PERCEPTIONS OF STAKEHOLDERS REGARDING USE OF ICT IN TEACHERS' PROFESSIONAL DEVELOPMENT: A QUALITATIVE STUDY

Abstract

Due to the emerging usage of technology in the field of teaching and learning, it become mandatory for teachers to utilize ICT in every aspect. The purpose of this study is to find out teacher usage of ICT in their teaching methodologies for their professional development, it is also aimed to find out administrational cooperation with teachers integratingICT for their professional development. A phenomenological research design was used. *The researcher purposefully selected 05 teachers and 05 heads of the institutions to be interviewed as a sample of the study. Semi-structured interviews were conducted with teachers and heads of the institutions. Thematic coding of data was applied as part of the data analysis process. Seven overarching categories or themes surfaced, including* teachers' perception of ICT, teaching methodology, and better learning outcomes. *The results revealed that teachers view ICT as valuable in teaching, and using school management resources effectively. However, others struggle with using ICT due to time and effort consumption. It also emphasized, the struggles with lesson plans requiring ICT but believes it takes longer to achieve targets. Teachers must develop methodologies aligned with their subject and content.The ideaaims at the administrative responsibility of the principal in supporting and motivating teachers to adopt new technology and incorporate ICT in their lesson plans successfully. The recommendation is to prioritize ICT competency in teacher hiring, irrespective of grade level, and involve all stakeholders in the implementation of ICT developmental programs, ensuring appropriate usage for teachers.*

Keywords: ICT, Professional development, Head, Teacher, Khyber Pakhtunkhwa, Pakistan

Introduction

Due to the emergence of new technologies, the teaching profession is now shifting its focus from teachers and lectures to students by conducting interactive learning sessions (Kapil, 2014). Student-centered teaching is a way in which education is mainly focusing on the needs of the students, other than teachers and administrators (Mei-Hui Lin, 2014).

Modern teaching methods include the use of Information and computer technology (ICT) in the instructional approach. It provides instructors with extensive learning opportunities and fosters the development of lifelong learners. Undoubtedly, the field of ICTs in education is deeply intertwined with innovation and development (Watson, 2006). Teacher education faculties have grappled for years with the challenge of helping teachers to promote and use technology with the help of a variety of different approaches, Educator's decisions about the utilization of PCs in their classrooms are probably going to be affected by various factors including the openness of equipment and significant programming, the nature of the educational programs, individual capacities and limitations, for example, time (Albion, 2010). As Ertmer (2005) has documented, it is mostly dependent on teachers to take initiative regarding the usage

of ICT.

For instance,Sang et al. (2009) stress the exceptional strength of utilizing ICT to create an environment that is capable of allowing learners to accept and use various views on challenging studies, to cater to flexible knowledge construction in multiple learning domains, and to look after the needs of every individual involved in the process of learning.

Temperaments towards PCs impact instructors' acknowledgment of the convenience of innovation and impact whether educators incorporate ICT into their classrooms (Arkin, 2009).

The rapid growth in information technology in education is considered an essential element to enhance the quality of education these days (Iqbal, 2010). In the context of developing countries, the results are quite similar to developed states in many ways, but different from the broader level (Nawaz, 2010). One sector of certainty and unquestionably in the e-learning banter is the general position of Pakistan when compared and other propelled societies or Asian nations (Iqbal, 2010). ICT being one of the most important components of today's education is mostly part of the curriculum in the majority of private schools inPakistan. Due to the emerging usage of technology in the field of teaching and learning, it has now become mandatory for teachers to utilize ICT in every aspect possible. The purpose of this study is to find out teacher usage of ICT in their teaching methodologies for their professional development, it is also aimed to find out administrational cooperation with teachers integratingICT for their professional development.To accomplish these goals the present study addressed the following research questions.

1. How do teachers use ICT in their teaching methodologies to improve their PD?
2. To what extent do administrators cooperate with the teachers in integrating ICT into their PD?

Review of Related Literature

Surviving in today's world without technology is extremely difficult. Technology has had a profound impact on every aspect of our daily lives. In today's society, it is essential to know about computers and various technologies, given the constant advancements in this field. In the field of education, it is now mandatory for teachers to possess technological expertise and the ability to incorporate information and communication technology (ICT) into every subject. With time and keeping up with modern ICT aspects that consist of the usage of computers and gadgets, it's relatively competitive for teachers nowadays to inculcate the lesson with all these kinds of knowledge. According to Jegede (2009),computer-aided instruction is now the most required skill for a teacher in a classroom but is the least possessed by teachers (Richard, 2011). Teaching with the continuous use of technology is complicating further aspects, keeping in mind the new challenges faced by teachers (Matthew, 2009). Teachers need to have sound knowledge regarding the usage and implementation of ICT in their classrooms. Any lack of technological knowledge might result in poor learning outcomes both in teaching and learning. Regarding the possibility that instructing with the help of innovative ways is a complex, poorly organized task, we suggest that understanding ways to deal with innovations expects teachers to develop better

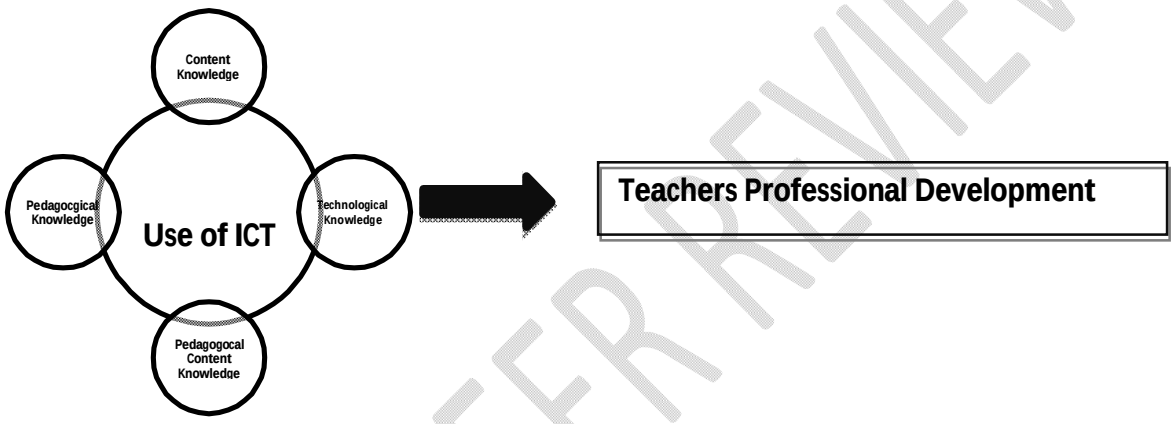
approaches for understanding and comprehending the unpredictability (Punya, 2008).

As the practice of modern technology that is computers in everyday life is now an obligatory practice, the significance of computer cannot be ignored. As cleared from the previous researches, the clear effect of computers can be seen in the field of education. An emphasis on learning as a feature of regular daily existence, with learning networks, which include cooperation, collective effort and exchange, and the development and basic utilization of smart gadgets, is appalling to help with deep-rooted learning with ICT (Watson, 2006). Research indicates that integrating ICT is considered a slow and insightful process that is mostly influenced by various factors for the teachers who are directly involved in the process of learning and teaching (Sara, 2004). Both teachers and students can benefit themselves by integrating computers into their learning and teaching. New and creative methodologies have replaced traditional ways of delivering education with the advancement in the field of computers and technology. Modern-day settings are now curriculum favorable that support and promote competency-based learning outcomes. Curriculums are now designed to keep the abilities aligned that are required to use the information in a precise way (Oliver,2011). With everyday development in ICT as one of the main learning technologies, it has nowgrowing awareness about alternative theories of learning. Contemporary ICTs can give strong help to all of these necessities and by various momentous examples of world-class settings for competency and execution-based instructive programs that make sound use of the affordances of these progresses (Oliver, 2014). Also, there has now emerged a need for professional educational institutions to make sure that passing out graduates are familiar with the use of information and communication technology to the maximum level and can identify and resolve problems if faced with any in their professional lives (Hoque, 2010). This ICT integration does not only include inside the classroom but also seeks multiple duties to be performed by teachers. For learners traditionally, generic skills have involved such capabilities to make them able to formally reason and solve issues, effectively communicate in learning communities, and ability to achieve time management and teamwork skills (Oliver, 2011).Students are starting to enjoy and appreciate the portability of taking education everywhere, anytime (Oliver, 2014). Learning networks have an exceptional relation with the context of education. Teaching itself as a profession has a front-line kind of work organization (Harasim, 2005).

The theory of connectivism tells us that learners learn from multiple resources that are present all around them. In the context of a school, students learn from various means including books, classroom practices, lectures, group activities and computers. All these resources when combined can fully facilitate the students to construct their knowledge for a longer period. Specifically, emphasizing means that are considered more effective in today's learning environment enhances the learning for the learners. While implementing ICT in classrooms on every level, teachers are now more adaptive to bring change in their pedagogies and can generate better outcomes. With the help of ICT in schools on every level, teachers are themselves learners who make the use of ICT an important part of their pedagogical content knowledge. By including ICT, teachers canidentify the change in students learning by closely monitoring their level of interest in the

classroom. Students are more likely to keenly participate when they are connecting computers with their learning as they are capable enough to use and implement ICT in their daily lives. The term PCK – pedagogical content knowledge meaning has now transformed with the addition of ICT as a mandatory knowledge for teachers. Not only ICT is helpful for the teachers in the classrooms, but it also helps them to enhance all their competencies, including knowledge and practice. Ease of use, versatility, quick access to information, and networking with resourceful persons in the same field are a few of the recompenses for teachers when they are using ICT in their teaching and learning. ICT is also impacting students by enhancing their cognitive skills by making them able to think of various ways of collecting and implementing knowledge.

Figure 1. Framework of connectivism



The framework shows the relationship between various factors that's are considered important in today's teaching and learning the environment by using the theory of Connectivism that how all the factors are connected with the usage of ICT in the classrooms which results in professional development of the teachers and generating positive learning outcomes in students.

Methodology

Research Design

A phenomenological research design was used to understand the subjective experiences and perspectives of school heads and teachers regarding the integration of Information and Communication Technology (ICT) in professional development and teaching practices. As defined by Creswell (2007), "Phenomenology is a research strategy of inquiry in which the researcher identifies the essence of human experiences about a phenomenon as described by participants" (p.13). The participantsof the study areall ICT teachers and heads of schools in Khyber Pakhtunkhwa, Pakistan. As a sample, the researcher selects 5 teachers and 5 heads of institutions that have experience with ICT integration in professional development and teaching practices.The following table shows demographic information of teachers and the head of the department.

Table 1.Demographic representation of the respondents

	Gender	Experience	Education	Level of teaching
Teachers	Female	8 Years	Master	Undergraduate
	Male	12 Years	PhD	Undergraduate
	Female	10 Years	M.Phil	Higher Secondary
	Male	17 Yeas	M.Phil	Undergraduate
	Male	6 Yeas	M.Phil	Graduate
Head	Male	20 Yeas	M.Phil	Graduate
	Male	30 Yeas	PhD	Higher secondary
	Male	16 Yeas	PhD	Undergraduate
	Male	37 Yeas	M.Phil	Graduate
	Female	19 Yeas	PhD	Undergraduate

Sample size technique

The purposive technique was used by the researcher in conducting a qualitative study focused on the field of information communication technology. Patton (2002) states that purposeful sampling is used to enhance the utility of information gathered from limited samples. According to Patton (1990), purposeful sampling involves picking data that is rich in information for thorough investigation. I recruited participants who could provide data that would illuminate the core problem of this study and who could offer valuable insights necessary to achieve the required depth and quality of qualitative data (Gay et al., 2006).

Data collection

Data collection in qualitative study serves the objective of gathering information to support the in examination of particular experiences (Polkinghorne, 2005). We conducted semi-structured interviews with each participant to explore their experiences and perspectives regarding Information and communication technology integration. The first round of interviews was conducted with the heads of the schools to assess their views on using information communication technology in the professional development of the teachers. In the second round, interview teachers to get their viewpoints regarding using information communication technology in their professional development. In the final and third rounds, the interview transcript was sent to participants to verify its fidelity as a faithful portrayal of the conversation.

Data analysis

The researcher engaged in the thematic coding of data as part of the data analysis process. As part of the data analysis procedure, the researcher coded the data according to themes. Thematic analysis is a "method for identifying, analyzing, and reporting patterns within data," (Braun & Clark, 2006). The data was classified and processed into distinct themes and smaller subthemes using Braun and Clarke's six-fold thematic analysis method. these procedures consist of becoming acquainted with data, creating preliminary codes, looking for themes, evaluating

themes, defining and labeling themes, and creating the report. During the first round of data analysis, a total of seventy-two ideas were consistently coded in the interview. In the second round of the data analysis, the researcher found three major codes, Teachers' perception of ICT, Teaching methodology, and Better learning outcomes.

Results

Teachers' Perception of ICT: ThePrincipal encourages the teachers to include ICT as he views ICT as an integral part ofteachers'knowledge. According to him, he has observed quite reluctant attitude of some teachers towards the use of ICT due to lack of interest of teachers. He also pointed out that teachers who are unable to adapt to this change are usually facing problems in the delivery of the lessons in their respective classes which ultimately affects their teaching outcomes along with learning outcomes ofstudents.

"Teachers who are not willing to use ICT and bring change in their teaching methodology are also unable to produce constructive outcomes."

He believes that teachers are unable to grasp the idea of how beneficial it would be if all the teachers teaching in the school would collaborate towards the maximum integration of ICT in the learning and teaching process. According to him:

"I must say that it is important for teachers to realize the importance of computers and to include it in every possible way into their teaching to enhance their teaching skills."

While answering questions during the semi-structured interview, a teacher expressed that she mostly develops lesson plans according to the syllabus and the assigned tasks thatrequire using ICT. Still, she was unable to use ICT in the classrooms with students as she thinks it takes longer to achieve the targets when using ICT as it consumes a lot of her time and effort. Upon asking why she feels like that, she says:

"Using ICT in making plans is acceptable but while delivering the lesson, I stick to the assigned task that needs to be done at a specific time. It takes longer to complete tasks when using ICT."

Another teacher highlighted the importance of ICT by saying:

"*Using ICT in teaching makes the tasks easier and impactful not only for me but for the students as well. They like to use computers a lot so why not make them learn by using it?"*

She shared that her entire planning and implementation includes the use of computers in an extensive manner. The general opinion of this particular teacher was to integrate ICT as much as she can as she feels competent in using it and she believes her class participates well enough with the help of ICT.

During the observation, it was noted that teachers do face challenges in the integration of ICT in terms of managing a class of 25 to 30 students during the lesson. On the contrary, teachers who are habitual of ICT usage were effectively managing the class along with proper delivery of the respective lesson. This depicts the intuition of teachers carrying different pointsof view in a particular domain.

Teaching methodology: According to the principal teachers teaching in today's modern world must be aware of the technological skills along with learning and pedagogy skills to ensure better learning outcomes. Designing teaching methodologies that would benefit children in the challenging work must be inculcated. He said:

"Today children need more than just a book and a teacher in a classroom to fulfill their learning needs."

Irrespective of the subject that the teacher is teaching, he emphasized that teachers must work on generating methodologies that are aligned with their subject and the content they are planning to teach.

"*Subject knowledge can be further beneficial if teachers can use their maximum potential to deliver it in a meaningful way."*

He believes that teachers who not only possess the subject knowledge but are also competent enough to integrate the modern ways of teaching and learning into their pedagogies can generate better outcomes than those teachers who are not adaptive to change and find it very hard to implement any changes in their teaching style. He mentioned that this defiance in teaching practice might make the learning pace comparatively less effective, unable to fulfill the factors needed to compensate for the current needs of the learners. He said:

"Without proper planning of content, teachers are often lacking in the sharing of knowledge among their students in the classroom."

During the interview with teachers, it was noted that teachers who use ICT in their methodology are eager to try new ways to add and do not hesitate to include new practices into their methodology. Upon explaining this, a teacher said:

"I keep looking on the internet for new ways to teach my students as it gives me new perspectives of teaching them and making them lifelong learners."

On the contrary, teachers who do not feel the need to use computers and technology in their teaching have a mindset where they do not believe in changing the obsolete style in their methodologies. They do use ICT but mainly for general usage rather than for instructional usage. A teacher mentioned in this regard that:

"I am aware of using computers and technology through my daily life and mostly use it for my teaching too but, I do not want to bring too much change in my teaching style as I prefer the practices, I am following from the past three years."

Upon inquiring further, it showed that teachers are habitual of following a routine and do not like to change their ways around their teaching methodology.

While observing the classroom during lessons, it was observed that few teachers were conducting the class in such a manner that it depicted that they had full command over their content and they were able to align it while using their technological skills too.

Better Learning Outcomes: Keeping the theory of connectivism as a learning theory in the context of the school, the school principal also identified that students and the use of

technological resources along with the continuous help from teachers can have a key part in generating constructive outcomes.

"To nurture minds of young individuals, teachers must facilitate them as much as required."

He believes that there is a huge difference in terms of generating better outcomes of the teachers who use ICT in instructional practices and those who don't. While giving his feedback, he says,

"Obviously, you will see a positive change in the outcomes when teachers are open to adapt change and do not hesitate in the use of ICT."

Through semi-structured interview sessions with a few teachers, one teacher approves the idea of positive outcomes based on teaching practices that the teacher follows. She says:

"When you deliver the content effectively in the classroom, you will eventually see the positive feedback in students' learning outcomes."

Furthermore, teachers mentioned that everything that is done in the class hasan impact on students learning. A teacher mentioned in this regard:

"Students' outcomes are directly related to what they have learned in the classroom with teachers' help and how effective teachers are in delivering the content."

During the observation, student's active participation was seen during the sessions of those teachers who were using ICT in their instructional methods. Those teachers were able to help the students understand the content along with a better understanding of what was expected of them.

Discussions

The results revealed that teachers view ICT as valuable in teaching, and using school management resources effectively. The current finding is supported by previous findings by Molotsi (2022) many teachers perceived ICT as a valuable and natural part of teaching and learning, seeing it as a tool that can foster critical thinking and increase student engagement. Further, Akram et al (2022), stated that over 90% of teachers surveyed actively used ICT daily in their teaching. However, some teachers have a more moderate or skeptical attitude towards ICT use, expressing concerns that it can come at the expense of other important aspects like health, students' time, socialization and increased teacher workload (Akram et al., 2022). The reason may be that teachers find ICT more valued because use of ICT improve their teaching methodologies and permit them to use the resources effectively.

The current results also aim at the administrative responsibility of the principal in supporting and motivating teachers to adopt new technology and incorporate ICT in their lesson plans successfully. In light of the above idea Tołwińska (2021) and Dunham (2012) stated that the head of the school should have the availability and access of ICT resources in the classrooms. The reason may be that principals have access to communication with the stakeholders related to implementing the use of ICT.

Conclusion and Recommendation

The importance of computers and technology in the process of learning and teaching is now an obligatory component considering its benefits. The old conventional methods used in teaching are now obsolete. Teachers involved in the teaching and learning process in today's modern era are considered to integrate their teaching with information and communication technology as much as it is possible. The current study aimed to provide insight into teachers' perceptions regarding the usage of ICT irrespective of the grade level they are teaching. The perception of teachers regarding this is ultimately showing their level of usage of ICT. The findings of this study strongly indicated that the integration of ICT is more dependent onteachers'perceptions and how they perceive the benefits of ICT. In the light of previous chapters in this study, it is quite evident that teachers who are adaptive to bringing change in their methodology occurring due to the integration of ICT are more likely to see the advantages of it in the generation of better outcomes. It becomes apparent to contemplate the fact that ICT not only changes the role of teachers in their classrooms but also allows teachers to explore their content knowledge along with their technological knowledge by keeping the needs of their learners in mind in the evolving world of learning today. These ideas focusing the administrative responsibility of the principal in assisting and motivating teachers to adopt new technology and incorporate ICT in their lesson plans successfully. Theresults of the study indicated that willingness to change and the right direction of adapting ICT play a huge role in developing positive perceptions of teachers towards the usage of ICT. The study also supports that awareness of ICT and the ability of teachers to connect its general usage with the right instructional usage would ultimately result in generating better learning outcomes not just for the learners but also for the teachers.

By considering the above-mentioned results, the current study recommends the following few opinions that can be considered for future researchers exploring the specific domain in the teaching and learning processes:

- Most teachers teaching in today's modern era of education are self-aware of the importance of ICT along with its benefits and likely to realize the change it brings to their classrooms. The focus must be drawn into building a linkage for their content knowledge with their pedagogy and technological knowledge keeping the TPACK in focus.
- The competency of ICT must be considered an important factor in the hiring of teachers irrespective of the grade level considering the importance of it for the learners.
- Teachers reluctant to integrate ICT into their teaching must be provided with learning sessions with other peers from inside or outside the school to make them realize the role it can play in generating better outcomes.
- The use of educational softwareneeds to be implied as a compulsory part of teaching by the management for teachers without considering their subject to make them aware of the variety of methodologies that can be used using their content knowledge.

- Flexible lesson planning must be ensured to the teachers to allow them to explore various methodologies using ICT to facilitate learners as much as it is possible.
- The accountability of introducing ICT developmental programs should spread beyond school and must include the cooperation and participation of all stakeholders to ensure the implementation of ICT by developing a plan for the appropriate usage for the teachers.

References

Akram, H., Abdelrady, A. H., Al-Adwan, A. S., & Ramzan, M. (2022). Teachers' perceptions of technology integration in teaching-learning practices: A systematic review. *Frontiers in psychology*, *13*, 920317

Albion, P. R. (2010). Self-efficacy beliefs as an indicator of teachers' preparedness for teaching with technology. In *Society for Information Technology & Teacher Education International Conference* (pp. 1602-1608). Association for the Advancement of Computing in Education (AACE).

Arkin, (2009). Implications of chemistry education research for teaching practice: Pedagogical content knowledge as a way forward. *Chemistry Education International*, *6*(1), 1-2.

Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative research in psychology*, *3*(2), 77-101.

Creswell, J. W., Hanson, W. E., Clark Plano, V. L., & Morales, A. (2007). Qualitative research designs: Selection and implementation. *The counseling psychologist*, *35*(2), 236-264.

Dunham, C. (2012). Principals roles and responsibilities in technology integration in rural Georgia.

GAY, L., MILLS, G. & AIRASIAN, P. (2006) Educational research competencies for analysis and applications. 8th ed. New Jersey, Pearson.

Harasim, L. M., Hiltz, S. R., Teles, L., & Turoff, M. (2005). *Learning networks: A field guide to teaching and learning online*. MIT press.

Hoque, S. M., & Alam, S. M. (2010). The role of information and communication technologies (ICTs) in delivering higher education–A case of Bangladesh. *International Education Studies*, *3*(2).

Iqbal, M. J., & Ahmad, M. (2010). Enhancing quality of education through e-learning: the case study of Allama Iqbal Open University. *Turkish Online Journal of Distance Education*, *11*(1), 84-97.

Jegede (2009). Teacher competence in ICT: implications for computer education in Zimbabwean secondary schools. *International Journal of Social Sciences & Education*, *1*(4).

Kapil, (2014). The impact of information and communication technology (ICT) on teaching and learning of physics. *International Journal of Educational Research and Technology*, *1*(2), 48-59.

Matthew, (2009). Academic Involvement of Parents and its Relationship with Educational Attainments of Secondary School Students. *World Applied Sciences Journal*, *12*(9), 1409-1412.

Mei-Hui Lin, (2014). The didactic knowledge of the content (CDC) of a science teacher: reflection and action as facilitators of learning. *Science education: research magazine and teaching experiences* ,*37* (1), 25-53.

Molotsi, A. R. (2022). The use of ICT resources to transform teaching at secondary schools in the Bojanala district, Northwest province. *South African Journal of Education*, *42*(1).

Nawaz, A., & Kundi, G. M. (2010). Demographic implications for the user□perceptions of E□learning in higher education institutions of N□WFP, Pakistan. *The Electronic Journal of Information Systems in Developing Countries*, *41*(1), 1-17.

Oliver, R. (2011). The role of ICT in higher education for the 21st century: ICT as a change agent for education. *Retrieved April*, *14*, 2007.

Oliver, R. (2014). Creating meaningful contexts for learning in web-based settings. *Proceedings of open learning*, 53-62.

Patton, M. Q. (2002). Qualitative research and evaluation methods 3rd ed. Thousand Oaks, CA: Sage.

Polkinghorne, D. E. (2005). Language and meaning: Data collection in qualitative research. *Journal of counseling psychology*, *52*(2), 137.

Punya, (2008). Academic Involvement of Parents and its Relationship with Educational Attainments of Secondary School Students. *World Applied Sciences Journal*, *12*(9), 1409-1412.

Rabionet, S. E. (2011). How I Learned to Design and Conduct Semi-Structured Interviews: An Ongoing and Continuous Journey. *Qualitative Report*, *16*(2), 563-566.

Richard, (2011).Teacher□researcherrelationshipsinthestudyofteachingandteacher education. *Peabody Journal of Education, 70*(2), 162-174.Clifford, N. (2010). *Key Methods in Geography*. London: SAGE PublicationsLtd.

Rohaan, E. J. (2009). *Testing teacher knowledge for technology teaching in primary schools*. Print service TU/e.

Sang, Valcke, Braak and Tondeur (2009). Qualitative studies in special education. *Exceptional children, 71*(2), 195-207.Bucat, R. (2005).

Sara, (2004). Utilization of Ict by Moral Education Teachers. *The Malaysian Online Journal of Educational Technology*, *1*(4), 44.

Tołwińska, B. (2021). The role of principals in learning schools to support teachers' use of digital technologies. Technology, Knowledge and Learning, 26(4), 917-930.

Watson, D. (2006). Understanding the relationship between ICT and education means exploring innovation and change. *Education and Information Technologies*, *11*(3-4), 199-216.