



RECENT INNOVATIONS , NEW TRENDS AND INTEGRATION OF ICT IN TEACHER EDUCATION

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Abstract

New technologies and digital media have made significant progress and generated impact and improvement on the conditions for learning in education, training and Lifelong Learning (LLL). Information and Communications Technology (ICT) is more widespread than ever before. Information and Communication Technology (ICT) presented new ways of working in education. ICT has been both a field of study and an important dimension in teacher education. ICT improves teaching and learning and its importance for teachers in performing their role of creators of pedagogical environments. One of most critical challenges of the knowledge society is to promote the creation and widespread use of modern information and communication technologies for learning, education, and training. Today in India teaching training programmes making useful and attractive by the term of ICT. Information and Communication Technologies is a part of our lives for the last few decades affecting our society as well as individual life. ICT which is now broadly used in educational world. Teacher, Student, administrator and every people related to education are popularly used ICT. Teacher use ICT for making teaching learning process easy and interesting. A competent teacher has several skills and techniques for providing successful teaching. In modern science and technological societies education demands more knowledge of teacher regarding ICT and skills to use ICT in

teaching –learning process. This paper discussed about the Recent Innovations, New trends and Integration of ICT in Teacher Education

Keywords: Recent Innovations , ICT, New Trends , Integration , Teacher Education

Introduction :

To innovate is to look beyond what we are currently doing and develop a novel idea that helps us to do our job in a new way. The purpose of any invention, therefore, is to create something different from what we have been doing, be it in quality or quantity or both. To produce a considerable, transformative effect, the innovation must be put to work, which requires prompt diffusion and large-scale implementation.

Innovation is generally understood as “Innovation seems to have two subcomponents. First, there is the idea or item which is novel to a particular individual or group and, second, there is the change which results from the adoption of the object or idea” (Evans, 1970, p. 16). Thus, innovation requires three major steps: an idea, its implementation, and the outcome that results from the execution of the idea and produces a change. In education, innovation can appear as a new pedagogic theory, methodological approach, teaching technique, instructional tool, learning process, or institutional structure that, when implemented, produces a significant change in teaching and learning, which leads to better student learning. So, innovations in education are intended to raise productivity and efficiency of learning and/or improve learning quality.

First-level innovations (with a small *i*) make reasonable improvements and are important ingredients of everyday life and work. They should be unequivocally enhanced, supported, and used. Second-level



innovations either lead to a system's evolutionary change or are a part of that change and, thus, can make a considerable contribution to educational quality. But we are more concerned with innovations of the third level (with a capital I), which are both breakthrough and disruptive and can potentially make a revolutionary, systemic change.

All innovations are ultimately directed at changing qualitative and/or quantitative factors of learning outcomes:

- Qualitative: better knowledge, more effective skills, important competencies, character development, values, dispositions, effective job placement, and job performance; and
- Quantitative: improved learning parameters such as test results, volume of information learned, amount of skills or competencies developed, college enrollment numbers, measured student performance, retention, attrition, graduation rate, number of students in class, cost, and time efficiency.

Innovation can be assessed by its novelty, originality, and potential effect. As inventing is typically a time-consuming and cost-demanding experience, it is critical to calculate short-term and long-term expenses and consequences of an invention. They must demonstrate significant qualitative and/or quantitative benefits. As a psychologist Mihalyi Csikszentmihalyi writes, "human well-being hinges on two factors: the ability to increase creativity and the ability to develop ways to evaluate the impact of new creative ideas" (Csikszentmihalyi, 2013, p. 322). Innovation in any area or aspect can make a change in education in a variety of ways. Ultimately, however, innovations are about quality and productivity of learning (this does not mean we can forget about moral development, which prepares young people for life, work, and citizenship) (Camins, 2015). A growing trend in higher education is a market approach wherein the

main goal is set for "meeting the demands of the student population that is learning – a life-long population of learners" (Afshar, 2016). Universities today are busy innovating how to increase students' satisfaction and create "exceptional," "premier," or "extraordinary" learning experiences rather than caring about their true knowledge and quality achievements.

Innovation is usually understood as the introduction of something new and useful, like introducing new methods, techniques, or practices or new or altered products and services. Schools or teacher education institutions can carry out innovations or experimentation on any aspect of their work related to teaching-learning, training or management of schools in order to improve efficiency of the institution to overcome problems and difficulties, they face in day to day functioning. The present structure of teacher education is supported by a network of national, provincial and district level resource institutions working together to enhance the quality and effectiveness of teacher preparation programs at the pre-service level and also through in-service programs for serving teachers throughout the country.

The use of ICT in teaching-learning process is a relatively new phenomenon and it has been the educational researchers' focus. The effective integration of this technology into classroom practices poses a challenge to teachers and administrators. This empirical study aimed at finding out the factors influencing use of ICT to make teaching learning effective in higher institutions of learning in Uganda and identifying the innovations that ICT has brought into teaching-learning process, particularly in higher institutions of learning in Uganda. A survey was employed and in order to empirically investigate the study. The findings of this study revealed that teaching staff and administrators had a strong desire to integrate ICT into teaching-learning processes. The innovations that ICT has brought in teaching learning



process include: E-learning, e-communication, quick access to information, online student registration, online advertisement, reduced burden of keeping hardcopy, networking with resourceful persons, etc. However, the presence of all these factors increased the chance of excellent integration of ICT in teaching-learning process. Therefore, the training of teaching staff in the pedagogical issues and administrators in administration should be increased if teachers and administrators are to be convinced of the value of using ICT in their teaching-learning process and administration.

Need and Significance of the Study

The scenario of the classroom is changing. There is a technological gap between the progress of the society and instructional activities of the teacher in the classroom. If we see in our society on the one hand technology has revolutionized our society and on the other hand the teaching learning activities at school level have remained so far away from technology. In our classroom the knowledge is imparted by the teacher in an ancient way, a teacher centric mode which is most of the time boring and not to gain interest to the student. Students learn from multi sources and for this reason use of ICT & Multimedia is very much essential in educational field and simultaneously teacher's knowledge of ICT and Multimedia also required. So present study has great need and significance because this study show Recent Innovations , new trends and integration of ICT in teachers education.

Objective of the Study

The objective of the present study is –
To find out the Recent Innovations, New Trends and Integration of ICT in Teachers Education .

Methodology

This present study is based on secondary sources like books, Articles, Journals, Thesis, University News, Expert opinion and websites etc. The method used is Descriptive Analytic method.

Why Do We Use Ict in Teacher Education?

The classroom is now changing its look from the traditional one i. e. from one way to two way communication. Now teachers as well as students participate in classroom discussion. Now Education is based on child centric education. So the teacher should prepare to cope up with different technology for using them in the classroom for making teaching learning interested. For effective implementation of certain student-centric methodologies such as project-based learning which puts the students in the role of active researches and technology becomes the appropriate tool. ICT has enabled better and swifter communication; presentation of ideas more effective and relevant way. It is an effective tool for information acquiring-thus students are encouraged to look for information from multiple sources and they are now more informed then before. So for this reason ICT is very much necessary for Teacher Education.

Recent Trends in Teacher Education

Based on various changing needs of our society now emphasis is also given to the various educational theory and educational practices. According to these theories and practices changes are also undergo in teacher education also. It is natural that teacher education must include new technology. Teachers should also know the right attitudes and values, besides being proficient in skills related to teaching. As we know the minimum requirement of any training programme is that it should help the trainee to acquire the basic skills and competencies of a good teacher. Now-a-days new trends in teacher education are Inter-disciplinary Approach, Correspondence courses, orientation courses etc. Simulated Teaching, Micro Teaching, Programmed Instruction, Team Teaching are also used in teacher education. Now-a-day Action Research also implemented in Teacher Education. ICT acts as the gateway to the world of information and helps teachers to be updated. It creates awareness of innovative



trends in instructional methodologies, evaluation mechanism etc. for professional development.

The following evolving trends play a significant role and impact on society and therefore ICT:

Anytime, Anywhere, Any Device Access To Communications, Content, Commerce, And Applications

Consumer Cloud Services is a concept involving the storage of various consumer electronic items in "the cloud" for the benefit of anytime, anywhere, any device access. The concept is that one would not be limited to things like not being able to listen to their music because it is stored on a laptop (only) and not accessible when wanted on the go.

Increased Emphasis On Non-Human Communications

With worldwide carriers reaching saturation of human users, network operators are looking for new ways to generate revenue and enhance profitability. At the same time, miniaturization is reaching the point in which embedded computing can be virtually ubiquitous. With the advent of IP version six (IPv6) and the attendant huge increase in IP addresses, virtually everything can be labeled (e.g. have an address or reference). All of this adds up to translate into a world in which objects (devices, equipment, and other assets) are communicating, transacting, signaling, etc. Arguably this market will overtake human communications rapidly as there are vastly more objects in the world than humans, they can communicate much faster, much more frequently, and for many more reasons than humans.

The Convergence And Integration Of Many Things

Many things are converging including everything from networks, services, and entire business models. One key example that is particularly poignant for enterprise is the convergence of M2M, IoT, Social, and Big Data. In many enterprises, discrete information systems that were developed

over time for specific functions in an uncoordinated fashion have traditionally hampered high-level decision-making. When internal systems are organized in a silo fashion, top management typically struggles to spot correlations among individual departmental reports that could indicate areas for cross-departmental or divisional improvements. Historically, discrete data collection systems fail to present big picture perspectives since any actionable information on trends is constrained, as if perceived through horse blinders.

Open Networks, Open Interfaces, And Many Applications

While a large part of the market is yet to understand their technological and strategic significance, Telco Network Application Programmer Interface (API) play a critical part in carrier networks as a secondary stream of revenue. Telco Network APIs capitalize on existing network infrastructure to create a vast array of business opportunities for carriers worldwide. In essence, these APIs allow carriers to disseminate a wealth of internal information or resources to third parties. This could entail everything from network QoS for video service delivery to Subscriber Data Management (SDM) for advertising and profiling, the goal being to enable third party developers to offer services in return for revenues.

Some of the Recent Information Communication Technologies

E-mail

E-mail Increasingly, e-mail is becoming the most widely used medium, ranging in function from exchange of gossip, to serious dialogue and collaborative research. It also has become an important supplement to classroom teaching. Bulletin board services extend the classroom beyond fixed timetables; listservs bring communities of learners together; and assignments and term papers are beginning to be channeled routinely through e-mail. On-campus education is being enriched by e-mail



facilities, and off-campus education is made more personal and interactive. In economically developed countries, e-mail is almost as common as the telephone. In many cases, connections are free of charge, appliances are provided at low or no cost, and training is available for neophyte users. In poor economies, e-mail has yet to make its presence felt throughout society, but is increasingly available at community service centers such as libraries, telelearning centers, and "cyber cafes."

World Wide Web

Many on-campus instructors are beginning to use the Web to make their lecture notes available to students at any time. The Web also has the advantage of providing access to primary sources of information in most media (print, graphics, photographs, audio, and video) through streaming. This technology requires good organizational and pedagogical skills to profit from its enormous potential, and faculty training in its use will be essential. Bates24 considers the Web to be a low-cost technology for several reasons: the existence of simple computer languages such as HTML and intermediary course authoring systems such as the WebCT and Blackboard; it uses the Internet as a transport vehicle that involves no direct charge for independent packets of information, and pricing is by volume and not by time or distance; the Web's ability to combine media, thereby increasing its range of applications; access to high-quality learning resources inexpensively; it allows asynchronous interpersonal communication through e-mail, bulletin

One-to-One computing.

The trend in classrooms around the world is to provide an information appliance to every learner and create learning environments that assume universal access to the technology. Whether the hardware involved is one laptop per child (OLPC), or – increasingly – a net computer, smart phone, or the re-emergence

of the tablet, classrooms should prepare for the universal availability of personal learning devices.

Personalized learning

Education systems are increasingly investigating the use of technology to better understand a student's knowledge base from prior learning and to tailor teaching to both address learning gaps as well as learning styles. This focus transforms a classroom from one that teaches to the middle to one that adjusts content and pedagogy based on individual student needs – both strong and weak.

Ubiquitous Learning

With the emergence of increasingly robust connectivity infrastructure and cheaper computers, school systems around the world are developing the ability to provide learning opportunities to students "anytime, anywhere". This trend requires a rethinking of the traditional 40 minute lesson. In addition to hardware and Internet access, it requires the availability of virtual mentors or teachers, and/or opportunities for peer to peer and self-paced, deeper learning.

Cloud Computing

Applications are increasingly moving off of the stand alone desk top computer and increasingly onto server farms accessible through the Internet. The implications of this trend for education systems are huge; they will make cheaper information appliances available which do not require the processing power or size of the PC. The challenge will be providing the ubiquitous connectivity to access information sitting in the "cloud".

Mobile Learning

New advances in hardware and software are making mobile "smart phones" indispensable tools. Just as cell phones have leapfrogged fixed line technology in the telecommunications industry, it is likely that mobile devices with internet access and computing capabilities will soon overtake personal computers as the information appliance of choice in the classroom.



Multimedia, CD-Rom, DVD:

Multimedia, CD-ROMs, and DVDs are very exciting learning tools. Their development costs can be very high, especially those at the very high end that can carry large quantities of data in a variety of formats, such as audio and video clips, Internet connections to other databases, large amounts of information, and built-in simulation and other enrichments. Putting all these together in user-friendly packages will require teams of experts, from media producers to content experts. The reproduction cost of CDROMs can be reduced considerably if large numbers are "burned." Consequently, this medium is a consideration only when enrollments are large enough to justify the development expense. However, there is a strong case for developing the medium when the course can be used by a consortium of institutions working together. Satellite Broadcasting Satellite broadcasting for educational purposes has a long history. Countries such as India²⁵ and China,²⁶ and such regional universities as the University of the West Indies²⁷ and University of the South Pacific²⁸ have long used satellites to deliver audio- and video-based lectures to all corners of their region. Satellites serve as good vehicles to carry lessons, and, by marrying satellites to ground facilities, it is possible to build a two-way learning environment. In addition, their digital technologies allow for further sophistication to be built into the learning systems. However, because of their high start-up cost, satellites' value for educators is limited. Recent developments sponsored by private enterprises such as World Space have combined satellite technologies with digital ones to broadcast voice and data directly to specially designed digital receivers over very large geographic areas. While this venture is driven by and for commercial interests, special provision for educational purposes allows educational providers to reach very remote and isolated parts of the world. World Space eventually expects to reach an audience of some 3 billion

people. While satellite technology has some significant advantages in terms of reach and low unit cost, for it to be truly effective as a learning technology requires extensive local support on the ground, either on an interpersonal basis or through telephony, the Internet, etc. Ground support will cause costs to increase considerably, thereby reducing the economic benefits. As Bates²⁹ concludes, "well designed printed texts can be more educationally cost-effective than real time or even recorded satellite lectures."

Video Conferencing

In the late 1970s, multi campus postsecondary institutions began experimenting with videoconferencing to distribute their education and training services and lectures in real time. With the decreasing costs of telephony, videoconferencing has become relatively popular, especially in Australia and the United States. This technology, an amalgam of telephony and computer-compressed technologies, reduces the amount of time instructors and students spend traveling from campus to campus to deliver and receive lessons. It also saves instructors from having to repeat lectures. The traditional culture of classroom teaching is preserved, and no new skills have to be learned by students or teachers. It is not a flexible system of learning, however. New innovations incorporating videoconferencing technologies with the Internet and Web technologies offer new opportunities, notwithstanding some concerns about the visual and voice quality of such arrangements.

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Conclusion

Teaching occupies an honorable position in the society. ICT helps the teacher to update the new knowledge, skills to use the new digital tools and resources. By using and acquire the knowledge of ICT, student teacher will become effective teachers. ICT is one of the major factors for producing the rapid changes in our society. It can change the nature of education and roles of students and teacher in teaching learning process. Teachers in India now started using technology in the class room. Laptops, LCD projector, Desktop, EDUCOM, Smart classes, Memory sticks are becoming the common media for teacher education institutions. So we should use information & communication Technology in Teacher Education.

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