

A STUDY ON THE ADOPTION OF INTELLIGENT TUTORING SYSTEMS (ITS) READINESS ON UAE HIGHER EDUCATION INSTITUTIONS

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ABSTRACT

Objective: Intelligent Tutoring Systems (ITS) in higher education utilize artificial intelligence to provide personalized learning experiences, effectively replicating one-on-one tutoring by adapting content and feedback to individual student needs. Despite advancements in educational technology, the adoption of ITS in UAE higher education institutions remains limited due to various cultural, social, and educational challenges. This study aims to assess the readiness for ITS adoption in UAE higher education institutions.

Research Method: A quantitative research approach was employed, utilizing a structured questionnaire survey administered to 234 participants. Descriptive analysis was conducted to rank key factors influencing ITS adoption readiness, while correlation analysis examined relationships between these factors and performance indicators.

Findings: The findings highlight critical determinants of ITS adoption readiness, revealing both strong support and existing concerns within the UAE higher education context. Correlation analysis indicates that ITS adoption readiness is positively influenced by factors such as Performance Expectancy, Effort Expectancy, Social Influence, Facilitating Conditions, Innovativeness, and Optimism. These factors exhibit strong correlations with key performance indicators, including Performance Enhancement, Administrative Efficiency, and Personalized Learning, suggesting a generally high level of preparedness for ITS adoption. However, moderate correlations with factors like Discomfort and Insecurity underscore the need to address potential concerns regarding implementation challenges and perceived risks.

Originality: This study provides valuable insights for policymakers and educational institutions seeking to enhance ITS adoption and integration in UAE higher education.

Keywords: Intelligent Tutoring Systems (ITS); UAE Higher Education; Adoption Readiness

1. INTRODUCTION

Previous studies on AI adoption in the UAE educational sector, such as Ahmad (2020), aimed to investigate the AI-based technologies adopted, the advantages of AI adoption, and the challenges faced. However, these studies often fell short, specifying technologies that needed to be adopted rather than those already in use, and did not determine the factors driving AI adoption. Additionally, they lacked a theoretical underpinning and relied on descriptive analysis without showing interrelationships among variables. Similar limitations were observed in studies by Alnaqbi and Yassin (2021) and Alnaqbi (2020).

The integration of educational technology, particularly Intelligent Tutoring Systems (ITS), had the potential to revolutionize teaching and learning experiences in higher education institutions. However, the adoption and integration of ITS in UAE higher education institutions remained relatively understudied, indicating a significant research gap (Ally, 2023). Investigating the factors influencing the adoption of ITS and understanding the challenges and opportunities faced by educational institutions in

the UAE was imperative (Nuseir & El Refae, 2022). This study aimed to address this gap, providing insights into the current state of ITS adoption, its impact on teaching and learning outcomes, and offering recommendations for successful implementation within the UAE higher education context.

Despite advancements in educational technology, the adoption of ITS in UAE higher education institutions had been limited, partly due to the unique cultural, social, and educational context of the UAE. Institutional readiness, faculty attitudes and skills, student acceptance, technical infrastructure, and resource availability were crucial factors determining the level of ITS adoption (Alshehhi et al., 2021). Understanding the challenges and opportunities associated with ITS adoption in the UAE was essential for addressing the specific needs of students and enhancing their learning experiences. While ITS had the potential to provide personalized instruction, adaptive feedback, and individualized support, its successful implementation relied on aligning with the UAE's educational goals, cultural values, and pedagogical approaches.

Moreover, exploring the impact of ITS adoption on teaching and learning outcomes in UAE higher education institutions was significant. By examining the effectiveness of ITS in enhancing student engagement, knowledge acquisition, skill development, and academic performance, this study aimed to contribute to evidence-based decision-making for educational policymakers, administrators, and instructors (McMinn et al. 2022). Ultimately, the findings would provide valuable insights into the current state of ITS adoption, the factors influencing adoption decisions, and their impact on teaching and learning outcomes in UAE higher education institutions. These results would inform educational stakeholders about the readiness and preparedness of institutions for ITS integration, highlight the challenges faced, and offer recommendations for successful implementation. By addressing the research gap in ITS adoption within the UAE context, this study aimed to contribute to the advancement of educational technology adoption and enhance teaching and learning practices in higher education institutions.

Accordingly, this research investigated the ITS technologies adopted in UAE higher educational institutions, the antecedents of AI adoption readiness (performance expectancy, effort expectancy, social influence, facilitating conditions, optimism, innovativeness, discomfort, and insecurity), and the potential benefits of AI adoption in these institutions. This approach aimed to provide a more detailed and theoretically grounded understanding of ITS adoption in the UAE education sector.

2. INTELLIGENT TUTORING SYSTEMS (ITS) IN HIGHER EDUCATION

Intelligent Tutoring Systems (ITS) in higher education are transformative tools that leverage artificial intelligence to deliver highly personalized learning experiences. These systems are designed to adapt content and feedback based on individual student needs, effectively mimicking the benefits of one-on-one tutoring sessions (López-Goyez et al., 2024). By continuously assessing students' knowledge levels and identifying specific learning gaps, ITS can provide tailored instruction and support that enhances the overall learning process (Wang et al., 2023). One of the key strengths of ITS is their ability to offer real-time, adaptive feedback. This immediate response mechanism allows students to understand their mistakes and learn from them instantaneously, which is a crucial aspect of effective learning. Moreover, the data-driven nature of ITS enables these systems to track student progress over time, making it easier to identify long-term trends in learning and areas that require additional focus (Stanford University ITS, 2016).

The integration of ITS into higher education curricula is aimed at improving student engagement by creating a more interactive and engaging learning environment. By personalizing the learning experience, ITS can increase student motivation and interest in the subject matter, which can lead to better learning outcomes. Additionally, ITS can foster critical thinking skills by providing complex problem-solving tasks

tailored to each student's abilities and progress (Kerimbayev et al., 2025). Another significant advantage of ITS is their ability to support diverse learning styles. Students have varying preferences and strengths when it comes to learning, and ITS can customize their approach to suit these individual differences. This customization can help bridge the gap between different learning paces, ensuring that all students have the opportunity to succeed (Stanford University ITS, 2016).

Furthermore, ITS can play a vital role in democratizing education by making high-quality, personalized learning accessible to a broader range of students. This is particularly important in higher education, where large class sizes can often limit the amount of individual attention each student receives. ITS can supplement traditional teaching methods, providing additional support that can help level the playing field for all students (Wang et al., 2023). The Intelligent Tutoring Systems represent a significant advancement in educational technology. By leveraging artificial intelligence to deliver personalized learning experiences, ITS can enhance student engagement, improve learning outcomes, and foster critical thinking skills (Kerimbayev et al., 2025). As technology continues to evolve, the potential for ITS to transform education and make it more accessible and effective is immense. With continued research and development, ITS could become an integral part of the educational landscape, providing valuable support to both students and educators (López-Goyez et al., 2024).

One prominent example of ITS is the Carnegie Cognitive Tutor, which aids students in learning mathematics. This system provides customized hints and feedback based on individual learning needs, effectively simulating one-on-one tutoring sessions and helping students understand complex mathematical concepts. Another notable ITS is the SHERLOCK system, designed to train Air Force technicians in diagnosing electrical systems problems in aircraft. By offering personalized training and problem-solving support, SHERLOCK enhances the technicians' skills and prepares them for real-world scenarios. Additionally, the language learning platform Duolingo employs ITS principles to offer adaptive learning experiences. Duolingo utilizes automatic speech recognition and natural language processing to help users correct language errors, providing a highly personalized and effective language learning environment (Stanford University ITS, 2016).

The adoption of Intelligent Tutoring Systems in higher education is driven by the need to cater to diverse learning styles and paces. By offering customized learning paths, ITS empower students to take control of their education, promoting self-directed learning and resilience (Stanford University ITS, 2016). Furthermore, ITS can provide immediate feedback and reinforcement, which is crucial for reinforcing learning and maintaining student motivation (Wang et al., 2023). As technology continues to advance, the capabilities of ITS are expected to grow, offering even more sophisticated and effective educational solutions (Kerimbayev et al., 2025). By incorporating ITS into their academic programs, higher education institutions can better support their students' learning journeys, ensuring that each student receives the guidance and resources they need to succeed (López-Goyez et al., 2024). The potential of ITS to transform education is immense, making it an invaluable asset in the quest to enhance educational quality and accessibility (Stanford University ITS, 2016).

2.1 ISSUES AND CHALLENGES IN ITS IMPLEMENTATION IN UAE

Intelligent Tutoring Systems (ITS) in higher education are transformative tools that leverage artificial intelligence to deliver highly personalized learning experiences. These systems are designed to adapt content and feedback based on individual student needs, effectively mimicking the benefits of one-on-one tutoring sessions (López-Goyez et al., 2024). By continuously assessing students' knowledge levels and identifying specific learning gaps, ITS can provide tailored instruction and support that enhances the overall learning process (Wang et al., 2023). One of the key strengths of ITS is their ability to offer real-time, adaptive feedback. This immediate response mechanism allows students to understand their mistakes and learn from them

instantaneously, which is a crucial aspect of effective learning. Moreover, the data-driven nature of ITS enables these systems to track student progress over time, making it easier to identify long-term trends in learning and areas that require additional focus (Stanford University ITS, 2016).

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However, the implementation of ITS in the UAE faces several challenges. Technical challenges are prominent, as robust technological infrastructure is necessary to support ITS, which can be an issue in some educational institutions (Bhattacharya & Nakhare, 2019). Ensuring reliable internet connectivity, hardware compatibility, and software integration are critical technical concerns. Teacher training and acceptance also pose significant challenges. Educators may face difficulties in adapting to new technologies and integrating ITS into their teaching methods, necessitating extensive training and professional development (Dani & Nasser, 2016). Cultural and social barriers can influence the acceptance and effectiveness of ITS, with traditional teaching methods and resistance to change posing obstacles to widespread adoption (Ahmed, 2020). Integrating ITS into the existing curriculum requires careful alignment with educational standards and learning objectives to ensure its success. Privacy and data security concerns arise from the collection and analysis of student data by ITS, emphasizing the need for ethical data use and protection measures (Hassan, 2024). Moreover, the cost of implementing ITS, including investments in technology, software, and training, presents a financial challenge for educational institutions. Allocating resources effectively and ensuring that the benefits of ITS justify the costs are essential considerations (Bhattacharya & Nakhare, 2019).

Finally, developing appropriate methods to evaluate the effectiveness of ITS and measure learning outcomes is crucial. Creating assessment tools that accurately reflect the impact of ITS on-student learning can be challenging (Dani & Nasser, 2016). These challenges highlight the complexities involved in implementing ITS in the UAE and underscore the need for careful planning, training, and resource allocation to ensure successful integration.

3. INFLUENTIAL FACTORS FOR ITS ADOPTION READINESS

The readiness for adopting Intelligent Tutoring Systems (ITS) within Smart Learning Environments in UAE higher education institutions is influenced by several key factors. Performance expectancy and effort expectancy are crucial, as they determine how beneficial and user-friendly the systems are perceived to be. Social influence and facilitating conditions also play significant roles by providing necessary support and gaining approval from peers and leaders, thereby encouraging adoption. Additionally, factors such as innovativeness, optimism, discomfort, and insecurity shape overall readiness by reflecting individuals' openness to new technology and addressing their concerns about its implementation (Guo et al., 2021; Lin et al., 2023).

3.1 PERFORMANCE EXPECTANCY FACTOR

Performance expectancy is identified as a crucial factor influencing technology adoption according to the Unified Theory of Acceptance and Use of Technology (UTAUT). This refers to the extent to which firms believe that using a particular technology will enhance their performance (Ameen et al., 2019). Numerous studies, including those by Isaac et al. (2019b), and Venkatesh et al. (2016), have established a strong relationship between performance expectancy and technology adoption. Additionally, Jaradat et al. (2020) found that performance expectancy positively affects the adoption of cloud computing technology. Therefore, institutions are likely to base their AI technology adoption decisions on performance expectancy. If they believe the new technology will improve their performance, they are more inclined to adopt it. Conversely, lower performance expectancy is likely to lead to reduced AI technology adoption by higher educational institutions.

3.2 EFFORT EXPECTANCY FACTOR

Effort expectancy, which refers to the ease and simplicity associated with using a technology, is a crucial factor in technology adoption. When institutions or individuals perceive a technology as easy to implement, they are more likely to adopt it (Lin et al., 2022). On the other hand, complicated technologies that require significant time, effort, and training may hinder adoption. Numerous studies have shown a significant positive relationship between effort expectancy and technology adoption (Ameen et al., 2019; Ameen et al., 2018; Venkatesh et al., 2016). Therefore, higher effort expectancy leads to greater AI technology adoption by higher educational institutions, while lower effort expectancy results in reduced adoption.

3.3 SOCIAL INFLUENCE FACTOR

Social influence plays a crucial role in technology adoption by exerting social pressure on institutions or individuals to adopt new technologies. It refers to the extent to which an institution believes that its important stakeholders, such as policy makers, customers, shareholders, and even competitors, expect them to adopt and use new technology. When institutions perceive that their vital stakeholders anticipate the adoption of novel technologies, they are more likely to comply. Research has consistently highlighted the importance of social influence in explaining technology adoption decisions (Ameen et al., 2019; Isaac et al., 2019; El-Masri & Tarhini, 2017). These studies suggest that higher social influence leads to greater AI technology adoption, while lower social influence results in reduced adoption by firms.

3.4 FACILITATING CONDITIONS FACTOR

Facilitating conditions refer to the resources available to an institution or individual for adopting a technology. This includes human, technical, organizational, and financial resources (Ameen et al., 2019). Institutions with abundant resources are more likely to adopt and use new technologies compared to those with limited resources. Studies have shown a significant relationship between facilitating conditions and the decision to adopt technology (Ameen et al., 2019; Isaac et al.,

2019b; Venkatesh et al., 2016). Therefore, higher facilitating conditions increase the likelihood of AI technology adoption, while lower facilitating conditions decrease it.

3.5 OPTIMISM FACTOR

Optimism, a key dimension in the Technology Readiness Index (TRI), is considered a contributor to technology adoption readiness. It reflects users' positive views of technology and their belief that it offers increased flexibility, control, and efficiency in their lives and work (Panday & Purba, 2015; Meng et al., 2010). Various studies have highlighted the significant positive effect of optimism on technology adoption readiness. For instance, Panday and Purba (2015) found that optimism positively influences lecturers' and students' readiness to adopt academic system technologies. Similarly, research by Napitupulu et al. (2020) supports the finding that optimism significantly enhances technology adoption. Additional studies have also confirmed the positive impact of optimism on the readiness to adopt emerging technologies (Amron et al., 2022; Badri et al., 2013; Lin & Hsieh, 2012; Meng et al., 2010).

3.6 INNOVATIVENESS FACTOR

Innovativeness, a key contributor in the Technology Readiness Index (TRI) model, refers to the extent to which individuals perceive themselves as technology thought leaders and pioneers (Panday & Purba, 2015). It embodies the natural trait and desire to experiment with new technologies, positioning individuals as frontrunners in technological adoption (Meng et al., 2010). Several studies have shown that innovativeness significantly positively influences technology adoption readiness. For instance, Panday and Purba (2015) found a significant positive effect of innovativeness on lecturers' and students' readiness to adopt academic system technologies. Similarly, Napitupulu et al. (2020) reported that innovativeness significantly and positively impacts technology adoption. Other studies have also confirmed the significant positive influence of innovativeness on the readiness to adopt emerging technologies (Amron et al., 2022; Badri et al., 2013; Lin & Hsieh, 2012; Meng et al., 2010).

3.7 DISCOMFORT FACTOR

Discomfort, a dimension in the Technology Readiness Index (TRI), acts as an inhibitor to technology adoption readiness. It refers to the feelings of being overwhelmed by technology and the perceived lack of control individuals have over it (Panday & Purba, 2015). Essentially, discomfort reflects the lack of confidence in making the technology work and feelings of limited control over its use (Meng et al., 2010). Unlike contributors in the TRI that positively influence readiness, inhibitors like discomfort negatively impact technology adoption. Several studies have highlighted the negative influence of discomfort on technology adoption readiness. For example, Panday and Purba (2015) found that discomfort significantly affects lecturers' and students' readiness to adopt academic system technologies. Similarly, Napitupulu et al. (2020) reported that discomfort negatively influences technology adoption. Other studies have also confirmed the significant negative impact of discomfort on the readiness to adopt emergent technologies (Amron et al., 2022; Badri et al., 2013; Lin & Hsieh, 2012; Meng et al., 2010).

3.8 INSECURITY FACTOR

Insecurity, a dimension in the Technology Readiness Index (TRI), is considered an inhibitor of technology readiness (Parasuraman, 2000; Parasuraman & Colby, 2014). It refers to individual doubts and distrust regarding technology's workability and the security of personal data (Napitupulu et al., 2020). Essentially, insecurity reflects scepticism and distrust in a technology's ability to function properly, focusing on assurance and trust (Lin & Hsieh, 2012). Parasuraman and Colby (2014) describe insecurity as the distrust of technology, stemming from scepticism about its ability to

work properly and concerns about its potential harmful consequences. Unlike positive contributors to technology readiness, inhibitors like insecurity negatively impact technology adoption. Numerous studies have highlighted this negative influence. For instance, Panday and Purba (2015) found that insecurity significantly affects lecturers' and students' readiness to adopt academic system technologies. Similarly, Napitupulu et al. (2020) also reported that insecurity negatively influences technology adoption. However, Lai and Lee (2020) noted that insecurity did not significantly impact technology adoption readiness in their study. Despite this, several other studies support the significant negative influence of insecurity on the adoption of emergent technologies (Badri et al., 2013; Lin & Hsieh, 2012; Meng et al., 2010). The Influential Factors for ITS Adoption Readiness are as in table 1.

Table 4. Influential Factors for ITS Adoption Readiness

Code	Factors	Description
ITS_F1	Performance Expectancy	Determines how beneficial ITS is perceived to be in improving student learning outcomes and academic performance.
ITS_F2	Effort Expectancy	Assesses how easy ITS is for educators and students to use and integrate into their teaching and learning processes.
ITS_F3	Social Influence	Measures the extent to which peers, instructors, and institutional stakeholders support and encourage the adoption of ITS.
ITS_F4	Facilitating Conditions	Evaluates the availability of necessary resources, such as technical support, infrastructure, and training, to successfully implement and use ITS.
ITS_F5	Innovativeness	Reflects the willingness of educators and institutions to embrace new technologies like ITS and integrate them into their educational practices.
ITS_F6	Optimism	Captures the positive outlook and belief in the benefits of ITS, including increased flexibility, control, and efficiency in teaching and learning.
ITS_F7	Discomfort	Addresses concerns about feeling overwhelmed or lacking control over ITS, which may hinder its adoption and effective use.
ITS_F8	Insecurity	Examines the doubts and distrust regarding the reliability and security of ITS, particularly concerns about data privacy and the technology's effectiveness.

3.9 ITS ADOPTION READINESS INDICATORS

Educational institutions in the UAE aim to enhance their performance and productivity to achieve their core objectives of teaching, learning, and research. One effective way to achieve this is through the adoption of Intelligent Tutoring Systems (ITS) within Smart Learning Environments. These advanced systems leverage AI to provide personalized learning experiences, adapting to each student's unique needs and pace, significantly improving educational outcomes (Alnaqbi & Yassin, 2021; Du & Gao, 2022). Recent advances show a growing trend in the adoption of ITS in educational systems worldwide, and UAE institutions are no exception. Research has demonstrated that ITS can lead to improved student engagement, better comprehension of complex subjects, and higher overall academic performance (Alnaqbi, 2020; Lin et al., 2022; Zhang & Aslan, 2021). Additionally, ITS can streamline administrative processes, freeing up educators' time to focus more on interactive and impactful teaching methods. This increased operational efficiency allows educators to allocate their efforts towards more meaningful educational interactions and student support (Du & Gao, 2022; Zhang & Aslan, 2021).

Moreover, the integration of ITS within Smart Learning Environments aligns with the UAE's strategic vision to harness cutting-edge technologies to foster innovation and excellence in education. By adopting ITS, UAE higher education institutions can not only enhance their performance and productivity but also position themselves as leaders in educational innovation, setting a benchmark for other regions to follow. Therefore, the adoption of ITS in education is likely to yield substantial benefits, including personalized learning, enhanced student outcomes, and increased operational efficiency, ultimately contributing to the overall advancement of the educational sector in the UAE (Alnaqbi & Yassin, 2021; Alnaqbi, 2020; Du & Gao, 2022; Lin et al., 2022; Zhang & Aslan, 2021). The ITS Adoption Readiness indicators are as in table 2.

Table 2. ITS Adoption Readiness indicators

Code	Key Indicator	Description
IND_1	Performance Enhancement	Improved student learning outcomes and academic performance.
IND_2	Administrative Efficiency	Streamlined administrative processes and freed-up educators' time to focus on impactful teaching methods.
IND_3	Personalized Learning	Adaptation to each student's unique needs and pace, providing tailored learning experiences.

4. RESULTS AND DATA ANALYSIS

UAE educational institutions aim to enhance their teaching, learning, and research performance through the adoption of Intelligent Tutoring Systems (ITS) within Smart Learning Environments. These AI-driven systems provide personalized learning experiences, adapting to individual student needs and pace, thus improving educational outcomes. The study investigated ITS adoption readiness, collecting data through a questionnaire survey with a 100% response rate from 234 participants in UAE higher education institutions. After thorough screening, all questionnaires were deemed valid, ensuring a reliable dataset for analysis.

4.1 HIERARCHICAL ANALYSIS

When conducting a ranking of items, hierarchical analysis can be employed to prioritize factors based on their relative importance or influence. This process involves categorizing the items into various levels and systematically evaluating their contributions to the overall system, allowing for a clear and structured assessment of their rankings. In this study, ranking aims to identify the influential factors of ITS adoption readiness among UAE higher education respondents. The analysis utilized mean scores and standard deviations of each factor, as compared to other factors, with the results presented in Table 3 (Johnson, 2004).

Table 3. Hierarchical analysis of influential factors

Influential factors code	Questions	Mean score	SD	Rank
ITS_F1	Do you agree that Intelligent Tutoring Systems (ITS) are beneficial in improving student learning outcomes and academic performance?	4.49	0.904	1
ITS_F2	Do you agree that ITS are easy for educators and students to use and integrate into their teaching and learning processes?	4.13	0.892	6
ITS_F3	Do you agree that peers, instructors, and institutional stakeholders support and encourage the adoption of ITS?	4.38	0.88	4

ITS_F4	Do you agree that there are sufficient resources available, such as technical support, infrastructure, and training, to successfully implement and use ITS?	4.44	0.839	2
ITS_F5	Do you agree that educators and institutions are willing to embrace new technologies like ITS and integrate them into their educational practices?	4.22	0.723	5
ITS_F6	Do you agree that ITS offer increased flexibility, control, and efficiency in teaching and learning, and that these benefits positively influence their adoption?	4.07	0.996	7
ITS_F7	Do you agree that concerns about feeling overwhelmed or lacking control over ITS may hinder their adoption and effective use?	4.39	0.825	3
ITS_F8	Do you agree that doubts and distrust regarding the reliability and security of ITS, particularly concerns about data privacy and the technology's effectiveness, may affect their adoption?	3.93	0.92	8

Results in table 3 reveals that respondents strongly agree that ITS are highly beneficial in improving student learning outcomes and academic performance, with this factor receiving the highest mean score of 4.49. The availability of sufficient resources, such as technical support, infrastructure, and training, is also highly regarded, indicating that institutions need these facilitating conditions to successfully implement and use ITS, with a mean score of 4.44. There is notable support from peers, instructors, and stakeholders, which plays a crucial role in encouraging adoption, as indicated by a mean score of 4.38.

However, there are concerns about feeling overwhelmed or lacking control over ITS, which may hinder their effective use, reflected by a mean score of 4.39. Educators and institutions generally show a willingness to embrace and integrate ITS into their educational practices, with a mean score of 4.22, reflecting openness to new technologies. While ITS are considered beneficial for increasing flexibility, control, and efficiency in teaching and learning, this factor received a mean score of 4.07, suggesting some variability in opinions. Additionally, doubts and distrust regarding the reliability and security of ITS, particularly concerning data privacy and the technology's effectiveness, are present, with a mean score of 3.93.

Overall, the assessment highlights the key factors influencing ITS adoption readiness, showcasing both strong support and existing concerns within the UAE higher education context. By addressing these factors, UAE higher education institutions can enhance their performance and productivity, ultimately contributing to the overall advancement of the educational sector.

4.2 CORRELATION ANALYSIS

Spearman Correlation analysis was employed due to the non-parametric nature of the ordinal data collected from the survey. This analysis aimed to establish the correlation between the eight influential factors and three indicators of ITS adoption readiness among respondents in UAE higher education institutions. The results of this analysis are presented in Table 4.

Table 4. Correlation between factors and indicators

			IND_1	IND_2	IND_3
Spearman's rho	ITS_F1	Correlation Coefficient	.466**	.496**	.520**
		Sig. (2-tailed)	.000	.000	.000
		N	234	234	234
	ITS_F2	Correlation Coefficient	.611**	.542**	.451**
		Sig. (2-tailed)	.000	.000	.000
		N	234	234	234
	ITS_F3	Correlation Coefficient	.616**	.488**	.447**
		Sig. (2-tailed)	.000	.000	.000
		N	234	234	234
	ITS_F4	Correlation Coefficient	.674**	.479**	.415**
		Sig. (2-tailed)	.000	.000	.000
		N	234	234	234
	ITS_F5	Correlation Coefficient	.637**	.483**	.442**
		Sig. (2-tailed)	.000	.000	.000
		N	234	234	234
	ITS_F6	Correlation Coefficient	.621**	.528**	.423**
		Sig. (2-tailed)	.000	.000	.000
		N	234	234	234
	ITS_F7	Correlation Coefficient	.528**	.417**	.441**
		Sig. (2-tailed)	.000	.000	.000
		N	234	234	234
	ITS_F8	Correlation Coefficient	.423**	.441**	.534**
		Sig. (2-tailed)	.000	.000	.000
		N	234	234	234

Table 4 shows that Performance Expectancy (ITS_F1) is positively correlated with all three indicators: Performance Enhancement (IND_1) at 0.466, Administrative Efficiency (IND_2) at 0.496, and Personalized Learning (IND_3) at 0.520. Effort Expectancy (ITS_F2) shows strong positive correlations with Performance Enhancement (IND_1) at 0.611, Administrative Efficiency (IND_2) at 0.542, and Personalized Learning (IND_3) at 0.451. Social Influence (ITS_F3) has significant positive correlations with Performance Enhancement (IND_1) at 0.616, Administrative Efficiency (IND_2) at 0.488, and Personalized Learning (IND_3) at 0.447. Facilitating Conditions (ITS_F4) shows the highest correlation with Performance Enhancement (IND_1) at 0.674, and moderate correlations with Administrative Efficiency (IND_2) at 0.479 and Personalized Learning (IND_3) at 0.415. Innovativeness (ITS_F5) is positively correlated with all three indicators, showing 0.637 with Performance Enhancement (IND_1), 0.483 with Administrative Efficiency (IND_2), and 0.442 with Personalized Learning (IND_3). Optimism (ITS_F6) presents positive correlations with Performance Enhancement (IND_1) at 0.621, Administrative Efficiency (IND_2) at 0.528, and Personalized Learning (IND_3) at 0.423. Discomfort (ITS_F7) has moderate positive correlations with Performance Enhancement (IND_1) at 0.528, Administrative Efficiency (IND_2) at 0.417, and Personalized Learning (IND_3) at 0.441. Insecurity (ITS_F8) shows moderate correlations with Performance Enhancement (IND_1) at 0.423, Administrative Efficiency (IND_2) at 0.441, and Personalized Learning (IND_3) at 0.534. These correlations highlight the strong influence of these factors on the readiness and perceived benefits of ITS adoption in enhancing performance, administrative efficiency, and personalized learning in UAE higher education institutions.

Based on the findings, the readiness for adopting Intelligent Tutoring Systems (ITS) among the respondents in UAE higher education institutions appears to be positively influenced by various factors. Strong correlations between ITS adoption readiness indicators (Performance Enhancement, Administrative Efficiency, and

Personalized Learning) and factors such as Performance Expectancy, Effort Expectancy, Social Influence, Facilitating Conditions, Innovativeness, and Optimism indicate a generally high level of preparedness and acceptance. However, the presence of moderate correlations with factors like Discomfort and Insecurity suggests that addressing concerns about implementation and potential drawbacks is essential for successful adoption. Overall, the respondents demonstrate a readiness to embrace ITS, provided that supportive conditions and positive attitudes towards technology are maintained and further enhanced.

5. CONCLUSION

This study examined the readiness for adopting Intelligent Tutoring Systems (ITS) in UAE higher education institutions, highlighting both the potential and challenges associated with implementation. Despite advancements in educational technology, ITS adoption remains limited due to cultural, social, and educational barriers. Through a quantitative research approach, data from 234 participants were analyzed to rank key factors influencing adoption readiness and to explore their correlations with performance indicators.

The findings indicate that factors such as Performance Expectancy, Effort Expectancy, Social Influence, Facilitating Conditions, Innovativeness, and Optimism positively influence ITS adoption readiness. Strong correlations with performance indicators—Performance Enhancement, Administrative Efficiency, and Personalized Learning—suggest a high level of preparedness for ITS integration. However, moderate correlations with concerns like Discomfort and Insecurity highlight the need to address implementation challenges and mitigate perceived risks.

Overall, this study provides valuable insights for policymakers and educational institutions aiming to facilitate ITS adoption in UAE higher education. Addressing existing concerns and enhancing supportive conditions will be crucial in ensuring the successful implementation of ITS, ultimately improving the effectiveness and accessibility of personalized learning in the region.

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