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Techno-pedagogical Skills: An Essential Skill for Teacher in the Twenty-First Century

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Abstract:

The only constant in this dynamic world is change. It is impossible to make progress if you don't change with the times. Technology and scientific breakthroughs have caused a paradigm shift in the teaching-learning process, and in order to succeed, one must adjust to these developments. Technology is having a noticeable and even divine influence on the education sector, helping to remove the obstacles that stand in the way of instruction at all educational levels. It has made teaching more efficient, learning simpler, and content transactions more engaging. Technology can provide universal access to education, provide high-quality education, support professional development for educators, meet the requirements of all kinds of students, and much more. In this sense, technology has an incalculable influence on education. Since technology-enhanced learning is the focus of modern education, teachers must comprehend the significance of integrating technology with pedagogy. Although there are many advantages to properly integrating technology and pedagogy, there are also many obstacles that classroom teachers must overcome. Since the teacher has the ability to turn the pupils into the most productive citizens, it is crucial that they get beyond these obstacles and work hard to acquire techno-pedagogical skills.

Key words: Techno-pedagogical Skills, Teaching, 21st century

1. Introduction:

A person now needs education as much as they need food, drink, and shelter. Originally seen as a status symbol, education was eventually considered a means of earning a living, and today it is considered a way of life. It is now believed that education is a continuous process rather than a one-time event. Education is the methodical process of gaining skills and knowledge via exposure to ideas, information, and experiences, both formally and informally.

As Nelson Mandela once stated, "the most effective tool you can use to change the world is education." The modern world desperately needs further changes, which education can provide. Without good instruction, education is a pointless endeavor. Since teaching is an essential component of education, it plays a crucial role in the process. Teaching is more than just imparting knowledge to the students in the class.

Teaching is both a science and an art. In addition to subject-matter expertise, teaching demands an understanding of psychology, philosophy, and educational sociology. Because teaching is so rational, linear, practical, experimental, and methodical, it is considered a science.

Teachers must have specific skills known as 21st century teaching skills since the 21st century is revolutionizing the learning process and instruction is becoming more personalized. Put simply, 21st century skills are the abilities needed to help a person deal with the challenges of the twenty-first century, which is a world that is constantly changing, digitally transforming, collaboratively moving forward, creatively progressing, seeking out qualified human resources, and quickly adapting to changes.

One of the skills of the twenty-first century is considered to be technology literate. Given that today's students have grown up with an unparalleled level of technological exposure, educators should be well-versed in the use of information and communication technologies. "A teacher can never truly teach unless he is still learning himself," as Rabindra Nath Tagore once stated. Unless it keeps burning over its own name, a lamp can never light another lamp.

To effectively deal with children who are heavily influenced by technology, a teacher must be a lifelong learner. He or she should be proficient in the strategic use of technology for the benefit of both the instructor and the students. Understanding the relationship between ICT tools and the pedagogy and curriculum areas is essential for effective technology integration in the classroom. Therefore, a teacher in the twenty-first century needs to be knowledgeable about ICT in addition to curriculum and methodology.

Educational technology scholars have adopted Techno Pedagogical Content Knowledge (TPCK), which builds on Shulman's (1986) groundbreaking conceptualizations of TPCK, or the knowledge required to teach effectively within several curriculum areas (Mishra & Koehler, 2006). TPCK stands for technological pedagogical content knowledge (Thompson and Mishra, 2008). TPCK is the knowledge needed to successfully integrate content, pedagogy, and technology in instruction. The emphasis should be on the ability to integrate technology and pedagogy, known as a "techno-pedagogical skill," since a classroom teacher is sufficiently skilled in the subject matter.

2. NEED FOR PEDAGOGY AND TECHNOLOGY INTEGRATION

There is a paradigm shift in the teaching and learning process as a result of the information and communication technology industry's quick revolution. Teachers are adapting their pedagogical approaches to integrate technology into their regular classroom instruction. Both qualitatively and quantitatively, the use of ICT in education raises educational standards and produces positive effects. Information and communication technology (ICT) is a potentially effective instrument that presents previously unheard-of possibilities to transform teaching and learning methods and move the process from being teacher-centered to learner-centered.

Technically proficient instructors are essential for the successful and efficient use of ICT, thus it is past time to accept that teachers need to be knowledgeable about integrating technology and pedagogy in order to make significant changes to the quality of education. Teaching and learning technology should not be viewed as a stand-alone item but rather as an essential component of instruction. Taking a broad approach to technology integration will give educators the groundwork they need to successfully integrate technology into the classroom. Technology integration is a complicated process consisting many interrelated tasks. Lesson planning, learning objectives, choosing relevant teaching resources, student learning styles, learning pace, assessment, and evaluation of the entire teaching process are among the activities. But using technology into instruction won't happen quickly.

Teachers must be aware that there are a variety of tools available for a given task, be able to select one based on its suitability, know how to use the tool's affordances, and be knowledgeable about pedagogical techniques and competent in applying them to technology use. In a larger sense, technological integration with pedagogy is crucial to addressing learning challenges, addressing learning gaps, assessing learning outcomes, and evaluating the learning process.

3. THE VALUE OF TECHNO-PEDAGOGICAL SKILLS FOR TEACHERS IN THE CLASSROOM

Effective user-centered, multidisciplinary, self-paced, and real-time training is made possible by technology. It may be modified to accommodate all learning styles and meets the demands of each individual student. Because of this, it is frequently utilized for teaching purposes in the educational sector. By doing this, it helps children develop higher order thinking abilities like synthesis, analysis, application, and creation—all of which are crucial in the cutthroat world of today.

It is essential for a teacher in the modern era to be knowledgeable about ICT and how it is used in the classroom. They should be able to effectively incorporate the appropriate ICT into their subject matter both when creating learning experiences and when organizing lessons. The chosen technology tool should support the learner's knowledge construction and enhance the teacher's expertise. By attending to each student's needs, the techno-pedagogical talent enables a classroom teacher to teach the material more successfully. As a result, the student is better able to retain the knowledge and fully comprehend the concepts.

Developing techno-pedagogical skills will make teaching and learning more enjoyable since it will relieve teachers of some of their workload and allow students to immerse themselves in the process of learning. It aids teachers in helping pupils develop self-learning, which is a crucial ability that all students in the current generation should have. There are several e-learning materials available, and a teacher who is well-versed in techno-pedagogical skills can encourage and support their pupils in choosing to read extensively by using these resources. For those students who are unable to complete their education for personal or evident reasons, teachers can also encourage them to do so via remote learning.

In light of all of these considerations, we can conclude that educators must modernize their pedagogical approaches to meet the demands of today's students and foster their technological proficiency in order to produce self-sufficient and productive citizens. Teachers are individuals who have bravely chosen the route of selflessly serving humanity, as stated by Preethibala and Illikokila (2018). Teachers have the ability to make their students into the most productive members of society. Furthermore, since technology-enhanced learning is the focus of modern education, techno-pedagogical expertise aids teachers in selecting the most successful teaching strategies and the appropriate teaching resources. Additionally, it helps teachers advance their careers by encouraging them to engage in research-related activities in the field of techno-pedagogy, to be receptive to the use of technology in the classroom, and to start the process of developing their techno-pedagogical skills.

4. DIFFICULTIES IN TEACHING WITH TECHNO-PEDAGOGY

There are numerous advantages to successfully integrating technology and education. While there are many obstacles, it is true that techno-pedagogy improves education and makes it better than plain education.

1. Insufficient instruction

The teacher education programs of today do not offer hands-on experience with integrating technology into the classroom. Due to their lack of training in integrating technology with pedagogy, in-service teachers also lack techno-pedagogical skills.

2. Insufficient understanding of ICT

As a prerequisite for successfully incorporating the benefits of technology into one's classroom instruction, this becomes a major barrier to the development of techno-pedagogical skills. Some educators have a bad attitude about using ICT in the classroom. According to research, certain un-favorable attitudes influence how well teachers or pre-service teachers integrate technology into their lessons in terms of techno-pedagogical proficiency.

3. Insufficient infrastructure facilities

Despite having a solid understanding of technology and how to incorporate it into their teaching, a teacher's ability to deliver tech-based training will be hampered by a lack of equipment such as computers, projectors, and displays.

4. Insufficient technical support

One teacher might not be capable of managing both the software and hardware components when incorporating technology into the teaching-learning process. A technically skilled person may be required to provide him or her with some technical support. These facilities might not be available in every educational institution. When this happens, teachers start to feel hesitant about using technology in the classroom.

5. Insufficient assistance and coordination

There will be a lot of conflict between educators who are proficient in technology and those who are not. Conflicts between administrators and departments result from this friction. Teachers are not always permitted to try new things with their students. Teachers feel frustrated and demotivated under these circumstances.

6. Problems with connectivity and power:

The possible impact on the usage of techno-pedagogical skills is mitigated by power outages and fluctuations. It started to cause damage to functional computers and other devices that support the techno-pedagogical framework.

The largest problem of our day is internet connectivity. This cliche still exists as a barrier to delivering technology-based education, despite the network providers' constant efforts to address it.

5. SUGGESTIONS TO IMPROVE TEACHERS' TECHNO-PEDAGOGICAL SKILLS

The following recommendations can eliminate the difficulties teachers encounter in effectively combining technology and pedagogy, thus improving their techno-pedagogical skills.

1) Adequate training facilities

Teachers must get both pre-service and in-service training to advance their techno-pedagogical skills. The identification of techno-pedagogic skills and their training for student teachers at different teacher education levels are urgently needed. For the primary purpose of encouraging instructors to become techno-pedagogers rather than pedagogues, workshops, seminars, conferences, and webinars must be organized.

2) Positivity towards technology

One of the main things that might help or hinder the use of technology is the mindset of the teachers. Teachers that have a favorable attitude about technology are more at ease utilizing it and typically integrate it into their lesson plans. Teachers need to shift their perspectives and be emotionally and cognitively prepared to embrace the idea that techno-pedagogical skills are essential.

3) Improve your ICT abilities

To build techno-pedagogical skills, it is important to have solid knowledge of information and communication technology. It encompasses the ability to use and an understanding of both software and hardware components. Professional development in ICT is an ongoing, lifelong process of personal development.

4) Technical support

Technical support for instructors should be provided by educational institutions. A full-time or part-time employee who is technically sound, able to occasionally orient the teachers, and able to offer support when needed can be appointed by the institutions.

5) Assistance and coordination

All of the teaching staff and the institution's head should have a proper knowledge of one another. By providing all the necessary resources, the administration should encourage technology-based learning and provide instructors the freedom to experiment with it, strengthening their techno-pedagogical abilities in the process.

6) Taking care of power and connectivity problems

Inverters or UPSs should be installed by institutions to ensure a steady supply of electricity on campus. The establishment should be equipped with Wi-Fi, and internet speeds should be within reasonable bounds.

6. CONCLUSION

Since this generation of students were born after digital technology became widely used, it is impossible to imagine a classroom today without technology. Therefore, a teacher needs be extremely skilled in order to implement technology-based instruction in the classroom. Gloria and Benjamin (2018) correctly state that "the teacher who uses technology in the teaching-learning process plays a vital role in this modern scenario."

The teaching-learning process is enhanced and made more engaging by technology. An educator is a techno pedagogue when they combine technology with education. The current situation is one in which

techno pedagogers are desperately needed. All stakeholders must work together to foster teachers' techno-pedagogical skills, despite the many obstacles in their way.

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