OVERVIEW OF ICT INTEGRATED PEDAGOGICAL TRAINING PROGRAMME AND TEACHERS' ADOPTION CAPABILITY, EXPERIENCE, AND INTEREST

Abstract

Understanding the personality of individuals, qualities, interests, and self-driven factors that influence how teachers adapt and incorporate ICT into the classroom is crucial. Encouragement of computer integration in the classroom will rely on students' attitudes toward computers is also one of the challenges for the teachers especially in starting learning, van Braak, Tondeur, and Valcke (2004). As a result, teachers' attitudes toward technology have a big impact on whether and how technology is accepted in the classroom. (Russell & Bradley, 1997) and also asserts that fear, incapacity, and anxiety typically imply that traditional learning strategies take a backseat to ICT. Parallel to this, expanding student availability of instructional best practices and curriculum materials—which could be shared via ICT—can promote better teaching and higher academic accomplishment. The corpus of evidence shows that using ICT in education has proven successful and a number of connected philosophical issues in an attempt to understand the concept of TPCK. [1] Since ICT is still untouched by the majority of the masses, and dependency on traditional mode still does not allow them to come out of their comfort zone to learn and teach. This study explores how gradually ICT is incorporated into teacher education’s one aspect touched i.e. training programs, given to In-Service teachers immediately affect after the sudden emergence of COVID-19 is the best example in the context of India. The

Author

Alka
Research Scholar
School of Education
Sharda University
Greater Noida, UttarPradesh, India.
2020442730.alka@dr.sharda.ac.in

interest of In-Service Teachers taking in the mode of offline vs. virtual mode, how much excitement teachers are motivated or demotivated to have to learn or not, how it affects their personnel, and how professional development is ingrained in the practices of teaching and learning as an outcome.

Keywords: Technological Pedagogical Content Knowledge (TPCK), Professional Development, Information Communication & Technology (ICT), In-Service Teachers Training Programs.

I. INTRODUCTION

In many facets of daily life, (ICTs) are already widely utilised. Nearly all commercial and governmental undertakings now follow similar practices and processes, thanks in large part to the usage of ICT. But not as significantly as it has in other industries, ICT is starting to have an influence on education. Education is a fundamentally cultural effort and good instructors who utilize technology wisely and take ample opportunity to get close to their pupils personally have long been seen as providing excellent instruction. The use of technology is becoming more and more important in education, and in the twenty-first century, this trend will continue. Nevertheless, as the world fast moves to electronic media and knowledge, it is becoming increasingly important to include ICT in teaching and learning practices. This relevance will only grow in the 21st century. With the world rapidly embracing electronic media, effective ICT in Education implementation, use, effectiveness, and availability of education develop learning drives and classrooms, and ICT in Education use lends itself to more individualized instructional settings. Many organizational, technological, and individual components facilitate instructors' use of computers during education. Without a doubt, ICTs have had an influence on educational research, teaching, and learning. (Yusuf, 2005) ICTs have the ability to advance learning, quicken skill acquisition, enrich expertise, connect students, help them relate their academic work to daily life, support future workers in becoming profitable, and so on. (Davis and Tearle, 1999; Lemke and Coughlin, 1998; cited by Yusuf, 2005). P.g.3[1ICT-based pedagogy in education and instruction requires organizational time along with multisensory support to be productive. The teacher's view of computers affects both how well they understand how valuable technology is and how well they can use it in classroom settings. pg.2 On the other hand, the provision of training programs has been utilized for a variety of purposes using a number of technological tools that are readily available and pertinent to education, including phone seminars, email, teleconferencing, television lessons, radio computer programming, interactive radio counseling, an audio-visual audio response structure, audiocassettes, and CD ROMs, etc. (Sharma, 2003; Sanyal, 2001; Bhattacharya and Sharma, 2007). According to Yusuf (2005), ICTs unquestionably had an impact on educational research, teaching, and learning. There is a clear association between teachers' ideas and methods and how effectively they use technology for their training courses and teaching-learning. Since In-Service teachers require professional development, it must come as standard in the technology-infused training course. [1] It is vital for educators to do research on how In-Service training may affect practicing teachers' opinions about utilizing ICT and devices in the classroom in developing nations such as India. In educational settings, ICT—which encompasses software development, mobile devices, and other communication tools and platforms like websites, social networking sites, etc.—is playing a more important part as a teaching tool. P.g.1-4[3] Understanding the personality qualities that influence how teachers adapt and incorporate ICT into the classroom is crucial. Encouragement of computer integration in the classroom will rely on students' attitudes toward computers, say van Braak, Tondeur, and Valcke (2004). As a result, teachers' attitudes toward technology have a big impact on whether and how technology is accepted in the classroom. (Russell & Bradley, 1997) assert that fear, incapacity, and anxiety typically imply that traditional learning strategies take a backseat to ICT. To understand how ICT-Integrated Pedagogical Training Programs are replacing traditional teaching-learning processes and how self-driven Teachers are enabling the adoption of Capability, Experience, and Interest toward it.[2] At the individual level, a variety of factors influence the way instructors useICT skills.How teachers

utilize ICT in the classroom is influenced by their opinions, knowledge, and feelings. Studies have shown that teachers' attitudes toward technology have an impact on both how much technology is used in the classroom and how much value it is seen to have (Huang & Liaw, 2005). The ease with which teachers adopt and integrate technology into their classes depends on factors including help, materials, guidance, and equipment at the level of education. Based on a survey done in Greek secondary schools (Jimoyiannis & Komis, 2006), there are five interrelated factors that influence teachers' attitudes towards technology and professional development with the goal of using ICT in their curriculum. These factors are The availability of revolutionary programs for learning in schools, ongoing support and integration of ICT, ICT pedagogical development which allows teachers to use technology in normal classroom practice, partnership (collaboration with specialized teachers and colleagues in the school), as well as the growth of ICT infrastructure in schools are just a few of the factors that must be taken into consideration. Multiple scenarios have been created with the intention of preparing teachers regarding the incorporation of ICT in their educational settings. (for example, Rogers, 1995; Russell, 1995; Zhao et al., 2002; Franklin & Sessoms, 2005; Toledo, 2005).p.g.6[8]

The PD of teachers is crucial for the successful integration of technological equipment in learning environments. If teachers have a positive attitude towards using scholarly technology, they could potentially be able to clearly demonstrate how ICT has been used and incorporated into instructional and educational endeavors.[5] ICT-related educational programs help instructors change their attitudes toward computers (Keengwe and Onchwari, 2008), as well as their computer abilities (Bauer & Kenton, 2005; Franklin, 2007; Wozney et al., 2006)and organize how they use technology and how cutting-edge devices are crucial for student achievement (Plair, 2008). Technically speaking, ICT has to be preferable to present practices in the eyes of teachers, fit into their principles, areas of competence, and requirements, be simple to master, and have the capacity to be trailed in small doses without being officially implemented in order for it to be effectively accepted and incorporated into learning. Pg.12 [3] The benefits and drawbacks of ICT integration in educational programs at the example institution should be taken into account. To "assist schools in developing an organized plan to implement successful IT use, both in the improvement of currently taught topics and in understanding regarding the technology directly. "However, the pedagogical focus took precedence, as "By incorporating IT into the education system, schools will also be assisting students in becoming aware of the nature of information and at ease with modern technologies and capable of realizing its possibilities.p.g.4[14]The best educational materials utilization of cutting-edge technology for instructional purposes, as well as adapting teachers must keep up-to-date regarding modifications to statutory accountability requirements and master fresh content-area teaching approaches in order to adapt to evolving instructional settings and a student body that is becoming more diverse. Although the need for professional growth for teachers is generally agreed upon, several studies and reports (such as Ansell & Park, 2003; CEO Forum on Education and Technology, 1999; "Technology Counts," 1997) continually portray it to have been inadequate others argue that this deficiency might be attributed to not devoting a sufficient amount of time to professional development. Because of this, over the past several years, teachers have had exposure to an expanding variety of opportunities for professional growth across all subject areas (e.g., Fishman, Best, Marx, & Tal, 2001b). Our knowledge of what constitutes excellent training, how teachers are able to gain from it, or its effects on student achievement have not significantly increased (Fishman,

Best, Marx & Tal, 2001a; Wilson & Berne, 1999), despite the fact that there are increasing opportunities for teachers to engage in it.p.g2-3[11]

1. **ICT-A Tool in Education:** ICTs are defined as network-based information services, telecommunications goods and services, mediums and transfer, educational institutions and recording facilities, commercial data providers, as well as other related information and communication activities, according to a 1999 United Nations report. Internet service delivery is stated to fall within the umbrella of ICTs. According to UNESCO (2002), information and communication technology (ICT) is the fusion of "Informatics technology" and other related technologies, most notably communication technology.p.g.1&2[1]

    - ICT improves the manner of teaching and learning.
    - ICT improves education efficiency and availability.
    - ICT improves the atmosphere of learning.
    - ICT improves enthusiasm for instruction.
    - ICT improves academic achievement.
    - Individuals' confidence levels are raised through ICT.
    - The globe has become smaller thanks to ICT, and all information is readily available.
    - ICT raises children's enthusiasm for their education, making it more enjoyable for them to learn new things.
    - ICT produces positive outcomes and saves time.
    - ICT aids in record maintenance.

2. **Teacher:** “An individual who, via the act of instruction, aids pupils in their quest for knowledge, skill, or morality. Pedagogy, subject-matter expertise, subject-matter teaching proficiency, curricular competency, assessment of students' proficiency, the discipline of psychology, planning, and leading, full of confidence.”

    - **Teachers' Adoption Capability, Experience, and Interest:** The approach to technological pedagogical content knowledge proposed by Mishra and Koehler (2006) seems to provide an ideal framework for capturing the information required of teachers for effectively incorporating ICT into their curricula. The central idea is that these three components should be utilized for consideration in the complicated relationships in the framework that might be understood through the three subsequent key components: information of the pedagogy that is compatible with the specific content, comprehension of the manner in which the subject area can be impacted by the introduction of technology, along with an awareness of how technology can assist pedagogical practicesobjective.p.g.7[8]

        According to Cox et al. (1999), they conducted research looking at the elements that affect how ICT is used in learning. Individuals can join a variety of organizations, including MirandaNet, Teachernet UK, and the National Association of Coordinators and IT Teachers. A survey was developed to learn more about teachers' and other professionals' interactions with, knowledge of, and use of ICT in the classroom, opinions about the utility of ICT for purposes of learning, the training they had, and, where appropriate, their motivations. The sample includes computer-using

professors with a mean age of 42, consisting of 44 males and 28 women. The results showed that professionals who now routinely use ICT are at ease doing so, think it is beneficial in both their leisure work and their profession, and are interested in continuing to do so in the future. The qualities that these instructors appreciated most when compared to their instruction were making classes more interesting, straightforward, enjoyable for both the teachers and their students, diversified, and motivating for those who attended. Furthermore, more intimate factors included bettering the way that the materials were presented, granting higher usage of computers for usage by individuals, giving teachers greater control in the classroom, elevating their status, streamlining the administration of the teachers, and offering online expert assistance.p.g.6 [9]

Content for Education One of the main variables determining teachers' actions, according to the framework, is knowledge, which is defined as "the blending of educational theory and practice into a grasp of the way certain subjects, challenges, or supplies have been organized, thought about, and customized for the various needs and skills of students or offered for instructions" (p. 10). Further characteristics of teaching and learning that are incorporated into the conceptual structure are provided by the students as people and by the conditions of the teaching and learning process. How computers integrate into the aforementioned model will depend on how teachers view ICT as changing the nature and comprehension of their subject matter or as merely a tool for discussing another issue in the classroom. A small sample of instructors' views was examined by Moseley and Higgins. They discovered that instructors who used ICT effectively had the following traits: An optimistic rather than a pessimistic perspective on ICT. ICT during lessons will be used more frequently by teachers who are favorable to ICT in general. o Student autonomy as opposed to instructor guidance. Teachers who favoured directed teaching methods tended to underrate their own competency and relied on ICT assistants. o Students empower as active learners as opposed to passive recipients of teaching. · A preference for independent study over classroom teaching.p.g.11 [9]

- To encourage adoption and incorporation into current practices, access to and practice with technological devices that are specifically related to current PCK is recommended.
- Support for small-scale teacher change.
- Talking with other instructors about particular strategies to employ digital resources to improve student learning results.
- Talking with other instructors on how to utilize technology in particular ways to improve student learning results.
- Extensive opportunities for academic development, followed by ongoing assistance and community dialogue.
- Possibilities to put technology management skills into practice in the educational setting by offering extra assistance (teacher assistants, parents, more advanced learners, etc.
- • Possibilities to discuss tech-related student achievement experiences at discipline- or grade-specific teacher meets.
- Opportunities to observe how other teachers use technology in the classroom.

- Supporting and expecting gradual technological advancements over an extended stretch of time.
- The establishment of an environment that values and fosters innovation.
- Support personnel are on hand to guarantee good initial technological encounters.
- Teacher-centered professional development activities (identify teachers' current beliefs to assist build PD programs).
- Creation of a common understanding of how to utilize technology and what constitutes "beneficial" instruction.
- Anticipate that technology will be used in professional growth programs.
- Regular gatherings to track advancement in professional growth in technology.
- Engagement in K–12 collaborations aimed at incorporating technology into classrooms to support student learning.
- Continuing education that supports teachers in their duties as qualified individuals, scholars, researchers, and perpetual students. [6]

3. **Pedagogical Training Program:** According to Hew and Brush (2007), teacher training programs have an effect on teachers' attitudes and conceptions towards ICT and assist instructors gain the expertise and abilities they need to integrate ICT into teaching and learning situations. These programs may also be used to implement the TPCK model. According to earlier studies, standard once-only teacher training programs (workshops, brief training) are ineffective in helping teachers develop their technical proficiency for using ICT in their teaching-learning environments (Carlson & Gadio 2005). Models for teacher Professional Development should prioritize pedagogy, content, and technology. Sadly, the majority of teacher training programs do not emphasize the pedagogical ideas that make it easier to employ ICT in teaching and learning. as necessary, including for group discussions, e-mail neighbourhoods, television broadcasts, or other electronic media, as well as working together with teachers and students. The nation of India, which is still developing, has only lately received technology. According to a variety of studies, instructors needed more incentives and motivation to actively participate in their professional development programs (Spillane 1999; Afshari et al. 2009). Therefore, instructors' desire and openness are seen as another crucial component for efficient ICT use both while conducting this training paradigm and after it is over. Spillane (1999) asserts that educators who are highly committed to their own professional development are more inclined to make modifications and a greater understanding of how to create with technology as an outcome. Various rewards, motivating tactics (both internal and external), and teacher training might all be used as effective motivational tools to motivate teachers to engage in their professional development. Teachers' enthusiasm for utilizing ICT will be sparked and maintained if they are given laptops, Internet-supported instructional resources, TPCK materials for instruction, and other necessary applications for integrating with pedagogy and topic matter in teaching-learning situations. Additional incentives for participating instructors should be offered, such as the continuation of their salaries while they are in training and pay raises for those who can effectively apply the TPCK model. Teachers should also be ethically motivated to improve their knowledge and abilities in the areas of pedagogy, subject, and technology for the purpose of successfully incorporating them into their teaching. The following may be accomplished by imposing awards and admiration.

The Mumbai University's Department of Teacher Education states that "Teacher Education provides critical competencies and abilities for curriculum formulation, deal, and assessment of Teacher Education programs inspire and exhibit based on study and reflection methods. It is able to exchange and employ current, useful teaching and evaluation strategies that center on student learning. Teacher training programs foster instructors' dedication to the scientific community's inter- and intra-discipline study of teaching and learning. Through the aegis of teacher education, training programs for educators may demonstrate and encourage active engagement in national and worldwide networks. It helps pupils to think critically and creatively about complex issues.

Make professional educators more enthusiastic and eager to employ technology-based tools to improve education. Find materials on continuous education and the emergence of the roles of the learner and the educator in computers and associated technologies. Encourage students to pursue further education and independent research while promoting libraries and labs abilities to build the management and organizational skills necessary for the operation of the current educational system. to provide future teachers with the tools they need to develop pedagogy that is based on cultural needs. Improve the student's understanding of how to use their practical skills in higher education from one field to another to enable them to inspire their pupils to pursue independent contractors. Teachers are required to educate students about global issues, Indian spiritual philosophy, and national issues. to help them cultivate a spirit of independence and confidence in themselves. to foster and instill problem-solving abilities based on studies activity abilities. Improve interpersonal, psychomotor ability, and verbal abilities that are necessary for successful learning promotion. to acquire knowledge about methods to present the right educational materials using technology in the classroom when teaching trades. The acquisition of subject-matter expertise, mental in nature, and psychomotor skills, which are all offered by teacher preparation, are necessary for teaching academic and practical programs.p.g.230[12]

II. CONCLUSION

Every successful technology and education training program must include the academic growth of teachers (Afshari et al., 2009). It may have an impact on how well The setting for learning and instruction incorporates ICT. India is one of several countries throughout the world that has introduced training programs in various formats after realizing the usefulness of ICT in education and instruction. But the nation is still significantly behind in integrating technology into education owing to challenges and insufficient teacher preparation as a consequence of teachers' lack of awareness of ICT. In order for this process to be effective for teacher training programs, it is crucial to put strategies into place to remove barriers and swiftly supply all chances. ICT in education is already acknowledged as a relatively recent field. (khan, Hasan & Clement 2012; Banu 2012).

REFERENCES

[1] An Effective Use of ICT for Education and Learning by Drawing on Worldwide Knowledge, Research, and Experience: ICT as a Change Agent for Education, (Syed Noor-Ul-Amin,2013).
[2] Epistemological and methodological issues for the conceptualization, development, and assessment of ICT–TPCK: Advances in technological pedagogical content knowledge (TPCK) (Charoula Angeli *, Nicos Valanides,2008).
[3] Factors influencing teachers' adoption and integration of information and communication technology into teaching, International Journal of Education and Development using Information and Communication Technology (IJEDICT),Vol. 8, Issue 1, pp. 136-155. (Charles Buabeng-Andoh, 2012).
[4] Research on Teachers' Pedagogical Thoughts, Judgments, Decisions, and Behavior, Review of Educational Research Winter, Vol. 51, No. 4, Pp. 455-498 (Richard J. Shavelson, Stern,1981).
[5] Integrating ICT into Teaching-learning Practices: Promise, Challenges and Future Directions of Higher Educational Institutes,(Birhanu Moges Alemu,2015).
[6] Understanding the relationship between teachers' pedagogical beliefs and technology use in education: A systematic review of qualitative evidence, (Jo Tondeurab, 2017).
[7] Pedagogy before Technology: Re-thinking the Relationship between ICT and Teaching,(DERYN M. WATSON,2021).
[8] Jimoyiannis, A., & Komis, V. (2007). Examining teachers' beliefs about ICT in education: Implications of a teacher preparation program. Teacher development, 11(2), 149-173.
[9] Mumtaz, S. (2000). Factors affecting teachers' use of information and communications technology: a review of the literature. Journal of information technology for teacher education, 9(3), 319-342.
[10] Khan, S. (2014). A model for integrating ICT into teacher training programs in Bangladesh based on TPCK. International Journal of Education and Development using ICT, 10(3).
[11] Lawless, K. A., & Pellegrino, J. W. (2007). Professional development in integrating technology into teaching and learning: Knowns, unknowns, and ways to pursue better questions and answers. Review of educational research, 77(4), 575-614.
[12] Teacher Education, Mumbai University,/Teacher%20Education%20-%20IV.pdf.
[13] Tondeur, J., Van Braak, J., Ertmer, P. A., & Ottenbreit-Leftwich, A. (2017). Understanding the relationship between teachers' pedagogical beliefs and technology use in education: a systematic review of qualitative evidence. Educational technology research and development, 65, 555-575.
[14] Watson, D. M. (2001). Pedagogy before technology: Re-thinking the relationship between ICT and teaching. Education and Information Technologies, 6, 251-266.

