E-EDUCATION INTEGRATED TEACHER EDUCATION AND RESEARCH

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Abstract- Education is a powerful weapon to change the world. Teacher Education and research is an important vehicle to improve the quality of education as well as quality of Teacher and working conditions. Today teaching is all pervasive and it influences all domains of our daily life. The development in e-education has changed the way educational service are offered. E-education helps take learning is one of the most sought after modes of delivery of educational services. Keeping in view all benefits of the technology to leverage the potential of E-education, in teaching and learning process for the benefits of all the learners in Higher Education Institutions in 'any time any where' mode, there is a close relationship between the quality of education and the quality of teachers. While new technologies increase teachers training needs, they also offer part of the solution. E-Education can provide more flexible and effective ways for professional development for teachers improve pre-and in-service teacher training, Technology has the potential to "bridge the knowledge gap" in terms of improving quality of education, increasing the quantity of quality education opportunities, making knowledge. This paper discusses and analyses a variety of approaches and training inputs found in E-Education uses in teacher education and research. Under the changing scenario, it also discusses the responsibilities and initiatives that the teacher educators must take up for the successful integration of E-Education in teacher education and research.

Keywords: *E-Education, ICT, Teacher Education and Research, Approaches, Training inputs*

INTRODUCTION

Education is a powerful weapon to change the world. It is a continuous complex, dynamic and lifelong long process. Teacher Education and research is an important vehicle to improve the quality of education as well as quality of Teacher and working conditions.

Today teaching is all pervasive and it influences all domains of our daily life. The development in e-education has changed the way educational service are offered. E-education helps take learning is one of the most sought after modes of delivery of educational services. Keeping in view all benefits of the technology to leverage the potential of E-education, in teaching and learning process for the benefits of all the learners in Higher Education Institutions in 'any time any where' mode, there is a close relationship between the quality of education and the quality of teachers.

Now days, educational systems are under great pressure to adopt innovative methodologies and to integrate E-education in the teaching and learning process, to prepare students with the knowledge and skills they need in the 21st century. Apparently, teaching profession is evolving from an emphasis on teacher centered, lecture based instructions to student centered interactive learning environments E-education integration is understood as the usage of technology seamlessly for education processes like transacting curricular content, students working on technology to do authentic tasks and developing technology supported products, providing authentic assessments and institutional development. Today, a variety of E-educations can facilitate not only delivery of instruction but also learning process itself.

Undoubtedly-education has brought about many challenges and opportunities for education. The educational system needs to come to terms with these new challenges and take full advantage of the opportunities. If educational institutions have to ensure that their students leave the institutions as confident individuals capable of using new technology creatively and productively then their teachers should have the competence to integrate the emerging technologies and the digital content with all their operations.

Therefore, the challenge for higher education institutions particularly teacher education. Has been to create a new generation of teachers capable of employing a variety of technology tools into all phases of academic, administrative, research, and extension functions. A teacher being a pivot in the process of teaching learning, knowledge of e-education and skills to use e-educations in teaching learning has gained immense importance for today's teacher. A teacher is expected to be successfully able to integrate e-education into his/her teaching to make learning meaningful.

GENERAL OBJECTIVES:
➢ *To acquire basic knowledge of e-education.*
➢ *To learn information processing tools and techniques.*
➢ *To understand e-education applications in various domains of business.*
➢ *To develop e-education vocational appreciation.*

BENEFITS OF E-EDUCATION:
There are enormous benefits from the usage of e-education in Teacher Education and Research. The benefits of e-education features in teacher education and Research are summarized below;
➢ *Improves efficiency both in teaching and learning*
➢ *Increases motivation*
➢ *Paves way for personality development*
➢ *Self paced learning*
➢ *Very flexible and rich medium for students to access the information*
➢ *Active participation of student*
➢ *Better learning, retention and students performance*
➢ *Multi sensory learning experience*

DEVELOPING 21ST CENTURY SKILLS:

Accelerating technological change, rapidly accumulating knowledge, increasing global competition and rising workforce capabilities around the world make 21st Century skills essentials. Following are the skills which allow student-educators to prepare for careers, requiring them to acquire a new knowledge, learn new technologies, and facilitate rapid process information..

➢ *Creativity and intellectual curiosity*
➢ *Critical thinking and systematic thinking*
➢ *Engage in problem solving and ensure security and safety*
➢ *Interpersonal and collaborative skills*
➢ *Problem identification, formulation and solution*
➢ *Self-direction and social responsibility*
➢ *Understand the computational modeling*

These skills are incorporated into teacher education curriculum with the help of e-education for promoting the student educator's skills.

APPROACHES TO E-EDUCATION INTEGRATION IN TEACHER EDUCATION: Use of e-education within teacher training programs around the world is being approached in a number of ways with varying degrees of success. These approaches can be subsequently described refined and merged into four primary approaches viz.

E-EDUCATION SKILLS DEVELOPMENT APPROACH: Here, importance is given to providing training in use of e-educations in general. Student-teachers are expected to be skilled users of e-education in their day-to-day activities. Knowledge about software, hardware and their use in educational process in provided.

E-EDUCATION PEDAGOGY APPROACH: This approach emphasizes on integrating e-education skills in respective subjects, drawing on the principle of constructivism; pre-service teachers design lessons and activities that centre on the use of e-education tools that will foster the attainment of learning outcomes. This approach is useful to the extent that the skills enhance e-education literacy skills and the pedagogy allows student to further develop and maintain these skills in the context of designing classroom-based resources.

SUBJECT SPECIFIED APPROACH: Here, e-education is embedded into one's own subject area. By this method teachers not only expose students to new and innovative ways of learning but also provide them with a practical understanding of what learning and teaching with e-education looks and feels like. In this way, e-education is not an 'add on' but an integral tools that is accessed by teachers and students across a wide range of the curriculum

PRACTICE-DRIVEN APPROACH: Here, the emphasis is on providing exposure to use e-education in practical aspects of teacher training also. By emphasizing on developing lessons, assignments etc., using e-education and implementing these in their practical work experience at various levels, the students are provided with an opportunity to assess the facilities available at work place and effectively use their own skills to manipulate these facilities Based on the concept that the pre service teacher is a learner, manager, designer and researcher, she or he is expected to design e-education activities with their tutor teacher, manage those activities in the classroom, and evaluate their effectiveness in terms of student learning. Ideally, an integrated approach is to be followed for developing e-education skills in teachers.

Thus, e-education in teacher training can take many forms. Teachers can be trained to learn how to use e-education tools. E-education (ICT) can be used as a core or a complementary means to the teacher training process (Collis & Jung, 2003) The various ways in which e-education teacher training efforts can be classified are.

- *E-education (ICT) as part of content*
- *E-education (ICT) as facilitator*
- *E-education (ICT) as core content*
- *E-education (ICT) as core delivery*

CHANGING ROLE OF TEACHER EDUCATOR: Under the changing scenario, there is a need to redefine the role of teacher educators. For the successful integration of e-educations in teacher education, the teachers must shoulder the following responsibilities;

- *Act as a role model for pre-service trainees and in service teachers, demonstrating the use of technology across the curriculum.*
- *Encourage technology integration among the trainees, colleague's teachers and parents.*
- *Be up-to-date with the latest technological developments and advise the institutions concerning technology advancements and up-gradation.*
- *Plan, design and demonstrate the use of multimedia applications of instructional use through multimedia applications for instructional use through multimedia projects.*
- *Examine a variety of evaluation and assessment tools.*
- *Become active, competent online users of telecommunication services and act as model in the use of Internet as an instructional tool.*
- *Direct trainees and teachers to digital resources that will be able to answer their questions.*
- *Use information literacy to access, evaluate, and use information from a variety of sources.*

E-EDUCATION TRAINING INPUTS FOR TEACHERS AND TEACHER-EDUCATORS:
For the successful implementation of e-education, teacher trainees, teachers and teacher-educators need to be trained in the following dimensions.

AWARENESS PHASE:
The input should be to make the teachers aware of the importance and possibilities of ICT the current trends and future projections.

LEARNING THEORIES AND TECHNOLOGY INTEGRATION:
Traditional and modern view of learning, shift from teaching to learning constructivism, role of e-education in lifelong learning.

BASIC HARDWARE AND SOFTWARE SKILLS: Hands on experiences in operating. A) the PC and laptops switching on, shutting down, and networking B) storage devices using floppy drive CD ROM drive, flash drive and burning CD-ROM, C) output devices using printers and speakers, D) input devices using keyboard, mouse, modem, scanners, etc; E) display devices data projectors and interactive white boards. F) Features of desktop, starting an application, resizing windows, organizing files (creating, editing saving and renaming), Switching between programs, copying etc.,

USING APPLICATION / PRODUCTIVITY SOFTWARE:
Word processing spreadsheet, database, presentation, publishing creation of PDF files, test generation, data logging, image processing etc,

USING INTERNET E-MAIL COMMUNITY'S FORUMS, BLOGGING:
Subscription to mailing lists, e-mail and Internet projects, web searching strategies (navigating, searching, selecting and saving information) videoconferencing.

PEDAGOGICAL APPLICATION OF E-EDUCATION TOOLS:
Specific use of application software in different subjects, appropriate e-education tools and pedagogy, unit plan integrating e-education tools, approaches to managing e-education based learning groups, assessment of learning, electronic portfolio and assessment rubrics, creating teacher and student support materials, supporting students with special needs.

TEACHER EDUCATORS' INITIATIVES:

Whatever may be the inputs in the training and howsoever well designed it is, the transformation can't be achieved without the leadership, commitment and initiatives of the teachers and teacher educators. Hence, both should take up initiatives like;

➢ *Self-learning using the tutorials available on the NET, or print medium.*
➢ *Attending e-education training courses, seminars, conferences and workshops.*
➢ *Online learning by means of videoconferencing, discussion forum, chat, blogging etc.,*
➢ *Action research trying out various models of technology integration and publishing the result of the same.*
➢ *Exploring the possibility of faculty exchange program to get placed in an organization where the e-education integration in already in place.*
➢ *Keeping up-to-date with the latest developments in e-education through journals magazines, newspapers and the internet.*
➢ *Planning and implementing e-education in-service training programs for school teachers the best way to learn is to teach.*

UNESCO Planning Guide for e-education (ICT) in Teacher-Education has cited three key principles for effective e-education development in Teacher Education that were put forward by the society for Information Technology and Teacher Education.

➢ *That technology should be infused into the entire teacher education program, implying that e-education (ICT) should not be restricted to a single course but needs to permeate in all courses in the programs.*
➢ *That technology should be introduced in context. Accordingly-education (ICT) application like word-processing, databases, spread-sheet and telecommunications should not be taught as separate topics rather encountered as the need arises in all courses of Teacher-Education programs.*
➢ *That students should experience innovative technology supported learning environment in Teacher-Education programs. This requires that students should see their lecturers engaging in technology to present their subjects utilizing power point or simulations in lectures and demonstrations. Students should also have the opportunity to use such applications in practical classes seminars and assignments.*

The application of these three principles will be a milestone in effectively integrating e-education (ICTs) in Teacher-Education and Research.

E-EDUCATION INTEGRATED FOR RESEARCH:

Research in any discipline is an intellectual activity involving analysis, testing and Experimentation, consultation of reference and other research material Communications with peers and colleagues, preparation of papers and reports, and so On, for using a meaningful e-education support a researcher today has to know the following disciplines involved, but could included any or all of the following.

Personal Computing:

Most researchers have some requirements of personal computing, which includes the ability to handle computational analysis, word- processing and general text processing of texts and graphics: analysis of data and planning information.

Local data and software sharing:

Most researchers do not work in isolation and so have a need from within their computing environment to have access to, share and manipulate local databases, and to share standard software among colleagues.

Graphics and image display and analysis:

In many disciplines, particularly in Teacher education and Research, researchers have a need for the sophisticated manipulation of image and graphics data, and require special e-education resources to provide these facilities. These needs will become much more common as researchers in all disciplines begin to appreciate the benefits of being able to manipulate graphs and imagery in documents as easily as they manipulate text today.

Computer Network:

Researchers need sophisticated communications tools such as electronic mail and file transfer facilities to ensure rapid and timely information sharing and collaboration. Indeed researchers require an information environment which provides in an integrated and ideally uniform manner, the services necessary to meet all the above needs and which delivers these services through the single window of the computer screen on the researcher's desk. Also support organization is required to coordinate, deliver and support the researcher's Information and Communication Technology window on the world.

Experimental analysis and campus Network Experiments:

Many experimental research groups now conduct the analysis of large number of experimental measurements, each of which may involve substantial computation on a large number of data points, using combination of the various computing resources available on a campus network

Effective Use of E-education:

The effective and efficient use of e-education depends on technically competent educators/teachers. They should be able to appreciate the potentiality of e-education and have positive attitude towards e-education. Four phases are conducted to implement e-education content in Teacher Education Program so that the student teachers when they become teachers in school would able to utilize e-education tools in Teacher Education and Research in promoting Flexible learning Environment to meet individual learning objectives of the subject-matter content. The four phases are.

 ➤ *E-education (ICT) literacy*
 ➤ *Effective and efficient use e-education hardware and software for teaching learning activities*
 ➤ *E-education based pedagogy, online support, networking and management, and*
 ➤ *Adopting best innovative practices in the use of e-education.*

All the above phases are very essential for the effective and efficient use of e-education in the Teacher Education and Research. There is no doubt that e-education integrated teaching helps a teacher to discharge his/her duty effectively.

CONCLUSION

The teacher education system empowered by e-education driven infrastructure can have a great opportunity to come up to the centre stage and ensure academic excellence, quality instruction and leadership in a knowledge based society. E-education has revolutionized the entire concept of education, learning and research by offering new opportunities and challenges in creation and dissemination of information. Information and communication technologies have brought new possibilities to the education sector, but at the same time, they have placed more demands on teachers. The teachers now have to learn how to cope with computers in their classrooms, how to compete with students in accessing the enormous body of information particularly via the Internet and how to used the hardware and software to enhance the teaching/learning process. Unless teachers are fully comfortable with new approaches to teaching inherent in e-education integration, providing students with computers and educational content alone will have limited impact on the teaching and learning process. It is also essential that teachers understand that e-education based education only changes their role, rather that minimizing or eliminating their role altogether.

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