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Teachers' perceptions of the barriers of employing educational technology skills in teaching

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Abstract. *Introduction.* The development of technologies in the context of the formation of the sixth technological order provides new tools and methods for educational institutions, significantly simplifying the acquisition of knowledge by students. *Aim.* This study *aimed* to investigate teachers' opinions on the challenges associated with the integration of new educational technologies into the educational process. *Methodology and research methods.* As the primary method, a quantitative approach using a descriptive questionnaire study was employed to investigate the issues related to teachers' motivation and their proficiency in utilising new educational technologies in the educational process. The study involved a participant group of 144 teachers from Irbid, Jordan. *Results*. The results indicated that the technological competence of teachers did not significantly impact the efficiency of technology use. This is attributed to the fact that nearly all teachers have received adequate training, possess the necessary tools, and extensively apply technical knowledge in their work. Nevertheless, problems related to the state of educational institutions' infrastructure persist. It has been established that educators are constantly striving to use innovative methods to create an ideal learning environment for their students. Their motivation serves as a driving force that determines their actions in the educational process and contributes to a targeted approach to task performance. At the same time, statistically significant gender differences were observed in favour of female teachers, as well as statistically significant differences in favour of teachers with a scientific specialisation and less than eight years of experience. The *relevance of the study* lies in its focus on teachers' technological abilities and how modern technologies are utilised in the classroom. *Scientific novelty.* Approaches have been developed to create effective strategies and

teaching methods for the active integration of new educational technologies in educational institutions in Jordan. *Practical significance.* The proposed solutions to enhance the utilisation of educational technologies by teachers can be adopted by educators from various countries to enhance their technological skills throughout the educational process.

Keywords: innovative methods in education, problems of using educational technologies in the educational process, assessment of teachers' motivation in the teaching process, educational technological skills in teaching

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Восприятие учителями проблем, связанных с использованием образовательных технологических навыков в преподавании

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Аннотация. *Введение.* Развитие технологий в условиях становления шестого технологического уклада предоставляет новые инструменты и методы для образовательных учреждений, существенно упрощающие получение знаний учащимися. *Цель* – изучение мнений педагогов относительно проблем, связанных с внедрением новых образовательных технологий в учебный процесс. *Методология, методы и методики.* В качестве основного использовался количественный метод опросного описательного исследования проблем мотивации педагогов и наличия у них необходимых технических навыков для широкого использования новых образовательных технологий в образовательном процессе. В исследовании выразили добровольное согласие принять участие 144 учителя (город Ирбид, Иордания). *Результаты* показали, что технологическая компетентность учителей существенно не повлияла на эффективность использования технологий, что связано с

тем, что практически все педагоги прошли соответствующую подготовку, обладают необходимыми инструментами и широко используют технические ноу-хау в своей деятельности. Тем не менее остаются проблемы, связанные с состоянием инфраструктуры образовательных учреждений. Установлено, что педагоги постоянно стремятся использовать инновационные методы для создания идеальной учебной среды для своих учеников. Их мотивация служит движущей силой, определяющей их действия в учебном процессе и способствующей целенаправленному подходу к выполнению задач. В то же время наблюдались статистически значимые гендерные различия в пользу учителей-женщин, а также статистически значимые различия в пользу преподавателей с научной специализацией и со стажем работы менее восьми лет. *Актуальность исследования* обусловлена акцентом на использовании технологических способностей учителей с учетом того, как современные технологии применяются в классе и за его пределами. *Научная новизна.* Разработаны подходы к формированию результативных стратегий и методов преподавания для активного использования новых образоватальных технологий в образовательных учреждениях в Иордании. *Практическая значимость.* Предлагаемые решения активизации использования педагогами образовательных технологий могут быть использованы педагогическими работниками разных стран для развития технологических навыков в ходе образовательного процесса.

Ключевые слова: инновационные методы в образовании, проблемы использования образовательных технологий в образовательном процессе, оценка мотивации учителей в процессе преподавания, образовательные технологические навыки в преподавании

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Los docentes y su percepción sobre los desafíos asociados al uso de habilidades tecnológicas educativas en la enseñanza

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Abstracto. *Introducción.* El desarrollo de la tecnología en el contexto del surgimiento del sexto orden en cuanto a tecnologías, proporciona nuevas herramientas y métodos para las instituciones educativas que simplifican de manera significativa la adquisición de conocimientos por parte de los estudiantes. *Objetivo.* El objetivo es estudiar las opiniones de los docentes sobre los problemas asociados a la introducción de nuevas tecnologías educativas en el proceso de la enseñanza. *Metodología, métodos y procesos de investigación.* El método cuantitativo ha sido el principal método a utilizar, con el que se lleva a cabo una investigación descriptiva por encuesta sobre los problemas de motivación de los docentes y la disponibilidad de las habilidades técnicas necesarias que ellos poseen para el uso generalizado de nuevas tecnologías educativas en el proceso educativo. 144 profesores (ciudad de Irbid, Jordania) aceptaron voluntariamente hacer parte del estudio. *Resultados.* Los resultados mostraron que la competencia tecnológica de los docentes no afectó significativamente la efectividad en el uso de las tecnologías, debido a que casi todos los docentes han recibido la capacitación adecuada, cuentan con las herramientas necesarias y utilizan ampliamente los conocimientos técnicos en sus actividades. Sin embargo, persisten problemas relacionados con el estado de la infraestructura de las instituciones educativas. Se ha descubierto que los educadores se esfuerzan constantemente por utilizar métodos innovadores para crear un entorno de aprendizaje ideal para sus estudiantes. Su motivación sirve como motor que determina sus acciones en el proceso de aprendizaje y contribuye a un enfoque orientado a objetivos para completar las tareas. Al mismo tiempo, hubo diferencias de género estadísticamente significativas a favor de las mujeres docentes, así como diferencias estadísticamente significativas a favor de los docentes con especialización científica y menos de ocho años de experiencia laboral. *Actualidad investigativa.* La relevancia del estudio surge de su enfoque en aprovechar las capacidades tecnológicas de los docentes, teniendo en cuenta cómo se utilizan las tecnologías modernas en el aula y fuera de ella. *Novedad científica.* Se han desarrollado enfoques para la formación de estrategias y métodos de enseñanza eficaces en lo que se refiere al uso activo de nuevas tecnologías educativas en las instituciones de educación de Jordania. *Significado práctico.* Las soluciones propuestas para mejorar el uso de las tecnologías educativas por parte de los docentes pueden ser utilizadas por el personal formador de diferentes países a fin de desarrollar habilidades tecnológicas durante el proceso educativo.

Palabras claves: métodos innovadores en educación, problemas del uso de tecnologías educativas en el proceso de enseñanza, evaluación de la motivación docente en el proceso de educar, habilidades tecnológicas educativas en la enseñanza

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Introduction

Technology has permeated various facets of our lives, becoming an essential element. Within the realm of education, technology has exerted a profound influence by providing a variety of tools and avenues for accessing knowledge in its most accurate form [1, 2]. It gives students quick access to material, speeds up the learning process, and adds fun to applying knowledge that has been learned [3]. To ensure the provision of high-quality education, educational institutions have made significant investments in technology to develop the abilities of both teachers and students and to build a solid infrastructure that keeps up with innovations [4, 5].

The process of integrating technology into education is ongoing and filled with challenges. The ability of teachers and learners to effectively utilise computer-based

learning resources will determine whether traditional pedagogy will be replaced by more advanced, contemporary approaches. To overcome these obstacles, it is essential to provide comprehensive training to both teachers and learners, as well as to make online learning opportunities accessible through educational platforms [6, 7, 8]. Educational technology is essential for enhancing education, promoting national development, and simplifying life. As a result, there is now a stronger connection between technology and education [9, 10, 11].

The effectiveness of a country's educational system depends on its ability to enhance education, disseminate knowledge, and provide the necessary tools and resources to achieve its goals. The role of teachers is pivotal, serving as the guiding force behind the formulation of educational plans and the development of future human resources [12, 13, 14, 15]. Teachers strive to improve educational opportunities for students by nurturing their knowledge and skills. Consequently, in response to the mounting challenges within intricate educational landscapes, teachers must be thoroughly prepared to enhance their teaching proficiencies, particularly in the field of educational technology [16, 17].

The educational landscape has witnessed an integration of technology, methods, and resources that highlight the practical and technological proficiencies of teachers. This is in light of the Jordanian Ministry of Education's efforts to incorporate modern educational technologies into teaching processes, introduce various forms of e-learning, and develop curricula and pedagogical approaches based on contemporary educational trends. In our fast-paced, technologically-driven society, one of the most effective ways to communicate knowledge to students is through the use of educational technology skills in the classroom.

The Ministry of Education in Jordan has initiated teacher training and the implementation of e-learning skills to transform the educational paradigm and boost teacher motivation. This initiative stems from the ministry's recognition of the importance of technology competencies in education and their impact on enhancing students' achievements. Several studies have indicated that teachers are not making the most of modern technologies, as e-learning competencies show a limited level of technology integration in the classroom. Only a small percentage of teachers use technology in the classroom, according to the research by D. A. Al-Rifai and D. H. Tawalbeh [18]. Despite this, the studies did not investigate the specific challenges that teachers face when using educational technology.

The purpose of the current study is to identify the obstacles that teachers encounter when using e-learning strategies both inside and outside the classroom. It also examines the connection between these perspectives and teachers' desire to teach. The main research question of the study is: How do teachers perceive the challenges they face when utilising e-learning techniques, and how does this impact their motivation to educate students?

Significance of the Study

The study holds theoretical significance as it focuses on the use of teachers' technological competencies within the modern technological environment, both

inside and outside the classroom. By illuminating the difficulties teachers face when using ICT skills and how these challenges impact their motivation to teach, it contributes to the body of knowledge in education. The study also holds practical significance as it yields insightful findings and recommendations that may assist various stakeholders, including decision-makers responsible for teachers' preparation. It provides accurate information about teachers' difficulties in using technology, explores possible solutions, and promotes a positive attitude towards technology integration. Furthermore, the study aims to establish a foundation for effective pedagogical approaches and techniques, empowering teachers across the board to proficiently utilise technology skills. Additionally, it helps create training curricula that will enhance teachers' enthusiasm for educating and their proficiency and effectiveness with technology.

Study Limitations

The study was conducted in educational organisations in Irbid, Jordan.

Literature Review

Preparing teachers and boosting their motivation is one of the most central factors that help societies progress in line with the demands of the twenty-first century. This activity contributes to the development of individuals who are skilled in creativity and invention and who have a keen understanding of the issues facing their country. According to A. A. Alkhaldi, M. A. Rababah, E.M.Al-Saidat et al. the key learning competencies of reading, writing, critical thinking, and problem-solving are emphasised in modern education [19]. Despite this, the rapid development of technology has necessitated a shift in the focus of education. The traditional "chalk and talk" approach, which relied on rote memorisation of vast amounts of information with limited relevance to the job market, is now outdated [20, 21, 22]. Instead, the spotlight has shifted towards educational technology that is relevant to real-world applications. Accordingly, education has transformed from teacher-centred to learner-centred approaches, which is chiefly facilitated by technology-based instruction [23, 24, 25]. In this altered landscape, the teacher's role has undergone a profound transformation.

Teachers now function as facilitators and guides, inspiring and supporting learning through a variety of technical tools and approaches. They are instrumental in creating and managing educational content that encourages inquiry, investigation, and shared learning. Additionally, teachers effectively employ strategies to digitise instructional materials, ensuring easy access in both classroom and home settings [26, 27]. Therefore, proficiency in Information and Communications Technology (ICT) and digital skills has become vital, given their necessity in navigating various applications, social media, and overseeing digital projects. Many teachers argue that the educational focus should be on nurturing students' foundational skills to achieve desired results. This viewpoint emphasises the critical importance of teachers and students acquiring practical digital skills. With these abilities, edu-

cators can effectively use these resources for the benefit of both their students and the larger community [28].

The ability to proficiently use new technologies in the classroom is essential for educational technology. This process involves a technical component comprising hardware and software, a human component involving observation, analysis, and interpretation, and the application of instructional technology skills in real-world settings by utilising appropriate tools and innovative methods to solve problems in the classroom. To do this, one must identify the problem and utilise design, manufacturing, management, and assessment abilities. These proficiencies foster creativity and innovation in the classroom, two areas that greatly depend on technology and the capacity to utilise it wisely to assist teachers and students in addressing the challenges of the present time [29, 30].

Digital skills encompass a range of competencies essential for using digital devices, accessing relevant information through the Internet, and communicating with others for problem-solving purposes. These skills are divided into three levels, each requiring the acquisition of specific abilities. The first level focuses on fundamental digital skills, including device operation, word processing, spreadsheets, touch-screen technology, email proficiency, effective search techniques, and interactive communication [31, 32]. These skills form the foundational prerequisites for the majority of contemporary job roles. The second level, known as intermediate digital skills, includes competencies that are essential for the workplace and require a comprehensive understanding of computer software, programming languages, and technological tools. To keep up with the latest developments in this field of technology, students need to adopt new learning methodologies. Lastly, technology professionals possess advanced digital skills, including knowledge of computer networks and design software [33, 34].

Technological educational skills include the ability to create customised materials tailored to specific requirements and to implement innovative concepts in the field of education. These competencies are not confined to the technical realm; they extend beyond the mere operation of devices and techniques. They are intellectual skills intricately linked to creative ideas. Teachers equipped with such skills are well-positioned to tackle diverse challenges and drive the educational system forward [35, 36, 37, 38, 39].

Motivation

For a long time, scholars and teachers have had a profound interest in the motivation of learners, as it is closely linked to their achievements and desired outcomes. Z. Dörnyei and S. Ryan pointed out that motivation is an essential component of the demanding task of learning [40]. Without it, individuals may falter even if they possess exceptional abilities. On the contrary, strong motivation can compensate for significant shortcomings. Motivation serves as the initial requirement for embarking on a learning task and acts as the driving force behind the entire process.

According to Z. Dörnyei [41], motivation and engagement are closely related concepts, and acquiring motivation is essential for fostering student involvement.

Regardless of the type of learning environment, whether it is a traditional classroom or an online learning environment, Z. Dörnyei proposed that the goal of instructional design should be to maintain student engagement [40]. In the classroom, learner motivation, which can be intrinsic to the learner or generated through classroom experiences, is crucial. However, with all the temptations in the modern world, this may be particularly challenging.

Motivation for Online Courses

Over the years, distance education has gained widespread popularity, particularly since the mid-1990s, offering numerous advantages, such as increased access to educational opportunities. However, it has also raised concerns about the skills of both students and teachers [41]. Online learning, a form of distance education enabled by technology, allows learners to participate remotely, away from traditional educational settings. Motivation is a critical aspect that requires a thorough examination, especially within online learning environments.

In recent years, there has been a surge in interest surrounding motivation in online courses [42]. M. Hartnett describes motivation in online learning as a complex phenomenon primarily influenced by individual traits and specific contexts [43]. The exploration of motivation in online courses is of paramount importance because students often show reduced participation. High attrition rates in online education raise motivational questions for instructional designers. The challenges of participation and attrition have been addressed by several factors that interact with online learning motivation. When students miss class or participate passively in course activities, they typically feel less motivated. P. G. De Barba et al. found that involvement and intrinsic motivation are mediated by motivation levels during the learning process [44]. Additionally, they stressed that situational interest is contextual and dependent on how well activities and information can hold students' attention. Therefore, an online learning environment should be designed to enhance motivation and engagement. In a similar vein, K. C. Chen and S. J. Jang suggest that students need specialised support to alleviate their fear and uncertainty, which can be beneficial in preventing attrition [45, 46].

Motivation holds profound significance in fostering progress and accomplishments. It serves as the major promoter for instructors' effectiveness, encouraging them to engage in educational activities and mindsets, reducing stress, and maintaining balance. It instructs teachers to put in more effort in the classroom, focusing all of their efforts on achieving professional goals and making a significant impact on students by assisting them in acquiring, evaluating, and comprehending information [47, 48, 49, 50].

Previous Studies

D. A. Al-Rifai and D. H. Tawalbeh [17] sought to determine the extent of teacher employment and the barriers to information and communication technology at the basic level in Irbid, Jordan. The findings demonstrated that, depending on the study factors, there were no statistically significant changes in the moderate level of information and communication technology use by instructors. Similarly, E. Walabe

investigated the implementation of distance learning in Saudi universities [51]. The study focused on the perspectives of experienced Ministry of Education designers and university instructors who are involved in online learning. The research employed a multiple-case study methodology to gain a deeper understanding of the challenges and opportunities that Saudi universities encountered while establishing their online learning platforms, with a particular focus on ethical and cultural factors. The results of E. Walabe's [51] study showed that the Saudi online education system has shifted from being teacher-centred to being learner-centred due to the recent incorporation of a blended learning paradigm. The study also revealed complex relationships between technology integration and the learning culture in Saudi Arabia. With the aim of promoting remote learning in Saudi Arabia and other regions where similar projects are being implemented, this study provides insights into the advancement of online learning in higher education in Saudi Arabia.

Using educational support aids to teach reading, W. Al-Qahtani investigates the barriers that Saudi Arabian teachers of children with learning challenges face. According to the study, there are several barriers to teaching reading with educational support aids, including technical, visual, and auditory challenges [52]. In the same vein, S. Al-Thubaiti investigated the material, organisational, and technical barriers that impede the adoption of e-learning platforms in English instruction in Saudi Arabia [53]. The findings indicated that the primary obstacles were related to organisations and technology. Additionally, they demonstrated statistically significant differences in the research participants' opinions of the obstacles, which were influenced by the variable of educational qualification favouring "years of experience." Participants with more teaching experience were more inclined to utilise e-learning [53]. Due to the quick advancement of assistive technology in both hardware and software, teachers no longer feel qualified to use it. Consequently, S. Al-Thubaiti's [53] study suggested that educational systems and policymakers should always improve instructors' skills so they can utilise assistive technology with children who have special needs.

A. S. Sulaiman and A. Al-Najjar investigated the utilisation of the Internet in educational and research activities among faculty members at Kuwait University. A sample of 335 faculty members participated in the study, which used a survey and a descriptive methodology. The results showed that every faculty member had a favourable and high opinion of using the Internet for research and teaching purposes [54].

The goal of R. Peng et al.'s study was to determine the extent to which physics is taught in Iraqi colleges utilising cutting-edge educational technologies. A sample of 190 teachers from the Universities of Technology, Baghdad, and Al-Mustansiriya participated in the study. The study involved questionnaires and observations of a sample of one hundred teachers, using a descriptive-analytical approach. With a mean score of 1.26, the results indicate that technical improvements at Iraqi institutions are at a low level. According to the study, high hurdles prevented teachers from using innovative instructional technologies in their lessons [55].

The goal of C. Dalsgaard's investigation was to identify educational student organisations that were established and managed by high school students in Denmark on social networking sites [56]. In addition to surveying 932 students from 25 schools via questionnaires and interviews, the study also included group interviews with 17 high school students. According to the study, social networking sites – especially Facebook – were important resources for high school students' education. They assisted with homework and improved social life within the academic environment.

A study by A. Zuhairi et al. aimed to identify the procedures for designing and developing electronic student support services for distance learning to ensure successful learning [57]. The sample of the study included administrators and teachers from Terbuka University in Indonesia and the Open University of Sri Lanka. The study used interviews as a method to collect information. The results revealed significant challenges in the implementation of distance learning, such as insufficient teacher training, technical issues with electronic media, and concerns regarding the leakage of electronic lectures.

G. Durak et al. conducted a study with the goal of presenting the results of a content analysis of master's theses in the field of distance education at the higher education level in Turkey. The historical method was employed to analyse a total of 285 master's theses to identify keywords, academic specialisations, research areas, theoretical frameworks, research designs and models, statistical analyses, data collection tools, participants, educational design models, and variables. The results aimed to reveal the research trends in distance education in Turkey and related research directions [58].

F. T. Silinda and M. R. Brubacher investigated distance learning and the pressures faced by postgraduate students while writing their theses. The descriptive method was used, and a questionnaire was distributed to 748 postgraduate students who were studying through distance education and had enrolled at a South African university. The findings indicated that there are two main causes of stress: 1) a lack of supervisory assistance and confusion over the research and writing process; and 2) challenges with time management. Relationship, health, and financial problems were not significantly associated with overall stress levels. The findings also indicated that colleges offering postgraduate distance learning programmes might assist their students by providing individualised instruction or counselling on topics such as managing job and family responsibilities alongside academic commitments. Additional benefits include supervisors assisting postgraduate students enrolled in distance learning more effectively by maintaining regular contact, providing prompt feedback, and enhancing communication clarity to ensure that students in distance learning receive the necessary support when writing their theses [59].

H. M. Al-Beitar examined the effectiveness of using distance education to enhance academic achievement and students' inclination towards distance education in the field of educational technology. The study focused on students pursuing a general diploma in the one-year system, specialising in industrial education. The

study utilised a quasi-experimental approach. The study sample consisted of 32 students from an experimental group enrolled in the industrial education department at Asyut University. The study used a teacher's guide for distance education in the educational technology course, an achievement test, and an attitude scale towards distance education. The study demonstrated the effectiveness of using distance education in improving academic achievement and the inclination towards distance education in the educational technology course among students pursuing a general diploma in the one-year system, specialising in industrial education [60].

A. Madden et al. investigated the impact of using integrated learning on the development of scientific thinking skills in a sample of 40 high school students in Thailand. The study used interviews and observations to assess the performance of the study participants and implemented a series of social scenarios to gauge the development of specific scientific thinking skills among them. The results showed that using integrated learning had a positive impact on the development of certain scientific thinking skills among the experimental group of students who learned through integrated learning [61].

M. Gumbo et al.'s study aimed to evaluate the impact of in-service training in educational technology for teachers in South Africa in the areas of Mhulakani and Gontgo. The study followed a descriptive approach with a sample of 304 teachers in the fields of education, science, and mathematics. The results of the study indicated that the trained teachers greatly benefited from the training in the use of modern technology in the educational process [62].

In summary, the aforementioned previous studies explored various aspects of integrated learning, its impact on different educational outcomes, and teachers' and students' attitudes towards it. The current study aligns with the topic of integrated learning, specifically focusing on teachers' perspectives in Irbid, Jordan. It has benefited from the theoretical literature and previous research in constructing its framework, data collection tools, results presentation, and statistical methods for deriving conclusions.

Methods

The study employed a descriptive survey approach, which aligned with its objective of understanding teachers' motivations and opinions regarding the challenges of integrating technology in the classroom.

The Population and Sample of the Study

The study's population included all teachers who teach at the elementary level in the Irbid Directorate of Education, Jordan. The study's sample consisted of 144 teachers, who voluntarily agreed to participate in the study. The demographic data of the participants are presented in Table 1.

Table 1

The demographic data

Variable	Categories	Number
Sex	Male	74
	Female	70
Specialisation	History	36
	Geography	37
	Mathematics	33
	Biology	38
	More than 8 years	80
Experience	Less than 8 years	64
	Total	144

Study Tools

Two assessment instruments were used to achieve the study's goals: (i) the Motivation towards Teaching Scale and (ii) the Technical Skill Employment Scale. The 32 questions on the technical skill employment scale were derived from previous research and aimed to assess teachers' perceptions of the challenges they encounter when utilising technology. The instrument comprises four distinct categories: the accessibility of suitable equipment, student-related concerns, the capacity to utilise technological abilities, and teachers' perspectives on the application of these skills. A team of experts assessed the scale's face validity, while professionals in scientific curriculum, instructional techniques, and educational technology evaluated its content validity. The final version of the scale was created by incorporating the committee's recommendations. The 28-item Motivation towards Teaching Scale was developed based on the findings of previous research. It measured teachers' motivation to teach. A group of professionals and specialists in the field evaluated the face validity and content validity of the desire to teach.

Results and Discussion

The purpose of the study was to determine how teachers felt about the difficulties they face when using technology in the classroom.

Teachers' Perceptions

The mean values and standard deviations of teachers' perceptions and replies on the technological educational skills scale are outlined in Table 2.

Table 2

Subjects' responses on the technological educational skills

Rank	Field	Mean	Std Dev
1	The aptitude for using technology	3.49	0.710
2	Issues pertaining to students	3.36	0.722
3	The opinions of teachers regarding the use of technology	3.11	0.711
4	Accessibility of suitable apparatus	3.08	0.802
	Overall	3.26	0.726

Table 2 presents the means of the responses, which ranged from 3.08 to 3.49. The item with the highest mean score of 3.49 and a high degree was "the aptitude for using technology'. Conversely, teachers' perceptions of the "accessibility of suitable apparatus" ranked the lowest, with a mean of 3.08. The measure's overall mean was 3.26, indicating a moderate level. For every item in each field, the means and standard deviations of the participant responses were calculated and are presented in Table 3 to provide additional context.

Table 3

The subjects' responses on the technological educational skills

No.	Item	Mean	Std Dev
1	There is an absence of specialised software supporting education.	4.14	1.290
2	E-learning gadgets are not available in classrooms.	4.09	1.109
3	There are not many instructional websites available in schools.	3.96	1.109
4	Inadequate groundwork to support the use of e-learning in the schoolroom.	3.13	1.166
5	High price of the electronics used in classrooms.	3.92	1.090
6	The classroom is not conducive to using electronic talents.	3.98	0.844
7	Getting instructional software from other sources is difficult.	4.17	1.087
8	Inadequate internet service.	3.69	1.303
9	An imbalance exists between the quantity of electronic gadgets and the student population in the classroom.	3.73	1.122
10	Overcrowding in scientific curricula prevents students from using technology to support their learning during class.	3.94	1.121
11	A school or computer lab experiencing a power outage while using electronic tools.	3.32	1.088
12	There is limited proficiency in the English language among teachers.	3.40	1.230
13	Absence of specialised training programmes for incorporating electronic skills into education in the classroom.	3.36	1.027
14	Irregular computer maintenance services are provided within the school.	2.74	1.182
15	Difficulty in operating and utilising electronic devices effectively.	3.38	0.927
16	Unfamiliarity with educational websites that align with the curriculum.	3.10	1.055
17	Lack of cooperation from computer supervisors in assisting teachers with electronic teaching methods.	3.05	1.042
18	Resistance to transitioning from traditional teaching methods to modern internet-based approaches.	2.80	1.023
19	Overwhelming presence and influence of the teacher within the school.	3.09	1.132
20	There are concerns about potential conflicts between scientific materials found on the internet and religious beliefs and cultural norms in the school community.	3.08	1.144
21	There is skepticism among teachers regarding the benefits of electronic skills in enhancing education.	3.06	1.233
22	I believe that the integration of electronic skills diminishes the educational value of teaching.	2.50	1.250
23	There is limited enthusiasm among teachers for incorporating electronic skills into their teaching.	2.50	1.211
24	A prevailing mindset among teachers is resistance to change.	2.90	1.244
25	Concerns that employing electronic skills hinders social interaction among students as required.	2.81	1.199
26	Perceptions that using electronic skills is a futile endeavour within the context of education.	2.70	1.111

27	There is a feeling that utilising electronic skills dehumanises the role of the teacher.	2.70	1.145
28	There is apprehension among teachers about dealing with modern technology.	2.19	1.122
29	Some students lack the necessary electronic devices for remote learning at home.	2.44	1.322
30	Insufficient competence among students in internet-based modern education.	2.69	1.121
31	Some students experience fear and hesitation as barriers when participating in modern learning.	2.31	1.155
32	Teachers' frustration stems from a lack of technological help and resources in the school.	3.69	1.299

Table 3 presents the calculated averages and standard deviations of the teachers' motivation for teaching. The results show that the teachers' technological competence did not significantly hinder the efficient use of technology. This implies that teachers have been suitably trained, have the tools and technical know-how needed, appreciate the benefits of technology, and are eager to use it in the classroom. Nevertheless, infrastructure-related issues limit their potential. This result is consistent with a study by R. Kaplan-Rakowski et al., which found that teachers generally held favourable and moderate opinions towards the use of technology and the difficulty of the tasks [63]; and with I. Skliarova et al.'s study which demonstrated a high level of technical competency use, particularly in classrooms and training programmes [64].

Furthermore, the results show that teachers face obstacles due to the lack of specialised software supporting education and efficient utilisation of technology, especially in acquiring the necessary resources. The teachers' responses emphasised the rarity of these gadgets, making it challenging for them to be effectively used in a classroom. This highlights the inaccessibility of electronic devices and educational software, possibly due to limited availability for student use both in and out of the classroom. Thus, it is essential that teachers have easy access to technical gadgets so they can effectively utilise their technology expertise in the classroom. These results are consistent with those of D. Emre, who noted that the right equipment is the biggest barrier to the use of communication and instructional technology in the classroom. One remarkable issue that surfaced was the challenge posed by students, making it hard for teachers to use technology skills competently. Teachers showed that many students display reluctance to use technical gadgets and lack the skills required for today's internet-based education [65]. This may be explicated by the lack of emphasis on computer education as a mandatory subject or by the absence of devices that would enable students to develop effective skills.

The teachers' valuations of the problems they encounter while integrating technology into instruction, based on factors such as gender, area of expertise, and number of years of teaching, are examined and presented in Table 4.

Table 4

The participants' responses on the technological skill employment measurement by specialisation, and years of experience

Variable	Category	Mean	Std Dev
Major	Biology	3.44	0.620
	Mathematics	3.40	0.622
	Geography	3.22	0.422
	History	3.08	0.588
Experience	More than 8 yrs.	3.19	0.511
	Less than 8 yrs	3.26	0.488

Table 4 illustrates notable variations in the means and standard deviations of educators' perceptions of the challenges they face when incorporating technology into teaching. These differences can be linked to factors like gender, area of specialisation, and years of teaching experience. To determine if the differences were statistically significant, a three-way ANOVA was conducted, as shown in Table 5.

Table 5

The three-way ANOVA according to gender, specialisation and experience

Variance source	DF	MS	F value	P value
Gender	2	1.233	3.642	0.467
Major	3	1.044	3.222	0.445
Experience	2	1.033	1.112	0.688
Error	90	0.246		
Total	97			

Gender had a statistically significant impact on teachers' opinions regarding the challenges of using technology, with an F-value of 3.642 and a statistical significance of 0.467 favouring females. This implies that female teachers exhibit a more pronounced dedication to enhancing the educational process and have a more profound comprehension of the obstacles that teachers encounter when employing digital technologies.

There were significant differences related to specialisation, with a statistical significance of 0.445 and an F-value of 3.222 in favour of teachers' scientific specialisation. This suggests that teachers specialising in science are more dedicated to improving the educational process and have a deeper understanding of the challenges teachers face when using digital skills.

Similarly, there were statistically significant differences attributed to years of experience, as indicated by a p-value of 0.688 and an F-value of 1.112 in favour of teachers with less than 8 years of experience. This suggests that younger teachers are more likely to use more technological devices than older teachers.

The averages and standard deviations of the teachers' motivation towards teaching were estimated, as shown in Table 6.

Table 6

The participants' estimation on the motivation scale

Rank	Items	Means	Std Dev
1	Punctuality is a regular practice of mine, especially when it comes to arriving early for my classes.	4.53	0.733
2	My work is guided by a sense of responsibility	4.49	0.565
3	I put in a consistent effort to establish a conducive learning environment for my students.	4.39	0.711
4	I keep a clear separation between my personal and professional lives to avoid any negative consequences.	4.37	0.733
5	I take pleasure in conversing with my students on topics of their choice.	4.36	0.687
6	I often notice that time seems to pass quickly when I am teaching classes.	4.31	0.877
7	To me, education is not just a job but a way of life.	4.25	0.853
8	I diligently search for educational materials that enhance the quality of lessons.	4.17	0.863
9	My motivation for work goes beyond the incentive system or my salary alone.	4.12	0.870
10	I eagerly embrace new developments in the field of education.	4.10	0.744
11	I continuously endeavour to implement creative concepts that support the learning process.	4.10	1.101
12	Actively challenging and reshaping established routines and stereotypes within the school is one of my priorities.	4.08	0.955
13	I stay updated on the latest advancements in the field of education.	4.04	0.877
14	I help students acquire the critical thinking abilities they will need in the classroom and everyday life.	4.04	0.876
15	I'm passionate and tenacious about pursuing my job goals.	4.00	0.914
16	I take pride in sharing my accomplishments with students and others.	3.91	1.055
17	I work diligently to overcome daily challenges, whether within the school environment or outside of it.	3.88	0.866
18	I often finish school-related assignments on time during the academic day.	3.87	0.945
19	I am adamant that the teaching profession is better than other professions.	3.87	0.932
20	I find teaching to be a profession that aligns well with my skills and abilities.	3.86	1.222
21	I continuously work on self-improvement by staying informed about technological advancements.	3.86	1.211
22	Proficiency in using modern technologies for education is an area where I excel and derive satisfaction.	3.85	1.123
23	I consider myself to be ambitious and am not satisfied with settling for a certain degree of accomplishment.	3.84	1.121
24	I recognise the existing deficiencies in the current condition of the school and take proactive measures to rectify them.	3.84	0.922
25	I ensure that all the activities and experiments outlined in the books are carried out as planned.	3.82	1.044
26	I expand my participation outside the school.	3.79	1.088
27	I am unwavering in my commitment to delivering schoolwork, and I readily review lessons for the benefit of students.	3.54	1.046
28	I do not experience boredom or exhaustion when at school.	3.54	1.012
	Total	**3.86**	**0.511**

Table 6 provides an overview of teachers' motivation towards education, revealing a range of mean scores. The item that states, "Punctuality is a regular practice of mine, especially when it comes to arriving early for my classes", received the highest mean score of 4.53. In contrast, items that state, "I do not experience boredom or lethargy when at school" and "I am unwavering in my commitment to delivering schoolwork, and I readily review lessons for the benefit of students," had the lowest mean scores of 3.54.

These findings underscore the strong motivation of teachers, indicating their active engagement in effective teaching. They consistently strive to enhance education by employing innovative and inspiring methods to create an ideal learning environment for their students. Their motivation serves as a driving force, shaping their actions in the educational process and fostering a dedicated approach to tasks. Teachers inspire students to pursue the highest quality education. The primary source of motivation for teachers was found to be punctuality as a regular practice, especially when it comes to arriving early for classes. The core cause of their strong drive may be the focus placed on professional performance. People are more likely to fervently seek cutting-edge scientific discoveries and overcome challenges to further their education. This result differs from a study by C. Şenol and M. Akdağ, which found moderate motivation among teachers and moderate motivation among teachers, respectively [66].

To investigate the relationship between teachers' motivation for teaching and their assessments of the difficulties they encounter when using technology, Pearson's correlation coefficient was calculated. Table 7 presents specific correlation coefficients along with an explanation of their significance. The teachers' motivation towards education was discussed based on specialisation, and years of experience, as illustrated in Table 7.

Table 7

Teachers' motivation towards education

Variable	Category	Mean	Std Dev
Specialisation	History	4.10	0.488
	Geography	4.02	0.423
	Mathematics	3.91	0.424
	Biology	4.11	0.411
Experience	More than 8 yrs.	3.56	0.522
	Less than 8 yrs	3.77	0.42

Table 7 shows variations in the average motivation of teachers according to their speciality. For example, biology teachers appear to have the highest average motivation (4.11) compared to teachers of history (4.10), geography (4.02), and mathematics (3.91). This suggests that there are differences in teachers' motivation depending on their specialisations, and this may be related to the nature of the subjects they teach and their interaction with them.

There appears to be a difference in average motivation among teachers by experience as well. For example, it shows that teachers with more than 8 years of experience tend to have lower average motivation (3.56) compared to those with less than 8 years of experience (3.77). This may indicate that older teachers may face challenges or feel more fluctuations in motivation levels compared to younger teachers. The overall mean for motivation (calculated across all categories) shows a mean of 3.86. This suggests that there is a reasonable level of motivation among teachers in general, but there are variations depending on specialisation and experience.

Conclusion and Recommendations

The present study investigated how teachers perceive the challenges they encounter when using technology in the classroom and how they affect their motivation to teach. Despite their occasional struggles with digital skills, the teachers demonstrated a strong commitment to supporting students' learning. Their unwavering commitment to providing learners with an excellent education was evident, driven by a desire for perfection. The poll also highlighted the lack of electronic equipment as the most significant obstacle for teachers, emphasising the crucial role of infrastructure and technical access in the educational process.

The study results revealed no substantial correlation between teachers' perceptions of the obstacles they faced and their motivation to teach. This shows that a teacher's dedication and professional development are essential for overcoming the obstacles posed by integrating technology into the classroom. A skilled teacher who possesses a broad range of teaching practices and a strong motivation to support students' learning can overcome obstacles or come up with inspired ways to present the material.

The study recommends offering specialised training courses to teachers to enhance learners' proficiency with technology. Educating students about the importance of these skills and how to use them in the classroom is essential to prepare students for the digital learning environment. Implementing training programmes that enhance digital literacy and teach students how to effectively use technology is crucial.

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