Importance of Information and Communication Technologies in Teaching

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Abstract

Information and communication technology (ICT) includes the scientific, technological, and engineering discipline and management strategy for handling information, as well as its application and relationship to social, economic, and cultural issues (UNESCO, 2002). ICT has long shaped society and human life. Educational institutions increasingly rely on data and communication technologies. Many educators utilize technology daily. ICT improves teaching and student involvement. A good teacher must use many strategies to provide a top-notch education. Students require teachers who are knowledgeable about ICT and STEM. Educators and students must understand ICT to pursue knowledge in the present scientific and technological context. ICT knowledge will assist future teachers in understanding how technology might benefit students. ICT is transforming schools and classrooms with new curricula, learning tools, classroom upgrades, and assessment alternatives. New classroom technology is transforming teaching, which explains all of this. Technology aids teacher-student-parent communication in today's classrooms. The Center for Creative Education encourages teachers and students to use technology in the classroom to make education more engaging for today's kids. Teachers must be familiar with relevant ICT in order to assist students. Electronic communication and information collection are essential for future and current educators. This material can help teachers integrate technology into their lessons. This study examined how ICT is utilized in classrooms to better train future teachers.

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1. Introduction

Educators can no longer rely on tried-and-true practices because of the constant change in today's learning environments and the rapid development of ICT. Information and communication technology (ICT) in education is discussed from a variety of angles. While the potential advantages of ICT in the classroom have been the subject of much discussion, many people still have their doubts[1]. However, advocates of technology in the classroom, such as Negroponte (1995) and Papert (1996), argue that new technologies will transform education by helping students achieve greater success. Alternatively, a team of academics has developed a more comprehensive plan for integrating ICT into classrooms. Information and communication technology in education has the potential to enhance the educational experience if it is properly incorporated. Therefore, teacher preparation courses must provide future educators with a deep understanding of ICT and its

potential applications in the classroom. The Kothari Commission (also known as the "Education Commission"), which held hearings from 1964 to 1966, recognized the value of professional teacher education as a means of improving the standard of education. Educators are able to achieve this goal when they are equipped with information on essential scientific and technological principles. Several technology integration projects have been implemented, but in 2006, the Indian government made a big leap forward when the National Council for Teacher Education (NCTE) signed a Memorandum of Understanding (MoU) with INTEL Technologies with the aim of teacher educator training. The goal of the partnership is to make ICT more common in classrooms by giving teacher educators hands-on experience with different kinds of ICT and showing how it can be used to improve both teaching methods and content.

In 2004, the International Society for Technology in Education (ISTE) set out on a mission to create worldwide rules for the use of technology in education. In order to define ICT proficiencies for future educators, six broad categories are used. These include fundamental operations and concepts; social, ethical, and human issues; technology productivity tools; technology communications tools; technology research tools; and technology problem-solving and decision-making tools[2]. The first two groups address technological literacy, whereas the latter groups provide tools for better understanding technology. In 2010, the National Council for the Teaching of English (NCFTE) stressed the importance of instructors being aware of and sensitive to information and communication technology (the first two categories in the CDATA section) (ICT). Information and communication technology (ICT) was presented as a teaching strategy rather than a distinct academic discipline. The policy says that pre-service teacher education programs should focus on preparing future teachers to meet the technological needs of the classroom by giving them the skills they need to analyze, choose, implement, and evaluate ICT for use in the classroom. Teachers need to be able to find, organize, and combine relevant content with the appropriate technology for technology integration to be effective in the classroom. Most teachers lack the skills necessary to effectively integrate technology into their classrooms at the present time[3]. [4] invented the Technology Acceptance Model (TAM) as one of the many approaches designed to persuade educators to integrate technology into their classrooms and students' learning (1989).

According to the TAM model, people need to work together on the same platform in order to verify and implement ideas. When deciding whether and when to adopt new technologies, consumers consider a number of criteria, including how beneficial and simple they believe the new tools to be. These considerations have been incorporated into the model. According to Rogers's 2003 definition of the innovation-decision process, this is "an activity in which an individual is driven to eliminate ambiguity about the benefits and drawbacks of an innovation," and it entails both seeking and processing information. Knowledge is gained, a decision is made, action is taken, and the outcome is checked. A second model, the Concern-Based Adoption Model (CBAM), was developed in the latter half of the twentieth century, especially in the 1970s, by a team of academics at the University of Texas. It examines the concerns of end-users in the face of novel technologies or technical advancements, taking into account such factors as their familiarity with and plans for implementing the innovation in question. In 1995, Christopher Moersch created a method called the Level of Technology Integration (LoTI) to assess educators according to how frequently they employ technological tools in the classroom. The structure has seven levels: the nose, awareness, exploration, infusion, integration, expansion, and refinement. Simply put, none of the approaches discussed thus far solves every problem associated with the technical integration. In addition, these models don't account for the ways in which technology, pedagogy, and subject-matter knowledge are integrated into instructional practices. It's not always easy to figure out how to use technology in

the classroom effectively. Trying to gauge the firm's expertise must be challenging. Understanding and recognizing the right way to use technology for the many different kinds of courses and pedagogies is important if you want to improve how students learn in a certain educational setting.

2. Relevance and Necessity of the Research

After reviewing several studies on technological integration, it becomes clear that there is a distinction to be made between using technology for one's own pleasure and using it for one's own professional advancement[5]. Effective use of ICT in the classroom requires teachers to adapt their pedagogical strategies and technical affordances to fit the needs of the material being taught[6]. On the other hand, some aspiring educators have reported difficulties in utilizing ICT in the classroom. The first stage in getting teachers ready to use ICT in the classroom is their pre-service training[7]. Pre-service teachers with higher levels of technological proficiency are more likely to be enthusiastic about implementing technology into their lessons, as found in studies by[8]. Despite this evidence, several researchers [9]believe that pre-service teacher education programs are failing to properly integrate ICT [10]. Pre-service educators are not given sufficient instruction on how to utilize ICT in the classroom. Incorporating ICT (ICT) into the classroom is becoming increasingly important, but preparing future teachers to do so is difficult due to the rapid development of ICT and the large number of knowledge sources that must be integrated. Lim et.al found that the trainers' own use of technology, the quality of their own education, and the point of view of their mentors all affect how much ICT pre-service teachers learn.

Qualified educators are crucial to the success of any society. There are a variety of programs that train prospective educators, and they are all significantly impacted by the development of technology. Pre-service and continuing education programs for teachers in the twenty-first century must use ICT if they are to be successful. Having a basic understanding of ICT is essential for any educator in the modern classroom (ICT). Lesson planning, grading student work, and boosting classroom efficiency are just a few of the teaching duties that can be simplified with the use of ICT canty impacted by the development of technology. Pre-service and continuing education programs for teachers in the twenty-first century must use ICT if they are to be successful. Having a basic understanding of ICT is essential for any educator in the modern classroom (ICT). Lesson planning, grading student work, and boosting classroom efficiency are just a few of the teaching duties that can be simplified with the use of ICT. By utilizing NCERT, NAAC, NCTE, and UGC, educators are linked to colleges and universities. Institutions of higher learning can also take advantage of these groups.

The use of ICT in the classroom has been shown to have several benefits, including the enhancement of teaching methods, the promotion of professional development, the improvement of educational management, and the promotion of active learning among future educators. Several-year-older technology is being phased out in favor of its more recent counterpart. Modern students, as is well known, are fiercely competitive in the classroom. Thus, it is crucial that the teacher has solid knowledge of the subject at hand. This is where ICTs (information and communication technologies) come in handy. When it comes to getting ready for lessons, teachers might benefit from utilizing information and communication technology (ICT).

A variety of ICT-based strategies are used in the training of prospective educators. Tools including word processors, database management systems, spreadsheet applications, and many others are used often. More and more schools are implementing technologically-based applications to assist

teachers in their daily work. To better prepare students and teachers for their professional and social futures, ICT is being employed in schools and elsewhere. ICT (information and communication technology) is commonly used in classrooms today. It allows it to be used as a means of instruction in its own right by both teachers and pupils. Practice and drill exercises, digital simulations, and academic networks are all good locations to look for anything like this.

Providing teachers with technical resources like video, animation, and simulation training is essential so that they can aid students in building model presentations. If a teacher is well-versed in technology, their students will be as well. In today's world, students can get their news from a variety of sources, including traditional and online media (such as television and the internet) and social networking sites (such as Facebook, Twitter, and WhatsApp). Vocational education and teacher preparation in higher education institutions require ICT-enabled learning environments. Both the new and the old instructional methods are altered as part of this process. Introducing ICT (information and communication technology) into the classroom has been shown to increase students' motivation to learn. To better connect with their pupils, educators can use ICT to enhance their communication skills. With the use of ICT, teachers may have more fruitful discussions with their pupils. ICT can act as a repository for educational information because it can store all educational data in a safe and secure way.

3. Methodology

All of the information presented here comes from secondary sources. Books, articles, journals, theses, news articles from universities, scholarly essays, and websites are all examples of secondary sources. In this study, we employed a descriptive analytic strategy.

The Integration of ICT into Education Institutions

a. ICT improves pre-service and in-service
b. ICT helps teachers and students communicate more effectively.
c. ICT helps with lesson planning and feedback.
d. ICT also makes it easier for instructors to gain access to colleges and universities, as well as NCERT, NAAC, NCTE, and the University Grants Commission.
e. ICT also fosters the development of teaching abilities as well as creative.
f. It promotes the growth of teaching skills as well as creative instruction.
g. It increases classroom efficiency.
h. It also helps with professional development and educational administration, as well as increasing the active learning of teacher candidates.
i. The use of outdated technologies is declining. Modern students, as is well-known, are fierce competitors. Therefore, it is essential that the instructor has adequate background knowledge. Use of ICTs (ICT) can help achieve this goal (ICTs).
j. Educators can make better use of ICT to be ready for lessons. A variety of approaches and tactics for incorporating ICT into pre-service teacher education are now in use.
k. Word processors, database management systems, spreadsheet programs, etc. are just some of the technologies used.
l. There are a variety of technologically-based programs being used to aid educators in their daily work.
m. Both educators and students can benefit from utilizing ICT in order to better prepare for professional and social success in the future.

n. ICT is used as a "help tool" in task development, communication, data collection and documentation, and research.
o. ICT is frequently used in ways that have nothing to do with the subject.
p. Methods of instruction utilizing ICT It's a useful tool for both educators and students, facilitating both the former and the latter. It's available in a variety of contexts, including practice drills, simulations, and online learning communities.
q. The use of ICT in institutional management and administration is widespread.
r. Teachers-in-training need guidance with the technical aspects of delivering model lessons that make use of moving pictures, animated GIFs, and simulations if they are to learn anything from the experience. There is a direct correlation between a teacher's familiarity with technology and their students' comfort level with it in the classroom.
s. It educates educators how to implement cutting-edge pedagogical practices in place of time-honored norms.
t. ICT plays a vital role in grading students.
u. ICT serves as a data warehouse since it ensures the safety of all data used in education.
v. By using digital tools, educators can better connect with their students. Consequently, ICT aids in the process of closing the communication gap between educators and their students.
w. Through the use of ICT, educators are able to give pupils the most recent data and insights.
x. Improved classrooms are within reach with the help of ICT.
y. Technology has made it easier for educators to identify creative minds among their students.

4. Advances in Educational Institutions

There are a variety of formal and informal teacher education practices in use today. The ongoing professional development of teachers is at the heart of this never-ending process. If educators are equipped with sound knowledge of teaching methods, pedagogical theory, and professional best practices, they will be better able to foster students' overall development. It is more important than ever for teachers to keep learning and growing in their careers as a result of the shifting paradigms taking place in education.

i. The portrayal of contemporary strategies for teaching and learning has been given a graphical facelift in recent years.
ii. Education that places more emphasis on the individual needs of its pupils rather than on the textbook or the instructor is gaining ground. Task-based, activity-based, and even ICT-based learning are all becoming more and more popular in today’s classrooms. In recent years, computers and other electronic equipment have become more and more important in education. This is because online courses have become very popular, and teachers are being pushed to learn how to use this cutting-edge way of teaching.
iii. **Technology-Enhanced learning:** Thanks to developments in information and communications technology (ICT), students can now gain access to educational materials whenever and wherever they need them. In contrast to the standard model in which the instructor is in command, the new approaches have the potential to radically alter the teaching and learning processes. This will lead to higher standards in the classroom and greater preparation for lifelong learning. Furthermore, students with special needs no longer need to worry about the amount of time they have to complete tasks because of the ease of use of educational programs aided by technology (Moore & Kearsley, 1996). The flexibility to study whenever and wherever a student chooses is becoming increasingly important.

iv. **Smart board use in the classroom:** The standard electronic podium has a computer, microphone, speaker, and many audio and video channels for both output and input. Networks play a crucial role in this system. This program can manage anything from a single e-Podium in a single classroom to a whole campus's worth of them at a large university. Using a writing screen, a presenter or lecturer can create notes or draw diagrams during their talk (quality software for writable screens makes the difference, among others). If you have access to two monitors at once, you can utilize one of them to prepare for the next presentation while the other is being used during the current one. The screen size, audio output volume, and space measurements are just a few of the ways in which this piece of technology can be personalized to the user's specific needs.

v. **Trends in Technologies in Colleges and Universities:** Numerous wireless mobile devices are in use in classrooms and libraries across the country. There are many different kinds of mobile devices that can access the internet, but a smart phone is a relatively recent addition. Other forms of web-enabled wireless portable computers include personal digital assistants (PDAs), palmtops, tablet PCs, and wireless laptops (PLAs). Teachers now have a leg up on their predecessors in a number of ways, such as being able to teach and learn faster and bring up new topics in the classroom.

vi. A high level of literacy and fluency in the English language are prerequisites for achieving success in any endeavour. Language is essential for social interaction because it facilitates the exchange of information, the demonstration of mental processes, the mutual comprehension of ideas, and the generation of new ones. Both student engagement and retention can be improved by better instruction on the value of fostering students' language and literacy skills. In order to reach this goal, the teacher will have to use a variety of strategies.

vii. **Task- and activity-centered education:** The goal of the teachers who use task-based activities in their classes is to give students the opportunity to practice and acquire the target language in a range of contexts that are drawn from real-world situations. As a result, the language lab has the potential to be a useful tool for teaching and learning languages because it provides opportunities that aren't available in a typical classroom.

viii. **Curriculum:** The term "curriculum development" is used to describe the procedure of adapting information (obtained from external standards and local goals) into a method of instruction. Simply presenting a list of skills, subjects, and expertise is insufficient to meet this condition ("input"). To help students go where they need to go academically, the "outputs" section includes both learning activities and assessments of how well they did on the exercises (Wiggins and McTighe, 2006: 6).

ix. **Maintaining theoretical and practical boundaries:** Preparing teachers has long been plagued by issues related to the gap between theory and practice. Every single member of the Alliance found the disconnect between theory and practice to be a major problem. Despite the fact that some individuals believe that teacher candidates will eventually appreciate the relevance of education studies once they are employed, there are those who believe that a candidate's mastery of a subject ought to receive more credit hours than pedagogy does. There are also recommendations for how to improve the practicum and provide trainees with a wider range of rich learning opportunities. Teachers-to-be could draw the wrong conclusion about the relationship between theory and practice from the discrepancy between what they learn in class and what they see in the classroom. Grossman argues that research on teacher training and research on classroom practice should be more closely intertwined. Educators' knowledge and training can and should already be influenced by pedagogical research.

x. **Age-appropriate curriculum:** teaching younger kids as well as older teens and grownups Learning styles vary greatly amongst adults, teenagers (sometimes called "young learners"), and children. If you want to be a good teacher, you need to know the age range you'll be working with, and you need to spend time preparing for that age range before class even starts. Since children of different ages have diverse needs, the level of expertise necessary will also change.

5. Conclusion

Teaching is often viewed as a noble vocation in today's society. Educators' access to and mastery of the most recent data and techniques, as well as their instruction in the effective application of cutting-edge digital tools, can all be facilitated by means of modern ICT. Not only should you learn to use cutting-edge forms of computer and communication equipment (ICT), Modern society's meteoric rise is largely attributable to the advancements in information and communication technology (ICT). It has the potential to alter not only the nature of schooling but also the roles that instructors and students play in the classroom. Indian teachers are gradually adopting the use of computers and other technologies in the classroom. Educator preparation programs increasingly rely on digital tools, including memory sticks, laptops, LCD projectors, desktop PCs, EDUCOM, and smart classrooms. Since this is the case, it is crucial that 21st-century teacher education incorporate ICT (information and communication technology). There is no doubt that the global prevalence of education that is highly reliant on the application of ICT is growing. However, at this time, ICT should be used in conjunction with teaching that takes place in a well-structured classroom environment.

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