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The Effect of Artificial Intelligence on Enhancing Education Quality and Reduce the Levels of Future Anxiety among Jordanian Teachers

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Abstract: As it embarks on its digital transformation journey and strives for ambitious education changes, Jordan faces two critical issues: teacher burnout and the incorporation of technology. This cross-sectional survey research aimed to discover how burned out secondary school teachers were, how confident they were in technology, and how they felt about the incorporation of AI. Stratified random sampling was used to choose a subset of the 893 educators in Irbid province. A worrisome 20.3 mean feeling emotionally drained score, indicating a burnout risk, was found using validated scales in a study of 57 educators. Encouraging digital education platforms (2.99 mean) and administration and resolution of technological problems (2.88 mean) were areas in which instructors reported less proficiency, while they were relatively competent in basic usage of general technology (3.65 mean). Human control was still highly valued, but there was cautious optimism about AI's ability to computerize grading (68.4% positive), automated administration tasks (78.8% good), and customized education (76.1% positive). The regression analysis found that experience and gender had a significant impact on burnout and technology confidence, emphasizing the importance of professional development. The qualitative results highlighted the practical factors that contribute to teachers' stress. The study's implications encompass policies that prioritize teachers, integrate AI to automate administrative tasks to a limited extent, and involve teachers in the digital transition as partners who prioritize student welfare over test scores. Additionally, the study suggests conducting localized research to inform solutions that are appropriate to specific contexts.

Keywords: Artificial Intelligence, Teachers, Enhancing Education Quality, Future Anxiety, Jordan

1 Introduction

Educators are utilizing new technology in the classroom as a result of the COVID-19 pandemic, which has led to a significant shift towards online and blended learning [1]. Technology utilizing artificial intelligence in the field of education (AIED) rose to prominence during the pandemic. There have been discussions about how AI can revolutionize education, to make teachers' jobs easier through the automation of non-instructional tasks, better data analysis, and online lesson optimization [2]. AIED has long been known for its intelligent tutoring systems, which automate the learning process, track each student's progress, and allow teachers to give individualized assistance. More and more, AI-powered tools are aimed at teachers; these tools automate operational tasks, generate assessments, grade, and provide feedback; they also help teachers find effective pedagogical strategies based on student learning data; and they greatly improve efficiency

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and time conservation [3].

Research suggests that AI has the potential to improve students' personalized learning experiences, make it easier for them to acquire new material, and even motivate them to do better in school by introducing them to intelligent agents [4,5]. However, the claimed benefits can be questionable if we don't look at the responsibilities and skills of educators. As a result, research into how AI has influenced the development of educators' skills is crucial [6].

Teachers have a significant responsibility to foster engaging classrooms where students can acquire more complex knowledge and develop their skills. Teachers might not be technologically prepared to utilize educational apps powered by artificial intelligence for instruction and assessment [7]. Data analysis and the rule-setting necessary to have AI-driven applications automatically produce student assignments and feedback may be above their technological expertise. Some of the problems that have been discovered include misunderstandings, misleadingness, restrictions, and hidden ethical dilemmas related to artificial intelligence [8]. Everyone agrees that quality teacher training has a significant impact on student outcomes, which in turn may raise societal and economic expectations. Theoretical and instructional frameworks can help educators choose which artificial intelligence (AI) skills are essential for their classrooms [9,10].

1.1 Problem Statement

As the Jordanian Ministry of Education pursues reform by investigating potential applications of new technology, it would do well to keep frontline educators apprised of the opportunities and challenges presented by these educators. Since teachers' level of contentment in their work has a direct bearing on the classroom climate, they are a crucial factor in determining the success or failure of any new program. Little is known about how these advancements might alleviate the stressors of a daily workload that in-service teachers in Jordan encounter in the real world, despite the optimistic outcomes provided by early AI tool pilot programs. Innovations must not only automate tasks but also improve the quality of education. It is also important to proactively address teachers' concerns about integration to ensure the best uptake and durability of investments.

1.2 Research Questions

This research aims to study the following questions:

RQ1. What are the present levels of work stress and time limitations reported by a cohort of Jordan secondary school educators

RQ2. What are the teachers' views on the possibility of AI-driven solutions aimed at tailored instruction and automated administrative tasks to alleviate non-teaching responsibilities?

2 Literature Review

While there has been a growing body of research highlighting the importance of students acquiring AI skills [11], research on the digital competencies that teachers would require to thrive in an AI-driven classroom is scarce. The epidemic has caused a significant surge in the utilization of instructional technology. Aside from turning a problem into an opportunity, it has also sped up the shift to AI-powered online education [12,13]. Among the most important and widely utilized technologies by university educators, artificial intelligence has emerged as a powerful tool for processing and evaluating large amounts of data for distant learners [14]. Teachers need to keep learning more so they can help their students grow as learners and use AI-driven pedagogical tools effectively [15].

This theoretical and empirically grounded conceptual study uses research cases to rank the importance of various AI competencies. First, the European Commission (2022) emphasizes that educators must be aware of the pros and cons of AIED technology. As a result, the study takes a look at the pros and cons of AIED technology before diving into the demands associated with AI skills. The second step is to merge the acknowledged AI competencies so they are more consistent with current competency frameworks. The new framework could be very useful for teachers after the pandemic if it equips them with the AI skills to boost student performance, education, and assessment [16].

As a result of the country's rapidly expanding youth population, Jordan has witnessed a dramatic surge in enrollment. Currently, over 2 million students attend various public schools, spanning from elementary to high school. The kingdom has achieved universal gender equity in educational access, which explains why over half of the pupils are female. The typical student-teacher ratio in primary and secondary schools is about 23:1, though this varies by school [17].

Incorporating national identity and culture into curricula, increasing resource digitization, expanding technical and vocational training programs, improving the results of STEM education, and improving the qualifications and employability of Jordanian graduates

are some of the ongoing reform priorities of the ministry. The reform of education is a crucial component of the economic plan for preparing individuals for the knowledge economy and for the growth of the private sector [18].

AI tutoring systems, according to early pilots, can cut down on the amount of time teachers spend on preparatory and administrative tasks including assessing students' progress, distinguishing assignments, and repeatedly responding to simple questions. This frees up time that could be used for mentoring, critical thinking instruction, and deeper conversations. Another way AI helps with workload grading is through the automated use of natural language processing to score assignments. Jordan's student population is growing annually, and AI-driven solutions show good scalability, which is helpful in settings with limited resources [19]. The limitations of physical classrooms do not apply to digital technologies, which can offer infinite enrollment through the Internet. This gives the ministry the long-term strategic flexibility it needs to manage growing capabilities without sacrificing individual attention or quality. Adaptive courseware has been linked in several studies conducted in North America and Europe to test score gains that average between 6 and 0.12. According to a meta-analysis, AI tutoring increased learning equivalency by one more month compared to traditional methods for over 250,000 K–12 students. Math performance in US high schools testing AI-based programs increased by 0.09 on average, according to smarter balanced tests. Decreased disparities in achievement between underprivileged groups have also been noted [20].

AI personalization, when used wisely in conjunction with active teaching, can assist Jordan instructors in more effectively meeting learning objectives and requirements. According to research, students' improvements are mostly attributed to prompt formative assessments, quick feedback loops for knowledge gaps, and dynamic difficulty modifications that maintain them in their "zone of proximal development." The best results, meanwhile, will hinge on bolstering legislative changes and increasing teacher proficiency [21,22]. Although adaptive technologies have great potential, experts caution against relying too much on them to the point where they replace the value of in-person instruction. The social-emotional learning, sophisticated reasoning, and SEL competencies acquired via interpersonal relationships cannot be fully replicated by any AI system. It is recommended to use an ideal human-AI collaboration approach where technology serves as a supplementary tool [23,24].

Worryingly, new digital technologies and pedagogical strategies based on artificial intelligence will necessitate substantial investment in teacher professional development. In a fast-paced workplace, educators will require support in identifying relevant use cases, developing flexible curricula, understanding data insights, and resolving technological issues [25].

Without specific funding for training, teachers may feel overwhelmed by the prospect of having to master new systems on top of all their other responsibilities. In low-income areas around the world, especially in some parts of Jordan, there is still an issue with unfair access to devices and the internet. If disadvantaged students lack the necessary resources to fully participate in blended learning, the digital divide could amplify the existing achievement gaps. Improvements to dependable internet infrastructure and the affordability of personal devices are necessary prerequisites [26].

Disputes persist around the security of student data and the efficacy of AI-powered learning tools. Best practices should prioritize stringent information security methods and procedures for parental permission. User confidence necessitates regulatory monitoring and technical audits to ensure transparency regarding the use of student data and APIs accessible by third parties. Additionally, it's crucial to make sure that individualized adjustments do not undermine the social and creative benefits of human-led classes [27].

Together with technology, educators will require control over the breadth and depth of the curriculum. In the absence of balanced, comprehensive evaluations of progress, over-testing mindsets may develop. The social acceptability and long-term effects of incorporating AI into Jordan classrooms would be affected by resolving such implementation issues. Addressing teething problems before strategically scaling requires a staged strategy that begins with non-core subjects.

3 Method

3.1 Research Design

The research team in Irbid, Jordan, used a quantitative, cross-sectional survey approach to collect information on teachers' job demands, stress levels, and attitudes towards the deployment of educational technology. The study's eligibility criteria included all middle and high school teachers working in the three main governorates of Irbid, Jordan. The Irbid Department of Education reported that 980 teachers from the Irbid governorate were included in the study for the 2024–2025 academic years.

To be in line with the Jordanian national curriculum and the educational policies being evaluated, the demographic was restricted to teachers working in public schools only; persons employed in private or international

schools were not included. To gain a more well-rounded understanding, we included teachers from a wide range of fields: STEM, arts, humanities, etc [28]. Teachers of both sexes were present in the group to allow for easier comparisons. All of the intended recipients were current, certified teachers with at least three years of continuous classroom experience. To focus on calibrated self-assessments, newly recruited or uncertified educators were excluded. Approximately 893 educators working in local public schools met the inclusion criteria, according to data from the Department of Education, making them the precise demographic and population size targets of this study.

3.2 Sampling

Stratified random sampling was used to choose a subset of the 893 educators in Irbid province. The goal here was to get a sample that was statistically representative of teachers. A total of 60 educators met the criteria for a 0.95 confidence interval, with a 0.10 tolerance for error, given the size of the population. The population was divided into four groups according to gender and level of education: medium, high, and elementary. To make sure that each stratum was represented, a random sample was taken proportionally from each. The Department of Education supplied the sampling frame, which included lists of teachers and their contact information. Teachers were assigned sequential numbers inside each stratum. The necessary number of samples was drawn at intervals proportional to the size of each stratum in the total population using an online random number generator. An extra 15 educators were hand-picked from the appropriate strata to serve as replacement samples in the event of a 0.20 non-response rate. A representative sample of the population's varied traits is provided by the random stratified sampling of fifty educators. Because of this, there is a good amount of room for error when drawing judgments regarding Irbid teachers.

3.3 Instrument

To collect numerical data, the sample was requested to fill out a paper survey on their own. All of the verified measurement scales were contained in a single questionnaire. The ethical consideration for sharing the information from the participants was ensured through the confidentiality clause, which was sent to the participants upon engaging in the study. Among the many mental health issues that can develop as a result of chronic stress in the workplace, the Maslach Burnout Inventory (MBI) developed by Christina Maslach and Susan E. Jackson stands head and shoulders above the competition. Emotional weariness, depersonalization, and personal accomplishment are the three aspects that it uses to evaluate how much work is being done, how personal interactions are with service receivers, and how competent one feels in their employment. The MBI uses a self-report questionnaire format with answers ranging from "Never" to "Every day." It is designed for several industries, including healthcare, education, and general employment. Symptoms of increased burnout include higher levels of emotional exhaustion and depersonalization and lower levels of personal accomplishment. An organizational development tool for identifying and addressing workplace characteristics that contribute to employee burnout, the MBI has been translated and used extensively across the globe. For the sake of proper and ethical use, the MBI can only be obtained from its official distributor, Mind Garden, Inc. After translation and approval by the relevant parties, the Arabic version was distributed. A high Cronbach's alpha of 0.85 was indicative of internal consistency, and a large and significant coefficient of 0.85 between the two halves of the scale and 0.83 between the halves and the full scale were both provided by the Guttman equation for split-half reliability.

Tschannen-Moran and Woolfolk Hoy's confirmed Teachers' Sense of Efficacy Scale (TSES) measures educators' beliefs in their abilities to engage students; implement effective lessons, and maintain order in the classroom. Teachers' self-confidence in their skills to engage students, apply effective teaching tactics and maintain classroom order is evaluated by the TSES through a Likert-scale survey that reflects Albert Bandura's idea of self-efficacy. When researching the correlation between teachers' perceptions of their efficacy and various educational outcomes, such as student success, classroom atmosphere, and teacher performance, the Teacher Self-Efficacy Scale (TSES) is an essential instrument. Insights for professional development and tactics to improve teaching effectiveness are also provided. The dependability of the Arabic translation was confirmed by its Cronbach's alpha coefficients. With an internal consistency value of >0.85, all three TEIP subscales performed admirably.

Using the Technology Integration Confidence Scale (TICS), researchers evaluate teachers' self-confidence and their degree of ease when it comes to technology integration in the classroom. The goal of this survey is to gauge teachers' familiarity with and competence in utilizing various digital tools for pedagogical purposes. Students need to be ready to succeed in the digital age, so the TICS stresses that a teacher's knowledge and skill with classroom technology are essential to educational efficacy. Focused professional development programs, funded by TICS, identify teachers' strengths and areas for growth in terms of technology integration and then work to improve their technological competence and

pedagogical approaches. It was translated into Arabic so that it might be more useful and relevant in educational settings where Arabic is spoken. In addition to the translation, we used Cronbach's alpha coefficients to perform comprehensive reliability evaluations and pilot tests to guarantee the accuracy and usefulness of the scale in these new settings. The internal consistency coefficients >0.89 of the scale were good. The pieces and their connotations from the original scale were preserved during the modification, which considered cultural and linguistic intricacies. Results from the pilot study on the scale's reliability, validity, and applicability to Arabic-speaking educators confirmed the scale's promise as a useful tool for evaluating and enhancing teachers' abilities to integrate technology in diverse linguistic and cultural contexts.

3.4 Data analysis

The IBM SPSS was used for both descriptive and inferential statistics. To characterize the sample, we calculated standard deviations, score ranges, and frequency tables that summarized demographic information. To determine how reliable, the scales were internally; researchers used Cronbach's alpha tests. While one-way ANOVAs and independent samples t-tests compared groups on demographic characteristics, correlation analysis looked at correlations between important variables. Furthermore, the interviews were recorded, transcribed, and translated. Subsequently, a thematic analysis was conducted to further understand perceptions through the use of coding and the structuring of emerging themes.

4 Findings

The sample of participating educators is diverse in terms of gender, age, school type, subjects taught, and years of experience, as shown in Table 1. With 61.4% men and 38.6% women, the sample slightly favours male educators. With 87.7 per cent falling within the 25-54 age brackets, the workforce is primarily composed of persons with experience. This point to a density in the middle-aged demographic. With 56.1% having 6-15 years of experience, which includes both mid-career and senior educators, the participants' years of teaching experience varied from hardly any to quite a little. With a slight lean toward high schools, the distribution of teachers is nearly equal across the two levels of education. The lessons cover a broad variety of subjects, with just a slight lean toward STEM subjects [28], indicating a good breadth of understanding.

Results from the Maslach Burnout Inventory (MBI) for educators are shown in Table 2. According to the data, educators often experience a considerable degree of emotional weariness, as indicated by an average score of 20.3 and a standard deviation of 4.8. The mean score of 12.1 falls in the low to moderate range, indicating that teachers retain an acceptable amount of personal interaction with their students. This suggests that depersonalization is relatively lower. The personal accomplishment dimension comes out positively, indicating that instructors have a high sense of competence and performance, with an average score of 23.5. While acknowledging the great sense of success that teachers have on the job, these results provide light on their psychological well-being by revealing areas that may require focused assistance and interventions to alleviate emotional exhaustion.

Table 3 shows the results of the Teachers' Sense of Efficacy (TSES) survey, which asked teachers about their perceptions in three main areas: student engagement, teaching tactics, and classroom management. Teachers' levels of confidence are shown by the average scores across many dimensions. The teaching strategies component received the highest average score of 3.86, indicating a significant amount of confidence in this aspect of teaching. Students have a positive perception of their ability to engage students effectively, as indicated by their mean score of 3.75 on the student participation scale. Class management has the lowest mean score at 3.61, suggesting a slightly lower level of confidence in this area. Less variation in teachers' views is indicated by lower standard deviations, which show the degree of heterogeneity in their replies across all dimensions.

The Confidence in Technology Integration (TICS) Results, shown in Table 4, makes it easy to determine how confident teachers are in many aspects of technology use. Overall, teachers seem to have a good amount of faith in their ability to use technology in the classroom (mean score 3.65), digital tools (mean score 3.45), and AI (mean score 3.18) to provide personalized lessons to their students. On the other hand, they aren't very confident when it comes to managing and fixing technical problems (mean score 2.85) or supporting digital learning systems (mean score 2.99). The figures indicated above indicate that teachers have a decent amount of self-assurance in many tech-related tasks, but there is room for improvement, especially when it comes to online learning and technical issues.

Teachers' opinions of how AI features affect workload and educational quality are shown in Table 5, which provides insightful information. Teachers were in favor of computerized grading in 68.4% of cases; they were also in favor of tailored education in 76.1% of cases, analytical data for student advancement in 70.5% of cases, AI-based tutoring programs in 73.2% of cases, and

Table 1: Profile of Respondents

Variable	Categories	N	%
Gender	Male	35	61.4
	Female	22	38.6
Age	25-34	15	26.3
	35-44	22	38.6
	45-54	13	22.8
	55 and more	7	12.3
Instructional experience	3-5	10	17.5
	6-10	17	29.8
	11-15	15	26.3
	16-20	12	21.1
	21 and more	3	5.3
Type of educational institution	Middle	28	49.1
	High	29	50.9
Subject Instructed	STEM	21	36.9
	Humanities	19	33.3
	Arts and others	17	29.8

Table 2: MBI outcomes

The variables	Mean	SD	Range
Feeling emotionally drained	20.3	4.8	Moderate
Depersonalization	12.1	3.5	Low
Individual Achievement	23.5	5.6	High

Table 3: TSES Results

Dimensions	Mean	SD	Range
Student involvement	3.75	0.62	Moderate
Strategies to teaching	3.86	0.58	Low
Managing a Classroom	3.61	0.64	High

automated administrative activities in 78.8% of cases. These favorable opinions suggest that educators see the potential advantages of AI in raising standards and lightening workloads. Furthermore, the comparatively small percentages of negative answers (between 4.2% and 9.6%) imply that educators are less likely to be concerned about AI's effects, supporting the idea that AI has the potential to be a helpful tool in education.

Table 6 displays the results of the regression analysis that shed light on the relationship between instructors' burnout and their confidence in integrating technology into their lessons. More seasoned educators are more likely to suffer from burnout, according to a positive correlation between years of teaching experience and burnout levels (B = 0.51, p = 0.024). There is a strong gender component as well; specifically, female educators report more burnout than male educators (B = 2.35, p = 0.041). On the other hand, there is a small negative correlation between age and burnout (B = -0.25, p = 0.030), suggesting that younger educators might be more susceptible to this problem. Female educators show more confidence when it comes to integrating technology into their lessons, whereas both gender and years of teaching experience have a favorable effect on this confidence (B = 4.18, p = 0.012 and B = 0.49, p = 0.018, respectively). Neither fatigue nor confidence in integrating technology is greatly affected by the type of school or the subjects taught. As a whole, the model accounts for 48.0% of the variation in confidence in technology integration and 41.0% of the variance in burnout, with F-statistics of 5.20 and 6.35, respectively, indicating statistical significance.

5 Discussion

The findings shed light on the present state of secondary school teachers' burnout, technological confidence, and views on AI integration in Jordan. During massive changes to the educational system, these empirical results have important implications for evidence-based policy and strategy. There needs to be a structural shift to address teacher well-being immediately in light of the alarming levels of emotional weariness and workload demands identified in the interviews and survey. Although the integration of AI and technology has the potential to improve quality and efficiency, there is a need for teacher-centric professional development programs to expand capacity extensively due to variances in digital competencies. Teachers' cautious optimism towards AI shows a willingness to embrace new technologies that can improve education, as long as they are used with care and

Table 4: TICS Results

The variables	Mean	SD	Level of Confidence
Usage of general technology	3.65	0.58	Moderate
Using digital tools in teaching	3.45	0.60	Moderate
Employing technology in student evaluations	3.28	0.65	Moderate
Encouraging digital education platforms	2.99	0.68	Low
Utilizing AI instruments for customized education	3.18	0.67	Moderate
Administration and resolution of technological problems	2.88	0.72	Low

Table 5: The Effects of AI on the Quantity and Quality of School Work

The variables	Perceived effect	Teacher percentage
Computerized grading	Positive	68.4
	Neutral	22.1
	Negative	9.5
Customized education	Positive	76.1
	Neutral	17.3
	Negative	6.6
Analytical data for student advancement	Positive	70.5
	Neutral	25.3
	Negative	4.2
Digital Laboratory	Positive	60.3
	Neutral	30.1
	Negative	9.6
AI-Based Tutoring Programs	Positive	73.2
	Neutral	20.3
	Negative	6.5
Automated tasks for administration	Positive	78.8
	Neutral	16.2
	Negative	5.0

Table 6: Analysis of regression

Variables	Level of burnout			Confidence in technology integration		
	B	β	P	B	β	P
Interception	38.3		0.000	53.30		0.000
Age	-0.25	-0.31	0.030	-0.16	-0.10	0.998
Instructional experience	0.51	0.34	0.024	0.49	0.28	0.018
Gender	2.35	0.26	0.041	4.18	0.22	0.012
Type of educational institution	-1.68	-0.10	0.310	2.10	0.10	0.250
STEM	-2.65	-2.85	0.09	0.298	1.98	0.18
R^2	0.41			0.48		
F-value	5.20			6.35		

under human supervision. In this in-depth analysis, we will look at the results and the main themes that emerged, such as the causes of teacher stress, the gaps in technology competency, the openness to the benefits of AI, and the overall principles that should guide reform goals aimed at improving the teaching profession.

The results show that Jordan teachers are suffering from a severe case of burnout. Educators with more experience and female status reported significantly higher rates of burnout, and moderate emotional weariness was also recorded. This lends credence to earlier research that found low social status, inadequate resources, excessive workloads, and disruptive students to be significant factors in teacher stress and burnout [29]. Class sizes have increased significantly, putting more pressure on educators, as a result of Jordan's fast expansion of educational opportunities. Female educators face additional obstacles and fewer resources for help due to cultural conventions and gender roles [30]. Performance, student learning, and the quality of education as a whole are all significantly impacted by teacher burnout [31]. Workload modifications, interventions to foster a healthy school atmosphere, and wellness programs tailored to specific needs must thus be prioritized.

Some causes of burnout, such as heavy administrative tasks and a lack of support, could be alleviated with the use of AI and effective technological integration [5,32]. Nevertheless, these advancements shouldn't add more

stress to teachers' lives but rather tackle the real challenges they have in the classroom. Managing the transition is just as important; it calls for a multi-stage co-creation strategy that gives educators a voice in the transformation and requires substantial professional development for educators [6]. Artificial intelligence (AI) runs the danger of being seen as dangerous and disruptive unless a careful, teacher-centered integration plan is put in place. This connection is emphasized by the fact that burnout is significantly correlated with poorer technology confidence [33]. Improving instructors' abilities and optimism towards innovations can lead to more adoption, as there is a favourable correlation between self-efficacy, technological confidence, and AI perception. Therefore, policy discussions should focus on teachers' well-being rather than just efficiency benefits [8]. It is crucial to prioritize the updating of teacher training programs and professional development opportunities so that educators can gain digital competencies right from the beginning of their careers. There has to be a shift in both pre-and in-service training to ensure that instructors are prepared to use AI and technology for educational objectives rather than merely to automate administrative chores. Teachers can gain low-stakes experience with AI-enabled data analytics, tailored learning, and lesson planning through small pilot programs that are jointly developed with them. As part of CPD, mentorship and the exchange of best practices for integrating AI should become standard operating procedures [34]. School administrators should also reassess the roles and responsibilities of instructors to identify areas where artificial intelligence assistants can handle mundane, repetitive tasks, freeing up teachers to engage in more meaningful interactions with students. 'Technology integration specialists' can be appointed to offer individualized tech assistance and training, if needed. By implementing a range of measures that focus on improving teachers' skills, assigning tasks efficiently, providing practical experience, and receiving support from leadership, Jordan can increase teacher support for using AI in the classroom [8].

The study found that instructors' levels of confidence varied greatly when it came to various parts of integrating technology. Teachers' competence in addressing technological difficulties and enabling online learning was lower than expected. Because of this, competency-based professional growth is essential. Data analytics, personalization tools, and adaptive systems can have a significant impact on education, but it is just as important to build core digital skills. Teachers' worries about juggling their virtual infrastructure management with their already full schedules are made worse by the absence of specialized technical support staff. With the digital divide still an issue, it is critical to upgrade infrastructure so that all communities have access to dependable internet. It is worth noting that female instructors expressed more overall confidence in technology, even while they encounter conventional restrictions and lesser digital access that limit their experience with technology [13]. This encouraging trend is most likely the result of new government initiatives to increase Jordanian women's involvement in STEM fields through specific educational initiatives. To achieve truly equitable tech integration, however, we must continue to work together at every stage—from teacher recruitment to continuing capacity building—to push policies that are inclusive of gender in technology. It should come as no surprise that age has a small but noticeable impact on digital abilities; yet, this finding highlights the critical need for expedited training for veteran educators who may lack familiarity with new resources. For younger teachers who are both experienced and tech-savvy to learn from more seasoned teachers, it would be beneficial to establish collaborative professional learning communities. Transformative and long-term technology adoption requires a comprehensive framework that takes into account intrinsic motivation, contextual knowledge, and external obstacles [15].

To attract and retain a diverse pool of tech-savvy educators, training programs need to broaden their focus and increase the number of participants from underrepresented groups. Opportunities can be explored in the form of local detach expertise development, incentive programs, specialist certifications, and massive open online courses. Promoting growth-oriented cultures that are collaborative is a critical responsibility of school administrators. It is possible to test out the idea of hiring tech integration professionals to provide ongoing coaching help [16]. When developing training programs, leaders and teachers need to work together to meet real needs. One possible way to increase self-assurance when taking classes online is to employ streamlined LMSs, virtual simulation tools, and practice forum communities that concentrate on actionable tactics [35]. Workshops that use design thinking to generate ideas for local solutions and practice with artificial intelligence technologies in safe settings can help break down barriers. The development and ongoing evaluation of such capacity-building programs are best handled by interdisciplinary teams that include education and technology specialists. Excellence in education in the twenty-first century will require students to be digitally literate and innovative thinkers, both of which can be fostered through forward-thinking programs that value diversity [17].

The consensus that AI can improve teaching and learning while decreasing administrative burdens is heartening. The value of data analytics, automated administrative tasks, targeted coaching, and automated grading in supplementing limited human capacities is well-known among educators [35]. The increasing amount of evidence that AI-enabled solutions can enhance learning outcomes, liberate teacher time, and offer data-driven insights is probably reflected in this

attitude. Virtual lab simulations, in particular, were met with widespread suspicion, highlighting worries about the dangers of placing too much emphasis on digital resources at the expense of practical experience. To address these legitimate concerns, it is crucial to keep things balanced and have humans oversee the use of AI [36,37].

Teachers seem to see AI more as an adjunct tool; they still want to have a say over lesson planning and student-teacher relationships. To avoid the mentality of over-testing and preserve teachers' autonomy, lawmakers should establish standards for professional evaluations. To further establish trust, ethical frameworks, community involvement in system co-design, and public AI audits can be implemented. While AI can help with some mundane jobs, teachers' cautious optimism may originate from the realization that machines can't completely replace human teachers when it comes to the social, emotional, and contextual components of learning. So, the integration of AI mustn't supplant or weaken the functions of educators [38,39]. On the contrary, implementation should prioritize teachers, beginning with small use cases to gradually increase capacity and buy-in, all the while keeping an eye on the impact. The first step in integrating AI into education would be to automate mundane administrative tasks, such as keeping track of attendance and generating reports so that teachers can spend less time on administrative labour. Grading using AI can be done in stages, starting with factual, objective parts of the evaluation, to reduce worries about subjectivity. Supporting students' learning with practice quizzes, vocabulary, and basic math computations, tutoring systems can offer teachers important analytics. The scope can be expanded by piloting more advanced scenarios with interested teachers, such as simulated lab experiments, adaptive learning software, and personalized assignments, as long as onboarding goes well in administrative and auxiliary use cases [40,41].

6 Implications

At all times, educators must have the authority to reject or alter AI suggestions that run counter to educational objectives. Because AI can't yet mimic the subtleties of human mentoring and nurturing, it's important to protect student-teacher interactions, activities that require higher-order thinking, and character development. To make the most of the benefits, it is essential to train educators to understand and use AI data efficiently. The development of AI solutions tailored to the Jordanian environment requires the promotion of regional research alliances. Promising innovations can be used by Jordan schools to enhance real learning through careful adoption that prioritizes human-AI collaboration, data ethics, and teacher-student interactions.

7 Conclusion

This study sheds information on secondary school teachers' perspectives on artificial intelligence (AI), their levels of burnout, and their trust in technology integration. Important policy implications for promoting teachers' well-being arise from the concerning high percentage of burnout. Despite teachers' cautious optimism about the potential of AI-enabled technology to improve education quality and eliminate certain routine obligations, variances in digital abilities make differentiated professional development required. Implementing AI should begin with modest goals, such as automating administrative tasks, and gradually expand to improve instruction. The teacher needs to be the center of attention. Constant teacher monitoring and autonomy are necessary to avoid reliance on technology. Impact on comprehensive learning experiences and teacher well-being, rather than test outcomes or performance alone, ought to drive evaluation. Regular conversation, up skilling partner teachers, and evidence-based incremental adoption should be prioritized in Jordan if the kingdom wants to lead the way in human-AI partnerships for educational enrichment. On-the-ground pressures should be eased first.

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Conflicts of Interest Statement

The authors declare that there is no conflict regarding the publication of this paper.

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