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Teacher's Competencies and The Use of ICT Tools in Secondary Education

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Abstract

The present study was intended to explore teachers, competencies, and the use of ICT tools at the secondary school level. The study was quantitative. The population of the research comprises public secondary and higher secondary schools in the district of Swabi. A questionnaire and a checklist were used as research tools. A total of 43 items and a distinct questionnaire were created, with options for a 5-point Likert scale created for each item, which were used to collect data. The study's findings revealed that most educators think that using information and communication technology (ICTs) enhances secondary education instruction. Information and communications technology (ICT) may be used to enhance education by being integrated into all aspects of teaching at the school level, such as e-learning, e-pedagogy, and e-assessment. Communicating with parents is made considerably easier with the use of ICT technology. They demonstrated a keen interest in looking through reputable sources, including books, journals, booklets, and instructional websites. It was also concluded that the frequency of using ICT tools did not change statistically significantly based on the respondent's gender, school-based diploma, or academic background. Furthermore, a statistically significant difference in the practices of the participants was found according to their degree of experience. The gathered data was analyzed using both inferential (such as ANOVA and the independent-sample t-test) and descriptive (mean, and SD) statistics. It may be recommended to establish professional development initiatives that aim to improve teachers' abilities to use ICT tools efficiently. Pre-service teacher education programs should include instruction on ICT integration to make sure that future educators have the skills they need from the beginning of their careers. Evaluation techniques may be provided that accurately gauge instructors' ICT proficiency as well as the effect of ICT integration on student learning results.

Keywords: Learning, technology, knowledge, teaching, education

Introduction

Tools for information and communication technology (ICT) are crucial to education. ICT has the power to strengthen instruction, support school reform, and provide economic variety for tomorrow's workforce. It can also expedite, enrich, and deepen learners' abilities to

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connect school experiences to work practices (Mingaine, 2013). ICT is thought to hold the key to releasing our students' abilities and knowledge, claims Mikre (2011). It's also regarded as the starting point for developing 21st-century skills. The global integration of ICT technologies into the teaching and learning process is being embraced by education systems. ICT tools make a constantly changing, responsive teaching and learning environment possible. To improve the quality of teaching and learning in this digital age, teachers must thus employ ICT technologies in place of more traditional approaches in their lesson plans. ICT tools of today not only make teaching easier, but they also make learning easier. Computers, data storage devices, desktops, laptops, and broadcasting technologies—such as radio and television—utilized in classrooms are examples of ICT tools, albeit not the only ones.

In today's information-driven environment, pupils must be able to use technology for educational purposes. To prepare students for the workforce, for life, and for community service, digital literacy is essential. The following criteria and performance indicators should be met by the students: digital citizenship, creativity and innovation, communication, and teamwork, inquiry and knowledge fluency, critical thinking, problem-solving, and decision-making, as well as technology operations and concepts (ISTE, 2007). Promoting and improving students' and educators' ICT competency is one of the development policies. Students must become proficient in ICT in particular to use it as a tool to accelerate their learning, realize their full potential, and ultimately aid in the growth of the nation. ICT competency is defined as having the knowledge, abilities, and capacity to use ICT to gather, process, and present data in support of activities between various groups of people for working, unwinding, and communicating (UNESCO, 2008; NICS, 2010; Albirini, 2006). In the information-based culture, it also functions as a fundamental ability (Cha et al., 2011). Those who are considered to be ICT competent must be able to generate the required paperwork, solve issues, and select the appropriate ICT tools for efficient work and problem-solving. Along with having a basic understanding of ICT and the ability to create and utilize innovative ICT tools efficiently, they also need to be able to gather and distribute information ethically.

A proficient educator possesses an extensive understanding of the subject matter or content. A subject-matter expert in the field could provide the pupils in the classroom with additional knowledge (Spear-Swerling et al., 2005). In computer labs or classrooms with limited technology, technological literacy teachers can locate and use tutorials, games, practice, and web content to meet their current curricular objectives. The ones listed above are talked about below. To handle student data and offer professional development, teachers need to be competent to use ICT (UNESCO, 2018). It is commonly acknowledged that ICTs can raise educational standards and quality. Bringing ICTs into the educational process requires effective instructors (Agostinho et al., 2002). As such, educators must exhibit proficiency and assurance in utilizing ICT. Instructors in secondary schools need to be adept in using word processors, the internet, email, and file management, creating presentations, and utilizing Excel for data analysis (Id et al., 2017). These abilities were significantly impacted by age, sex, kind of school, and teaching experience (Jamil et al., 2017).

Objectives of the Study
1.   To determine how often teachers in secondary education use ICT technologies.
2.   To evaluate the professional competency level of the teacher at the secondary school level.
3.   To compare the ICT tools that instructors use according to their gender, age, training session, school, diploma, and teaching experience to find differences in their skills.

Research Questions
1.   What is the professional competency level of teachers while they are teaching at the secondary level?
2.   To what extent do secondary school instructors use ICT tools in their instruction?
3.   How the ICT tool competencies of teachers are different according to their gender, age, degree, schools, training, and years of teaching experience?

Review of Literature
Global acknowledgment of ICTs' value in improving educational standards as well as quality has grown. As a basic element of education, ICTs for teaching and learning must be combined with successful teachers (Agostinho et al, 2002). It is imperative to acknowledge that educators themselves must be competent and confident ICT users. Word processing, the internet, file management, email handling and management, creating presentations, and data analysis using Excel worksheets are the main ICT skills that teachers are expected to possess at the school level (Strong, 2011). These skills were evaluated in the underlying research. Age, gender, kind of school, and teaching experiences were found to have an impact on most of these abilities (Egwali and Igodan, 2012). To solve this issue, the Pakistani government has taken the lead in incorporating ICTs into the curriculum. For this reason, the Ministry of Education, in addition to USAID, has provided training sessions to all Punjab government school teachers at the fundamental and secondary levels. During these seminars, educators received fundamental instruction on how to use ICTs for teaching and learning in an efficient manner. Teachers need to be highly skilled in a variety of didactic and instructional areas to transfer knowledge and information to students in elementary and secondary education. At this level, students interact with new ideas, conduct experiments using a variety of scientific and technical tools, and learn through concepts. The role that teachers play today is no longer that of "instructor" but rather "facilitator." They have to cope with a lot more uncertainty in addition to teaching in unfamiliar learning environments. The role that teachers play today is no longer that of "instructor" but rather "facilitator." They have to cope with a lot more uncertainty in addition to teaching in novel learning environments.
ICTs facilitate learning outside of school hours, help teachers and students operate, archive, manipulate, and access information, encourage self-responsibility for acquiring knowledge, autonomous and active learning, and distance learning, plan and prepare lessons and create course materials, assist students in building new knowledge, and facilitate the sharing of knowledge, skills, and ideas (Ali et al, 2013; Egwali, Igodan, 2012). The delivery of education has altered as a result of ICT-based learning. By helping them solve difficult tasks, it may now engage pupils in activities that improve their performance in the classroom and foster the development of their cognitive capacities. ICTs are increasingly being used in today's society

to support the educational system. Providing students with easy access to a plethora of educational resources, increasing their sense of self-efficacy, and providing opportunities for self-paced learning, have had a tremendous impact on the educational system and will help satisfy the future's educational demands. ICTs have also improved teachers' professional development processes.

Teaching and ICT

One of the most important aspects of education is teaching. The process of directing, supporting, and expediting the learner is known as teaching. The transmission of knowledge and information is the main goal of teaching. Teaching is a complex process that involves planning, yet it's not an easy job. The main goal of education is to influence students' behaviors, and this can only be accomplished through effective instruction. As a result, there is a clear correlation between teaching quality and educational quality. "Teaching at any level is no easy task. Students come with a range of abilities, characteristics, motivation, and vision," states Delponte et al. (2015). They build comprehension in their own ways and have various expectations from their professors. The quality of education is just one of the many issues plaguing Pakistan's educational system. In Pakistan, the level of education is appalling. Because our schools neither provide nor use new ways, the majority of instructors use outdated and traditional teaching methods. They provide a private setting in which students are compelled to listen quietly and are not allowed to discuss or ask questions about any topic. Teachers usually try to compensate for their inability to instruct or to display animosity effectively. Instructors lose marks, stifle student originality, and place an undue emphasis on memorization and red learning in place of explaining concepts and assisting students in understanding the material.

ICT Teachers' Competencies

Much research was done on teachers' fundamental communication and informational abilities. There are very few studies that address teachers' ICT competency in a more comprehensive sense. Other research publications examined the views of other researchers regarding the use of ICT or digital competencies in the classroom by instructors. "The teacher's competency in utilizing ICT in a professional setting demonstrates sound pedagogical instructional judgment and an understanding of its consequences for instructional methods and the digital Bildung of pupils" is how Krumsvik (2008) characterized teacher digital competence. His approach to digital literacy for educators is centered on the teacher's fundamental ICT abilities, their pedagogical-didactics ICT competency, learning methodologies, and their metacognition regarding their professional growth, pedagogical content knowledge, and digital building. A skilled teacher adapts their teaching strategies to meet the needs of each student in the class. They also need to be able to convey the subject with accuracy and clarity. The instructor adapts her lessons to the various learning styles of her students by using instructional aids. Utilizing ICT should be oriented around student-centered techniques. Teachers arrived to help students use the instructional materials and educational tools that the teacher employs in the classroom. The instructor is revolutionizing student-centered learning and practice through the use of ICT. To put it briefly, the ICT competency criteria for teachers center on their fundamental

understanding of and ability to use ICT.

Teachers' Attitude towards ICT

Albirini (2006) thought that one of the main indicators of the adoption of new technology in the classroom was the attitudes of the teachers. The primary determinant of the effectiveness of ICT integration in education is teachers' attitudes about its use. A good or negative emotional response to a particular circumstance or stimuli is referred to as an attitude. Instructional communication technologies are the particular scenario or stimulus that comes to mind when we discuss ICT. How are higher education instructors responding to these technologies? Do they have the mental capacity to absorb it? Acceptance and readiness to demonstrate something are two different things. Many studies were carried out to find out how teachers felt about using ICT, particularly computers. According to Harrison and Rainer (1992), study participants who had unfavorable views toward computers were less adept at using them, and as a result, they were less likely than those who had positive attitudes to embrace and adjust to technology. Albirini (2004) discovered that educators had favorable opinions regarding the usage of technology in the classroom. According to Summers (1990), teachers' preexisting attitudes, abilities, and work habits will have a significant impact on how they accept and use computers in the classroom. It relies on their attitudes to what degree educators utilize ICT tools for teaching. The findings of their study showed that instructors used ICT for teaching at a low level, that they had a positive attitude toward using it, and that there was a strong positive association between teachers' attitudes and how much they used it. According to Shaikh (2009), instructors who have a bad attitude, lack ownership and accountability, or are afraid of a challenging learning process tend to neglect their ICT training sessions. Despite having received ICT training, it is a well-known fact that many instructors do not use ICFT in their lectures (Shaikh and Khoja, 2011).

ICT Teacher Competencies Policy in Pakistan

The requirements that must be met to achieve particular educational goals are provided by educational standards. These qualities include the knowledge, talents, and capacities of the teachers in charge of preparing students to successfully serve their country.

The Pakistani government actively supports and finances education upgrading following the requirements of the teaching and learning process of the twenty-first century to achieve global education standards. The globe over, there is widespread recognition of ICTs' ability to raise educational standards and quality. Consequently, ICT integration into the teaching and learning processes in the classroom is essential for effective instructors. It is critical to realize that instructors themselves need to be proficient and self-assured ICT users. Word processing, the internet, file organization and administration, creating presentations, and spreadsheet data analysis are just a few of the ICTs that educators need to be proficient in (Wasif et al., 2011). Among other factors, sex, age, teaching experience, and the kind of school affected these skills (Jamil et al., 2017). The Pakistani government has taken the lead in addressing this problem by including ICTs in the curriculum for schools. The Ministry of Education in collaboration with the US Agency for International Development has conducted training programs for Pakistan's government elementary and secondary school teachers. Teachers learned the fundamentals of using and integrating information and communication

technologies (ICTs) in these courses.

Related Research

The notion of digital competence has been widely employed in ICT-related literature to evaluate the degree to which educators can incorporate ICT into their pedagogical approaches. Various terms, including digital literacy, information literacy, digital skills, technology skills, ICT abilities, teachers' confidence in using ICT, etc., are used in the literature to define this competency. In the same context, we examined the participants' "sense of competence" in terms of ICT use to evaluate their level of digital competency. According to studies on teachers conducted by Garcia et al. (2020), 85% lacked the necessary abilities to successfully integrate ICT into the classroom. As a result, it was determined that the main obstacle to ICT integration in education was skill competency. In a similar vein, a study conducted by Selim et al. (2020) on teachers' acceptance of ICT integration in the classroom concluded that insufficient expertise led to a lack of confidence in using ICT technology, which had a big impact on ICT implementation in Malaysian universities. Additionally, Agboola et al. (2019) found that confidence and training in ICT were a strong predictor of ICT adoption. They looked into how prepared university professors were for the introduction of ICT at the International Islamic University of Malaysia. The correlation suggested that instructors with training had a high degree of readiness and self-assurance when it came to incorporating ICT. Both theoretical and practical studies have demonstrated the beneficial effects of ICT on educators and the pedagogies they employ in the classroom. While some studies have found that the use of technology "significantly disregards the role of teachers" (Riel, 1998), it would not be accurate to state that this is the case. It has undoubtedly altered. It calls for a wider variety of abilities and comprehensions. They are constructors of knowledge as well as content experts.

The increasing use of multimedia, the internet, websites, and other virtual computer technologies has impacted their work-related style, mindset, and competencies. According to Akudolu (2002), instructors who utilize ICT have better access to information, which increases their curiosity in teaching and experimenting. They also get more time to interact with students, which boosts productivity. Technology does not diminish the importance of the job that instructors play; on the contrary, it enhances their ability to gather, organize, process, and communicate information. Before learning to use new technologies in their teaching, teachers require assistance using them to improve their work, according to Lankshear and Snyder (2000) (Paul, 2002). Greater accessibility to subject-specific best practices and knowledge that may be disseminated via ICT can support improved teaching.

According to Mingaine (2013), school administrators should help adopt technology in their institutions by purchasing the necessary hardware. However because infrastructure is so expensive, not many schools use ICT resources. Planning needs to be done correctly at the school level to incorporate ICT into the teaching and learning process. It is expected of the school to supply the ICT resources that instructors and students need to use (Karimi, 2012). If instructors are to use ICT tools meaningfully, then Obonyo (2013) asserts that unfettered access to training would equate to successful computer use. Regarding this, they proposed that integrating and implementing ICT in the teaching and learning process requires strong leadership. According to Haggins and Moseley (2011), obtaining the essential infrastructure

from the administrations that make decisions for any educational institution is never easy. Ghavifekr, et al. (2016) pointed out that for teachers to become more effective in their job, they require leadership and support in excellent practices from the administration. As a result, the administration's support is essential to the advancement of ICT in the teaching and learning process.

According to Kubrický and Částková (2013), ICTs are becoming a vital instrument in today's world to support the educational system. It has not only had a significant impact on the educational system but also on future efforts to address learning demands by giving students broad access to educational resources, boosting their sense of self-efficacy, and offering possibilities for self-paced learning. In addition to this, ICTs enhance the process of professional development for teachers. According to Badau and Sakiyo (2013), a teacher's effectiveness in ICT-based teaching and learning is mostly determined by their abilities, disposition, and proficiencies. While Kirschner and Woperies (2003) expanded on these factors, they also stated that political factors, poor timing and planning, requiring teachers to use technology in the classroom without giving them enough time to learn it, a lack of qualified teachers, a lack of electricity, an inadequate number of computers, higher prices for ICT resources, a computer phobia among teachers and administrators, and a lack of a clearly stated digital curriculum are the reasons why learning goals are not met.

Research Methodology
Research Design
To fulfill research goals, the study used a quantitative approach. The research was conducted using a descriptive survey approach.

Population
This study was a survey of District Swabi's public secondary and higher secondary schools. All of the boys' and girls' public secondary and upper secondary schools in the Swabi district made up the research population.

Sample and Sampling Technique
A random sampling technique was used to choose the study's sample. There are 127 computer teachers in district Swabi working in all public secondary and upper secondary schools. Of them, 60 are female and 67 are male. This population's sample was selected using the random sampling technique. There were 127 computer teachers overall; of those, 100 teachers from all districts made up 78% of the sample. In the Swabi district, there were 73% male teachers and 85% female teachers.

Research Instrument
A pair of tools was present. There were two: a questionnaire and a checklist. For participants to find it easier, each tool is divided into several subsections. A crucial inquiry in this study was about ICT teacher abilities. 43 items total—a distinct questionnaire was created, with options for a 5-point Likert scale created for each item—were used to collect data.

Data Analysis
Demographic Information
51% of the respondents were female, while 49% of the respondents were male. The image also shows the ages of the responders. Eighty-four percent of respondents were in the age category of 51 years and above, and sixteen percent were in the age range of 41 to 50 years. The majority of participants (85%) had master's degrees, with MPhils coming in second (14%). One percent of the participants held a Ph.D. degree. Everybody involved has sixteen years of experience. Just 3% of participants had an ICT diploma or certificate and attended the training session, whereas 97% of participants had neither and did not attend any training sessions. There are 72457 pupils enrolled in the 100 sample schools, and 48108 of them are studying computer topics.
These 48108 students solely attend sixth through twelfth grades. Sixty-six percent of the students are like this. This result indicates that students are interested in learning about computer science. There were one hundred responders from government secondary schools for both boys and girls. 34% of schools lack internet access in their labs, compared to just 66% that do. Just 9% of schools lack printers in their labs, compared to 94% who do. While 28% of schools lack a scanner in their labs, 72% of schools have one. Just 11% of labs have multimedia, compared to 89% that do not. In their labs, 66% of respondents have a photocopier, whilst 34% do not. In their computer laboratories, 80% of schools lack laptops. In 91% of computer labs, there is a Smart Board. There was no iPad in the computer laboratories at 91% of the schools, and no other ICT equipment was present.

Analysis of Teachers' Responses to Practices and Perception
Seven of the eleven variables in the data analysis (Table 1) had mean scores greater than 4.00, suggesting a high mean score level employing ICT technologies. The mean score approached a decent level as a result of the remaining variables. Precisely, the respondents regarding "Encourage students' critical thinking and social engagement by utilizing project-based learning and ICT resources. (Mean=3.89) followed by usage about the "Utilize ICT resources to aid students in comprehending and applying course content." (mean=3.86) with slight differences. The variables "Connect staff members with communities through virtual learning environments." (mean=3.52) and "Establish a virtual learning environment to connect employees with outside specialists. " (mean=3.25) were found to some extent.

Table 1
Practices of ICT Tools

Variables	Mean	Std. Deviation
Utilize ICT resources for lesson planning and course design.	4.72	.668
Utilize ICT resources when creating lesson plans for students.	4.06	.617
Utilize ICT resources to aid students in comprehending	3.86	.943

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and applying course content.		
Utilize ICT technologies to assess pupils both formatively and summative and to provide them feedback as they work.	4.02	.619
Utilize worldwide access and connectivity through ICT communication and collaboration technologies.	4.39	.952
Make use of flexible resources to encourage student cooperation.	4.00	.725
Encourage students' critical thinking and social engagement by utilizing project-based learning and ICT resources.	3.89	.920
Create guidelines for the moral, sensible, and suitable use of ICT to enhance instruction and learning.	4.09	.805
Make use of ICT to give staff members access to online courses for professional growth.	4.38	.826
Establish a virtual learning environment to connect employees with outside specialists.	3.25	1.234
Connect staff members with communities through virtual learning environments.	3.52	1.259

Perception of teachers related technology literacy competency
The respondents were asked about how they saw technology literacy in their competencies. (Table 2) demonstrates that a high mean score level of the technology literacy competencies is indicated by the overall view of the individual perceptions, where six out of ten variables had a mean score above 4.00. The mean score for the reset variables was comparable. To be more precise, respondents expressed concerns regarding "The teaching process is more significantly impacted by the self-efficacy of computer-using teachers" (Mean=3.94), "Instructors value ICT as a tool for lifelong learning." (Mean=3.94), and "The instructor uses internet resources to gather data from multiple sources. (Mean=3.99). The only one with a moderate level of perception is "To enhance the teaching-learning

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process, current ICT technologies should gradually replace traditional teaching aids."
(Mean=3.68).

Table 2
Perception of teachers related technology literacy competency

Variables	Mean	Std. Deviation
ICT enhances the process of teaching and learning.	4.33	.829
It is appropriate for all educators to use ICT in the classroom.	4.04	.511
Educators must have training on the use of ICT in the classroom.	4.23	.863
ICT tools are more likely to be used in the classroom by instructors with higher education levels.	4.27	.633
Having access to ICT tools increases the likelihood that teachers will use technology in the classroom.	4.81	.526
The teaching process is more significantly impacted by the self-efficacy of computer-using teachers.	3.94	.583
To enhance the teaching-learning process, current ICT technologies should gradually replace traditional teaching aids.	3.68	.984
The instructor uses internet resources to gather data from multiple sources.	3.99	.438
The successful integration of ICT in the classroom is influenced by the attitudes of the teachers.	4.43	.856
Instructors value ICT as a tool for lifelong learning.	3.94	.633

Perception of Teachers related to Knowledge deeping Competency
The respondents were questioned about knowledge-deepening competency in (Table 3),
which typically confirms their judgments of competencies. The overall perspective of each

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person's perceptions Eleven factors had mean scores greater than 4.00, indicating a strong Knowledge-deepening competency mean score level.

Table 3
Perception of Knowledge Deeping Competency

Variables	Mean	Std. Deviation
ICT can help teachers strengthen their skills.	4.00	.620
Using ICT allows the teacher to feel more in control of their instruction.	4.29	.913
Using ICT makes it easier to communicate with parents.	4.09	.668
E-assessment makes it possible to evaluate students quickly and accurately.	4.06	.839
With the help of ICT, students learn rapidly and with an engaging style of instruction.	4.02	.603
Instructors must be able to use Microsoft Access to create queries and produce reports.	4.15	.833
Instructors utilize models and simulations to delve into difficult subjects.	4.02	.568
It should be possible for teachers to efficiently sort and filter data.	4.07	.832
Effective e-record management is a must for teachers.	4.10	.759
Teachers have to be proficient in handling information and data.	4.36	.811
Educators must possess proficient Microsoft Office skills.	4.36	.746

Perception of teachers related to Knowledge Creation competency
The respondents were questioned about knowledge creation in (Table 4), which typically confirms their judgments of competencies. The overall perspective of each person's perceptions A high mean score level of the Knowledge Creation competencies is indicated by the eleven statements that received a mean score of more than 4.00.

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Table 4
Perception of Knowledge Creation Competency

Variables	Mean	Std. Deviation
Students can work in a creative setting in the classroom thanks to ICT.	4.79	.656
Students are allowed to use computers for research reasons without restriction.	4.11	.680
Computer laboratories need to be modernized to meet global standards.	4.15	.925
In the lab, students are permitted to access the internet for academic purposes.	4.11	.618
The teacher at the school is free to utilize the Internet for learning.	4.47	.771
For presentations, the instructor must be proficient with projector operation.	4.08	.748
A wider range of ICT resources ought to be available to secondary schools.	4.21	.820
The government's initiatives to raise the standard of ICT in secondary education are commendable.	4.05	.642
The usage of computers by teachers in the classroom is intimately tied to the leadership of head teachers.	4.36	.759
Instructors choose, consider, and implement a morally sound method of gathering data.	4.04	.887
The usage of ICTs in the classroom is impacted by teacher gender inequality.	4.25	.877

The Gender-Based difference in practices of ICT tools
To ascertain if there were gender-based variations in secondary ICT tool usage behaviors, a t-test using an independent sample was employed (Ho1). Table 5 indicates that the significant result (.557) exceeded the alpha level of 0.05. Because of this, the null hypothesis is accepted, indicating that there is no discernible difference between the ICT tool usage and practices of male and female teachers. Male and female secondary school teachers use ICT tools consistently in the same ways, as seen by the virtually equal mean scores of male teachers (45.6531) and female teachers (42.7647).

Table 5
The Gender-Based difference in practices

Teachers Gender	N	Mean	Std. Deviation	t	Sig.
Male	49	45.6531	6.24016	2.518	.557
Female	51	42.7647	5.20226		

The Gender-based difference in perceptions of competencies
To examine the disparities in secondary school students' opinions of their gender-based competencies, an independent sample t-test was used (Ho1). The significant value (.907) in Table 6 is more than the alpha threshold of 0.05. Because of this, the null hypothesis which states that there is no discernible difference between male and female teachers' assessments of their competencies is accepted. Male and female secondary school teachers see teachers' competencies similarly, as evidenced by the mean score of 133.7143 for male teachers, which is almost equal to the mean score of 133.2353 for female teachers.

Table 6
The Gender-based difference in perceptions

Teachers Gender	N	Mean	Std. Deviation	t	Sig.
Male	49	133.7143	12.36089	.194	.907
Female	51	133.2353	12.30380		

The school-based Difference in Perceptions of Competencies
To investigate the disparities in secondary school-based perceptions of competencies, an independent sample t-test was utilized (Ho1). Table 7 indicates that the significance value (.907) exceeded the alpha level of 0.05. Because of this, the null hypothesis is accepted, indicating that there is no discernible difference between the opinions of male and female teachers regarding their competence. The mean score of male teachers (133.7143) is almost equal to the mean score of female teachers (133.2353), indicating that perceptions of teachers' competencies are similar amongst male and female secondary school instructors.

Table 7
The school-based difference in perceptions

School For	N	Mean	Std. Deviation	t	Sig.
Boys	49	133.7143	12.36089	.194	.907
Girls	51	133.2353	12.30380		

The School-Based difference in practices of ICT tools
To find out if there are variations in the secondary-level use of ICT tools according to their utilization in schools, an independent sample t-test was employed (Ho1). Table 8 indicates that the significant result (.557) exceeded the alpha level of 0.05. As a result, the null hypothesis is accepted, indicating that there is no discernible difference in the practices of male and female teachers. Given that the mean score of male instructors (45.6531) is almost the same as that of female teachers (42.7647). As a result, the male teacher employs superior techniques than the female teacher.

Table 8
The School-Based difference in practices

School For	N	Mean	Std. Deviation	t	Sig.
Boys	49	45.6531	6.24016	2.518	.557
Girls	51	42.7647	5.20226		

The Diploma-Based difference in perceptions of competencies
To investigate the disparities in secondary school-based perceptions of competencies, an independent sample t-test was utilized (Ho1). Table 9 indicates that the significance value (.098) exceeded the alpha level of 0.05. Because of this, the null hypothesis is accepted, indicating that there is no discernible difference between the opinions of male and female teachers regarding their competence. Given that the mean score for male instructors (135.8571) is almost equal to the mean score for female teachers (131.7414). Consequently, assessments of their colleagues' abilities were similar across male and female secondary school educators.

Table 9
The Diploma-Based difference in perceptions

Diploma/Certification	N	Mean	Std. Deviation	t	sig
Yes	42	135.8571	6.77719	1.670	.098
No	58	131.7414	14.87558		

The Diploma-Based difference in practices of ICT tools
To determine if secondary school-based ICT tool behaviors differed from one another, an independent sample t-test was used (Ho1). Table (10) displays the results, which indicate that the significant value (.501) exceeded the alpha level of 0.05. Because of this, the null hypothesis is accepted, indicating that there is no discernible difference in the practices of male and female teachers. Considering that the mean response, indicating "yes" (134.6552),

is about equivalent to the mean response, indicating "no" (131.8333). As a result, the responses to the secondary-level ICT tool practices are essentially the same.

Table 10
The Diploma-Based difference in practices

Diploma/Certification	N	Mean	Std. Deviation	t	Sig
Yes	42	45.3333	3.70014	1.163	0.096
No	58	43.3448	6.97502		

The Training session-Based Difference in Perceptions of Competencies
To examine how different secondary school students' perceptions of their training session-based competencies differed, an independent sample t-test was used (Ho1). Table 11 indicates that the significant result (.040) exceeded the alpha level of 0.05. Because of this, the null hypothesis which states that there is no discernible difference between skilled and untrained teachers' assessments of their competencies—is accepted. Considering that the mean score for "NO" responses (131.8333) and "YES" responses (134.6552) are about identical. As a result, instructors in secondary schools who responded gave the same impressions of their competencies.

Table 11
Training session-Based difference in perceptions

Training Session	N	Mean	Std. Deviation	t	sig
Yes	42	131.8333	17.12211	-1.137	.040
No	58	134.6552	6.87623		

The Training Session-based difference in practices of ICT tools
To ascertain whether there are variations in the secondary level's use of ICT tools according to their training session, an independent sample t-test was employed (Ho1). The significant result (.013) was higher than the alpha level of 0.05, as shown in Table 12. The null hypothesis is thus accepted, indicating that there are no appreciable variations in the practices of the teachers. Considering that the average "YES" score (42.4762) for the responses is nearly identical to the average "NO" score (45.4138). As a result, when it comes to secondary ICT tool practices, the responses are the same.

Table 12
The Training Session-based difference in practices

Training Session	N	Mean	Std. Deviation	t	sig
Yes	42	42.4762	6.74713	-2.529	.013
No	58	45.4138	4.87397		

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The difference in practices and perceptions based on Academic Qualification
To determine whether the participants' habits and perceptions varied based on their academic backgrounds, a one-way ANOVA test was employed (H02). Table 13 demonstrated that the participants' educational backgrounds had little bearing on their attitudes and behaviors. For the entire sample, the practices (Sig. =.861) and views (Sig. =.978) did not exceed the 0.05 threshold of significance. So, it is decided to adopt the null hypothesis (H02).

Table 13
Academic Qualification based on differences in practices and perceptions

Variables	Practices	Sum of Squares	df	Mean Square	F	Sig.
Practices	Between Groups	10.610	2	5.305	.150	.861
Within Groups		3420.150	97	35.259		
Perceptions	Between Groups	6.691	2	3.345	.022	.978
Within Groups		14902.219	97	153.631		

The difference in practices and perceptions based on Age
To find out if participant habits and views varied based on age, a one-way ANOVA test was used (H02). The findings showed that the age of participants had no statistically significant effect on views and practices (Table 14). For the entire sample, the practices (Sig. =.051) and views (Sig. =.160) did not surpass the 0.05 threshold of significance. Consequently, the null hypothesis (H02) is agreed upon.

Table 14
The age-based difference in practices and perception

Variables	Practices	Sum of Squares	df	Mean Square	F	Sig.
Practices	Between Groups	204.572	2	102.286	3.075	.051
Within Groups		3226.188	97	33.260		
Perceptions	Between Groups	553.554	2	276.777	1.870	.160
Within Groups		14355.356	97	147.993		

The mean difference between the batter practices from 26 to 35 years (-2.4242) and up to 25 years (-3.36036) is displayed in Table 15. Group 1 had a population contrast of (Sig. =.042), while Group 2 had a population contrast of (Sig. =.916). According to the second age group, behaviors between the ages of up to 25 (3.36036) and 34 to 45 (3.11794) are more favorable.

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variations in the ages of the two groups: the first up to 25 years old (Sig =.042), and the second (Sig. =.098). The same variation in age-specific practices reveals that the mean differences between the 26 to 35-year-old practices (-3.11794) are better than the up-to-25-year-old practices (.24242), as does the difference between the population of group two (Sig =.98) whose practices are higher than (Sig =.916).

Table 15
The practices differ based on Teachers-Age

(I) Teachers Age	(J) Teachers Age	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval Lower Bound	Upper Bound
Up to 25 years	26 to 35 years	-3.36036*	1.63302	.042	-6.6015	-.1193
	35 to 45 years	-.24242	2.28931	.916	-4.7861	4.3012
26 to 35 years	Up to 25 years	3.36036*	1.63302	.042	.1193	6.6015
	35 to 45 years	3.11794	1.86362	.098	-.5808	6.8167
35 to 45 years	Up to 25 years	.24242	2.28931	.916	-4.3012	4.7861
	26 to 35 years	-3.11794	1.86362	.098	-6.8167	.5808

The difference in practices based on Experience
A one-way ANOVA test (H02) was used to assess for variations in participant practices based on experience. Based on the experiences of the participants, there were statistically significant variations in practices (Table 16). For the entire sample, the practices (Sig. =.001) were significant above the 0.05 level. The null hypothesis (H02) is thus rejected.

Table 16
The experience-based difference in practices

Practices	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	542.139	3	174.713	5.770	.001
Within Groups	2906.621	96	30.277		
Total	3430.760	99			

The practices difference in Experiences
Table 17 demonstrates that a better experience of up to five years (-4.84524) compared to six to ten years (2.16190). Group 1 had a population difference (Sig. =.000), while Group 2

had a population difference (Sig =.515). The second experience group indicates that the experience of 6 to 10 years (4.84524) is superior to that of 11 to 15 years (2.68333). Variations between the two sets of events, the first from 11 to 15 (Sig =.412) and the second from Sig =.448. The same variation in experience-wise practices reveals mean disparities between the 6 to 10 years (-3.01667) and the up to 5 years (1.82857) of experiences, as well as the population of group three (Sig =.515), which has more experience than group three (Sig =.947).

Table 17
The practices difference in Experiences

(I) Experience	(J) Experience	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval Lower Bound	Upper Bound
Up to 5 years	6 to 10 years	-4.84524*	1.17034	.000	-7.1683	-2.5221
	11 to 15 years	-2.16190	3.31021	.515	-8.7326	4.4088
	16 years and above	-1.82857	4.00046	.649	-9.7694	6.1123
6 to 10 years	Up to 5 years	4.84524*	1.17034	.000	2.5221	7.1683
	11 to 15 years	2.68333	3.25531	.412	-3.7784	9.1451
	16 years and above	3.01667	3.95516	.448	-4.8343	10.8676
11 to 15 years	Up to 5 years	2.16190	3.31021	.515	-4.4088	8.7326
	6 to 10 years	-2.68333	3.25531	.412	-9.1451	3.7784
	16 years and above	.33333	5.02306	.947	-9.6374	10.3040
16 years and above	Up to 5 years	1.82857	4.00046	.649	-6.1123	9.7694
	6 to 10 years	-3.01667	3.95516	.448	-10.8676	4.8343
	11 to 15 years	-.33333	5.02306	.947	-10.3040	9.6374

Results
The results of this survey showed that most schools in the district Swabi have computer labs. The Internet is the main resource available in these labs. In commonly held schools, you can find ICT gadgets including computers, printers, photocopiers, scanners, and smart boards. There are computer laboratories that have iPads available. The results showed that every

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school has a computer of some kind. In addition, a few of the schools have tablets. Most schools are equipped with printers, smart boards, photocopiers, and Internet access. However, the majority of schools lacked laptops, iPads, and multimedia equipment. The information demonstrated that the main uses of the ICT tools were for academic, administrative, and private school needs. Regarding the habits and ICT tool competencies of the male and female participants, the investigation did not discover a statistically significant difference. Therefore, it is recognized that there are no statistically significant differences in ICT tool practices and competencies depending on gender. Regarding ICT tool practices and competencies, the investigation did not discover a statistically significant difference between Boy and Girls Schools. As a result, there are no statistically significant variations in ICT tool practices and competencies based on the school. At the secondary level, the data exploration indicates that there is no discernible variation in the perceptions of competencies and behaviors between diploma and certificate holders. As a result there are no statistically significant differences in how different groups of people perceive the practices and skills of ICT tools depending on their diploma and certificate holders. The data exploration reveals no distinction between the opinions of qualified and unskilled secondary school teachers regarding their practices and competencies. There are no statistically significant variations in how ICT tool practices and skills are perceived based on training sessions. The results of the study show that the participants' educational backgrounds had no bearing on their attitudes and behaviors. There are no statistically significant changes in how people perceive the practices and abilities of ICT tools based on their academic background. The age of participants did not statistically significantly affect habits or views, according to the study. There are no statistically significant differences in participants' perceptions of ICT tool practices and competencies based on age. However, the difference in means indicates that participant practices for those "up to 25 years of age" are better than those for those who are 25 to 35 years of age and 35 to 45 years of age. The results of the study show that there were notable variations in practices as reflected by the experiences of the participants. There are statistically significant variations in ICT tool usage depending on user experiences. According to the research, instructors with "Up to 16 years" of expertise have superior ICT tool habits than other teachers.

Discussion
The study identifies the usage of ICT tools and teacher's competencies at the secondary level. It further finds out the difference in the practices and perceptions among the participant based on their demographic variance. The purpose of the ICT tool is not just for academics but also for administration and personal learning processes. The instructors will primarily utilize the tools to learn how to implement new techniques and here to national and international standards, which will be used as learning aids. According to the findings, proficiency in the areas is essential for an expanded teacher education program, including information technology, computing, database administration, word processing software, and internet surfing, among other things. Students and instructors alike require the availability of ICT infrastructure and the human skills necessary to use it. In light of the data analysis, it is clear that if ICT proficiency is not addressed, it can become a barrier to students' educational progress. The findings of this study are in agreement with the views of Akpabio

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and Ogiriki (2017) who said that for teaching with technology to be effective, teachers must possess adequate computer skills and be conversant in their classroom usage. This finding is also in agreement with Malinina (2014) who opined that to make the best use of ICT in teaching and learning, teachers must be equipped with adequate ICT competencies.

Conclusion

The study's findings indicate that most educators think that using information and communication technology (ICTs) enhances secondary education instruction. Information and communications technology (ICT) may be used to enhance education by being integrated into all aspects of teaching at the school level, such as e-learning, e-pedagogy, and e-assessment. Communicating with parents is made considerably easier with the use of ICT technology. In addition to using human resources like conversations with friends and coworkers, participants frequently apply their competencies through technical sources like computers, the Internet, and social media. They demonstrated a keen interest in looking through reputable sources, including books, journals, booklets, and instructional websites. It was also concluded that the frequency of using ICT tools did not change statistically significantly based on the respondent's gender, school-based diploma, or academic background. Conversely, there was no statistically significant difference in the frequency of skill perceptions between the groups. Only those with up to five years of expertise were shown in the study to require more ICT tools than participants with six to ten years, eleven to fifteen years, and sixteen years or more of experience. Furthermore, a statistically significant difference in the practices of the participants was found according to their degree of experience.

Recommendations

It may be recommended to establish professional development initiatives that aim to improve teachers' abilities to use ICT tools efficiently. Pre-service teacher education programs should include instruction on ICT integration to make sure that future educators have the skills they need from the beginning of their careers. Policies may be promoted that are helpful at the institutional and governmental levels, such as funding for the purchase of ICT tools and infrastructural support for their efficient application in secondary school. Evaluation techniques may be provided that accurately gauge instructors' ICT proficiency as well as the effect of ICT integration on student learning results. Research projects that look at new developments in educational technology and how they affect teaching and learning in secondary education settings should be encouraged and supported.

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