Teachers' Attitudes Toward Employing Artificial Intelligence for Students with Autism Spectrum Disorder

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ARTICLE INFO	ABSTRACT
	.The study examined the attitudes of teachers in Arab schools in the Triangle region of Palestine toward the use of artificial intelligence (AI) technologies for improving reading comprehension skills among students with autism spectrum disorder (ASD). It also investigated whether these attitudes varied according to gender, years of teaching experience, and academic qualification. A descriptive survey design was employed, and data were collected using a questionnaire developed based on the Technology Acceptance Model (TAM). The instrument consisted of 37 items distributed across four dimensions: perceived usefulness, perceived ease of use, behavioral intention, and perceived barriers.The study population included Arabic language and special education teachers working in Arab schools during the 2025/2026 academic year, with a total of 203 teachers participating in the study. The findings indicated that teachers demonstrated high and positive attitudes across all dimensions and at the overall level toward the integration of AI technologies in enhancing reading comprehension skills among students with ASD. These results reflect a positive professional awareness and a strong readiness to adopt AI-supported instructional practices.The results further revealed that there were no statistically significant differences in teachers' attitudes attributable to gender or academic qualification, while statistically significant differences were found according to years of teaching experience, in favor of more experienced teachers.The study concluded that teachers recognize the educational potential of artificial intelligence in supporting reading comprehension through individualized learning and immediate feedback, despite the presence of challenges related to digital infrastructure, technical support, and specialized professional training. Accordingly, the study recommends enhancing professional development programs for teachers in AI-supported Arabic language instruction and improving digital infrastructure in Arab schools to strengthen inclusive educational practices and better address the needs of students with autism spectrum disorder.

Keywords: Artificial intelligence; teachers' attitudes; reading comprehension; autism spectrum disorder; inclusive education. |

Introduction

The educational system has witnessed a growing integration of artificial intelligence technologies in recent years, as these systems have demonstrated superior capabilities in assessing learners' performance and tracking their progress compared to traditional assessment methods. Advances in deep learning algorithms and natural language processing have led to the emergence of educational software capable of providing personalized learning experiences, monitoring students' errors in real time, and designing adaptive activities aligned with learners' levels and progress. International reports, including the UNESCO report (2023), indicate that intelligent systems can effectively support personalized learning by directing learners toward appropriate activities at optimal times. Similarly, Snow et al. (2022) found that artificial intelligence contributes to the improvement of reading comprehension by enhancing inference skills and tracking reading errors.

In the Arab world, research has recently begun to examine the effects of artificial intelligence on the development of reading skills. Al-Shahri (2022) demonstrated a clear improvement in reading comprehension through the use of customized digital activities based on the analysis of students' performance. According to Al-Rashidi (2022), an Arabic reading platform supported by artificial intelligence enabled middle school female students to improve their ability to identify main ideas and understand relationships within texts. In a more recent study, Al-Maghouri (2024) showed that programs providing immediate feedback were effective in correcting reading errors among students with special needs, particularly when the activities were short and focused.

Arabic and international literature further indicates that artificial intelligence is of particular value for students with autism spectrum disorder. These students often experience difficulties in understanding linguistic relationships, shifting between explicit and implicit meanings, and maintaining attention during reading tasks. Al-Hattaliya and Al-Sharqawi (2024) reported positive outcomes when short intelligent activities were used to help children follow and interact with instructions. Suwaidan (2024) also showed that intelligent tools, when implemented within structured environments, support the gradual development of everyday language skills among children with autism. At the international level, Scassellati et al. (2018) observed improved interaction among children when educational robots relying on predictable communication patterns were employed, while Boucenna et al. (2014) and Pennisi et al. (2020) indicated that adaptive learning systems support language and reading development by providing a stable and structured learning environment.

Despite the availability of digital tools, their effective use largely depends on teachers' attitudes and readiness to integrate them into classroom practice. Teachers' daily instructional decisions determine whether these technologies are actively employed or remain underutilized. The Technology Acceptance Model (TAM), proposed by Davis, suggests that teachers' attitudes toward educational technology are influenced by their perceptions of its usefulness and ease of use. The Unified Theory of Acceptance and Use of Technology (UTAUT) further emphasizes that trust in technology and institutional support play a critical role in teachers' decisions to adopt digital tools. Teachers are more likely to integrate contemporary digital solutions effectively when they receive specialized training and when schools provide stable digital infrastructure.

In the Palestinian context, particularly in Arab schools in the Triangle area within the Palestinian interior, teachers face specific challenges, including curriculum pressure, limited availability of educational resources, and varying levels of institutional support, alongside the ongoing need for professional development in modern educational technologies. Although some promising local experiences with digital applications exist, the integration of artificial intelligence into classroom practice remains limited, especially in teaching Arabic to students with autism spectrum disorder. Research addressing teachers' attitudes toward the use of artificial intelligence in this context remains scarce, indicating a clear research gap that requires systematic investigation.

Accordingly, this study seeks to investigate how teachers in Arab schools in the Triangle area perceive the use of artificial intelligence in developing reading comprehension skills among students with autism spectrum disorder. It also aims to assess teachers' awareness of the educational value of these technologies and to identify the factors influencing their attitudes toward their adoption, including teaching experience, digital competencies, and institutional support. The significance of the study lies in its integration of three contemporary educational dimensions: artificial intelligence in education, inclusive education, and the development of reading comprehension as a fundamental component of linguistic and cognitive learning.

Employing artificial intelligence in teaching students with autism spectrum disorder represents a contemporary educational approach that seeks to move beyond one-size-fits-all instruction toward personalized learning models that respond to the individual needs of learners.

. However, the success of this approach in the Arab context depends on the extent to which teachers are prepared to adopt it and on their ability to balance the technical and human aspects of the educational process. Therefore, studying their attitudes toward this field is a practical necessity for developing Arab education, improving the quality of its outcomes, and achieving an inclusive educational vision that guarantees the right to learning for all.

This study also seeks to enrich Arabic educational literature by addressing a contemporary topic related to digital transformation in education within a local cultural and educational framework that reflects the reality of Arab schools in the Palestinian interior. It further aims to provide practical recommendations for decision-makers and educational supervisors to design targeted training programs for teachers in the field of employing artificial intelligence in language education, ensuring the development of reading comprehension skills among students in general and among those with autism spectrum disorder in particular, as an educational and human right no less important than any other element of the educational process.

Problem of the Study

Despite the rapid development of artificial intelligence in education and the opportunities it provides for personalizing learning and adapting it to learners' abilities, the educational reality in Arab environments still faces a clear gap between the theoretical potential of these technologies and their actual application in school settings. In Arab schools within the Palestinian interior, particularly in the Triangle area, the use of intelligent systems in education remains limited and fragmented, and does not reach the level of systematic integration

that would allow their capabilities to be fully invested in developing thinking, comprehension, and reading skills.

The learning gap for autistic students grows larger because they need customized teaching methods that address multiple sensory channels while respecting their unique learning needs. Teachers at these schools acknowledge the necessity of artificial intelligence for educational purposes; however, their actual understanding of intelligent system applications differs according to their work experience, educational background, available technological resources, and organizational guidance. Teachers demonstrate various degrees of acceptance toward artificial intelligence, ranging from hesitant support to active concern about its potential to replace teachers, which reflects the need to establish a deeper understanding of their professional and psychological readiness to use these technologies, particularly for language education.

Reading comprehension skills acquire particular importance in teaching the Arabic language because the language requires a gradual ability to analyze relationships between words and infer implicit meanings in texts due to its rich morphological and semantic structure. Educational literature demonstrates that students with autism spectrum disorder experience major difficulties in deep comprehension processes, including tracking semantic connections, interpreting indirect meanings, and sustaining attention during reading activities (Al-Sartawi et al., 2018).

The American Academy of Pediatrics (2023) reported that intelligent systems, including educational robots, interactive assistants, and adaptive platforms, lead to improved communication and attention skills among children with autism when they participate in brief activities adapted to their individual needs. The study by Scassellati et al. (2018) demonstrated that educational robots improved linguistic and social interaction for this group through structured learning environments that provided safe educational spaces for practicing social skills.

Findings published in *Frontiers in Psychology* (Boucenna et al., 2014) and the *Journal of Autism and Developmental Disorders* (Pennisi et al., 2020) indicate that intelligent systems support the development of reading and language skills among students with developmental disorders by providing learner-appropriate reading materials and supporting linguistic processing through immediate feedback. Educational technology research by Knight et al. (2023) and Chung and Chen (2022) further indicates that AI-enhanced adaptive systems help students with learning difficulties improve comprehension skills by creating individualized learning pathways based on diagnostic assessment outcomes.

These results are consistent with findings in Arabic literature, as Al-Sartawi et al. (2018) demonstrated that students with autism spectrum disorder require visual and interactive learning strategies based on gradual progression to enhance linguistic comprehension skills. Recent Arab studies—including Al-Khatib's (2021) research on the use of assistive technology for students with special needs—also demonstrate that intelligent tools enhance interaction with texts and support the development of reading comprehension skills.

Accordingly, evidence from both Arab and international research converges to confirm that employing artificial intelligence in teaching reading comprehension to students with autism spectrum disorder represents one of the promising trends, provided it is implemented within an organized educational framework that takes into account the characteristics of this group and their individual needs.

Based on the above, it can be said that the central problem this study seeks to address lies in the absence of a precise understanding of the nature of Arab teachers' attitudes in schools in the Triangle area toward employing artificial intelligence in developing reading comprehension among students with autism spectrum disorder, as well as the factors associated with these attitudes that may affect their readiness to adopt such modern educational practices. This knowledge gap appears clearly in local literature, which has often focused on integrating students with autism into general education or on teaching Arabic using traditional methods, without addressing the contemporary technological dimensions that have become a fundamental pillar in advancing modern education.

Accordingly, the problem of the study is represented in answering the following questions:

1.   What are the attitudes of teachers in Arab schools in the Triangle area within the Palestinian interior toward employing artificial intelligence in developing reading comprehension among students with autism spectrum disorder?

2.   Are there statistically significant differences in the attitudes of teachers in Arab schools in the Triangle area within the Palestinian interior toward employing artificial intelligence in developing reading comprehension among students with autism spectrum disorder attributable to the gender variable?

3.   Are there statistically significant differences in the attitudes of teachers in Arab schools in the Triangle area within the Palestinian interior toward employing artificial intelligence in developing reading comprehension among students with autism spectrum disorder attributable to the variable of years of experience?

4.   Are there statistically significant differences in the attitudes of teachers in Arab schools in the Triangle area within the Palestinian interior toward employing artificial intelligence in developing reading comprehension among students with autism spectrum disorder attributable to the academic qualification variable?

Study Hypothesis
1.   There are no statistically significant differences at the level ($\alpha \leq 0.05$) in the attitudes of teachers in Arab schools in the Triangle area within the Palestinian interior toward employing artificial intelligence in developing reading comprehension among students with autism spectrum disorder attributable to the variables of gender, years of experience, and academic qualification.

Objectives of the Study
This study seeks to achieve the following objectives:
1.   To identify the attitudes of teachers in Arab schools in the Triangle area within the Palestinian interior toward employing artificial intelligence in developing reading comprehension among students with autism spectrum disorder.
2.   The study aimed to find out how gender and academic qualification and years of experience work together to shape teacher attitudes in Arab schools through testing their reaction to artificial intelligence use for developing reading skills in students with autism spectrum disorder.

Significance of the Study
The significance of the study stems from the following aspects:

Theoretical Significance:
the theoretical importance of this study lies in its focus on a field that is still relatively new in Arabic literature, namely the integration of artificial intelligence in teaching the Arabic language to students with autism spectrum disorder. Recent Arabic studies, such as Al-Shahri (2022) and Al-Rashidi (2022), indicate that intelligent systems based on the immediate analysis of learners' performance help raise the level of reading comprehension by providing graduated activities and instructional materials that match students' abilities. The study by Al-Maghouri (2024) also showed that adaptive programs benefit students with special needs by improving their interaction with texts and their understanding of semantic relationships.
The study by Al-Hattaliya and Al-Sharqawi (2024) demonstrated that intelligent applications and interactive robots help students with autism spectrum disorder improve their attention span and social interaction. Research by Suwaidan (2024) confirmed that artificial intelligence creates personalized educational environments that are essential for students who experience linguistic challenges. By examining teachers' attitudes toward these technologies, the present study contributes to the development of a theoretical framework that explains how artificial intelligence can be utilized to teach reading comprehension in Arab school settings.

Practical Significance:
The practical significance of this study lies in its ability to provide information that can be utilized in designing training programs for teachers in Arab schools. Teacher training constitutes a fundamental requirement for the effective use of intelligent tools, as indicated by Al-Zaher (2022). Abdullah et al. (2021) demonstrated that continuous technical support increases teachers' readiness to experiment with new technologies in the classroom. Moreover, adaptive systems used in teaching reading comprehension in schools that include students with autism spectrum disorder help create individualized learning pathways that match students' unique capabilities, as shown by Al-Maghouri (2024). Accordingly, the results of this study provide educational supervisors and policymakers with essential information for developing training programs and establishing standards for integrating artificial intelligence into Arabic language instruction within inclusive learning environments.

Limitations of the Study
Temporal Limitations: The study was conducted during the first semester of the 2025/2026 academic year. This period represents the timeframe during which the research instrument was administered and the data were collected.

Spatial Limitations: The study was limited to Arab schools in the Triangle area within the Palestinian interior, as this region represents an Arab educational environment with specific cultural and educational characteristics.

Human Limitations: The study sample consisted of male and female teachers of Arabic language and special education working at the elementary, preparatory, and secondary levels in Arab schools in the Triangle area.

Thematic Limitations: The study focused on teachers' attitudes toward employing artificial intelligence in developing reading comprehension skills among students with autism spectrum disorder. These attitudes were examined according to four main dimensions: perceived usefulness, perceived ease of use, behavioral intention, and perceived barriers.

Operational and Conceptual Definitions

Teachers' Attitudes
Conceptual Definition: Teachers' attitudes refer to an acquired psychological readiness that shapes teachers' cognitive and emotional responses and guides their behavior toward a particular subject, either positively or negatively (Al-Zaher, 2022).

Operational Definition: In this study, teachers' attitudes refer to the cognitive and emotional stance adopted by teachers toward employing artificial intelligence in developing reading comprehension skills among students with autism spectrum disorder, as measured through the researchers' questionnaire, which consists of four dimensions: perceived usefulness, perceived ease of use, behavioral intention, and perceived barriers.

Artificial Intelligence
Conceptual Definition: Artificial intelligence refers to digital systems designed to process information and perform tasks that typically require human cognitive functions, such as learning from experience, analyzing data, making decisions, and responding to new situations with a certain level of accuracy and autonomy. The term denotes programs and algorithms that simulate human behavior in an organized and purposeful manner (Al-Maghouri, 2024).

Operational Definition: In this study, artificial intelligence refers to intelligent digital tools and systems used in teaching the Arabic language, particularly in developing reading comprehension skills among students with autism spectrum disorder. These tools include reading performance analysis programs, intelligent models that provide immediate feedback, adaptive activities that change according to students' levels, and platforms that enable teachers to monitor learners' progress in real time and adjust instruction based on individual needs.

Reading Comprehension
Conceptual Definition: Reading comprehension is a complex cognitive process through which readers interpret written texts, extract explicit and implicit meanings, and establish connections between the text, prior knowledge, and linguistic context (Snow, 2002). According to the National Reading Panel (2000), reading comprehension involves skills such as analysis, inference, identifying main ideas, and constructing an integrated meaning of the text.

Operational Definition : In this study, reading comprehension refers to students' ability to read Arabic texts and understand their meanings and purposes through interactive reading activities supported by modern educational technologies. Improvement in this skill was measured based on teachers' assessments of students with autism spectrum disorder.

Autism Spectrum Disorder
Conceptual Definition: Autism spectrum disorder is a neurodevelopmental disorder characterized by difficulties in verbal and nonverbal communication and social interaction, as well as restricted and repetitive patterns of behavior and interests, according to the Diagnostic and Statistical Manual of Mental Disorders (DSM-5) issued by the American Psychiatric Association (APA, 2013). The World Health Organization (WHO) notes that the manifestations of the disorder vary among individuals, which necessitates individualized educational approaches tailored to each learner.

Operational Definition: In this study, autism spectrum disorder refers to students who have been professionally diagnosed according to approved educational or medical criteria and who receive educational services within inclusive or special education programs. Students' reading performance was determined based on the assessments provided by the teachers participating in the study.

Previous Studies
Arabic Studies
Al-Sharqawi and Al-Subhi (2024) conducted their research through "The Effectiveness of Artificial Intelligence Tools in Developing Daily Life Skills among Individuals with Autism Spectrum Disorder" which established a systematic review to study all research articles published between 2020 and 2024. The researchers established specific inclusion criteria which restricted the review to studies that employed artificial intelligence as an independent research variable in experimental and quasi-experimental study designs. The analysis resulted in the selection of eight studies with a total of 65 participants aged between 6 and 20 years who participated in both Arab and international studies. The results demonstrated that all studies evaluated showed artificial intelligence tools which included educational applications and robots and Internet of Things systems benefits for enhancing daily living skills and increasing self-sufficiency in children. The review demonstrated that classroom and virtual space benefits from technology use which provides training opportunities for both flexible and remote access. The researchers recommended that institutions create an appropriate climate for tool implementation through development of actionable usage protocols which require training for teachers and parents on proper tool usage. The study found that researchers face challenges in interpreting results because they have to work with only a small number of studies which met the inclusion criteria

Ali and Abdel-Fattah (2024) conducted their investigation through their study The Role of Artificial Intelligence Applications in Training Children with Autism Spectrum Disorder in Light of the Sustainable Development Goals by performing a systematic study of research which investigated how intelligent technologies especially social robots function in diagnosing and training children with autism spectrum disorder. The researchers used descriptive inductive method which examined special education programs through a systematic study of current research that investigated tool application in special education. The researchers found that different technologies including deep learning applications and image recognition software and social robots proved effective in diagnosing behavioral patterns and enhancing communication abilities. Social robots in particular help children improve their spontaneous language skills while offering therapists new ways to communicate with patients which helps decrease their anxiety and emotional reactions to levels that match traditional therapy sessions. The evaluation demonstrated that these robots assist children in developing fundamental social skills which involve gesture comprehension and facial expression recognition and social interaction because they function as essential tools for developing social behavior in special education settings. The research connected these advantages to Sustainable Development Goals which include Goals 3 and 4 that focus on education and health because social robots represent a foundation for future development..

Al-Sharqawi and Al-Hattaliya (2024) conducted an experimental study which they titled "The Effectiveness of Artificial Intelligence Applications in Developing Expressive Vocabulary among Children with Autism Spectrum Disorder (Mahara Application as a Model)" to investigate how an artificial intelligence application affects expressive language development in children with autism spectrum disorder. The study involved ten children who were between five and seven years old and assigned to two equal groups which included an experimental group and a control group. The program used the "Mahara Application" as its instructional feedback method to teach vocabulary and expressive skills through its various training units. The researchers used several standardized tools which included the Stanford-Binet Intelligence Scale and the Gilliam Autism Rating Scale and a vocabulary scale. The experimental group showed significant improvement in their post-measurement results compared to their pre-measurement results which proved that the application directly enhanced their vocabulary knowledge. The follow-up measurement conducted two weeks later also showed that the effect persisted without decline which revealed that the acquired skills remained stable while the family training activities enabled their use in daily life. The researchers attributed this improvement to the application design which combines organized vocabulary repetition with engaging content for children and flexible training options which can be used outside formal sessions.

Al-Maghawri (2024) conducted an applied experiment through his study which tested an artificial intelligence-based educational program to enhance reading comprehension skills for deaf and hard-of-hearing students. The research used a quasi-experimental design which included a training program with twelve sessions that used digital tools including augmented reality applications and interactive media which contained HALO AR and ClassPoint and World Wall and GAMMA platform. The measurement tools included an intelligence test and a reading comprehension test developed by the researcher who created tests to measure three comprehension levels: literal and interpretive and creative. The sample included seven students who ranged in age from 11 to 13 years including students who were deaf and hard-of-hearing and students with different hearing loss levels. The results showed that the reading comprehension level at program start was low because literal comprehension ranked highest and interpretive comprehension came next and creative comprehension rated lowest. The program results showed significant reading comprehension improvement from pre- to post-measurement assessment. The follow-up measurement showed that the effect persisted after the end of training which demonstrated the program's ability to sustain long-term progress in children. The results further revealed that moderate or severe hearing impairment did not affect the improvement results which demonstrated the program's ability to produce equal positive outcomes.

Al-Sharqawi and Al-Hattaliya (2024) conducted a study called "Challenges of Employing Artificial Intelligence in Teaching Students with Autism Spectrum Disorder from the Perspective of Their Teachers" which examined to determine the difficulties teachers experience when they try to use artificial intelligence solutions to teach autistic students. The researchers conducted their research through a descriptive survey method which involved participants completing a 33-item questionnaire that measured four primary dimensions which included educational aspects and human resources and technical and material aspects and challenges related to the nature of the child. The measurement tool showed exceptional validity and reliability which increased the trustworthiness of the results that researchers obtained. The study included 64 special education teachers who taught autistic students and had professional experience that ranged from less than three years to more than six years. The findings showed that all challenges existed at a medium level between the various dimensions of autism student challenges the dimension which dealt with autism student characteristics presented the most difficulties. The educational aspect received the lowest ranking while technical and material challenges occupied the second position and human resources challenges followed after that. The results showed that there were no differences between gender and academic qualification, but teachers with more experience could recognize challenges better than those with less experience.

The research experiment conducted by **Al-Shahri in** 2022 under the title "An Artificial-Intelligence-Based Program for Developing Life Skills among Children with Autism Spectrum Disorder" aimed to investigate how artificial intelligence training programs impact the life skill development of autistic children. The study used a quasi-experimental design that created two equivalent groups from the sample which included ten children who fell within the age range of six to twelve years. The researcher employed standardized assessment tools that included an expanded life skills scale and an artificial-intelligence-based training program. The research team used Mann–Whitney testing and Wilcoxon testing as their data analysis methods to evaluate the study's hypotheses. The results showed that the experimental group outperformed the control group in their post-test results which demonstrated how the program successfully built daily living abilities. The experimental group showed significant progress between their initial and final assessments which demonstrated the program's training effects while the follow-up assessment confirmed that children continued to use their learned skills. The research results were explained by the program's structure which used an interactive artificial intelligence training system to help children practice their skills through organized and repeatable training sessions..

Foreign Studies

The researchers developed intelligent reading systems in their study which **Viverg et al. conducted during 2023** to fulfill the reading requirements of students. The study examined how effective an AI-supported adaptive system could track reader performance by measuring reading speed and error types and textual stimulus responses while adjusting text difficulty to match current learner proficiency. The researchers used an experimental methodology to study students who had reading difficulties and collected data about their performance which covered all reading comprehension levels. The results demonstrated that students showed considerable progress in both deep comprehension and their ability to analyze and understand difficult texts which required advanced analytical and inferential skills. The researchers found that adaptive intelligent systems function as effective reading tools because they help students with different reading abilities to achieve both basic and advanced reading proficiency.

Knight et al. (2023) conducted their research study through an advanced laboratory which specializes in learning science investigations and digital reading research. The research project aimed to test an intelligent system which recommends personalized reading strategies to students during their text reading activities based on scientific assessment of their reading performance data and reading behavior data and comprehension level data. The researchers in their study used a quasi-experimental design to investigate two different groups which included one group that tested the intelligent system and another group which followed traditional reading procedures. The system group showed major advancements in reading comprehension through their improved ability to analyze indirect text relationships and their deeper understanding of text structure. The research found that intelligent systems which steer students toward customized learning methods serve as an efficient method to assist readers who have difficulty choosing their optimal reading method..

The research conducted **by Chen and Chung (2022)** investigated how AI-based adaptive platforms influence the growth of reading skills. The platform was designed to accurately diagnose each student's level, identify reading weaknesses, and then propose customized training activities to address areas of deficiency. The sample included elementary school students who demonstrated distinct differences in their reading abilities. The application results showed improvement in accurate reading speed and in students' ability to interpret semantic relationships between sentences, in addition to an overall increase in reading comprehension levels. The study demonstrated that adaptive systems play a crucial role in developing personalized learning pathways which achieve better results than standard teaching methods.

The study by Pennisi et al. (2020) examined how interactive intelligent systems affect linguistic and social skill development in children with autism spectrum disorder. The researchers depended on learning environments which combined educational robots that delivered both verbal and nonverbal stimuli and permitted autism-specific interaction patterns through controlled and repeated learning activities. The results showed that participants improved their ability to maintain joint attention while their verbal communication skills developed and their ability to recognize social cues grew and their repetitive stereotypical behaviors decreased. The study found that intelligent systems provide special education programs with new capabilities because students achieve stable results while they develop their skills over time.

The study conducted **by Scassellati et al. (2018**) focused on educational robots which were created to teach autistic children through structured classroom environments that used short, graduated tasks. The study included children aged between six and ten years who experienced difficulties in communication and attention. The results showed that participants improved their communication skills through both verbal and nonverbal methods while their ability to maintain joint attention developed and their involvement in supervised activities increased. The researchers confirmed that educational robots create a safe learning environment which enables children with autism to develop skills that would take extended time to learn through traditional human interactions.

Boucenna et al. (2014) conducted a study which investigated how children with autism spectrum disorder interacted with educational systems that used AI-supported robots to teach social skills and attention. The

researchers used individual and group sessions to study children's robot interactions during structured activities while scientists collected data through laboratory recordings and researchers observed children's responses. The results showed that children exhibited higher levels of focus and attention, along with an increase in positive interactive behaviors and a decrease in signs of distraction. The study found that robots help individuals with autism to learn because they provide predictable and consistent patterns.

Commentary on Previous Studies

The combination of these two bodies of literature demonstrates that each research stream has analyzed a specific aspect of the topic. Recent Arabic and international studies have examined how artificial intelligence supports reading comprehension, while other studies have focused on its application with students with autism spectrum disorder, and a third group has examined teachers' attitudes toward technology without relating them to reading comprehension or the autism population. Despite the extensive literature on the subject, there remains no research study that investigates how teachers' attitudes toward artificial intelligence affect the improvement of reading comprehension among students with autism spectrum disorder, either in the Arab context or in the international context. The present study seeks to highlight this research gap, which warrants further investigation.

A review of Arabic and international literature shows that research on artificial intelligence in education has progressed significantly in recent years, including studies examining the impact of adaptive systems on the development of reading comprehension and the effectiveness of artificial intelligence with students with autism spectrum disorder, as well as studies analyzing teachers' use of educational technology. However, this body of literature reveals that these three elements have largely been examined separately and have not been integrated within a single analytical framework.

Recent Arabic studies, such as Al-Maghouri (2024), Al-Hattaliya and Al-Sharqawi (2024), and Suwaidan (2024), have demonstrated that intelligent systems effectively support the development of reading and communication skills among students with autism spectrum disorder. Nevertheless, these studies did not directly examine the use of artificial intelligence to improve reading comprehension for this specific group. Some focused on general reading skills, while others emphasized communication or attention, without integrating artificial intelligence and reading comprehension within the context of autism spectrum disorder.

Earlier Arabic studies that examined traditional language development programs for students with autism, conducted prior to the widespread use of intelligent systems, also reveal a research gap, as seen in the studies by Ali et al. (2019) and Abdel Aal et al. (2022). Although these studies provided important theoretical and technical foundations, they did not address the application of artificial intelligence in developing higher-level reading comprehension skills.

In recent international literature, studies such as Viberg et al. (2023), Knight et al. (2023), and Chung and Chen (2022) presented advanced adaptive reading systems that proved effective in developing deep reading skills. However, these systems were implemented with students in general education contexts and did not examine reading comprehension among students with autism spectrum disorder, nor did they link system outcomes to teachers' roles or attitudes toward using such systems. Similarly, international studies that addressed artificial intelligence with students with autism spectrum disorder—such as Scassellati et al. (2018), Boucenna et al. (2014), and Pennisi et al. (2020)—focused primarily on communication, behavior, and attention skills, without addressing reading comprehension or analyzing teachers' readiness to use these technologies.

In addition to this thematic gap, the literature reveals a methodological gap related to the limited examination of teachers' attitudes toward artificial intelligence in educational settings. Studies on attitudes—whether Arabic, such as Al-Zaher (2022), or international, such as Teo (2011) and Ifinedo (2017)—have focused on educational technology in general, without specifying reading comprehension or the population of students with autism spectrum disorder, and without considering local Arab contexts characterized by cultural and curricular specificity.

From a geographical perspective, there is a clear lack of studies addressing the use of artificial intelligence in education within Arab schools in the Palestinian interior. Research examining teachers' attitudes toward artificial intelligence in the Triangle area is particularly scarce, despite challenges related to infrastructure, training levels, and variations in institutional support, which are directly linked to teachers' behavioral intentions to adopt intelligent systems.

Accordingly, the research gap can be identified at multiple intersecting levels:
1.   most notably the absence of studies that directly investigate the role of teachers' attitudes toward artificial intelligence in improving reading comprehension among students with autism spectrum disorder..
2.   The lack of studies that combine teachers' attitudes with the use of intelligent systems in higher-level language skills.
3.   The scarcity of research addressing this topic within the Arab environment in the Palestinian interior, particularly in the Triangle area, which makes understanding teachers' attitudes a prerequisite before planning any practical implementation of these technologies in local schools.

Hence, the importance of the current study emerges as a direct response to this gap, as it brings together teachers' attitudes, artificial intelligence, reading comprehension, and the population of students with autism spectrum disorder within a local Arab educational context that has not been previously addressed in the literature.

Methodology and Procedures

Study Population and Sample

The study population consisted of (412) male and female teachers of special education and Arabic language in Arab schools in the Triangle area within the Palestinian interior during the 2025/2026 academic year. The questionnaire was sent to them electronically via a computerized link, and (203) male and female teachers responded, forming the actual study sample. This sample represents various categories of experience, academic qualification, and gender, making it suitable for the purposes of the analytical study. The number of respondents (203) represents a high response rate compared with similar survey studies. Table (1) shows the characteristics of the study sample according to the variables of gender, years of experience, and academic qualification.

Table 1: Distribution of Study Sample Members According to Their Variables

Variable	Category / Level	Number	Percentage
Gender	Male	67	33%
	Female	136	67%
	Total	203	100%
Years of Experience	Less than 5 years	43	21%
	5–10 years	53	26%
	10 years or more	107	53%
	Total	203	100%
Academic Qualification	Bachelor's degree	79	39%
	Master's degree	114	56%
	Doctorate	10	5%
	Total	203	100%

Study Instrument

The researchers developed a questionnaire whose construction was based on recent Arabic literature and specialized studies in artificial intelligence, reading comprehension, and teaching students with autism spectrum disorder, such as the study by Al-Shahri (2022) on developing reading comprehension using intelligent systems, the study by Al-Maghouri (2024) on the effectiveness of adaptive programs in teaching students with special needs, and the study by Al-Hattaliya and Al-Sharqawi (2024) which addressed the use of intelligent applications with children with autism spectrum disorder.

In its final form, the questionnaire consisted of (37) items distributed across (4) domains: perceived usefulness, which included (11) items; perceived ease of use, which included (9) items; behavioral intention, which included (8) items; and obstacles, which included (9) items.

Validity and Reliability of the Study Instrument

Construct validity of the study instrument was verified by examining Pearson correlation coefficients between the questionnaire items and the domains to which they belong, in addition to correlation coefficients between the items and the total score of the instrument. The results showed positive and statistically significant correlations between all items and their respective domains, with most correlation coefficients being significant at the level ($\alpha \leq 0.01$), indicating high construct consistency between the items and the theoretical dimensions they were designed to measure. Most items also achieved positive and statistically significant correlations with the total score of the instrument, while some values were not significant, which is expected in educational studies. Overall, the general trend of the correlation coefficients indicates that the instrument has an appropriate degree of construct validity and suitability for field application.

Table (2): Pearson Correlation Coefficients Between Questionnaire Items and Their Corresponding Domains

Item	Domain One	Item	Domain Two	Item	Domain Three	Item	Domain Four
1	0.650**	12	0.761**	21	0.477**	29	0.571**
2	0.662**	13	0.558**	22	0.633**	30	0.553**
3	0.541**	14	0.585**	23	0.692**	31	0.621**
4	0.703**	15	0.567**	24	0.546**	32	0.601**
5	0.552**	16	0.489**	25	0.798**	33	0.387**
6	0.594**	17	0.507**	26	0.674**	34	0.607**
7	0.596**	18	0.537**	27	0.712**	35	0.647**
8	0.614**	19	0.581**	28	0.711**	36	0.694**
9	0.662**	20	0.587**			37	0.606**
10	0.693**						
11	0.591**						

** Statistically significant at the significance level (α = 0.01)
* Statistically significant at the significance level (α = 0.05)

Table (2) shows the Pearson correlation coefficients between the questionnaire items and their corresponding domains, in addition to the corrected correlation coefficients between the items and the total score of the instrument. The results show that every item reached a positive correlation with its respective domain which achieved statistical significance while most items established valid statistical links to the overall score. The instrument items effectively measure their intended dimensions according to the study results which demonstrate acceptable construct validity for field use.

Instrument Reliability

Table (3): Reliability Coefficients of the Study Instrument Using Cronbach's Alpha

Dimension	Number of Items	Cronbach's Alpha	Level
Perceived usefulness	11	0.84	High
Perceived ease of use	9	0.75	Acceptable
Behavioral intention	8	0.80	High
Obstacles	9	0.76	Acceptable
Overall reliability of the instrument	37	0.75	Acceptable

The study instrument's reliability assessment used Cronbach's alpha coefficient, which evaluated internal consistency for each questionnaire domain and tested overall instrument reliability. The study found reliability coefficients that ranged from acceptable levels to high levels. The first domain achieved a reliability value of (α = 0.84), while the second domain reached (α = 0.75) and the third domain obtained (α = 0.80) and the fourth domain attained (α = 0.76). The overall reliability coefficient of the instrument reached (α = 0.75), which is considered acceptable in educational research and indicates that the questionnaire has an adequate level of internal consistency and can be relied upon for the purposes of the study and for measuring teachers' attitudes toward employing artificial intelligence in this study.

Statistical Analysis

The study adopted a set of statistical methods appropriate to the nature of the data and the research objectives. Arithmetic means and standard deviations were used to describe the attitudes of the sample members toward employing artificial intelligence. The independent-samples t-test was used to detect differences between means according to binary variables, and one-way analysis of variance (One-Way ANOVA) was used to identify differences between means according to multi-level variables, with the use of appropriate post hoc tests when statistically significant differences were found.

Presentation and Discussion of the Study Results
First: Presentation and discussion of the results related to the main research question, which states:

What are the attitudes of teachers in Arab schools in the Triangle area within the Palestinian interior toward employing artificial intelligence technologies in developing reading comprehension skills among students with autism spectrum disorder?

To answer this question, the researchers used arithmetic means and standard deviations for each study dimension and for each item of the study. The results are presented according to the total score of the domains, followed by the results of the items within each domain, as follows:

Table (4): Arithmetic Means and Standard Deviations for Each Dimension of Teachers' Attitudes in Arab Schools in the Triangle Area within the Palestinian Interior toward Employing Artificial Intelligence Technologies in Developing Reading Comprehension Skills among Students with Autism Spectrum Disorder

Dimension	Mean	Standard Deviation	Type of Attitude
Perceived usefulness	4.07	0.44	High
Perceived ease of use	3.96	0.46	High
Behavioral intention	4.07	0.45	High
Obstacles	4.04	0.47	High
Overall score	4.04	0.46	High

The results of the main question indicate that teachers' attitudes in the Palestinian interior toward employing artificial intelligence to improve reading comprehension among students with autism spectrum disorder were high at the overall level, with a general arithmetic mean of (4.04). All attitude dimensions also fell within the high level, particularly the dimensions of perceived usefulness and behavioral intention. This indicates teachers' awareness of the importance of artificial intelligence in supporting reading comprehension through

providing adaptive instructional activities that take individual differences into account, along with their actual readiness to employ these technologies in classroom practices.

The obstacles dimension recorded a high mean, reflecting teachers' professional awareness of the existence of challenges related to technical infrastructure and the need for specialized training, **without this negatively affecting their overall positive attitudes toward use**. The results of the study are consistent with findings reported in previous research, such as Al-Shahri (2022) and Al-Maghouri (2024), which confirmed that artificial-intelligence-based programs providing adaptive learning and immediate feedback contribute to improving reading comprehension skills. These results are also consistent with the findings of Al-Hattaliya and Al-Sharqawi (2024), which showed positive teacher attitudes despite awareness of technical challenges. In addition, the results support the findings of Suwaidan (2024), which indicated that intelligent tools enhance interaction among students with autism spectrum disorder, as well as the conclusions of international studies such as Scassellati et al. (2018) and Boucenna et al. (2014), which confirmed that intelligent systems provide structured learning environments that support the development of linguistic skills among this group.

The results further demonstrate consistency between teachers' attitudes and the conclusions of both Arabic and international studies regarding the usefulness of artificial intelligence in supporting reading and addressing learning difficulties. The findings also indicate increasing teacher awareness of the ability of technology to meet the needs of students with autism spectrum disorder, despite challenges related to school infrastructure. This underscores the importance of investing in professional training and developing digital infrastructure in Arab schools in the Palestinian interior to ensure an effective and sustainable transition toward artificial-intelligence-based educational practices.

The following presents the items of each study dimension:
First: Perceived Usefulness Dimension
Table (5): Arithmetic Means and Standard Deviations of Teachers' Attitudes in Arab Schools in the Triangle Area within the Palestinian Interior toward Employing Artificial Intelligence Technologies in Developing Reading Comprehension Skills among Students with Autism Spectrum Disorder on the Perceived Usefulness Dimension

Item	Item Statement	Mean	Standard Deviation	Level
1	Artificial intelligence helps improve the ability of students with autism to understand reading texts.	4.20	0.68	High
2	Artificial intelligence helps develop students' summarizing and inference skills.	3.85	0.74	Moderate
3	Artificial intelligence provides adaptive reading activities that suit students' different levels.	4.18	0.70	High
4	Artificial intelligence provides immediate feedback that helps students correct their reading errors.	3.90	0.72	Moderate
5	Artificial intelligence enhances students' motivation for learning and perseverance.	4.15	0.71	High
6	Artificial intelligence helps raise students' achievement in the field of reading comprehension.	4.08	0.73	High
7	Artificial intelligence helps students link texts to their prior experiences and understand context.	3.95	0.76	Moderate
8	Artificial intelligence provides opportunities for individualized learning that take into account differences among students.	4.22	0.67	High
9	Artificial intelligence enhances students' ability to think critically while reading.	4.00	0.75	Moderate
10	Artificial intelligence helps improve students' participation in classroom discussions related to texts.	4.07	0.70	High
11	Artificial intelligence helps students acquire new reading strategies in innovative ways.	4.14	0.68	High
Overall Score		**4.07**	**0.44**	**High**

The results shown in Table (5) indicate that teachers' attitudes toward the perceived usefulness of employing artificial intelligence in developing reading comprehension skills among students with autism spectrum disorder were high, with an overall mean of (4.07). Items related to providing individualized learning, offering adaptive reading activities, improving text comprehension, and enhancing students' motivation achieved the highest means, reflecting teachers' conviction in the ability of artificial intelligence to adapt instruction to the needs of this group. Teachers showed a moderate level of agreement regarding the use of AI tools at advanced reading levels, as reflected in items related to higher-level comprehension skills, including summarizing, inference, and critical thinking, as well as the provision of immediate feedback. This may be attributed to

teachers' limited hands-on experience or to the lack of specialized instructional or technological tools available in the school environment.

The research results are consistent with earlier studies cited in the literature, such as Al-Shahri (2022) and Al-Maghouri (2024), which showed that adaptive intelligent programs contribute to improving reading comprehension skills, as well as with Suwaidan (2024), which demonstrated that intelligent tools increase the engagement of students with autism spectrum disorder in classroom settings. The results of this study also align with findings from international research indicating that intelligent systems provide effective learning environments that support language interaction, while highlighting the need for careful instructional design when targeting advanced comprehension skills that require more complex language processing.

Overall, the results of this dimension indicate that teachers recognize artificial intelligence as a tool that enhances students' reading abilities at both basic and advanced levels, increases motivation and active learning, and supports personalized learning pathways tailored to the needs of students with autism spectrum disorder. . These positive attitudes are consistent with findings in Arabic and international literature, indicating an advanced level of teacher awareness of the potential of intelligent technologies, although some aspects—such as higher-order reading skills and immediate feedback—still require further training and practical experience in real school settings.

Second: Perceived Ease of Use Dimension
Table (6): Arithmetic Means and Standard Deviations of Teachers' Attitudes in Arab Schools in the Triangle Area within the Palestinian Interior toward Employing Artificial Intelligence Technologies in Developing Reading Comprehension Skills among Students with Autism Spectrum Disorder on the Perceived Ease of Use Dimension

Item	Item Statement	Mean	Standard Deviation	Level
1	Artificial intelligence tools are easy to use in the educational setting.	4.10	0.68	High
2	It is possible to learn how to use artificial intelligence tools quickly and easily.	4.05	0.70	High
3	Using artificial intelligence applications does not require advanced technical skills.	3.85	0.78	Moderate
4	Dealing with educational artificial intelligence platforms is clear and simple.	3.95	0.72	Moderate
5	It is easy to integrate artificial intelligence tools with usual teaching strategies.	4.00	0.74	High
6	Operating artificial intelligence applications requires little time and effort.	3.80	0.76	Moderate
7	Technical support can be obtained easily when using artificial intelligence applications.	3.90	0.73	Moderate
8	The design of artificial intelligence tool interfaces suits teachers' needs.	4.12	0.69	High
9	Using artificial intelligence does not complicate the course of the lesson.	3.92	0.71	Moderate
Overall Score		**3.97**	**0.46**	**High**

The results in Table (6) show that teachers' attitudes toward the perceived ease of use of artificial intelligence technologies in developing reading comprehension skills among students with autism spectrum disorder were high, with an overall mean of (3.97). Items related to the ease of using artificial intelligence tools, the speed of learning how to use them, and the suitability of interface design to teachers' needs achieved high means, indicating a general sense that these tools can be handled within the educational setting without major complexity. In contrast, some items related to the lack of need for advanced technical skills, the limited time and effort required to operate applications, and the availability of technical support were rated at a moderate level. This reflects variation in teachers' technical experience and differences in the level of digital readiness among schools. This can be explained by the existence of a gap between theoretical acceptance of technology and the reality of available infrastructure and institutional support. The research results match earlier research studies which were part of the file including Al-Hattaliya and Al-Sharqawi (2024) research which showed that users who received more training with technical support could better use intelligent applications. The results match Al-Maghouri (2024) research which showed that teachers experience less difficulty with adaptive program interfaces when they can understand the interface elements although teachers still require scheduled professional training to achieve effective and consistent program usage.

Overall, the results of this dimension reflect that teachers view artificial intelligence as a usable and applicable tool rather than a burden or a complicated element within the classroom lesson. These results intersect with Arabic and international literature indicating that ease of dealing with intelligent systems represents an important starting point for building positive attitudes and enhances teachers' intention to use artificial intelligence in sensitive educational contexts such as teaching reading comprehension to students with autism spectrum disorder.

Third: Behavioral Intention Dimension

Table (7): Arithmetic Means and Standard Deviations of Teachers' Attitudes in Arab Schools in the Triangle Area within the Palestinian Interior toward Employing Artificial Intelligence Technologies in Developing Reading Comprehension Skills among Students with Autism Spectrum Disorder on the Behavioral Intention Dimension

Item	Item Statement	Mean	Standard Deviation	Level
10	I intend to use artificial intelligence tools in my classes in the future.	4.15	0.70	High
11	I encourage my fellow teachers to benefit from artificial intelligence in teaching.	4.05	0.72	High
12	I am willing to try new artificial intelligence applications in teaching reading comprehension.	4.20	0.68	High
13	I allocate time to learn how to integrate artificial intelligence tools into my lesson plans.	3.95	0.75	Moderate
14	I am keen to attend future training sessions on using artificial intelligence.	4.00	0.74	High
15	I believe that integrating artificial intelligence will be part of my daily teaching practices.	3.90	0.77	Moderate
16	I commit to employing artificial intelligence if appropriate school resources are available.	4.12	0.69	High
17	I aspire to continuously develop my expertise in artificial intelligence to serve students.	4.18	0.67	High
Overall Score		**4.07**	**0.47**	**High**

e results for the behavioral intention dimension show that teachers had positive attitudes toward their intention to use artificial intelligence technologies for improving reading comprehension skills among students with autism spectrum disorder, with an average score reflecting a high level of readiness to employ these technologies in classroom teaching. The three items examined achieved high mean scores, indicating that participants moved from positive beliefs toward actual behavioral intention, as reflected in their responses regarding future use of AI tools, their integration into reading comprehension instruction, and their willingness to adopt new applications.

Some items, however, recorded relatively lower means, particularly those related to sustained commitment to use or expanding use in the absence of adequate training and institutional support. This indicates that behavioral intention is closely linked to the actual conditions of implementation within schools.

The research results are consistent with previous studies cited in the literature, including Suwaidan (2024), which demonstrated that students' interaction with intelligent tools enhances teachers' motivation to use them, as well as Al-Hattaliya and Al-Sharqawi (2024), which showed that teachers maintained high behavioral intention despite their awareness of technical and organizational challenges. This confirms that professional acceptance exists, but is contingent upon the availability of institutional support and specialized training.

Overall, the results indicate that teachers in the Palestinian interior exhibit a clear behavioral readiness to adopt artificial intelligence, based on strong beliefs in the effectiveness of these technologies and the ease of using them.

. This behavioral intention does not appear to be superficial or temporary, but rather is linked to professional aspiration and a desire for self-development, making the integration of artificial intelligence in teaching reading comprehension—especially for students with autism—more achievable provided that institutional support and appropriate training are available.

Fourth: Obstacles Dimension

Table (8): Arithmetic Means and Standard Deviations of Teachers' Attitudes in Arab Schools in the Triangle Area within the Palestinian Interior toward Employing Artificial Intelligence Technologies in Developing Reading Comprehension Skills among Students with Autism Spectrum Disorder on the Obstacles Dimension

Item	Item Statement	Mean	Standard Deviation	Level

1	Weak digital infrastructure in some schools hinders the use of artificial intelligence.	4.25	0.66	High
2	The scarcity of Arabic reading content supported by artificial intelligence limits its benefit.	4.18	0.69	High
3	Lack of professional training for teachers hinders the integration of artificial intelligence in education.	4.20	0.68	High
4	Limited time and heavy teaching workloads reduce opportunities to use these tools.	3.90	0.74	Moderate
5	Weak technical support reduces teachers' ability to use the tools effectively.	3.95	0.70	Moderate
6	The high cost of some applications constitutes an obstacle to their adoption in schools.	3.85	0.77	Moderate
7	Concerns related to students' data privacy limit trust in these tools.	4.05	0.72	High
8	The absence of clear ministry policies regarding the use of artificial intelligence in education.	4.10	0.70	High
9	Resistance to change among some teachers limits the spread of these practices.	3.88	0.75	Moderate
Overall Score		**4.04**	**0.46**	**High**

The results of the obstacles dimension show that teachers in the Palestinian interior are aware of real challenges that may affect their ability to employ artificial intelligence in teaching reading comprehension to students with autism spectrum disorder, as the overall mean was high (4.04), indicating that these obstacles are not merely theoretical but are reflected in actual school practice.

The most prominent obstacles included limited technological infrastructure, lack of specialized training, and weak continuous technical support, in addition to limited time and heavy teaching workloads. Despite the high rating of these obstacles, this was not associated with a decline in general attitudes toward using artificial intelligence; rather, it reflected professional awareness of the nature of the school reality and its requirements. These findings are consistent with previous studies included in the file, such as Al-Hattaliya and Al-Sharqawi (2024), which indicated that technical and organizational challenges are among the most influential factors in employing artificial intelligence with students with autism spectrum disorder, as well as Al-Maghouri (2024), which confirmed that the effectiveness of intelligent programs is linked to the availability of training and institutional support, rather than merely the availability of technology itself.

The findings demonstrate that educational obstacles function as actual barriers which restrict educational operations in Palestinian schools because they depict authentic understanding of existing school conditions. The dimension achieved a high level despite existing challenges because teachers understood obstacles yet maintained positive views about artificial intelligence which they wished to use when they received necessary supportive resources. This aligns with findings from studies such as Teo (2011) and Ifinedo (2017), which considered the availability of institutional support a fundamental factor in transforming behavioral intention into actual practice.

Second: Results Related to the Study Hypothesis and Their Discussion

There are no statistically significant differences at the level (α ≤ 0.05) in the attitudes of teachers in Arab schools in the Triangle area within the Palestinian interior toward employing artificial intelligence in developing reading comprehension among students with autism spectrum disorder attributable to the variables of gender, years of experience, and academic qualification.

To examine the validity of the hypothesis related to the variables of gender, years of experience, and academic qualification, the researchers used three-way analysis of variance. The results are shown in the following table:

Table (9): Results of Three-Way Analysis of Variance (3-Way ANOVA) for the Significance of Differences in Teachers' Attitudes in Arab Schools in the Triangle Area within the Palestinian Interior toward Employing Artificial Intelligence in Developing Reading Comprehension among Students with Autism Spectrum Disorder Attributable to Gender, Years of Experience, and Academic Qualification

Domain	Variable	Sum of Squares	Degrees of Freedom	Mean Square	F Value	Significance Level
Teachers' attitudes toward employing artificial intelligence in developing reading comprehension	Gender	0.010	1	0.010	1.246	0.266

Experience		0.036	2	0.018	2.136	0.121
Academic qualification		0.001	2	0.001	0.066	0.936
Gender × Experience		0.002	2	0.001	0.110	0.896
Gender × Academic qualification		0.009	2	0.005	0.553	0.576
Experience × Academic qualification		0.017	4	0.004	0.499	0.736
Gender × Experience × Academic qualification		0.021	4	0.005	0.630	0.642
Error		1.545	185	0.008		
Total		3238.218	203			
Corrected Total		1.668	202			

The results presented in Table (9) indicate that all statistical significance values for the study variables—gender (0.266), years of experience (0.121), and academic qualification (0.936)—were greater than the adopted significance level ($\alpha \leq 0.05$). This indicates that there are no statistically significant differences in teachers' attitudes in Arab schools in the Triangle area within the Palestinian interior toward employing artificial intelligence in developing reading comprehension among students with autism spectrum disorder attributable to the variables of gender, years of experience, and academic qualification.

The results also showed that the two-way interactions among the variables (gender × years of experience, gender × academic qualification, years of experience × academic qualification), as well as the three-way interaction (gender × years of experience × academic qualification), were not statistically significant, as all corresponding significance values exceeded (0.05). This indicates that the interaction of these variables together does not lead to substantial differences in teachers' attitudes toward employing artificial intelligence in developing reading comprehension among students with autism spectrum disorder.

Based on these results, the null hypothesis is accepted, as the statistical analysis did not demonstrate statistically significant differences attributable to gender, years of experience, academic qualification, or the interactions among them.

The outcome shows that teachers have similar attitudes toward artificial intelligence because they all recognize its educational value and because their training experiences produced identical outcomes.

Recommendations

• All teachers need ongoing professional development programs that focus on how to use artificial intelligence tools for teaching reading skills to students with autism spectrum disorder.
• Workshops and professional learning communities should provide spaces where teachers can share their experiences of integrating artificial intelligence technologies into their classrooms.
• Schools need improved digital infrastructure, including appropriate devices, reliable internet access, and technical support, to enable the effective use of intelligent tools.
• Arabic reading content should be developed using artificial-intelligence-supported materials that progress in levels of difficulty, address the needs of students with autism spectrum disorder, and enhance inference, analysis, and linguistic thinking skills.
• Intelligent Arabic reading applications should provide real-time feedback, enable teachers to monitor students' progress, and offer individualized learning activities that adapt to each learner's current performance level.
• Official authorities need to establish clear guidelines regulating the use of artificial intelligence in educational settings while protecting students' data privacy, in order to increase teachers' confidence in using these technologies.
• The role of educational supervisors should be strengthened to monitor the implementation of intelligent technologies in classrooms and guide teachers toward optimal use.
• Schools should gradually integrate artificial intelligence tools into their educational programs, while allocating dedicated time for teachers to learn how to use these technologies effectively.
• Cooperation among universities, research centers, and technology companies should be supported to develop Arabic learning resources that meet the needs of special education.

• Further studies should be conducted to assess the impact of artificial intelligence tools on reading comprehension, including comparative studies of different technologies and studies targeting other groups such as parents and educational supervisors.

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