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THE USE OF ARTIFICIAL INTELLIGENCE APPLICATIONS IN EDUCATION FROM HIGH SCHOOL TEACHERS' PERSPECTIVES: RISKS AND CHALLENGES

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ABSTRACT

The study aimed to identify some of the necessary requirements to reduce the risks and challenges associated with the use of AIAs in education. The descriptive correlational analytical method was used, and a questionnaire was applied to a sample of 393 teachers (207 M & 186 F) in Dakahlia Governorate, Egypt. The study results were that the risks of using AIAs in education were social and cultural, academic, and then psychological, in that order. Conversely, the challenges were academic, social and cultural, and then psychological. There are no differences in the dimensions of risks and challenges attributable to the gender variable, while there are differences in the dimensions of psychological risks and academic challenges based on the teachers' specialization, with a preference for those teaching scientific subjects. There were statistically significant differences based on the level of proficiency in using AIAs, favoring those with high proficiency, in the dimensions of academic risks, psychological risks, and the overall risk score. There were significant differences in the total risk score between teachers with moderate and low proficiency levels, in favor of those with moderate proficiency.

1. INTRODUCTION

The world has witnessed radical transformations thanks to rapid technological advancement, and artificial intelligence has become a driving force behind many fundamental changes in societies. The impact of artificial intelligence technology has extended to the education sector, where educational institutions are increasingly relying on the innovations provided by artificial intelligence instead of traditional methods to enhance the efficiency of the educational process.

Artificial intelligence is considered a fundamental pillar of knowledge aimed at studying how the mind works through the collaboration of specialists in cognitive psychology, neuroscience, linguistics, anthropology, and philosophy of mind, in addition to intelligence (Al-Yamahi, 2021). The move towards using artificial intelligence to mimic human intelligence and explore its mental abilities is an effort to better understand how the human mind works, seeing it as a complex system with unique features that connect in specific ways (Al Saud, 2017). There is a global and societal trend toward heavily relying on these applications in most fields (Shehata & Ahmed, 2021). Using artificial intelligence in education relies on various principles from related sciences and research, as well as the ability to tackle challenges in the education system and create new teaching and learning methods.

UNESCO emphasized the importance of disseminating artificial intelligence technology in education to enable effective collaboration between humans and machines in life and learning, work, and the development of new teaching and learning solutions (UNESCO, 2019). Artificial intelligence has several advantages, including its use in problem-solving in the absence of complete information and the ability to think and perceive, as well as utilizing past experiences and applying them in new situations (Mohammed, 2021; Al-Otaibi et al., 2019).

In addition to the ability to represent knowledge through a special structure to describe knowledge with the aim of providing as much information as possible about the problem for which a solution is sought (Al-Astal et al., 2020) (Al-Sharqawi, 2023). Symbolic representation involves using symbols to express available information, and it resembles the way humans represent information in their daily lives (Al-Faraj, 2024). One of its most important advantages is that it operates at a consistent scientific level without fluctuation while also focusing on generating new innovative ideas, compensating for experts, and eliminating human feelings of fatigue and boredom (Muqatil & Hosni, 2021). In addition to

its ability to learn, analyze language, understand images, analyze pictures and videos, move robots, explain academic subjects, and provide immediate feedback on answers, it also offers academic advice and guidance to students on the best department to join in college that aligns with their mental abilities (Mohammed, 2021; Zidan, 2023).

Despite the numerous features and advantages of artificial intelligence, there are some potential risks associated with its use in the educational process. General concerns have emerged regarding the ethical risks associated with it, which include the risk to the security of educational data, the risk of dismantling the structure of the teacher-student role, educational inequality, and the risk of deviating from achieving educational goals (Bu, 2022). Using student and teacher data for non-educational purposes poses significant risks. The inequality and the lack of digital literacy among teachers create an unequal educational environment compared to teachers who benefit from these opportunities (Ozar, 2024). In addition to diminishing the teacher's role in actual classrooms and reducing personal interaction between the student and the teacher, students can become addicted to technology, which can harm them instead of helping them (Kengam, 2020) (Karan & Angadi, 2024). One of the dangers of technology is its potential for malicious use, particularly with the rise of fake media and misinformation (Qaya, 2023). Additionally, the spread of unemployment occurs as these technologies replace workers performing their tasks, leading to fewer job opportunities (Al-Garni & Imran, 2021). There is also the risk of AIAs mimicking human behavior, as poorly selected training sets can lead to algorithms generating human concepts that they attempt to escape from (Mira & Al-Attabi, 2019; Al-Amiri, 2024).

Artificial intelligence faces challenges such as the high cost of infrastructure and the lack of financial allocations necessary for maintaining devices and communication networks, as well as low wages and incentives that limit educational institutions' ability to attract qualified human resources to handle these applications (Inaya, 2023; Harry, 2023).

1.1. Study Problem:

Despite the growing global interest in activating the use of artificial intelligence applications in educational institutions, many studies have pointed out numerous obstacles facing the employment of artificial intelligence in education. The study by Abdel-Rahim & Hassanain (2022) pointed to weak infrastructure, the dangers of simulating human behavior, and security and legal breaches. The study

by Obaid et al. (2023) clarified that AIAs might yield unreliable results when attempting to analyze complex data, leading to incorrect conclusions that diminish their credibility. Mohammed's study (2023) highlighted the issue of students' limited capacity for critical and creative thinking, which can lead to academic and literary plagiarism.

Ahmed's study (2023) found that some AIAs, like ChatGPT, often struggle to grasp the meaning behind questions, which can lead to wrong answers and a lack of real-life examples. The study by Drar (2019) reported a deficiency in strict ethical policies for artificial intelligence and robots. It recommended holding workshops aimed at raising awareness among individuals and society about the risks of AIAs and developing a strategic plan for ethical policies in artificial intelligence. Al-Dahshan (2020) emphasized the importance of establishing an ethical charter for the use of artificial intelligence technologies to mitigate negative impacts.

The current study aimed to identify some of the necessary requirements to mitigate the risks and challenges of using artificial intelligence applications in education.

The main question of the study: How can the risks and challenges of using artificial intelligence applications in education be mitigated?

1.2. Sub-Questions:

1. What is the reality of secondary school teachers' perception of the risks and challenges of using artificial intelligence applications in education?
2. What are the statistically significant differences in the risks and challenges of using AIAs in education attributed to the gender (male/female)?
3. What are the statistically significant differences in the risks and challenges of using artificial intelligence applications in education that are attributed to specialization (scientific subjects/literary subjects)?
4. What are the statistically significant differences in the risks and challenges of using artificial intelligence applications in education attributed to the proficiency level in using artificial intelligence applications (high, medium, low)?

The importance of studying is determined as follows:

1. The importance of the topic addressed by research, as artificial intelligence is a fundamental pillar of knowledge in the educational field. It provides students with the opportunity to solve many problems and make a qualitative leap in the educational field, facilitating their access to knowledge and enabling them to acquire it at any time.
2. Students and teachers may benefit from using artificial intelligence applications in self-learning to generate creative and innovative ideas.
3. This study may contribute to establishing a set of requirements to mitigate the risks and challenges of using AIAs in education and their ethics.
4. Raising students' awareness of the risks and challenges of using artificial intelligence applications in education.

2. LITERATURE REVIEW

Some studies have addressed the necessity and importance of using artificial intelligence applications in the educational process and the resulting advantages (Darwish & Al-Laythi, 2020; Abdulqader, 2020; Gocen & Aydemir, 2020; and Al-Zuhairi et al., 2021). Some studies have indicated the necessity of employing AIAs in developing teaching skills and evaluating students (Waqad, 2024; Mahdi et al., 2023; and Neha, 2020). Several studies have confirmed the ethical and legal challenges associated with the use of AIAs in education, such as (Seo et al., 2021; Ahmad et al., 2020; Mousa, 2024; and Al-Hanaki & Al-Harthi, 2023).

Other studies have reached the conclusion of establishing an ethical charter for the use of artificial intelligence in the educational process, including the studies by (Al-Makawi, 2023; Suleiman & Al-Deeb, 2024). Al-Otaibi (2024) examined the reality of employing artificial intelligence tools in early childhood education. Some studies agree on the effectiveness of using some AIAs in the educational process, such as the ChatGPT application, including the studies by (Mohammed, 2023; Castillo et al., 2023; and Tajik & Tajik, 2023).

Some studies addressed the risks associated with using ChatGPT as one of the AIAs in education, including the studies by (Elisa et al., 2023; Shazhaev et al., 2023; and Fuchs 2023).

The information presented above clearly shows that there are diverse opinions and differences concerning the use of AIAs in education. This variation prompted researchers to explore the perspectives of secondary school teachers regarding the risks and challenges of utilizing AIAs in education.

3. METHODOLOGY

The study used the descriptive correlational analytical method to identify the most important risks and challenges of high school students' use of artificial intelligence applications in education from the teachers' perspective and to determine the differences regarding the risks and challenges in light of variables (gender, specialization, and proficiency in using artificial intelligence applications) to reach the requirements for mitigating the risks and challenges of using artificial intelligence applications in education. The study population consists of all teachers in general secondary education schools in Dakahlia Governorate, Egypt, totaling 4,965 teachers (Education Administration Statistics 2024).

Before conducting the research, the researcher's facilitation letter was obtained from the faculty of education, Mansoura University, and approval was obtained for the ethics of applying the study tools to the research sample [MANS-EDU-2024-105], in accordance with the faculty's regular procedures. All teachers in the study sample signed written consent to participate without obligations, with the assurance that they could withdraw at any time without liability.

The number of valid questionnaires for analysis is 393, which is an appropriate sample size for the study population according to Krejcie & Morgan (1970). The sample consisted of 207 males and 186 females (219 scientific, 174 literary), and their proficiency in using artificial intelligence applications (16 low, 225 medium, 132 high). We applied a questionnaire using a five-point Likert scale (strongly disagree = 1, strongly agree = 5). 13 judges reviewed the questionnaire. The final version of the questionnaire consisted of two axes. The first axis was the risks associated with the use of artificial intelligence applications in education, which included three dimensions: academic risks (statements 1-8), psychological risks (9-17), and social and cultural risks (18-26). The second axis is for the challenges associated with using artificial intelligence applications in education; it includes three dimensions: academic challenges (statements 1-10), psychological challenges (11-19), and social and cultural challenges (20-28). The validity of the questionnaire was verified, with correlation coefficients between the items and their dimensions in the risk axis ranging from 0.505 to 0.807 and in the challenges axis from 0.434 to 0.840. The correlation degree of each dimension with the overall score for the risk axis ranged between 0.684 and 0.737, and for the challenges axis between 0.721 and 0.755, all of which were statistically significant at 0.05. The reliability of the questionnaire was calculated using Cronbach's alpha, and the value of the overall Cronbach's alpha coefficient for the questionnaire was 0.921, which is a high and statistically acceptable reliability value.

4. RESULTS

To determine the level of agreement for the relative weights of the five-point Likert scale, the following ranges were adopted: very low (1-1.80), low (more than 1.80-2.60), medium (more than 2.60-3.40), high (more than 3.40-4.20), and very high (more than 4.20-5).

Results of the first question: The results of the first question address the reality of high school teachers' awareness regarding the risks and challenges associated with using artificial intelligence applications in education.

Table 1: The Arithmetic Mean, Ranking, And Level Of Agreement For The Dimensions Of The Reality Of The Risks Of Using Aias In Education From The Teachers' Perspective (N=393).

Dimension	Mean	Standard Deviation	Order	Approval Level
Academic risks	3.90	0.361	2	High
Psychological risks	3.83	0.368	3	High
Social and cultural risks	4.04	0.348	1	High
The overall average risk	3.92	0.256	-	High

Table 1 shows that the average dimensions of the axis of the reality of the risks of using artificial intelligence applications in education, from the perspective of a sample of secondary school teachers, ranged between 3.83 and 4.04, with an overall average of 3.92, which are high values for the risks of using artificial intelligence applications in education. Social and cultural risks ranked first with an average of 4.04, followed by academic risks (3.90), and psychological risks ranked third (3.83).

Table 2: Means, Rank, And Level Of Agreement For The Dimensions Of The Axis On The Reality Of Challenges In Using Aias In Education From The Perspective Of Teachers (N=393).

Dimension	Mean	Std.	Order	Approval Level
Academic challenges	4.15	0.333	1	High
Psychological challenges	4.05	0.345	3	High

Social and cultural challenges	4.11	0.346	2	High
The overall average challenges	4.09	0.252	-	High

The Overall Average Challenges 4.09 0.252 High

Table 2 shows that the average dimensions of the axis of the reality of challenges in using artificial intelligence applications in education, from the perspective of a sample of secondary school teachers, are 4.05 and 4.15, with an overall average of 4.09, which are high values. Academic challenges ranked first with an average of 4.15, followed by social and cultural challenges 4.11, and psychological challenges ranked third with an average of 4.05.

Results of the second question: What are the statistically significant differences in the risks and challenges of using artificial intelligence applications in education attributed to the gender variable (male/female)?

Table 3: T-Values The Difference Between The Average Responses Of The Study Sample According To The Gender Variable On The Two Axes Of The Questionnaire (N=393).

Axes	Dimension	G.	N.	Mean	Std.	T-value	DF	Sig.
First: risks of using artificial intelligence applications in education attributed	Academic risks	M	207	3.90	0.362	0.159		0.874
		F	186	3.90	0.360			
	Psychological risks	M	207	3.83	0.371	-0.358		0.720
		F	186	3.84	0.366			
	Social and cultural risks	M	207	4.04	0.354	0.171		0.864
		F	186	4.04	0.342			
	The overall average risk	M	207	3.92	0.257	-0.019		0.984
		F	186	3.92	0.256			
Second: challenges of using artificial intelligence applications in education attributed	Academic challenges	M	207	4.10	0.335	-0.826	391	0.409
		F	186	4.13	0.331			
	Psychological challenges	M	207	4.04	0.344	-0.502		0.616
		F	186	4.06	0.346			
	Social and cultural challenges	M	207	4.09	0.349	-1.452		0.147
		F	186	4.14	0.340			
	The overall average challenges	M	207	4.08	0.250	-1.255		0.210

All values are not significant at 0.05.

Table 3 shows the absence of statistically significant differences between the mean response scores of teachers (males and females) in the two axes of the questionnaire (risks and challenges) in their sub-dimensions; all t values are not statistically significant.

Results of the third question: What are the statistically significant differences in the risks and challenges of using artificial intelligence applications in education attributed to the variable of specialization (scientific subjects/literary subjects)?

Table 4:"T" Values The Difference Between The Mean Responses Of The Study Sample According To The Specialization Variable On The Two Axes Of The Questionnaire (N=393).

Axes	Dimension	Specialization	N.	Mean	Std.	T-value	DF	Sig.
First: risks of using artificial intelligence applications in education attributed	Academic risks	S.	219	3.92	0.366	0.068		0.286
		L.	174	3.88	0.354			
	Psychological risks	S.	219	3.87	0.367	2.225		0.027
		L.	174	3.79	0.365			
	Social and cultural risks	S.	219	4.03	0.361	-0.515		0.607
		L.	174	4.05	0.332			
	The overall average risk	S.	219	3.94	0.257	1.330		0.184
		L.	174	3.90	0.254		391	
Second: challenges of using artificial intelligence applications in education attributed	Academic challenges	S.	219	4.14	0.320	2.157		0.032
		L.	174	4.07	0.345			
	Psychological challenges	S.	219	4.04	0.325	-0.952		0.342
		L.	174	4.07	0.369			
	Social and cultural challenges	S.	219	4.11	0.357	-0.319		0.750
		L.	174	4.12	0.332			
	The overall average challenges	S.	219	4.10	0.246	0.364		0.716
		L.	174	4.09	0.261			

All Values Are Not Significant At 0.05.

Table (4) shows that there are statistically significant differences in the mean response scores of the study sample regarding psychological risks and academic challenges, specifically favoring science teachers who had a higher mean score. The t-values were statistically significant at 0.05 with 391 degrees of freedom. There are no statistically significant differences between the other dimensions of the questionnaire axes and the overall score of the axes attributed to the variable of specialization, as all t-values were not statistically significant.

Results of the fourth question: What are the statistically significant differences in the risks and challenges of using artificial intelligence applications in education attributed to the variable of proficiency level in using artificial intelligence applications (high, medium, or low)?

Table 5: One-Way ANOVA For The Means Of The Study Sample Scores According To The Variable Of Proficiency In Using Artificial Intelligence Applications For The Questionnaire.

Axes	Dimension	Source of variation	Sum of squares	DF.	Means squares	F-value	Sig.
First: risks of using artificial intelligence applications in education attributed	Academic risks	Between G.	0.973	2	0.487	3.796	0.023
		Within G.	49.987	390	0.128		
		Total	50.960	392	-		
	Psychological risks	Between G.	1.065	2	0.532	3.988	0.019
		Within G.	52.050	390	0.133		
		Total	53.114	392	-		
	Social and cultural risks	Between G.	0612	2	0.306	2.547	0.080
		Within G.	46.839	390	0.120		
		Total	47.451	392	-		
	The overall average risk	Between G.	0.865	2	0.432	6.796	0.010
		Within G.	24.808	390	0.064		
		Total	25.672	392	-		
Second: challenges of using artificial intelligence applications in education attributed	Academic challenges	Between G.	0.038	2	0.019	0.172	0.842
		Within G.	43.388	390	0.111		
		Total	43.426	392	-		
	Psychological challenges	Between G.	0.081	2	0.041	0.340	0.712
		Within G.	46.560	390	0.119		
		Total	46.641	392	-		
	Social and cultural challenges	Between G.	0.283	2	0.142	1.187	0.306
		Within G.	46.543	390	0.119		
		Total	46.826	392	-		
	The overall average challenges	Between G.	0.283	2	0.042	0.654	0.521
		Within G.	24.903	390	0.064		
		Total	24.986	392	-		

All values are not significant at 0.05.

Table 5 shows that there are no important differences in the average scores of the study group based on how well they use artificial intelligence applications (high, medium, or low) regarding academic and psychological risks, as well as the overall risk score. F-values are statistically significant at (0.05). There are no statistically significant differences between the mean scores of the study sample according to the variable of proficiency in using artificial intelligence applications in the dimension of social and cultural risks, as well as in the challenges axis with its sub-dimensions, where all F values are not statistically significant. F-values are statistically significant at 0.05. There are no statistically significant differences between the mean scores of the study sample according to the variable of proficiency in using artificial intelligence applications in the dimension of social and cultural risks, as well as in the challenges axis with its sub-dimensions, where all F values are not statistically significant. And since the F-ratio is statistically significant in some dimensions, it is necessary to determine the direction of these differences. We conducted multiple comparisons (post hoc) between the study sample's mean scores and the variable of proficiency in using artificial intelligence applications. To determine the direction of the differences, the Scheffe range for the means was used.

The Scheffe range was used because it is not significantly affected by deviations from the basic assumptions (normality & homogeneity) or by the inequality of groups. We used the Scheffe range because deviations from basic assumptions (normality & homogeneity) or group inequality do not significantly affect it. The Scheffe method determines the overall experimental error for all possible comparisons of mean pairs and for any other potential comparisons between means. For this reason, it is called the most conservative method, which increases the power of the "Shive" method or test compared to other methods (Murad, 2000, 286).

Table 6: Values Of The Scheffe Test For The Direction Of Differences Between The Means Of The Study Sample Scores According To The Variable Of Proficiency In Using Aias In The Dimensions Of Academic And Psychological Risks And The Overall Score For The Risk Dimension.

Axes	Means	Proficiency level in using APAs	Mean Differences		
			Low	Medium	High
Academic risks	3.77	Low (N=36)	--		
	3.89	Medium (N=225)	-0.117	--	
	3.95	High (N=132)	-0.180*	-0.063	
Psychological risks	3.69	Low (N=36)	--		
	3.83	Medium (N=225)	-0.145	--	
	3.88	High (N=132)	-0.194*	-0.048	
The overall average risk	3.80	Low (N=36)	--		
	3.92	Medium (N=225)	-0.118	--	
	3.97	High (N=132)	-0.172*	-0.054	

*** Significant at 0.05.**

Table 6 shows that there are statistically significant differences between the average scores of those with low and high proficiency in using artificial intelligence applications in (academic risks, psychological risks, overall risk score) in favor of those with high proficiency (higher average), which are (3.95, 3.88, 3.97), respectively. There are statistically significant differences between the mean scores of those with a low and medium proficiency in using artificial intelligence applications in the (overall risk score) in favor of those with medium proficiency (higher mean = 3.97). There are no statistically significant differences between the mean scores of those with different levels of proficiency in using artificial intelligence applications in the other pairs in the dimensions where the variance analysis indicated the presence of differences.

4. DISCUSSION

The results of the first question from the teachers' perspective indicated that social and cultural risks ranked first among the risks and challenges of using artificial intelligence applications in education. Among the most prominent social and cultural risks highlighted by the results are the formation of global communities based on a unified cultural model, the marginalization of local cultures and languages, the changing role of parents towards their children, the disruption of students' value systems, the alteration of students' sense of belonging, and the exposure of students to inappropriate cultural content. These results can be interpreted as high school teachers being significantly aware of the impact of artificial intelligence on cultural values, beliefs, and the customs of both society and individuals. This effect is natural and noticeable in AIAs that encompass all cultures and showcase cultural diversity without considering cultural specifics. Teachers are likely aware of the risks of students using artificial intelligence applications in education because they fear it will impact the student's cultural identity, gradually weakening it through continuous exposure to global cultural content that is not ethically regulated and disregards the cultural differences of societies. When students link diverse cultural content to the scientific content they seek through artificial intelligence applications, the severity of these challenges escalates.

Also, when students encounter cultural content that is not part of their local culture, it often surfaces incidentally during their search for scientific information. This finding is consistent with Fouad (2023). The absence of parental supervision may increase the risk of cultural diversity impacting the cultural specifics of students, which could alter the identity of some communities. Reliance on artificial intelligence applications in education may significantly weaken the social relationships between students and teachers, diminish the value of appreciation and respect for teachers in the eyes of students, and sometimes lead students to enjoy obtaining information that they use to challenge teachers, portraying teachers in a way that may undermine their academic value. This result is consistent with Al-Otaibi (2024), which indicated that artificial intelligence contributes to the disintegration of human relationships within the school environment due to the decline in human interaction and internet addiction. It may also exacerbate the social isolation of students (Hamouda, 2019; Bedaiwy et al., 2021)

Academic risks came in second place. Among the most prominent academic risks from the teachers' perspective were the teachers' inability to manage classrooms effectively, violations of copyright and intellectual property rights, the limited use of higher order thinking skills by students, the threat to the job security of teachers working in the education sector, and the poor academic performance of students. These risks indicate that teachers are well aware of issues such as academic cheating by students, scientific plagiarism in research and homework

through certain applications, the decline in students' thinking and research skills due to reliance on technology, and the challenges in accurately assessing the true abilities of students who use artificial intelligence tools that offer ready-made research and homework solutions. Teachers did not prioritize academic risks, perhaps because they believe these risks can be controlled through clear policies, the use of plagiarism detection programs, and oral questioning and observing the student's progress and class participation. This result aligns with Fouad (2023), which indicated that teachers consider AIAs a potential source of academic underachievement due to the ease of accessing ready-made information and that excessive reliance on AI leads to a decline in students' critical thinking skills.

Regarding psychological risks, they ranked third to last from the teachers' perspective. This result may be due to a lack of awareness or insufficient training regarding the psychological impact of technology on students. The psychological effects that may occur on students within the classroom require teachers to have strong observational skills to detect them, as well as the ability to interpret the visible behaviors of students during their interaction in scientific activities. This result aligns with Hamouda (2019), which found that teachers often underestimate the psychological effects of using artificial intelligence on students in the long term and its impact on students' isolation cases. The psychological effects are gradual and do not clearly appear in the school environment, making them less noticeable to teachers.

Regarding the teachers' perspective, the challenges of using artificial intelligence applications in education are ranked as follows: academic challenges first, followed by social and cultural challenges, and finally psychological challenges. This ranking might be because academic challenges are closely tied to the learning process, and their effects are easy to see, like students not participating in class, teachers and students not knowing enough about using AI in education, the many different AI tools available, their regular updates, students struggling with critical thinking and problem-solving, depending only on the information they get, teachers finding it hard to evaluate students' real performance through assignments, and the low quality of educational results. Several teachers indicated that reliance on artificial intelligence weakens students' ability to think and analyze due to their direct dependence on technology. As for the psychological challenges, they came in last place, perhaps because

psychological effects may be indirect and manifest over a long period, which reduces teachers' current awareness of them.

The results of the second question, which addressed the statistically significant differences regarding the risks and challenges of artificial intelligence applications in education according to the gender variable. The results of table (3) indicated that there were no statistically significant differences between the mean response scores of teachers (M. & F.) in the two axes of the questionnaire with their sub-dimensions. All t. values were not statistically significant. This can be explained by the fact that all teachers work in educational environments with similar capabilities, receive the same professional training programs, are prepared in colleges of education through a single academic program, and the educational roles of teachers in the secondary stage are similar. The e-learning experience that all teachers went through during COVID-19 enhanced teachers' skills in using artificial intelligence applications. This contributed to the convergence of their views on the use of artificial intelligence applications in education. The results of the current study are consistent with (El-Sayed, 2022; Al-Shammari, 2023), which indicated that artificial intelligence has become a general topic discussed in seminars, media, and local and international conferences. Consequently, teachers (M. & F.) have developed a shared awareness of the risks and challenges of using artificial intelligence in education, regardless of gender. The spread of a culture of digital professional development among teachers also enhances the convergence of their views on potential risks and accompanying challenges.

The third question, focusing on the specialization variable (scientific subjects and literary subjects), revealed statistically significant differences in the risks and challenges of implementing artificial intelligence applications in education.

Table (4) clearly shows that there are statistically significant differences in the dimensions of psychological risks and academic challenges between teachers of scientific subjects and those of literary subjects, with teachers of scientific subjects being favored. The existence of differences according to specialization can be explained by the fact that teachers of scientific subjects such as mathematics, chemistry, physics, and biology often use technology more in teaching, which makes them more aware of the psychological risks associated with its use. Examples of psychological risks include students becoming engrossed in electronic devices, experiencing indecision, having reduced verbal

fluency, facing increased anxiety and psychological stress due to fears of security breaches of their privacy, struggling with the ability to use body language, and lacking the desire to communicate directly with their peers within the learning environment.

Scientific subjects also rely heavily on deep understanding and logical sequencing, which increases teachers' sensitivity to the academic challenges of using artificial intelligence applications in education, especially the method of writing assignments and research that questions the authenticity of students' information acquisition. Science teachers may feel a greater threat to their professional role due to the development of AI tools capable of generating complex scientific solutions quickly and easily, which enhances teachers' awareness of the psychological risks stemming from the fear of losing their role or the constant need to keep up with modern technologies. This aligns with findings of Al-Shammari (2023), which indicated that scientific specialization is associated with increased awareness of technical challenges, and El-Sayed (2022), which found an increase in professional anxiety among teachers with the growing use of artificial intelligence applications in education.

The fourth question revealed statistically significant differences in the risks and challenges of using artificial intelligence applications in education, based on the proficiency level of these applications (high, medium, low). Tables 5 and 6 clearly show that teachers differ in their academic and psychological risk perceptions based on their proficiency levels in using artificial intelligence applications, with those having high proficiency showing more awareness of these risks. The differences can be explained by the fact that teachers who are more proficient in using AIAs have a deeper awareness of the academic and psychological risks that may accompany the use of AIAs in education. Examples of these risks include students sometimes relying on unreliable information, a decrease in the effort students put into academic achievement, a diminished value of the human role of teachers in their interactions with students, and the ease of violating the privacy of students' data and information. According to the proficiency level variable, there are no differences in the dimensions of social and cultural risks, nor in the challenges axis and its sub-dimensions. Such variations can be explained by the fact that this type of risk is not necessarily related to the level of proficiency in using artificial intelligence applications but rather stems from external factors such as societal values, the influences of digital culture, and the extent to which the school or local community accepts the idea of integrating artificial intelligence into education. The perception of these risks is shared among all teachers regardless of their level of proficiency in using technology. This aligns with the findings of Safar and Al-Mutlaq (2012), which indicated that concerns related to values and school, or community culture represent a common source of worry among teachers when using new technologies in education.

The study results indicated that one of the priorities of educational policies is to prepare appropriate training programs for teachers that help them utilize AI application programs to support students' critical and creative thinking, reduce plagiarism, and mitigate weak human interaction. This aligns with Fouad's (2023) study, which highlighted the dangers of weak critical and creative thinking among students. Furthermore, it is crucial to implement training programs that heighten teachers' understanding of the social, cultural, and academic hazards associated with artificial intelligence applications. This aligns with what Al-Otaibi (2024) indicated in his study, which addressed the impact of artificial intelligence on social relationships within the school environment. The results indicate the importance of developing curricula and incorporating topics about digital education, ethical values in the digital world, preserving cultural identity, and enhancing positive social interaction among students. It is crucial to strike a balance between utilizing artificial intelligence capabilities and maintaining the quality of education, considering societal values. This aligns with the findings of El-Sayed (2022) and Al-Shammari (2023), which emphasized the necessity of preparing teachers to face the professional challenges associated with artificial intelligence technologies.

5. SUMMARY

The study concluded with a set of requirements that must be considered to mitigate the risks and challenges of using artificial intelligence applications in education, which are (1) The importance of establishing a clear legal charter to regulate the use of artificial intelligence applications in the educational environment. Adherence to the ethics of using artificial intelligence applications, such as fairness, transparency, non-bias, and privacy protection. (2) Designing secure systems to verify data accuracy, providing robust infrastructure, and using highly secure encryption technologies to ensure data privacy and security. (3) Training teachers on the conscious use of artificial intelligence tools, ensuring

that the human value aspect is not harmed, respecting cultural privacy, and aligning artificial intelligence tools with educational goals. (4) Enhancing digital awareness among students, ensuring fairness in access to AIAs, and avoiding discrimination among students for economic or geographical reasons. (5) Monitoring potential negative impacts from negative uses and addressing them before they escalate, regularly evaluating the effectiveness of AI tools according to precise educational standards.

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