ISSN: 2278-4632
Vol-10 Issue-3 No. 1 March 2020

RAMIFICATIONS OF ICT IN TEACHER EDUCATION

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ABSTRACT

The value of information and communication technology (ICT) in education cannot be emphasised on a global scale. ICT has the potential to be a powerful tool for increasing educational possibilities. ICT has the potential to expand educational access while also enhancing the relevance and quality of education. Because it enhances teaching and learning, provides a favourable learning environment, and helps learners develop creative thinking and self-confidence, ICT has become more important in the teaching and learning process. In terms of delivering high-quality education, ICT has created new challenges. As a consequence, many aspects of people's life have altered. The purpose of this article is to discuss the benefits of using Information Communication Technology (ICT) in the classroom, especially in terms of enhancing teaching and learning. Incorporating ICT into the teaching and learning process effectively is critical to its improvement. It highlights the benefits and impacts of ICT in education.

Key Words: ICT, impact of ICT, sustainable education, solution and problem, teaching and learning process.

1. INTRODUCTION

The strategic goals of UNESCO in the field of education are to enhance educational quality by diversifying content and methods and promoting experimentation, innovation, dissemination and exchange of knowledge and best practises, as well as policy debate (UNESCO, 2002). This is because information and communication technologies (ICTs) have developed into essential tools that have revolutionised how we see and live in the world. This phenomena is accountable for our way of life's modernisation and development. ICT is changing the way people learn all around the globe. However, this revolution is not broad and must be strengthened in order to reach a significant part of the people. Because many variables affect how people use and integrate ICTs in society, a multidisciplinary and integrated approach is essential for the economy and society's long-term success (Mac-Ikemenjima, 2005).

Information and communication technologies (ICTs) have become indispensable and widely accepted in contemporary life, especially in developed countries. In fact, cultures and communities

ISSN: 2278-4632
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have evolved to meet the needs of the information era. Because of the pervasiveness of ICT, fast technical, social, political, and global economic change has occurred. The pervasiveness of information and communication technology, on the other hand, has had an influence on education. Without a question, information and communication technologies (ICTs) have influenced the quality and quantity of teacher education teaching, learning, and research. As a consequence, information and communication technology (ICT) enables student instructors, academics, and non-academic staff to interact more effectively with one another throughout official and informal teaching and learning (Yusuf, 2005b, pp. 316-321). Teachers, too, need to be trained in not just computer literacy, but also how to utilise a variety of instructional applications in their classrooms (Ololube, 2006).

They must also learn to integrate ICTs into their classroom activities as well as the school structure. Teacher quality is recognised as a critical predictor of student learning in nearly all nations (Ololube, 2005a; 2005b). Since a consequence, using ICTs to educate teachers is important, as ICTs are instruments that can ease teacher training while also enabling them to fully use technology's potential to enhance student learning (UNESCO, 2003). As a consequence, ICTs have ushered in a new era in conventional teaching techniques, offering new teaching and learning possibilities for both instructors and students. Since a consequence, educational institutions should take use of this capacity to offer easy access to information, as technology allows for a unique and realistic representation of instructional materials.

2. OBJECTIVES

The key assertions of this paper are accomplished with the following objectives:

a) To analyse the role of ICT in Teacher Education as a both as a solution and a problem
b) To study the establishment of ICT in implementing sustainable education

3. RESEARCH METHODOLOGY

4. FINDINGS AND DISCUSSION

a) ICT: A STIMULANT AND DEPRESSANT OF TEACHER EDUCATION

Teachers have struggled to find effective ways to integrate technology into their classrooms and other aspects of teaching and learning. Teachers are not adequately trained in utilising ICTs in teaching as a means of educational sustainability, which may be one reason for teachers' lack of success (Ololube, 2006), In a recent study by the Global Information Technology (2005), the Networked Readiness Index (NRI) was used to measure the degree of readiness of a country or community to participate in and benefit from ICT advances, encompassing a total of 115 economies

ISSN: 2278-4632
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in 2005-2006. Singapore, Denmark, Iceland, Finland, Canada, Taiwan, Sweden, Switzerland, and the United Kingdom, among others, came out on top.

Fundamentally, inadequacies in the use of audiovisual materials and equipment in teacher education programmes, such as films, slides, transparencies, projectors, globes, charts, maps, bulletin boards, as well as programmed materials, information retrieval systems, and instructional television, are barriers to programme efficacy. As a consequence, administrators and trainers must make educational technology an integral part of teaching and learning in order to show how the use of instructional technology tools may help with both personal and general teaching and learning challenges.

Nonetheless, because educational systems around the world are under increasing pressure to use new information and communication technologies (ICTs) to teach students knowledge and skills, the integration of ICTs in university teaching, particularly in teacher training programmes, has been a hot topic (Larose et al., 1999). Educating a new generation of teachers to utilise contemporary learning technologies successfully in their classrooms is a challenge for teacher education institutions (UNESCO, 2002).

As a consequence, the widespread influence of information and communication technology on teacher education programmes has had an impact (ICT). ICT has unquestionably influenced the quality and quantity of teaching, learning, and research in conventional and distance education institutions throughout the globe. In other words, ICT literacy has enhanced teaching and learning by allowing for true tailoring of education via dynamic, interactive, and engaging material (Newhouse, 2002a).

ICT has the potential to accelerate, enrich, and deepen skills; to motivate and engage students in learning; to assist students in connecting school experiences to work practises; to assist in the creation of economic viability for tomorrow's workers; to contribute to radical changes in education; to strengthen teaching; and to provide opportunities for connection between institutions. Information and communication technology has the potential to boost educational efficiency and productivity, resulting in a broad variety of tools to assist and facilitate teachers' professional activities (Yusuf, 2005b). According to Newhouse, technology has been created to solve problems, improve living standards, and increase productivity (2002b). As a consequence, it's reasonable to expect instructional technology to be designed with similar objectives in mind. To put it another way, educational technology should influence educational results as well as costs. Because if a teacher

ISSN: 2278-4632
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choose the most suitable educational technology, student learning may be enhanced, thus increasing the value of the results.

Teachers' ICT literacy is conceptually vague and changing, in the sense that the concept's meaning varies depending on whether it happens at the operational abilities specified level or at other levels. They, like most contemporary writers, prefer to concentrate on a few traits or skills that may reflect a teacher's knowledge of how to utilise ICTs in the classroom. As a result, it encompasses the capacity to create and utilise suitable ICT resources, as well as the ability to recognise and effectively impact students' particular goals in order to acquire information and promote critical and creative thinking.

As a consequence, teacher education and training is a technique of continuing professional development that covers all developmental functions aimed at preserving and increasing one's professional competence and literacy. Teachers' professional progress supports the notion that ICT in teacher education and training is critical to their work effectiveness and development. This is due to the fact that teacher education and training are often seen as essential to school effectiveness and development (Larose et al., 1999).

Teachers who are dedicated to developing their abilities, according to Creemers (1994), are more likely to contribute to the increase in student achievement, either directly or indirectly. Similarly, staff training and education studies have clearly shown the need to offer more chances for instructors to educate and develop themselves in order to create a link between their job and their effectiveness (Javis, 1983; Keen, 1991; Kautto-Koivula, 1996). Teachers will need effective methods, resources, and assistance in order to develop ICT-based projects and activities that are particularly designed to raise the quality of teaching in necessary areas, promoting student learning and academic achievement (Aduwa-Ogiegbaen & Iyamu, 2005). In fact, incorporating ICT resources into secondary schools is pointless if in-service and pre-service instructors are unfamiliar with the conventional teaching techniques needed for acceptable and effective instructional involvement. As a consequence, in order to assist students with their ICT material use abilities, instructors must first be properly educated and developed (Ololube, 2006). On the other hand, Larose et al. (1999) argue that, regardless of the quality of ICT equipment available to teachers in the school environment or the number of courses they have taken during their undergraduate studies, the level of transfer of acquired competencies and learning to practise is very low.

However, rather than incorporating new technology into daily teaching processes, education has the biggest effect on the educated at the level of private use of new technologies. Many educated individuals, regardless of their educational level, have basic computer literacy but do not utilise it in

ISSN: 2278-4632
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their teaching because they are concerned that the fast obsolescence of hardware and software would make their work more difficult and endless, according to Larose and colleagues. They went on to add that some writers explain this trend by citing low levels of computer literacy among students instructors throughout their pre-service education. On the other hand, Newhouse (2002b) has shown that ICT usage has significant impacts on students, learning environments, instructors and pedagogy, school ICT capability, and school and system organisation, policy, and practise.

b) ICT: A TOOL FOR SUSTAINABLE EDUCATION

The Indian government has recognised the use of ICT in teacher education. The Government of India's Sakshat Portal, the National Program of Technology Enhanced Learning (NPTEL), and the Multimedia Educational Resource for Learning and Online Teaching (MERLOT), all of which aim to create high-quality digital content for various purposes, are among the initiatives underway in India to create digital repositories and learning objects (Jyoti Narayan Patra, 2014). (Baishakhi Bhattacharjee et al., 2016; Swati Desai, 2010) The following are some of the most important functions of ICT in education:

- To create a diverse range of educational services and media.
- To encourage access to education and knowledge for all people.
- Create a method for gathering and distributing educational data.
- To facilitate remote learning and improve technological literacy.
- Encourage people to share their knowledge and expertise.
- Assists in the development of creative teaching abilities and improves the effectiveness of classroom instruction.
- Serves as a support tool for teaching and learning.
- ICT aids instructors in motivating pupils and cultivating a love of learning.
- ICT is a repository for educational information since it can securely store all educational data.

Apart from this the major initiatives of the Government of India in this context are:

i) UGC Infonet- UGC-INFONET was established in the end of 2004 by UGC. The University Grants Commission (UGC) is a federal agency that administers grants to On the internet, UGCINFONET offers electronic access to all academic papers and information. The initiative was overseen by the Director, Information and Library Network (INFLIBNET) Centre, Ahmedabad, which includes UGC-affiliated institutions as participants.

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ii) BRIHASPATI: It's an e-learning platform. It was developed as an open source freeware project by IIT Kanpur. Faculty members may use the internet to post electronic copies of their handouts, lecture notes, and study materials.

iii) EDUSAT: EDUSAT was launched with the help of ISRO (Indian Space Research Organization) and the Ministry of Human Resource Development (MHRD). This project aims to enhance the country's distant education capabilities by multicasting interactive multimedia for instructional objectives.

iv) e-SHIKSHA: India's Ministry of Communications and Information Technology has released the e-SIKSHAK e-learning framework, which was developed by the Centre for Development of Advanced Computing (CDAC), a Scientific Society under the Ministry of Communications and Information Technology. Telugu language courses are available for free on this website.

v) e-YANTRA: As part of the National Mission on Education via ICT, e-Yantra is a project headed by IIT Bombay and financed by the Ministry of Human Resource Development. Its goal is to prepare the next generation of embedded systems engineers to tackle real-world issues by instilling a practical attitude in them.

vi) FOSSEE stands for Free and Open Source Software in Education, and it is part of the Ministry of Human Resource Development's (MHRD) National Mission on Education via Information and Communication Technology (ICT). The project's aim is to encourage the adoption of free and open-source software in India in order to enhance educational quality.

vii) VIRTUAL LEARNING ENVIRONMENT: A virtual learning environment (VLE) is an online platform for e-resources that caters to a wide range of undergraduate and graduate courses. The Institute of Life-Long Learning at the University of Delhi launched it in 2012.

In contemporary settings, curricula that promote competence and better performance, which are successfully supported and encouraged by emerging instructional technology, are now favoured above curricula that emphasise content (Stephenson, 2001). The increasing use of ICTs as a tool of daily life is enhancing the quality of student learning. ICT is helping students in making the move from content-based to competency-based curricula, as well as from teacher-centered to student-centered delivery modalities (Yusuf et al. 2013). It improves the quality of teaching while also encouraging collaborative learning. Learners may get fast and accurate feedback because to ICT (Becta, 2003).

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It promotes deeper learning and enables teachers to better react to students' varied needs (Lau & Sim, 2008). This allows for efficient learning path mapping and the activation of paced learning. According to (Newhouse P., 2002), ICT-assisted learning environments may be beneficial to a constructivist teaching style. One of the most important advantages of integrating ICTs into the educational system is that it prepares current and future generations of students for a workplace where ICTs, particularly computers, the internet, and other related technologies, are becoming more prevalent. These computer-savvy and technologically literate students possess the abilities needed to successfully utilise ICTs (Anu Sharma et al, 2011).

5. CONCLUSION

As a consequence of the revolution in information and communication technology, national boundaries have been reduced to meaningless lines painted on maps. In this scenario, education has been identified as one of the services that must be opened up for free trade between nations. The government can save a lot of money by incorporating ICTs into contemporary education.

Furthermore, since resource people for training may be the finest in the world, a considerable degree of quality improvement can be shown. ICT integration at all levels of education may assist to enhance educational quality and standards. However, in the twenty-first century, a lack of educational resources is a hurdle to ICT adoption in developing nations. The aim of integrating work and ICT into contemporary education is laden with challenges. Lack of ICT facilities at educational institutions, a lack of knowledge of how to utilise ICT equipment, a language barrier, a lack of finances, and a lack of trained people are only a few of the issues. However, by raising awareness about ICT education, formulating policies to promote broad access to skills and competencies for learning and adopting ICT, increasing community participation for self-sustainability in ICT applications, and developing supportive infrastructure like electricity and internet, we can overcome the obstacles. The government should play a more active role in this. In order for contemporary education to profit, responsible authorities must work to remove these barriers, as well as help instructors and institutions in becoming more modern and dynamic. The usage of ICT will ultimately improve students' learning experiences. In today's technologically sophisticated world, it also helps in the growth of a successful career.

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