

The Degree to Which School Management Uses Artificial Intelligence and its Relationship to Improving Teachers' Performance in Teaching in Secondary Schools in the Northern District

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Abstract: *The purpose of the current study was to find out how much artificial intelligence is used by school administrators to enhance the performance of secondary school teachers in the Northern District. It also sought to determine whether there were any variations in the responses from teachers based on factors such as gender, specialization, educational region, years of experience, and academic qualification. The investigator employed the technique During the 2023–2024 academic year, 175 male and female secondary school teachers in Israel's Northern District made up the study sample. They were divided among twenty-five schools and chosen at random. A questionnaire with 19 items was created in order to meet the study's objectives. The study's findings demonstrated that there were statistically significant differences at the significance level ($\alpha = 0.05$) in the study sample's estimates of the extent to which school administration used artificial intelligence to improve performance. The study sample's estimates of the degree to which school administration used artificial intelligence to improve performance was also found to be moderate. The factors that influence teachers in secondary schools in the Northern District are the educational region variable, which favors the district, the educational qualification variable, which favors the "Master's" category, the gender variable, which favors women, and the lack of statistically significant differences that could be attributed to the influence of the two variables, years of experience and specialization. The findings also demonstrated a statistically significant and favorable relationship between the level of artificial intelligence used by school administrators and the enhancement of teaching quality among secondary school instructors in the Northern District. In light of the study's findings, it is advised that secondary school principals in the Northern District be given specialized training programmes to assist them in promoting artificial intelligence in teaching and learning. Additionally, community members should be included in meetings intended to inform them of the technological applications of artificial intelligence utilized in the school, and teacher development programmes pertaining to artificial intelligence techniques and their application in the teaching and learning process should continue.*

Keywords: School Administration, Artificial Intelligence, Teacher Performance, Secondary Schools, Northern District

1. Introduction

Globally, the usage of AI systems in education has increased dramatically as a result of their ability to streamline communications, streamline administrative procedures, and improve student experiences. The scope of artificial intelligence's application in the Arab world is still largely unknown, despite the technology's extensive adoption in education. Artificial intelligence (AI) is largely to blame for the significant changes in the field of education, particularly in terms of its potential to provide teachers with more resources.

According to Abuajwa et al. (2023) and Al-Tahitah, Al-Muthaliff, and Abuajwa (2023), these artificial intelligence (AI) solutions offer several chances to enhance instructional tactics, expedite administrative tasks, and ultimately boost the effectiveness of the educational process. Innovation isn't just about diversity in teaching approaches. Instead, we need to look for fresh, creative concepts and create cutting-edge corporate practices (Al-Faqi, Abdul-Ilah, 2011). Over the years, technology has advanced quickly thanks to these ideas, particularly in the area of education. According to Abu Zaid, Shura Council (2022), technical advancements—particularly artificial intelligence—make teaching easier and more productive. Additionally, these technological advancements have permeated many facets of academia,

which has improved teachers' efficacy and efficiency (Marwan, Zoghaibi, and Rafif 2023).

Education was reliant on human labour before computers and similar technologies emerged. A huge transition was accomplished and computing capability skyrocketed with the advent of personal computers in the 1970s (Al-Dhahr, Bayan, 2022). Over time, advancements in computers and communications have given rise to artificial intelligence, which encompasses the creation of machines with the capacity to overcome obstacles and find solutions. Muhammad, Al-Salamat, and Al-Baqami, (2023). The education sector has benefited greatly from this advancement since it enhances productivity, all-encompassing learning, customised learning, and the quality and effective administration of educational materials. New applications of artificial intelligence in the realm of education are being created as it advances (Muhammad, 2023). According to Shaker and Shenouda's (2022) paper, artificial intelligence has been included into the management of teaching and learning in the field of education. These fields can expand further as education progresses and makes use of cutting-edge technologies like deep learning and data mining. They serve as a framework for evaluating and comprehending artificial intelligence in education. According to Eyadat, Youssef (2005), these definitions and descriptions generally encompass the creation of machines with a certain degree of intelligence and the capacity to carry

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out tasks similar to those of humans. Thus, some traits and ideas are seen as essential to artificial intelligence, including as perception, learning, decision-making, and environment adaption (Abu Ghanim, Saeed, 2022). One of the key components of artificial intelligence seems to be intelligence, or the machine's capacity to demonstrate a certain degree of intelligence and carry out a variety of tasks requiring human-like skills (Al-Mithqal, 2023). According to Hassanein (2023), the artificial intelligence system can constantly be prepared to offer support by utilising instructional theories that are incorporated into the curriculum. In addition to providing outputs (text, shapes, animations, and agencies) and AI-related functions (such as interacting with natural language, speech recognition, and emotion detection), the user interface explains learners' performance through multiple input media (voice, typing, and clicking) (Abu Ghanim, Saeed, 2022).

In addition to their core duties, teachers who collaborate with ITS attain high competences in a variety of administrative jobs, as they offer direction and teaching to help pupils succeed academically (Zaytoun, Hassan, 2005). The application of artificial intelligence in education has improved teachers' efficacy and efficiency in carrying out duties like assigning homework to students (Hassanin, 2023). In reality, a look at the modern online learning environment reveals tools like TurnItIn and Ecree that let teachers handle a variety of administrative duties (Muhammad, 2023). According to Al-Ghamdi (2021), artificial intelligence has enhanced teachers' abilities to do a variety of administrative jobs that would take a lot of time and effort without it. The Ministry of Education and its representatives must reevaluate the techniques, strategies, and procedures employed in the educational process in light of artificial intelligence's progress and incorporation into all facets of life (Al-Khatib, Yassin, 2021). In order to support the educational process, teacher cadres must also be qualified in a manner that is compatible with technology advancements. As an educational counsellor working in secondary schools, I witnessed firsthand how lacking and incapable school principals and teacher cadres were of incorporating artificial intelligence into the administrative and instructional processes, which could enable them to accomplish their assigned tasks more effectively and efficiently. Thus, the goal of this study was to ascertain the extent to which artificial intelligence is used by Arab secondary school administrators in Israel's Northern District and how this technology relates to raising student achievement and quality of instruction.

Statement of the Problem and Questions of the study

The effects of the rapid development in the field of technology have been reflected in the educational field, and many modern educational methods have appeared. Education through the use of artificial intelligence applications is one of these methods that encourage self-learning and learning with suspense. In secondary schools in the northern district of the country, the use of artificial intelligence is working to improve... The performance of teachers, and on developing the skills aspect of learners as it stimulates interaction, reduces distraction and increases attention, and through the researcher's work in the field of teaching and pedagogy in schools in the northern district and

her contemporaneity with the experience that schools in the district went through during the Corona pandemic, which prevented students from arriving to schools. I noticed the importance of employing artificial intelligence applications and some technological methods that help reduce the difficulties and challenges that this educational sector suffers from. There is no doubt that the school administration has a prominent role in promoting the use of artificial intelligence applications in secondary schools in the Northern District. Accordingly, the problem of the study crystallizes in investigating the role played by the school administration in secondary schools in the Northern District in promoting the use of artificial intelligence from the point of view of teachers and its impact on improving Their performance in secondary schools, and from here the problem of the study is limited to the following questions:

- 1) What is the degree of school administration's use of artificial intelligence and its relationship to improving teachers' performance and teaching in secondary schools in the Northern District from the teachers' point of view?
- 2) Are there statistically significant differences in the level of teachers' response to the degree of school administration's use of artificial intelligence and its relationship to improving teachers' performance and teaching in secondary schools in the Northern District due to the variables of educational region, specialization, gender, academic qualification, and years of experience?
- 3) The third question: Is there a statistically significant correlation at the significance level ($0.05 \geq \alpha$) between the degree of school administration's use of artificial intelligence and improving the performance of teachers in teaching in secondary schools in the Northern District from the point of view of teachers?

2. Significance of the Study

2.1 Theoretical importance

From the researcher's point of view, this study is considered one of the first Arab studies to be conducted in the Northern District for the purpose of revealing the degree to which school administration uses artificial intelligence and its relationship to improving the performance of teachers and teaching in secondary schools in the Northern District. Therefore, it is hoped that this study will enrich the theoretical aspect of The field of using artificial intelligence and its relationship to improving teachers' performance, and with the hope that this study will enrich the Arab library in the information it will provide about the concept of artificial intelligence and job performance, which school principals, male and female teachers, and researchers can benefit from.

2.2 Practical importance

- The practical importance of the current study lies in the results it reaches, which may contribute to directing the attention of decision-makers, educational policy makers, and supervisors in the Ministry of Education if it is adopted in order to use artificial intelligence in the educational process and improve the level of job performance among teachers in the district. North.

- This study may also contribute to directing the attention of decision-makers in the Ministry of Education to the necessity of providing all means that school principals can follow to eliminate the challenges that may obstruct the educational process, and to reflect on the performance of teachers, and to benefit school principals, supervisors, teachers, and parents. And the students.
- The study may open horizons for researchers and postgraduate students to conduct more studies similar to the current study in light of some other demographic variables, in light of the results of this study.

2.3 Objectives of the study

The current study aimed to achieve the following objectives:

- Revealing the degree to which the school administration uses artificial intelligence from the point of view of teachers, to work on improving that degree because of its positive effects on the course of the teaching-learning process.
- Detecting whether there are statistically significant differences at the level of statistical significance ($\alpha = 0.05$) in teachers' responses to the degree of school administration's use of artificial intelligence and its relationship to improving teachers' performance.
- In Arab secondary schools in the Northern District, it is attributed to the variables of gender, specialization, educational region, years of experience, and academic qualification).
- Explaining the correlation between the degree to which Arab secondary school principals employ artificial intelligence and the level of job performance among teachers in the Northern District.

2.4 Limitations of the study

The limitations of the study are as follows:

- **Objective limit:** It is the degree to which the school administration uses artificial intelligence and its relationship to improving the performance of teachers in teaching in secondary schools in the Northern District.
- **Human limit:** This study was limited to all male and female teachers working in Arab secondary schools affiliated with the Ministry of Education in the Northern District for the academic year 2023/2024 AD.
- **Spatial limitation:** The current study was applied in Arab secondary schools affiliated with the Ministry of Education in the Northern District, which number (25) schools.
- **Time limit:** This study was implemented in the 2023/2024 academic year.
- **Study limitations:** Generalizing the results of this study depends on the study sample, the tools used to collect data, and the extent of their acceptable psychometric properties (validity, reliability).

2.5 Terminological and procedural noitinfed

This study adopts the following definitions of its terms:

School administration: Diab (2001) defines it as all the efforts, activities, and processes of planning, organizing,

following up, directing, and controlling that he carries out with his teachers and administrators for the purpose of building and preparing the student in all aspects (mentally, morally, socially, emotionally, and physically) to help him achieve Adapts successfully to society, preserves its surrounding environment, and contributes to the progress of its society.

Artificial Intelligence: Artificial intelligence is making a machine behave in an intelligent way as a human behaves (Al-Ghamdi, 2021). Artificial intelligence in this context aims to use artificial intelligence techniques and systems in the field of education and teaching, improve the learning experience, and enhance educational effectiveness through the integration of technology into the educational environment. It also allows... Educational systems can use data and intelligent analysis to understand students' needs and provide specialized and effective learning experiences (Abu Zaid, & Al-Shura, 2022).

3. Theoretical Framework

This section of the study included a review of prior research and theoretical literature pertaining to the study's focus, which is the extent to which artificial intelligence is used by school administrators to enhance teacher performance in Arab secondary schools in the Northern District.

4. Literature Review

Technology is advancing quickly around the world and has an impact on all facets of life, including education. Because of this, educators are searching for the most effective approaches to establish a learning atmosphere that sparks students' curiosity, motivates them to express their ideas and experiences, and makes use of artificial intelligence. Artificial intelligence techniques and information technology that rely on computers and the Internet can be used to work on collaborative projects (Al-Shudaifat, Munira, 2020). Students can increase their understanding of subjects that interest them in the field of artificial intelligence technologies and across various educational institutions by speaking with experts and people who have similar interests (Bani Khalid, Warda, 2023). Critical thinking skills in students are enhanced by their capacity to recognise and arrange information (Al-Ghamdi, 2021).

According to Shaker and Shenouda (2022), a comprehensive educational vision for all methods and curricula in the field of using artificial intelligence has led to the development of many new theories and practices that aim to activate the student's role as one of the basics. Additionally, the new artificial intelligence technology has assisted in reconsidering the makeup of educational institutions. Since computers and the Internet are among the most recent tools for communication and education, these new teaching approaches mostly rely on their utilisation in the classroom. The use of artificial intelligence techniques and applications, PowerPoint presentations, videos, and other multimedia, along with homework assignments, the discovery of electronic documents and study texts, are just a few of the changes in educational methods and strategies brought about by technology and applications of artificial intelligence in

the teaching process. Additionally, artificial intelligence works well at inspiring pupils to follow their own passions (Abu Ghanim, Saeed, 2022).

Artificial intelligence in the classroom

Artificial intelligence technologies, such as machine learning and natural language processing, have the potential to improve education by personalizing instruction, handling administrative duties, and offering data-driven insights, according to Marwan, Zoghbi, and Rafif (2023). Artificial intelligence (AI) has been used more and more in the field of education, and this is a field full of opportunities and benefits. Artificial intelligence has altered the way that Arab secondary school principals, instructors, and students impart knowledge (Al-Baqmi, Al-Salamat, and Muhammad, 2023).

According to Al-Anazi and Hanan (2018), school administration can gain a lot from artificial intelligence-based systems. One such benefit is personalized learning for students, which analyses each student's strengths and weaknesses and tailors the material to fit their learning style. Thus, intelligent educational platforms identify the challenges that learners encounter and provide solutions by giving them immediate feedback and direction (Al-Ghamdi, 2021). In order to optimize learning results in Arab secondary schools, adaptive learning platforms change the degree of difficulty of various disciplines. Artificial intelligence can be used to finish the classification process, which will enhance assessment efficiency and uniformity while also increasing teacher performance in secondary schools in the Arab world. According to Muhammad (2023), as the educational experience is improved through accessibility features, virtual and augmented reality experiences, content creation, and language learning applications, predictive analytics aids teachers in identifying and supporting students who are at-risk. Virtual tutors and catboats also offer educational support outside of school hours. Furthermore, Hassanein (2023) said that data analysis enables organizations to make informed decisions. However, as AI is used more frequently in education, it will be crucial to address concerns like data privacy, ethical AI use, and guaranteeing that all students have equal access to these potent tools.

Artificial intelligence in educational leadership

More effective school management is possible because to artificial intelligence, which makes it possible for administrators to expedite administrative tasks like scheduling meetings, assigning resources, and interacting with stakeholders (Al-Mithqal, 2023). Consequently, integrating artificial intelligence into school administration has the power to fundamentally alter how educational establishments are run (Bani Khalid, Warda, 2023). AI-powered educational institutions can more effectively handle resources, interact with stakeholders, monitor student attendance, and carry out various administrative tasks (Al-Hammar, Al-Eidan, Hassan, and Al-Najjar 2022).

Al-Mithqal (2023) said that the application of artificial intelligence in schools can speed up decision-making, lessen the workload associated with administration, and boost productivity. These tools, for instance, can analyse attendance data to spot patterns and trends and assist

administrators in implementing preventative actions to address issues with student involvement and absence. According to Hassanein (2023), artificial intelligence also aids in resource allocation and makes sure workers are making the most of their abilities. Artificial intelligence (AI)-driven communication technologies could improve smooth communication between parents, schools, and the community, fostering a more cooperative and transparent learning environment (Abu Ghanim, Saeed, 2022). All things considered, using AI into school administration is a workable way to manage learning settings in a way that is more effective and flexible (Al-Ghamdi, 2021). According to Al-Mithqal (2023), pedagogical development, classroom management, and the learning environment are some of the elements that impact effective teaching. Artificial intelligence plays a role in enhancing these components by offering data-driven insights.

The role of artificial intelligence in providing support tools for teachers to improve their efficiency in the educational process

First: Through dedicated educational support:

A'mar, &Eleya (2022) said that artificial intelligence helps teachers in several ways, one of which is by supporting individual learning, where teachers can customize their teaching methods and methods to meet the needs of each individual student by using artificial intelligence systems to analyze large databases of student performance and suitability. Learning strategies for every student. The use of artificial intelligence algorithms helps adaptive learning platforms adjust lesson content according to the progress of each student (Al-Ghamdi, 2021). As a result, learning becomes more effective and productive and students are constantly pushed to the right level (2022) Itmazi, &Khlaf Furthermore, AI can make recommendations for specific activities, materials, or interventions based on each student's unique learning profile, helping teachers bridge Individual learning gaps more effectively (Hassanin, 2023).

Completing administrative activities: Historically, teachers have been burdened with time-consuming administrative activities that artificial intelligence is characterized by completing excellently and quickly (Al-Ghamdi, 2021). The use of systems based on artificial intelligence helps to significantly speed up the process of setting grades, tracking attendance, and allocating resources (Hassanin, 2023). For example, automated grading systems can administer regular assessments, giving teachers additional time to prepare lessons, engage students, and listen to them. A'mar, &Eleyan (2022) add that artificial intelligence can speed up attendance tracking procedures, ensure correct records and relieve teachers of repetitive administrative tasks. As Shraim, & Crompton (2022) stated, teachers can focus more of their time on creating a welcoming and stimulating learning environment by completing these tasks.

Second: Improving access to resources:

Expanding teachers' access to an abundance of educational resources has been made possible in large part by artificial intelligence. Digital textbooks enhanced with artificial intelligence provide multimedia components, interactive content, and adaptive learning opportunities (Al-Ghamdi,

2021). These tools can better engage students and accommodate a variety of learning preferences (Al-Hammar, Al-Eidan, Hassan and Al-Najjar 2022). As noted by Lucci, Kopec & Musa (2022), AI may also select and suggest other educational resources, giving teachers a wide range of resources to use in designing dynamic and engaging lessons. In addition to improving students' educational experiences, increased access to resources gives teachers the tools they need to continually innovate their pedagogical approaches (Hassanin, 2023).

Educational development insights: By providing insightful analysis of teachers' educational strategies, artificial intelligence (AI) greatly enhances the educational and career development of teachers (Lucci, Kopec, & Musa, 2022). Artificial intelligence systems can examine student performance and educational strategies using data analysis. Lucci, Kopec & Musa (2022) stated that teachers can better understand their strengths and use them using insights based on the data obtained from this analysis. Artificial intelligence is able to provide personalized feedback and make recommendations on ways to improve the effectiveness of Teaching. This continuous feedback loop helps teachers improve their teaching strategies, adapt to changing standards, and keep up with industry best practices. The process of educational development supported by artificial intelligence enhances teachers' efficiency and vitality in the educational process (Al-Hammar, Al-Eidan, Hassan and Al-Najjar 2022).

Encouraging effective class management: By providing real-time information about student behavior and participation, AI-powered solutions facilitate effective class management (Al-Ghamdi, 2021). By using patterns in student interactions, artificial intelligence systems can detect potential problems or indicators of disinterest (Lucci, Kopec, & Musa, (2022). This allows teachers to quickly address behavioral problems and improve the learning environment, and can equip teachers to foster a productive learning environment by providing quick feedback and proactive management techniques.

Third: Ensuring that the workload is reduced:

A'mar, & Eleya (2022) mention reducing the workload on teachers with the use of artificial intelligence in education. They can recover significant time by completing repetitive tasks, such as tracking attendance and evaluating assignments. In addition to reducing stress and fatigue, this activity frees teachers to focus on other important aspects of their work, such as lesson planning, individualized instruction, and student engagement (Abu Ghanim, Saeed, 2022). The potential of artificial intelligence to reduce administrative duties is likely to be a key factor in improving overall job satisfaction, teacher retention rates, and their professional development (Al-Hammar, Al-Eidan, Hassan, and Al-Najjar 2022).

Fourth: Difficulties and ethical issues:

In addition to all the positives we mentioned previously and what artificial intelligence offers to teachers, there are still obstacles and ethical issues that need to be properly considered. Teachers may worry that AI will take away their autonomy and dictate how they teach, or that it may weaken

their individual relationships with students (Al-Ghamdi, 2021). As A'mar, & Eleya (2022) reported, there is another problem that calls for pedagogical development initiatives, which is teachers' resistance and refusal to adapt to new technology, especially those who are less experienced in artificial intelligence and in the use of technology. As Lucci, Kopec & Musa (2022) state, strong protection of data privacy, openness in AI systems, and impartial and fair decision-making in educational settings are all crucial ethical factors.

Artificial intelligence and improving the performance of teachers and students in digital learning.

Artificial intelligence (AI) has the potential to significantly improve the effectiveness of teachers in digital learning settings, and is a key component of this revolution. Artificial intelligence (AI) helps create more personalized and adaptive learning experiences for teachers and students with increasing use of digital tools and platforms (Lucci, Kopec, & Musa, 2022). Personalized learning paths are one of the main ways in which artificial intelligence enhances teachers' performance in online learning (Al-Baqami, Al-Salamat, and Muhammad, 2023). Large data sets, which include students' learning styles, strengths, and shortcomings, are analyzed by artificial intelligence algorithms (Al-Ghamdi, 2021). Using this data, teachers can better meet the needs of each individual student by creating individualized lesson plans. By leveraging AI-based insights, teachers can create flexible lessons that accommodate a range of learning styles, creating a more engaging and productive atmosphere. Artificial intelligence is effective in completing administrative tasks related to digital learning, giving teachers more time to focus on student engagement and instructional design (Al-Ghamdi, 2021).

AI-powered dashboards provide teachers with real-time feedback on student engagement and progress, and by using this timely information, teachers can adjust their lesson plans as needed to give students the help they need (Al-Ghamdi, 2021), and they can make informed decisions. Data-based data leads to better educational outcomes and more effective teaching with the help of these dynamic insights.

In addition, artificial intelligence is essential to developing a more inclusive digital educational environment. It can help identify and solve problems faced by students, ensuring that educational materials are created to meet a range of learning requirements (Al-Baqami, Al-Salamat, and Muhammad, 2023). Text-to-speech and speech-to-text software are two examples of AI-based solutions that help increase access to digital content for a wide range of students (Al-Baqami, Al-Salamat, & Mohammed, 2023). Despite the many advantages, the use of artificial intelligence in digital learning also presents a number of difficulties, such as the requirements for comprehensive teacher preparation, protecting student data, and resolving potential biases in artificial intelligence algorithms (Al-Hammar, Al-Eidan, Hassan, and Al-Najjar, 2022). But when used wisely, AI becomes an invaluable ally for teachers in the digital learning environment, enhancing their ability to deliver high-quality, individualized teaching. In conclusion, teachers' performance in digital learning settings may

improve thanks to artificial intelligence. As Shraim, & Crompton (2022) stated, by providing tailored learning experiences, supplementing administrative work, real-time analytics, and promoting inclusion, artificial intelligence (AI) enables educators to navigate the challenging landscape of digital education with greater skill. The future of education will likely be determined by collaboration between AI and educators, leading to more dynamic, interesting and personalized learning opportunities for students around the world as technology advances.

Student and teacher performance with artificial intelligence:

An increasing number of people are interested in learning more about how artificial intelligence (AI) affects the performance of Arab secondary school teachers as a result of its integration into education (Al-Baqmi, Al-Salamat, and Muhammad, 2023). Artificial intelligence has the potential to completely transform education by providing a large number of resources and technologies that improve educational strategies and speed up administrative duties (Al-Qahtani, Amal, 2020). Hence, this study will address the complex effects of artificial intelligence on teachers' jobs, highlighting the potential advantages and difficulties in implementing it. It will be interesting to see how artificial intelligence affects the performance of students and teachers because they are intelligent systems (Al-Baqmi, Al-Salamat, and Muhammad, 2023). Artificial intelligence systems will be useful in reducing the workload of teachers as the number of students in educational institutions increases. Teachers can deliver personalized content by analyzing the syllabus and course materials with the help of artificial intelligence [AI] systems. In addition, these systems have the ability to design tests and evaluate them after analyzing them (Al-Hammar, Al-Eidan, Hassan, and Al-Najjar, 2022). Ultimately, this will free teachers to focus on more important things, such as student performance. As stated by Shraim, & Crompton (2022), AI can analyze study data more effectively in individual teaching and independent learning, helping teachers create personalized lesson plans for each student. Another problem developing with artificial intelligence in education is human bias (Abu Ghanim, Saeed, 2022). In order to eliminate bias, artificial intelligence evaluates exams and papers using pre-defined criteria and templates (Al-Ghamdi, 2021). Artificial intelligence (AI) based on computer vision can also achieve this by reading and identifying images of handwritten documents. In this way, students are also prevented from plagiarism and cheating (Al-Baqmi, Al-Salamat, and Muhammad, 2023).

Artificial intelligence technologies identify students' learning gaps and intervene early in their education by evaluating their data. The traditional educational system treats the majority of students in a similar way (Al-Ghamdi, 2021). As a result, no student can obtain the highest level of education using the same teaching methodology (Al-Baqmi, Al-Salamat, and Muhammad, 2023). Artificial intelligence will help determine the unique education plan for each student based on their personality, areas of strength, and learning abilities. All students can benefit from and enhance their learning. In this way, students' learning abilities and creativity improve as their knowledge grows and helps

develop the cognitive system (Al-Hammar, Al-Eidan, Hassan and Al-Najjar 2022). In addition, by collecting academic data, AI algorithms predict each student's future educational path, which in turn helps students choose their university courses more specifically. By taking into account their unique abilities and desired educational path, students can improve their grades and acquire scientific skills (Abu Ghanim, Saeed, 2022).

As Shraim, & Crompton (2022) mentioned, artificial intelligence has great potential to complete and accelerate the administrative work of both institutions and teachers. This enables teachers to spend more face-to-face time with students by using artificial intelligence to complete assignment assessments and grade essays. New methods for evaluating written assignments and tests are also being developed by artificial intelligence developers (Abu Ghanim, Saeed, 2022). Artificial intelligence produces adaptive digital learning interfaces for educational resources suitable for students at all grade levels and age groups. Furthermore, according to Brightspace developer Nick Odson, AI helps teachers understand their students "based on the entire ecosystem of learning tools" during the teaching and learning process. Depending on the challenges they face with people, AI systems are able to teach more easily. As Shraim, & Crompton (2022) reported, before work hours or expected to return their emails, students had a short window of opportunity to contact their teachers. These days, cutting-edge learning platforms like Carnegie Learning use student data to work one-on-one with individuals and provide them with feedback (Abu Ghanim, Saeed, 2022). Soon, artificial intelligence will be able to support teachers and students in a variety of learning styles. It is especially beneficial for teachers and learners who have these needs in any field (Al-Baqmi, Al-Salamat, and Muhammad, 2023).

The challenges that teachers face when using artificial intelligence in education.

Although the use of artificial intelligence in education has great potential, there are some special difficulties that teachers must overcome (Abu Ghanim, Saeed, 2022). Comprehensive training requirements are one of the main obstacles (Al-Baqmi, Al-Salamat, and Muhammad, 2023). Because many teachers lack the knowledge and experience necessary to use artificial intelligence tools in the educational process. As Shraim, & Crompton (2022) stated, educational development programs must be built as artificial intelligence becomes more common to ensure that teachers have the skills necessary to use these tools and improve the teaching and learning process. The ethical questions raised by artificial intelligence in education represent another difficulty. Because AI systems often need access to sensitive student data for personalized learning, teachers may face privacy issues (Abu Ghanim, Saeed, 2022). It may be difficult for schools and legislators to achieve the right balance between protecting individual privacy and using student data to create useful insights based on artificial intelligence (Al-Hammar, Al-Eidan, Hassan and Al-Najjar 2022). Building trust in AI technology across the educational sector requires addressing any biases and ensuring openness in the way these algorithms work (Al-Baqmi, Al-Salamat, & Mohammed, 2023).

The diverse IT infrastructure present in educational institutions presents additional issues. Adopting and maintaining AI technology may be difficult for low-funding schools, which may exacerbate already existing educational disparities (Al-Baqmi, Al-Salamat, & Mohammed, 2023). Preventing technology from favoring some children or schools more than others requires bridging the digital divide and granting equitable access to AI tools and resources. As Shraim, & Crompton (2022) noted, teachers also face an obstacle because AI systems may adapt to a variety of learning contexts. Some AI systems may not adequately take into account the subtle cultural, linguistic and contextual differences present in different educational environments due to their one-size-fits-all design. Teachers must face the challenge of integrating AI tools with their own teaching methods and the unique requirements of each student (Abu Ghanim, Saeed, 2022). Another prevalent issue among teachers is resistance to change. Because artificial intelligence may threaten their educational independence or cause them to lose their jobs, some teachers may hesitate to include technology in their lesson plans (Al-Baqmi, Al-Salamat, and Muhammad, 2023). Hence, awareness must be raised among teachers that the use of artificial intelligence in the educational process is an auxiliary and supportive tool and not a substitute for the teacher.

5. Empirical Studies

The subject of school administration and its role in promoting the use of artificial intelligence in the school community is one of the topics that many studies have addressed because of its significant impact in providing teachers and students with the technological skills necessary to keep pace with the rapid changes in this field.

Tedia (2012) conducted a study aimed at identifying the negative effects of integrating technology into classrooms in several East African institutions. The study used a variety of methods to collect data, including observation and group discussions with thirty-one experts and specialists in those countries, and analysis of the results of previous scientific studies. The study concluded that there are many factors that negatively affect protocols for using ICT in the learning process. The most notable of which is the absence of school leadership that keeps pace with technology, as its efficiency is low and may have an impact on the success of its implementation in schools. According to the report, administrators should receive more leadership training so they can use technology in their classrooms more skillfully.

Al-Sarayrah, & Abuhmaid, (2016) Al-Sarayrah and Abu Hamid (2016) added their study to this context in an attempt to determine how school administration contributes to disseminating information technology throughout the school community. To achieve this, a questionnaire was created containing (42) items distributed over Five departments. The study sample consisted of (74) assistant principals in Al-Mazar Al-Janobi schools in Karak Governorate. The results of the study concluded that the role of school administration in general and in all fields in promoting the use of information and communications technology in education was moderate. It also found that, with the exception of the field of school principal There were no statistically

significant differences due to the variables of gender and specialization, and there was a distinction in supporting human specializations between school and information technology.

Esplin (2017) conducted a study to evaluate the current situation using the International Society for Technology in Education (ISTE) standards for leadership preparation for elementary school principals in Utah, a state in the United States. The results of the study indicated that school principals lack the necessary preparation for technological administrative leadership, and that there is a correlation between the amount of training hours and the level of preparation for technological leadership.

To determine the role played by technological school principals in promoting education within the Green Line, Al-Qarnawi (2018) presented that the study population consisted of (800) male and female teachers distributed among (20) technological schools, and the study sample consisted of (327) male and female teachers, who were selected. Using the basic random method, the researcher used a questionnaire containing forty items distributed over five sections to achieve the objectives of the study. The results of the study revealed that there were statistically significant differences according to the factors of gender and academic qualification, while there were no statistically significant differences in the teachers' responses due to the variable of years of experience.

In order to determine the level of technical competence possessed by school principals in Al Dhahirah Governorate in the Sultanate of Oman, Aljarida Research (2019) created a questionnaire consisting of (34) items that was applied to eighty-two school principals. One of the most prominent results of the study is that schools have average levels of proficiency in technology. Other findings included no differences in competency based on years of experience, gender, or educational background. One notable recommendation was to prioritize technical competencies above other areas when creating training curricula for school principals.

As for the study of Al-Subhi (2020), it was aimed at identifying the reality of the use of artificial intelligence applications by faculty members at Najran University, as well as the difficulties and their relationship to certain criteria such as gender and academic grade. To achieve this goal, the study used the descriptive survey and analytical method, in addition to a questionnaire that was applied to a sample of (301) faculty members at Najran University. The results indicated that the college uses artificial intelligence applications to a low degree. In addition, the results showed that there are no statistically significant differences due to the variables of gender and educational level on the actual use of artificial intelligence applications. The study concluded that faculty members should receive training courses and be educated about the latest developments in the field of artificial intelligence.

Al-Rashidi (2021) conducted a study that aimed to determine the extent to which assistant principals in middle schools in the State of Kuwait implement digital

management. It also sought to ensure the presence of statistically significant differences in the responses of the study sample members according to variables such as gender, years of experience, academic specialization, and academic qualification. To achieve the objectives of the study, the descriptive survey method was used. The results of the study showed that the degree of managers' application of digital management in Kuwait was moderate.

Astuti (2021) conducted a study that aimed to determine the extent of maturity of teachers and students in mastering digital artificial intelligence applications for learning. The study sample included (233) students and teachers from secondary schools in Indonesia, who were randomly selected. The questionnaire was used to collect data, and the results showed that there are low levels of maturity and that there are no statistically significant differences between teachers and students at any level when it comes to their competence in using digital technology. In addition to the importance of enhancing training and various innovative educational methods related to digital technology mastery skills.

Artificial intelligence has a significant impact on teaching and learning, as Lamas & Arnab (2021) noted in their study. In order to improve their knowledge and abilities, teachers are essential to the planning and implementation of AI-based teaching and learning. This review uses the PRISMA paradigm to offer suggestions for operationalizing AI-based teaching and learning in education as well as insights into the ethical implications.

Yam (2023) & Yao, Chai, Xu, Meng, King, and Yam Meng, King, Yau, Chai, and Chiu also carried out a study with the goal of incorporating artificial intelligence (AI) into the kindergarten through twelfth school curriculum. Six categories of teachers' perspectives were discovered in this study, which involved 28 in-service teachers from 17 secondary schools in Hong Kong: bridging technology, communicating knowledge, generating interest, establishing morals, improving abilities, and intellectual development. Teachers' opinions of AI-assisted instruction can be understood from the hierarchical relationships between these concepts. To help educators and policymakers improve teacher competency and K-12 AI education overall, two learning routes are suggested to train technical and non-technical teachers in AI education.

Concluding Remarks

The way the earlier studies were presented makes it evident that, while they were all focused on different subjects deserving of more investigation, the current study approached the role of school administration from a unique perspective (the extent to which artificial intelligence is used by school administration and its connection to enhancing teaching and teacher performance in Arab secondary schools in the Northern District).

Some studies, like Teda's (2012) study, employed a qualitative methodology that includes focus groups, observations, and interviews. A questionnaire was employed in other investigations, as the one conducted by Astuti (2021). The present investigation is distinct from prior

research in that it utilized prior studies to establish the research problem, create the study instrument, and analyses the findings. The Esplin study (2017), the Al-Qarinawi study (2018), the Al-Jarida study (2011), and the Al-Subhi study (2020) are a few examples of these investigations. These studies demonstrated that, as far as the researcher is aware, no research has looked at how school administration might support the integration of artificial intelligence into the educational process.

6. Method and Procedures

The researcher followed the descriptive survey method with the aim of identifying the degree to which the school administration uses artificial intelligence and its relationship to improving the performance of teachers and teaching in Arab secondary schools in the Northern District from the point of view of teachers. The study tool (questionnaire) was used to collect data and to achieve the purpose of this study.

Study population: The study population consists of all Arab secondary school teachers in the Northern District, numbering (547) teachers.

Study sample: The study sample was selected from the study population by a simple random method, in a way that ensures that the sample represents the community from which it was taken. The study sample included ((175 teachers), i.e. (31.11%) of the study population. **Schedule (1)**

The sample was distributed according to the intermediate variables

Percentage	No	Variable Levels/Categories	Variable
51%	85	North of the district	Educational district
49%	90	South of the district	
100%	175	Total	
46%	80	Humanities majors	specializations
54%	95	Scientific specializations	
100%	175	Total	
53%	93	male	Gender
47%	82	feminine	
100%	175	Total	
%14	24	Bachelor's	Qualification
%69	121	Master's	
17%	30	Ph.D	
100%	175	Total	Years of Experience
26%	46	Less than 5 years	
17%	29	From 5 to 10 years	
67%	117	More than 10 years	
100%	175		

Table (1) shows the distribution of the study sample members according to the educational region variable. (51%) are in the north of the district, and (49%) are in the south of the district. The specialization variable shows that (46%) are in humanities specializations, and (54%) are in scientific specializations. The respondent's gender variable shows that the percentage is (53%) for males, and the percentage (47%) is for females. The academic qualification variable shows that the percentage is (14%) bachelor's degree, (69%) is master's degree, and (17%) is doctorate. The experience variable shows that the percentage (26%) for less than (5) years, (17%) for (5-10) years, and (67%) for more than (10) years.

Instrument of the study:

A questionnaire was developed to achieve the objectives of this study through the use of standard tools with proven credibility and reliability, and these measures were adapted according to the requirements of the study, as it benefited from: educational literature such as the Esplin study (2017), the study of Al-Qarinawi (2018), and the study of Al-Rashidi (2021). A tool was formed. The study consists of (23) paragraphs in its initial form, and was modified to become (19) paragraphs in two parts. The first section: It included primary data (educational region, gender, educational qualification, years of experience, specialization), while the second section: included the questionnaire and its paragraphs. The researcher used a five-point Likert scale, where each paragraph of the questionnaire was accompanied by a list bearing (strongly agree). Agree, not sure, disagree, and completely disagree. The researcher also developed a scale for each paragraph of the study tool, so that the scale contained five levels, which are as follows:

Means	Level
1.80	very low
1.81 – 2.60	Low
2.61 – 3.40	Medium
3.41 – 4.20	High
upper - 4.21	very high

Instrument validity: Instrument validity was confirmed by the researcher by putting the initial version of the questionnaire in front of eight arbitrators from the University of Haifa, the College of Education in Sakhnin, Al-Qasimi College, and the College of the Western Galilee. These experts were experts in the field of study and could attest to the tool's validity. They were asked to evaluate the questionnaire's paragraphs for clarity and integrity, the degree to which the paragraphs addressed the topic under study, and to add any additional information, changes, or paragraphs that they thought fit. These findings indicate that the questionnaire was created in its completed version. However, by comparing the correlation coefficient (Pearson) between the tool's total score and the questionnaire items, the researcher was able to confirm the validity of the instrument. This revealed that every questionnaire item had statistical significance, indicating the existence of internal consistency between the items, as the following table illustrates:

Table 2: Results of the Pearson Correlation Coefficient for the correlation matrix of the items on the degree of school administration's use of artificial intelligence and its relationship to improving teachers' performance and teaching in Arab secondary schools in the Northern District from the teachers' point of view

The corrected correlation coefficient between the item score and the total score for its field	Pearson correlation coefficient between the item score and the total score for its field	Item	Domain
.61	.69**	1	The first area: The role of artificial intelligence in providing support tools for teachers to improve their efficiency in the educational process.
.72	.78**	2	
.68	.76**	3	
.76	.83**	4	
.70	.78**	5	
.62	.73**	6	
.74	.80**	7	
.78	.84**	8	The second area: The use of artificial intelligence leads to digital learning.
.77	.84**	9	
.78	.85**	10	
.82	.88**	11	
.83	.88**	12	
.86	.91**	13	The third area: The challenges that teachers face when using artificial intelligence in education.
.75	.80**	14	
.72	.77**	15	
.73	.78**	16	
.71	.76**	17	
.75	.79**	18	
.79	.84**	19	

- Statistical significance at 0.001
- Statistical significance at 0.050

Stability of the study instrument: The researcher verified the stability of the tool by calculating the stability of the total score of the reliability coefficient for the fields of study according to the Cronbach Alpha reliability equation. The total score for the school administration's use of artificial intelligence and its relationship to improving the performance of teachers and teaching in secondary schools in the Northern District was (0.973), This result indicates

that this tool has stability that meets the purposes of the study.

Statistical processing: After collecting the questionnaires and ensuring their suitability for analysis, they were coded in preparation for entering their data into the computer to perform the appropriate statistical processing, and analyze the data according to the study's questions and data. Statistical processing of the data was conducted by

extracting the arithmetic means and standard deviations for each paragraph of the questionnaire, and the t-test. test), one way ANOVA test, Pearson correlation coefficient, and Cronbach Alpha reliability equation using the Statistical Package For Social Sciences (SPSS).

Results of the study questions and their discussion:

Results related to the first question: **What is the degree of school administration’s use of artificial intelligence and its relationship to improving teachers’ performance and**

teaching in secondary schools in the Northern District from the teachers’ point of view?

To answer this question, the researcher calculated the arithmetic means and standard deviations of the responses of the study sample members to the three areas of the questionnaire that express the degree to which the school administration uses intelligence in secondary schools in the Northern District. The results of the following table illustrate this:

Table 3: Arithmetic means and standard deviations for the degree of school administration’s use of artificial intelligence in secondary schools in the Northern District from the point of view of teachers in the three areas:

Level	Rank	Standard deviation	Means	Domain
High	1	.62	4.56	The first area: The role of artificial intelligence in providing support tools for teachers to improve their efficiency in the educational process.
High	2	.49	3.94	The second area: The use of artificial intelligence leads to digital learning.
Medium	3	.58	3.28	The third area: The challenges that teachers face when using artificial intelligence in education.
	High			Total

As can be seen from Table (3), the arithmetic averages of the study sample’s estimates for the three fields ranged between (3.28-4.56), with a degree of medium to high, as the field of the role of artificial intelligence in providing support tools for teachers to improve their efficiency in the educational process came in first place with an average Arithmetic (4.56), with a standard deviation of (.620), and with a high degree of practice. The field of using artificial intelligence that leads to digital learning came in second place, with an arithmetic mean of (3.94), and a standard deviation of (.49), and with a high degree of practice. The field of challenges that The problem teachers face when using artificial

intelligence in education ranks third, with a mean (3.28), standard deviation (.58), and an average degree of practice.

I also calculated the means and standard deviations for the degree of school administration’s use of artificial intelligence and its relationship to improving teachers’ performance and teaching in secondary schools in the Northern District from the point of view of teachers, for each field separately, and tables (4-9) show this. The first area: The role of artificial intelligence in providing support tools for teachers to improve their efficiency in the Educational process.

Table 4: Arithmetic means and standard deviations of the study sample estimates in the field of the role of artificial intelligence in providing support tools for teachers to improve their efficiency in the educational process

Level	Rank	Standard deviation	Means	Item	No
High	1	.62	4.16	The principal considers artificial intelligence an effective tool in improving the efficiency of teachers in the educational process.	1
High	2	.600	4.13	The principal uses artificial intelligence to determine the strengths and weaknesses of teachers.	2
High	3	.690	4.11	The principal guides teachers to use artificial intelligence to improve their performance.	3
High	4	.700	4.10	It is considered that artificial intelligence systems are capable of providing individual support tailored to the needs of teachers in the areas of developing teaching skills.	7
High	5	.780	4.02	The school principal has the skill to access digital content across all devices through artificial intelligence applications.	4
High	6	.940	3.97	The school principal has the necessary knowledge to deal with artificial intelligence applications for cloud computing services in the school.	5
Medium	7	1.15	3.31	Through artificial intelligence applications, the school principal has the skill to apply copyright and licensing rules to protect the intellectual property products of teachers’ achievements.	6
High		.620	4.17	Total	

It is noted from Table (4) that the arithmetic means of the study sample’s estimates in the field of the role of artificial intelligence in providing support tools for teachers to improve their efficiency in the educational process ranged between (3.31-4.16), with a degree of medium to high, and

the paragraphs (1, 2, 3, 4, 5, 7), to a high degree, while the practice of paragraph (6) was to a moderate degree. Paragraph (1) came in first place, while Paragraph (6) came in last place. The second area: The use of artificial intelligence leads to digital learning

Table 5: Arithmetic means and standard deviations of the study sample's estimates in the field of using artificial intelligence leads to digital learning.

Level	Rank	Standard deviation	Means	Item	No
High	1	.590	4.22	The school principal uses intelligence applications to create different software to create digital content.	13
High	2	1.11	3.48	The school principal has the knowledge to evaluate digital information and data using artificial intelligence.	12
High	3	.59	4.20	The school principal has the ability to use search engines using artificial intelligence.	8
Medium	4	1.25	3.42	The school principal has knowledge of using artificial intelligence that serves the administrative process.	10
High	5	1.05	3.41	Through artificial intelligence applications, the school principal has the ability to manage the digital identity.	9
Medium	6	1.13	3.27	Through artificial intelligence applications, the school principal is trying to create a code of digital behavior.	11
High		1.25	3.67	Total	

It is noted from Table (5) that the arithmetic means of the study sample's estimates in the field of using artificial intelligence leads to digital learning ranged between (3.27-4.22), with a high degree, and the practice of items (8,9, 12,

13) came in with a high degree. Paragraph (13) ranked first, while paragraphs (10, 11) ranked last with a moderate degree. The third area: The challenges that teachers face when using artificial intelligence in education.

Table 6: Arithmetic means and standard deviations of the study sample estimates in the field: Challenges that teachers face when using artificial intelligence in education

Level	Rank	Standard deviation	Means	Item	No
High	1	.840	4.11	Teachers face challenges due to the lack of experience of the school principal in managing work teams through applications of artificial intelligence in the educational environment.	17
Medium	2	.940	3.13	Teachers face challenges in employing artificial intelligence techniques in the teaching process.	15
Medium	3	.910	3.16	Teachers face challenges as the school lacks training, qualification, and equipping teachers with the necessary tools to apply artificial intelligence in the educational process.	19
Medium	4	.870	3.14	Educators face challenges regarding privacy risks related to the use of smart technology in the educational environment.	16
Medium	6	.940	3.21	Teachers face challenges in providing the necessary devices, equipment, and infrastructure needs to apply artificial intelligence in the educational process.	18
Medium	8	.970	3.26	The school principal cannot employ cybersecurity skills while using artificial intelligence techniques.	14
Medium		.890	3.32	Total	

It is noted from Table (6) that the arithmetic means of the study sample's estimates in the field of challenges faced by teachers when using artificial intelligence in education ranged between (4.11-3.21), with a moderate to high degree, and the practice of Paragraph (17) came in with a high degree, in When the practice of paragraphs (14, 15, 16, 18, 19) came to a moderate degree. Paragraph (17) ranked first, while paragraphs (15, 16) ranked last. This result can be explained by the extent to which secondary school principals in the Northern District are aware of the importance of digital skills and the use of artificial intelligence applications in developing and improving the educational and pedagogical process, and their keenness to keep pace with the growing digital technological development to complete their professional work and tasks efficiently and effectively. In addition to that, creating an educational environment based on sophisticated, advanced and intelligent management. Despite these positive data, there are challenges and difficulties that sometimes stand in the way of digital professional development, so the result in some paragraphs was average and did not rise to the required level. The researcher attributes this result to the fact that secondary school principals in the Northern District are keen

to develop their professional lives. Their preoccupation with school work prevents them from achieving their goals and acquiring more skills that allow them to easily use artificial intelligence applications and advanced digital skills. This skill requires training courses by technicians and specialists in this field or through specialized professional academies.

This result is consistent with the results of Al-Subhi's study (2022), Al-Rashidi's study (2021), and Esplin's study (2017), each of which showed that the degree of school principals' use of artificial intelligence applications and administrative technology was high, and this result differed with the study of Al-Sarayrah and Abu Hamid (2016). Which showed that the degree of secondary school principals' use of artificial intelligence applications and administrative technology was moderate, in addition to the study of Al-Shadeifat (2020), which showed that the degree of availability of technological competencies among school principals was low.

For results related to the second question: Are there statistically significant differences in the level of teachers' response to the degree of school

administration’s use of artificial intelligence and its relationship to improving the performance of teachers and teaching in secondary schools in the Northern District due to the variables of educational region, specialization, gender, academic qualification, and years of experience? To answer this question, I calculated the means and deviations for the degree of school administration’s use of artificial intelligence and its

relationship to improving the performance of teachers and teaching in secondary schools in the Northern District due to the variable of educational region, specialization, gender, academic qualification, and years of experience from the point of view of teachers in the three areas individually (areas The scale) according to the variables (educational region, specialization, gender, educational qualification, and years of experience), and Table (7) shows this.

Table 7: Arithmetic means and deviations for the degree of school administration’s use of artificial intelligence and its relationship to improving the performance of teachers and teaching in secondary schools in the Northern District due to the variable of educational region, specialization, gender, academic qualification, and years of experience from the point of view of teachers in the three areas individually (areas Scale) according to the variables (educational region, specialization, gender, educational qualification, and years of experience).

Standard deviation	Arithmetic mean	Variablelevel	Variable	Domain
0.52	3.98	Northern District	Educational district	The role of artificial intelligence in providing support tools for teachers to improve their efficiency in the educational process.
0.50	3.94	Southern District		
.580	3.98	Humanities specializations	Specialization	
.740	3.97	Scientific specializations	Gender of respondent	
.700	3.94	male		
.720	3.98	Female	Qualification	
0.72	3.59	Bachelor's		
0.73	3.95	Master's		
.670	4.02	Ph.D	Experience	
.470	4.10	Less than 5 years		
.650	4.18	From 5 to 10 years		
.630	4.15	More than 10 years	Educational district	
0.63	4.18	Northern District		
0.60	4.13	Southern District	Specialization	
.470	4.10	Humanities specializations		
.650	4.18	Scientific specializations	Gender of respondent	
.720	3.59	male		
.680	3.74	Female	Qualification	
.630	3.59	Bachelor's		
.720	4.15	Master's		
.620	4.20	Ph.D	Experience	
.720	3.59	Less than 5 years		
.630	4.15	From 5 to 10 years		
.470	4.10	More than 10 years	Educational district	The challenges that teachers face when using artificial intelligence in education
0.63	4.18	Northern District		
0.60	4.13	Southern District	Specialization	
.470	4.10	Humanities specializations		
.650	4.18	Scientific specializations	Gender of respondent	
.720	3.59	male		
.680	3.74	Female	Qualification	
0.72	3.59	Bachelor's		
0.63	4.15	Master's		
.620	4.20	Ph.D	Experience	
.470	4.10	Less than 5 years		
.720	3.59	From 5 to 10 years		
.680	3.74	More than 10 years		

It is noted from Table (7) that there are apparent differences between the computational circles in the degree of school administration’s use of artificial intelligence and its relationship to improving the performance of teachers and teaching in secondary schools in the Northern District due to the variables of the educational region, gender, and academic qualification, from the point of view of teachers in

the three areas individually (scale areas There are no differences due to the variables of specialization and years of experience. To determine the statistical significance of the apparent differences, a three-way multivariate analysis of variance (without interaction) (three-way MANOVA) was used, using the Hotelling's Trace test. Table (8) shows this.

Table 8: Results of the (Hotelling's Trace) test according to the variables (educational region, specialization, gender, educational qualification, and years of experience), in the estimates of the study sample members of the degree to which the school administration uses artificial intelligence and its relationship to improving the performance of teachers and teaching in secondary schools in the Northern District From the point of view of teachers in the three fields.

ETA box	Statistical significance	Degrees of freedom of error	Degrees of freedom	F	Value	Source
.006	.388	236.000	3.000	.492	.006	Educational district
.008	.579	236.000	3.000	.658	.008	Specialization
.006	.480	236.000	3.000	.490	.004	Sex
.008	.379	236.000	3.000	.658	.008	Qualification
.002	.926	236.000	3.000	.156	.002	Years of Experience

The results of the Hotelling's Trace test showed that there was a statistically significant effect of the variables, educational region, educational qualification, and specialization, on the study sample members' estimates of the degree to which the school administration used artificial intelligence and its relationship to improving the performance of teachers and teaching in secondary schools in the Northern District from the point of view of teachers in the three areas. Taken together, there is no statistically

significant effect of the educational region and specialization variables on the study sample's estimates of the degree to which school administration uses artificial intelligence and its relationship to improving teachers' performance and teaching in secondary schools in the Northern District.

To determine the statistical significance of the apparent differences in the three areas individually, a three-way analysis of variance was used, and Table (9) shows this.

Table 9: Results of a three-way analysis of variance for comparison between mathematical settings of the degree of school administration's use of artificial intelligence and its relationship to improving the performance of teachers and teaching in secondary schools in the Northern District from the point of view of teachers in the three areas individually according to the variables (educational region, specialization, gender of the respondent, qualification) academic level, and years of experience).

Statistical significance	F	Mean squares	Degrees of freedom	Sum of squares	Dependent variable	source
.871	.026	.014	1	.014	The first area: The role of artificial intelligence in providing support tools for teachers to improve their efficiency in the educational process.	Educational district
.698	.151	.059	1	.059	The second area: The use of artificial intelligence leads to digital learning.	
.252	1.321	.630	1	.630	The third area: The challenges that teachers face when using artificial intelligence in education.	
.523	.410	.209	1	.209	The first area: The role of artificial intelligence in providing support tools for teachers to improve their efficiency in the educational process.	Specialization
.666	.186	.073	1	.073	The second area: The use of artificial intelligence leads to digital learning.	
.834	.044	.021	1	.021	The third area: The challenges that teachers face when using artificial intelligence in education.	
.981	.001	.000	1	.120	The first area: The role of artificial intelligence in providing support tools for teachers to improve their efficiency in the educational process.	Sex
.438	.602	.236	1	.236	The second area: The use of artificial intelligence leads to digital learning.	
.444	.589	.281	1	.281	The third area: The challenges that teachers face when using artificial intelligence in education.	
.523	.410	.209	1	.209	The first area: The role of artificial intelligence in providing support tools for teachers to improve their efficiency in the educational process.	Qualification
.666	.186	.073	1	.121	The second area: The use of artificial intelligence leads to digital learning.	
.834	.044	.021	1	.021	The third area: The challenges that teachers face when using artificial intelligence in education.	
.981	.001	.000	1	.000	The first area: The role of artificial intelligence in providing support tools for teachers to improve their efficiency in the educational process.	Years of Experience
.438	.602	.236	1	.236	The second area: The use of artificial intelligence leads to digital learning.	
.444	.589	.281	1	.281	The third area: The challenges that teachers face when using artificial intelligence in education.	
		.511	238	121.603	The first area: The role of artificial intelligence in providing support tools for teachers to improve their efficiency in the educational process.	Error
		.392	238	93.407	The second area: The use of artificial intelligence leads to	

					digital learning.	
		.477	238	113.486	The third area: The challenges that teachers face when using artificial intelligence in education.	Total average
			241	121.882	The first area: The role of artificial intelligence in providing support tools for teachers to improve their efficiency in the educational process.	
			241	93.833	The second area: The use of artificial intelligence leads to digital learning.	
			241	114.572	The third area: The challenges that teachers face when using artificial intelligence in education.	

It can be seen from Table (9): The results of the study showed that there were statistically significant differences ($\alpha = 0.05$) due to the effect of gender in all areas, and the differences were in favor of females. The researcher attributes this result to the fact that female managers, due to multitasking, have developed positive attitudes and aspirations to achieve balance in order to avoid failure in their responsibilities. Therefore, they usually seek to achieve development, career growth, and professional maturity by acquiring the greatest possible amount of skills, especially the skills of using artificial intelligence applications in the environment. Schools are in sync with the requirements of digital transformation. The researcher attributes this result to the fact that there are cultural or social trends that enhance female support for the effective use of technology and artificial intelligence in education.

The results also showed that there were statistically significant differences ($\alpha = 0.05$) due to the effect of the educational region variable and in favor of the northern region. The researcher attributes this result to the fact that this region has all the equipment, technological resources, and devices necessary for artificial intelligence applications, in addition to the Internet infrastructure and the constant desire to For teachers in supplementary and training. While the southern region suffers from a lack of the most important resources, namely equipment and computers, not to mention the lack of Internet infrastructure.

The results showed that there were statistically significant differences between the mathematical circles in the degree of school administration's use of artificial intelligence and its relationship to improving the performance of teachers and teaching in secondary schools in the Northern District according to the academic qualification variable, and in favor of (Master's). The researcher attributes this result to the fact that teachers who hold a master's degree are more specialized in certain fields, which makes them more influential in those fields, and they may have a deeper understanding of how to use technology and artificial intelligence to develop teaching and learning skills in those fields. In addition, teachers who hold a master's degree may be abler to critically analyze new technologies, which contributes to their deep understanding of the benefits and challenges of using artificial intelligence in education, not to mention their knowledge of this field through their academic path.

The results also showed that there were no statistically significant differences ($\alpha = 0.05$) due to the impact of the specialization variable in all fields. The researcher attributes that the initiatives to use artificial intelligence are integrated and directed equally to all specializations, which reduces the differences in impact based on specialization. The researcher also attributes this result to the fact that teachers in all specializations are at the same level of support and training by the school administration regarding the use of artificial intelligence applications.

The results showed that there were no statistically significant differences ($\alpha = 0.05$) due to the effect of years of experience in all fields except the field of knowledge of information and data. This result can be attributed to the fact that knowledge and measuring it is a constructive process that grows with expertise and experience. The effect of years of experience among the sample members is evident in the construction of knowledge. . The researcher attributes this result to the administration's support for training teachers and providing resources to adopt technology, which may reduce any difference between levels of experience.

The result of this study is consistent with the result of Al-Qarinawi's study (2018), which showed that there were statistically significant differences ($\alpha = 0.05$) due to the effect of the variables of gender and educational qualification, each of which showed that the degree of school principals' use of artificial intelligence applications and administrative technology was high. This result differed from the study of Al-Shadaifat (2020), the study of Al-Anzi (2018), and Al-Sarayrah and Abu Hamid (2016), which showed that there were no statistically significant differences ($\alpha = 0.05$) due to the effect of the variables of specialization and years of experience.

Results of the third question: Is there a statistically significant correlation at the significance level ($0.05 \geq \alpha$) between the degree of school administration's use of artificial intelligence and the improvement of teachers' teaching performance in secondary schools in the Northern District from the teachers' point of view?

To answer this question, Pearson correlation coefficients were extracted between the degree of school administration's use of artificial intelligence and the improvement of teachers' performance in teaching in Arab secondary schools in the Northern District from the teachers' point of view, and Table (10) shows this.

Table 10: Pearson correlation coefficients between the degree of school administration's use of artificial intelligence and the improvement of teachers' performance in teaching in secondary schools in the Northern District from the point of view of teachers in those schools

Total	Improving the performance of teachers in teaching in secondary schools in the Northern District			School administration's use of artificial intelligence in teaching in secondary schools in the Northern District
	The challenges that teachers face when using artificial intelligence in education	The use of artificial intelligence leads to digital learning	The role of artificial intelligence in providing support tools for teachers to improve their efficiency in the educational process.	
-.356**	-.344**	-.400**	-.270**	The role of artificial intelligence in providing support tools for teachers to improve their efficiency in the educational process.
.615**	.603**	.624**	.523**	The use of artificial intelligence leads to digital learning.
.643**	.620**	.653**	.556**	The challenges that teachers face when using artificial intelligence in education.
.301**	.294**	.272**	.289**	Total

**Statistically significant at ($\alpha=0.05$).

**Statistically significant at ($\alpha=0.01$).

The results related to Table (10) showed the following: There are positive, statistically significant relationships with the areas of school administration's use of artificial intelligence in teaching in secondary schools in the three northern districts, individually and together (total). Accordingly, the level of improvement in the performance of teachers in teaching in Arab secondary schools in the Northern District increases with the increase in the level of school administration's use of artificial intelligence.

7. Conclusion

In conclusion, artificial intelligence (AI) plays a transformative role in education by providing helpful tools for teachers. AI helps teachers to be more productive and efficient in their teaching and pedagogical work by completing administrative work, improving access to resources, providing educational development insights, and supporting effectively manages educational lessons and provides personalized educational support. As technology develops, it is necessary to carefully integrate artificial intelligence and follow continuous educational development to ensure that it complements the teacher and not takes his place. Through it, teachers can manage the educational process more effectively through the use of artificial intelligence, which will ultimately help create a better environment for learning and achievement for their students.

Artificial intelligence has various effects on the performance of secondary school teachers, thanks to its ability to improve the management of educational lessons, enhance personal learning, complement administrative activities, enrich educational resources, and enhance educational development, all of which requires teachers to have the necessary training and qualifications to apply these technologies in the educational process more effectively. And complete effectiveness.

On the other hand, artificial intelligence faces several obstacles and ethical issues related to privacy and preserving personal information, and it is necessary to achieve a balance between preserving the basic human components of education and using artificial intelligence to support

teachers. As AI serves as a valuable partner in improving the quality of teaching and learning in secondary schools, professional and educational development with caution is necessary to ensure that teachers remain at the center of the educational process as AI develops and becomes more integrated into the educational landscape.

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