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CHALLENGES AFFECTING TEACHERS' IMPLEMENTATION OF ICT IN TEACHING: A REVIEW OF LITERATURE

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ABSTRACT

Technology in other words information communication technology (ICT) is playing pivotal role in every aspects of life including medical, business, engineering and education and so on. ICT is becoming the need of everyone in this 21st century era. Pakistan is less developed in perspectives of technology so current review paper is conducted to identify the challenges that educators face while implementing ICT in education i.e. teaching and learning. Current review paper aims to analyze literature related to challenges of educators which they face when they implement ICT in their teaching. So for that this study used the systematic critical literature review approach. For examining these challenges more than 50 articles were critically reviewed. Those articles were taken from the well-known indexed journals from database (Scopus and web of science). This review paper suggests few of findings i.e. challenges vary from context to context. Because there are countries in World which are well developed in technologies so Educators there face enough challenges, on the other hand the educators in less developed countries face more difficulties in operating the ICT in their teaching and learning process.

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Introduction

The combination of two terms i.e. information technology and communication technology is now a days known as information and communication technology (ICT). Its significant use in modern day

has made it mandatory in various fields like business and commerce. In education field it has also played a shining role in making learning effective and teaching interactive (Harmer, 2015). According to a report of UNESCO (2023) education sector is revolutionized globally after COVID-19 because ICT became an integral part in teaching-learning. It has improved academic performance of learners, made administrative work more effective, and provided educators a platform for opportunities for collaboration. Zhao et al. (2021) have mentioned in their study that teaching has been shaped by ICT tools like digital systems for teaching, resources based on cloud, and AI-driven assessments, making it more inclusive and enjoyable for students.

In addition, the other forms of modern pedagogy such as blended classrooms and flipped learning had made a meaningful contribution in maximizing ICTs to amplify engagement of learners. Blended classrooms are mixture of online as well as in-person instruction, advantaging learners to have material resources at their own flexibility, increasing an extended freedom for them to learn (Asagar, 2024b). On the contrary, flipped learning empower pupils to have hands on experiences outside of classroom fostering collaborative skills and problem solving abilities in them (Bergmann & Sams, 2021). Such strategies these days are having more importance because of their flexibility of facilitating students from different learning backgrounds. For instance as noted by Asagar (2024a) that flipped learning are advantageous in advocating learner-centered approaches, involving them in learning activities and improving their learning grades. Combining the above two strategies could boost learning environment and experience of students. Despite being too beneficial, teachers encounter restrictions in utilizing ICT tools. It is mentionable that policy makers remained advocates of bringing technology into teaching process and training students for future tech-centric challenges and opportunities (OECD, 2022). Such barriers showcase a gap between potentials of ICT gadgets and its practical utilization making it necessary for researchers to explore barriers restricting educators in incorporating ICTs at secondary school level.

When COVID-19 broke out, countries across World were surrounded by this problem making a full lockdown system across all fields including education. In such situation ICT played a mind blowing role in resuming educational activities using online means (Thaheem et al., 2021). Additionally, it also facilitated learners with real time classroom environment by utilizing online tools of ICT like Zooms, GoogleMeet etc. with a flexibility to work from home (Akram et al., 20021b). The situation at that was handled but educators still had many difficulties in achieving major educational objectives as there was a sudden shift of teaching mode i.e. face-to-face to online thus teachers were not fully prepared to opt this task because of their poor skills of technological use. On the contrary, technological competencies of educators remained a major consideration globally (U.S. Department of Education, 2017). Similarly, Xu et al. (2021) have also notified that ICT approaches based approaches are very crucial for aligning the needs of individuals for further boosting their critical thinking.

Factors affecting ICT implementation

Integrating ICT in learning classrooms is becoming hard process and the process is not free from the problems. Such issues are known as "challenges" (Schoepp, 2005). A challenge could be referred to factors that make it tough to achieve an objective or any goal. Many teachers avoid using ICT in

classroom because there is no enough access to resources including home access (Fraij et al., 2010). There might be many reasons behind low access to technology like; computers are supposed to be booked in advance for the respective project or any work but most of the teachers forget to do so and can't book or hire the computers for long period of time. According to Dhital (2018) less access of ICT tools is not only because of unavailability of ICT materials, software or hardware in schools but there are also other reasons like; poor resource organization, managing tools appropriately, dull quality of software and shortfall of personal use for teachers (Bingimlas, 2009). Undoubtedly, challenges associated with access for teachers may differ from country to country.

For primary and secondary teachers, the most common challenge is shortage of technical collaboration. In a study of Bracewell et al. (2007) it was identified that such challenges incorporate hope for sites to open, neglecting to connect search engines, less working printers, breakdown PCs and educators need to chip away at old PCs. Roekel (2008) stated have mentioned in his study that less support in terms of technical resources could create higher risk of breakdown of technological gadgets. Lynch (2006) on other hand, pointed out that technical issues might demoralize learners from utilizing ICT in teaching due to anxiety of apparatus breaking down during a lesson.

Moreover, integration of ICT is becoming hard for teachers because they are not given by effective trainings that how to operate the computers or other technical devices (Prasojo et al., 2019). Similarly, finding of Schoepp's (2005) study showcased that teachers are not provided with the training opportunities which helps teachers to use ICT in classrooms. Moreover, research in Turkey found that the main problem with implementing new ICT in education was insufficient amount of in- service training for teachers (Ghavifekr & Rosdy, 2015), and Morehead and LaBeau (2005) concluded that limited teacher training in ICT use in Turkish schools is an obstacle.

In addition to that, for every work to be done, it is necessary that the doer of the work must have an enthusiasm to do that, same case in the process of integration of ICT in classroom. Most of the teachers do not have any interest to use technology in classroom that is why ICT is not being used in classrooms. Meanwhile, in Australian research, Newhouse, Trinidad, and Clarkson (2002) found that many teachers lacked the knowledge and skills to use computers and were unenthusiastic about the changes and integration of supplementary learning associated with bringing computers into their teaching practices.

There are teachers who have grip in the technology and have experience that how to use technology in classroom effectively but the only barrier which restrict them is the limited time. According to Bracewell et al., (2007), the most common challenge reported by all the teachers was the lack of time they had to plan technology lessons, explore the different Internet sites, or look at various aspects of educational software. Though the teachers avoid using ICT in their teaching, but on the other hand it is the need of twenty first century for enhancing effective learning. The ICT create a good and entertaining environment of study (Rabah, 2015). However, this study only used perceptions of teachers while the students' perceptions are also very important because they also face problems and challenge while using ICT in the classroom.

Additionally, utilization of ICT in education is becoming a hard process and integrating the technology in daily learning classroom is not a problem free. Because there are many challenges that restricts the educators to use the ICT and these barriers are divided in to two categories; intrinsic and extrinsic challenges (Ratheeswari, 2018).

Extrinsic and intrinsic challenges

Extrinsic barriers related to the organizations that give financial support to schools as they can buy technical tools but if they do not do that then it would be a huge hindrance to integrate ICT in classrooms because most of the schools can't afford expensive materials (Prasojo et al., 2019). On the other hand, intrinsic challenges related to the school administrators, teacher and individual. Sometimes it happens that there are available technical tools but there is no permission for teachers to use that (Vrasidas, 2015). A pat from these barriers teacher itself is also a hindrance in using technology in classroom because most of the teachers are not able to use technical devices, they have lack confidence and they have no experience in computer skills (Bingimlas, 2009).

This study concludes that ICT in education helps to meet many approaches in learning and pedagogical philosophies may be implemented. However, technology in education is a hard process, it demands specific skills, practice and information from the teachers (Qaddumi et al., 2021). Moreover, teachers face some challenges related to the technology that stops them to integrate ICT in education (Puncreobutr, 2016). Challenges like; insufficient technical supports at schools and little access to Internet and ICT prevent teachers to use ICT in the classroom. Shortage of class time and time needed to learn using ICT were reported as two other key barriers for teachers to integrate ICT into the curriculum (Morehead & LaBeau, 2005). However, study used the quantitative research design and data was collected by questionnaire, but qualitative research design can also be used, as by taking students and teachers' perceptions in structured and semi-structured interviews. This study is mostly related to the teachers and students so their perceptions are very important.

Restrict students' thinking

As technology provides easiness to students, so technology also has tremendous benefits but it also has many flaws. It is reported that technology minimizes the direct communication and direct questions answers between teachers and students. Because all the information is at the finger tip of students so it restrict to thinking capacity of the students. So it can create a communication gap (Shyamlee & Phil, 2012).

Additionally, technology creates distraction for students because many students start watching movies and other videos rather than informative videos and also many students are interested to play games instead of using technology as source of information (Peeraer& Van Petegem, 2010).

However, use of technology can cause possible distractions but teacher can develop lesson plan in such a way that students may have limited access to search engines, this way, students would be focused on their study.

The study of Player-Koro (2012) showed challenges that teachers face when they implement tablets in their teaching. The previous literature shows many challenges i.e. lack of technical staff, lack of human resources etc, but this study shows a different variety of challenges like social issue, pedagogical issue, and technological issue.

Social, pedagogical, and technical issues

One of the challenges is that all the software and other technical devices are in English language, while in UAE peoples' language is not English. Although the locals of UAE know and can understand and speak English yet it hinders them in implementing ICTs in classrooms (Ruzic-Dimitrijevic et al., 2010). The other challenge mentioned is managing the computer devices. The teachers are given the limited time. And it is very difficult for the teachers to manage these all in limited time (Rahim Sajid, 2013). Teachers are not provided with technical support from the school management they are just given orders to utilize ICT in classrooms. The other issue is that they are not provided with appropriate infra structures of the classrooms (Woodrow, 1990).

However, English is international language and spoken across the World. That's why all the software are in English language but there are also other options for changing the language, so rather using software in English teachers can also use it his/her regional language. This limitation is for particular schools in UAE while the teacher can understand and speak very well in English language. This study summarized the issue and challenges while implementing the tablets in classrooms but it lacks in providing the data without authenticity i.e. no any evidence is provided so for.

Furthermore, Rabah (2015) found through empirical data which showed that the teachers' negative attitude to ICT has become a hindering challenge for educators to utilize ICT in classrooms.

Studies have shown that less technical support from school side and other authorities discourage teachers to use ICT. As the technology can get out of order at any time, thus teachers couldn't utilize ICT in teaching (Hyndman, 2018). Contrarily, lack of internet access and network issue also a challenge which prevents teachers to use ICT in classrooms. Whereas, the class timing is too short while ICT is time consuming, so it is impossible for them to implement it in classroom. The class timing in most schools is forty to forty five minutes (Lawrence & Tar, 2018).

However, this study used random sampling of teachers so those random teachers may or may not have used the ICT like they may not have the experience of using ICT in their classroom, so such teachers' perceptions must be considered who have the experienced the use of ICT in their teachers.

ICT provides many facilities and benefits in education system all over the world even in top educational institutions to improve teaching and learning process (Safdar et al., 2011), but instead of that there are number of challenges that educational institutions face while implementing ICT in classroom learning (Richardson, 2008). Some of the challenges are; Systematic approach is lack to the implementation of ICT (Shaikh & Khoja, 2011), integration of ICT in any area is complex (Shaheeda et al., 2007), and it requires proper planning, instruction and understanding (Teo, 2009). Every institute that wants to integrate ICT in learning and teaching then there must be a

conceptualize framework that in what way ICT will be integrated and how it will work for the betterment of students' learning (Vajargah et al., 2010).Secondly, attitude towards ICT (Neeru, 2009), it is necessary to make ICT integration more feasible that all stakeholders must know the value of ICT (Roblyer & Roblyer, 2006), its importance in education and current facilities of ICT related to education and how they can use ICT in their teaching and learning process of the students (Anzalone, 2001). All educators must have positive behavior towards ICT in a sense that they can involve themselves in integrating ICT (Mulkeen, 2003). Another challenge is Administrative support, administrative support is necessary to integrate ICT in teaching and learning process (Oyaid, 2009). Administration can help in way that they can provide better policies for the implementation of ICT, can provide conditions, material that are needed for the implementation of ICT (Wasserman & Millgram, 2005). The last one is Technical support, technical support means, how to operate technical devices like installation, operation, maintenance, network, administration, privacy and security (Norton et al., 2000). In most of cases ICT integration fails because there is no any person to handle out these things and that is why teachers and students feel difficulty in using ICT and they try to avoid the use of ICT in teaching and learning process (Smerdon et al., 2000).

Challenges in integration of ICT

Moreover, the e-learning is one of the most useful medium of learning nowadays but to use ICT in teaching and learning is not piece of cake for everyone (Wishart & Blease, 1999). There are many challenges that make the integration of ICT difficult (Peña-López, 2006). This paper addressed many challenges as well as advantages regarding integration of ICT. One of the most benefits of ICT integration is that it provides the ocean of knowledge related to our subject or topic so it makes the acquiring of education easy for students (Watson, 2001). It makes the teaching and learning more interesting and more creative for teachers and students (Wilhelm, 2004).Through ICT the assessment become very helpful for students because the process of feedback can be very quick and other things are also beneficial for students learning and improvement like online exam, quizzes and reflections (Kárpáti, 2004). E- Learning and distance learning provide various things for improving of ICT like audio learning, video learning and other materials like notes, electronic presentations, and tutorials (Alkahtani, 2017). The main challenge that is a big hindrance in many areas because of the missing infrastructure teachers and learner are failed in integrating ICT in their teaching and learning process (Wright & Macrow, 2008). Convergence of ICT play a significant role in developing learning with various things like video broadcast network, voice communication network, data communication network (OECD, 2001). However, there emerge the various challenges like technological challenges.

Conclusion

Education in any country across World is funded publically by the respective governments. On the other, rapid increase in technology created a gap in globalizing the education system. So ICT was introduced considering it to be the mean that contains various pedagogical approaches which will bridge such gap and improve quality of education. Furthermore, this review demonstrates that ICTs are very useful tools that make lives easy. It also indicates ICTs are very helpful tools in different

fields of everyday life i.e. business, commerce, social networking, online employment, banking and Education. ICTs are very crucial tools in the field of education too, because they help in enhancing students' learning and teachers' growth in teaching styles. It provides them an opportunity to both students and teachers to be active learners during lesson by engaging them in their work. In addition, it helps to improve their concerned skills like communication, writing, reading etc, by providing different sources. The ICTs could be used in numerous ways to improve students higher reason skills. Being so advantageous is less used in the Education system of Pakistan; on the other hand it is a need of the day. So therefore educators need to operate ICTs in their teaching. But implementing ICTs is not an easy task because educators face many challenges that hinder them to implement ICT. As it develops students higher order reasoning skill but they can't until their teachers are not expert at this skills. Many studies have exposed different challenges varying context to context. But present review finds two main hindrances i.e. external and internal challenges, which are more disturbing for teachers as well as student. Additionally, external challenges are lack of leadership or higher authorities support, lack of proper resources and so on; whereas the internal challenges are teachers' attitude towards the technology, teachers' self-confidence of using technology, and lack of knowledge of ICTs. These challenges are interlinked with each other, and totally depend on financial budget. Ones this barrier is resolved, than others will also be resolved. The use of ICTs is same in every context but challenges have been changing from context to context as the educators in developed countries like US, China etc face less challenges; on the other hand the educators in less developed countries like Pakistan, Bangladesh etc face more challenges. Pakistan is a developing country so it still lacks in technology, so there is implementation gap in Pakistani context. Various policies and projects have initiated in Pakistan but failed to achieve the desired outcomes. An important potential for using ICT in Education is Educational management and traditional teaching, and in Pakistani context still traditional teaching is prioritized.

For employing ICT in Education sector, it is needed to be adopted in curriculum. Moreover, integration of ICT is impossible without teachers' trainings, so, there should be public institutions that can be utilized in order to provide an appropriate trainings for the teachers so that teacher may not face challenges when they ICT in their classroom. Different courses of learning ICT should be conducted for teachers to improve their ICT skills level by level. Different sessions should also be arranged for students so that they also can be aware and have a deeper understanding of using ICT tools. This will create easiness for teachers to teach freely. The training sessions and courses for teachers and students will help them to develop their confidence of using ICT in classrooms. There should also be technical communities in schools which can help when there are technical faults in ICT tools because technical support is also a hindering challenge in my contexts. Moreover, the new recruitment of teacher should be made on the basis of ICT skills, because this will help them be aware and have somehow mastery on technical skills which will lead them hesitation free environment for teaching with ICT tools. The running period is the period technology which is also known as the 21st century, and in twenty first century teachers must be aware about the twenty first century skills which are on another hand the need of time. However, this review paper will help to implement the ICTs in Education by considering the mentioned challenges. It will also help to tackle such challenges in advance by adopting the suggestions given.

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