Education, mentioned that **t**here is a significant difference between the teachers' attitude towards Information & Communication Technology with different age groups. Young teachers have more positive attitude (age group 20-35)) and

significantly differ than the teachers in other groups. Along with this teachers who own the computers had more positive attitudes than those that did not.

Relationship between Education and Technology

Education is the most powerful weapon which you can use to change the world.

Nelson Mandela

The use of technology can be seen in many spheres of our life such as traveling, cooking, communication etc. It has become an important part of our lives from the start till the end of the day. Technology is touching every aspect of society and changing it dramatically. But there is one very important and indispensable part of the society that has also been tapped by new innovations and discoveries, that is education. Over the past years, a number of studies have shown benefits from the use of technology in education, and the question is no longer if technology enhances learning, but rather how do we improve our use of technology to enhance learning?

Our present Prime Minister Shri Narendra Modi has set a new milestone SWAYAM (Study Webs of Active-learning for Young Aspiring Minds). Swayam, which stands for Self-Learning is the Indian Version of Massive Open Online Courses.

Today more and more schools are adopting smart classes. Students are showing interests towards visual animations. New and improved technology material and apps are coming in Education. It has become a talk of the global town today.

Kay & Petrarca (2009) investigated that when middle school and secondary school teachers used web-based learning tools as part of their lessons, they perceived that their students were more successful as it appeared to significantly engage the students. Furthermore, the students also scored higher on tests. This study also found that teachers felt the web-based learning tools were easy for the students to use. The use of technology in the classroom allows students to engage in a more active way of thinking, literally a hands-on learning experience in which they are able to practice executing skills that would be impossible with a traditional book lesson.

Cavas, Karaolgan, &Kisla (2009) indicated that Turkish science teachers have positive attitudes towards integrated technology in education. Although teachers' attitude toward integrating technology does not differ regarding gender, it differs regarding age, computer ownership at home and computer experience.

Ertmer (2010) clarified that ICT is expanding ever more increasingly in the USA. However, he maintained that, despite the expansion, the majority of teachers still use ICT for low level tasks such as word processing and surfing the Internet.

Gruber (2011) examined the impact that a district-wide technology initiative involving interactive whiteboards had on teachers' attitudes, beliefs, and practices and whether this impact was consistent with the overall goals of the initiative. Findings examined patterns of use that emerged when a district-level Promethean board initiative was implemented, teachers' attitudes and beliefs related to the initiative, contextual influences on adoption of the innovation, and factors of social influence which impacted the initiative. The first goal established by the district for use of the Promethean board was generally met with some variations at the school and individual levels. However, the second goal directed at student achievement was poorly communicated and largely unmet. Patterns of use and teacher attitudes and beliefs were most strongly reflected in and influenced by four factors: professional development, school-based leadership, communication channels, and peer interactions. Together, these four factors were identified as the primary influences in the initiative's successes and limitations.

Rana (2012) found that most of the teacher educators have positive attitudes towards the general role that information and communication technology can play in education and in the educational process. The findings also reveal that no gender differences exist on attitudes towards ICT in teacher trainings.

Kandasamy, Parilah & Shah (2013) demonstrated positives attitude towards using technology as majority of them used technology for teaching and learning and felt that computer will change the way students learn in classes and also found it effective in students learning. The majority of the respondents (60%) and more revealed that they use integrated technology to teach computer skills, communicate with colleagues, monitor student's performance and do presentations. However, 80% of the respondents stated that they are lacking of time in school to use ICT.

CONCLUSION

There is almost no debate now that digital education is the norm for the future. However, we also know that tablets cannot replace teachers, but only complement them. What we need today is digital technologies tailored around teachers to enhance pedagogies and ensure uniform quality of teaching across the country. So the key lies in using digital platforms and solutions to deliver secure and quality content and, more importantly, provide access to quality teachers. What we need today is all-inclusive edutech platforms that can connect all

the dots – deliver good quality content in a secure environment, channelize communication and collaboration between students and teachers and more importantly provide tools for teachers to improve teaching methods.

REFERENCES

Barcelona, R. (2009). Pressing the online learning advantage: Commitment, content, and community. Journal of Continuing Higher Education, 57(3), 193-197. doi: 10.1080/07377360903262218

Howard, S. (2009). Teacher change: Individual and cultural risk perceptions in the context of ICT integration (Doctoral dissertation). Retrieved June 6, 2015, from <http://hdl.handle.net/2123/5340>.

Kay R., Knaack L.& Petrarca D. (2009). Exploring teacher's perceptions of web-based learning tools. Interdisciplinary Journal of E-Learning and Learning Objects, 5, 527-550.

Rana, N.(2012) A study to assess teacher educators' attitudes towards technology integration in classrooms, MIER Journal OF Educational Studies, Trends& Practices 2,(2) 190-205.

Lal, C. (2014).Attitudinal study of user and non-user teachers' towards ict in relation to their school teaching subjects, Universal Journal of Educational Research 2(3): 213-218, DOI: 10.13189/ujer.2014.020302, Retrieved from .www.ERIC.com

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