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RESEARCH ARTICLE

Evaluating AI Educational Interventions: Impact on Student Satisfaction and Performance in Higher Education Islamic Studies

Sami Ghazzai Alsulami[1], Abdulrahman Awdah Albeladi[2], Shouket Ahmad Kouchay[3], Abdullah Ali Altammam[4] Mohammed Yousef Afifi[5],Reem Thabet Muhammad Al-Qahtani[6] ,Ibrahim Khaled Al-Najidi[7]

[1,2,3,4,5,6,7] Islamic University in Medina, Medina Munawarah, Saudi Arabia

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***Corresponding Author**

dr.samialsulami@gmail.com

ABSTRACT

The objective of this study is document empirical evidence with respect to the impact of AI success factors on student performance. The study employs a sample of 246 students at the college of Quran and college of Noble Hadith and Islamic studies at the Islamic university in Medina. The study adopts the information systems success model as its theoretical framework where the success factors of system quality and information quality are hypothesized to drive positively student performance via the intermediate variables of student evaluation of system usefulness and student satisfaction. The study is uniquely tailored to the Islamic University of Medina, focusing on the AI-powered Quran reader head (Maqraa), which incorporates multiple readers and dialects. The Islamic University of Medina operates a massive AI-powered Quran reader head (Maqraa). Such reader head employs intelligence-enabled tools to the study of Quran comprising recitation with both multiple readers and multiple dialects. The study results show that system quality and information quality drive both student evaluation of system usefulness and student satisfaction of the system. Moreover, the study reports that student evaluation of system usefulness and student satisfaction with the system tend to jointly explain student academic performance. The use of adjusted R squared values (41.6% and 43.5%) to measure the explanatory power of the model demonstrates the statistical significance and robustness of the findings. The study results further empirically support the ISSM claim that the interdependence between student evaluation of system usefulness and student satisfaction of the system is non-trivial with positive and well-pronounced impact on student performance.

INTRODUCTION

The Study emphasizes the transformative impact of digital tools and methodologies on strategic planning, showcasing how these technologies can enhance data collection, analysis, and application. By leveraging digital knowledge systems, businesses can make more informed decisions, leading to more effective and innovative strategies. (Vomberg et al., 2024). The emergence of and persistent advances in modern technologies including artificial intelligence (AI) and big data analysis continue to drive forward the potential via which such technology may be utilized across critical sectors of the economy including higher education (Verhoef et al., 2021). Modern technologies are often credited with streamlining business process, augmenting input-output ratios, and elevating the levels of user engagement, trust, and satisfaction (Papagiannidis & Marikyan, 2020). In particular, AI is a branch of computer science that is concerned with the empowerment of information and communication technology via the design and development of advanced tools and machines inherently capable of performing tasks and solving problems that typically require predefined levels and subsets of human intelligence (Cotton et al., 2023). It follows that AI interventions are, by definition, formulated not only to perform typical human cognitive functions, but also to have such functions simulated and largely imitated (Celik et al., 2022; Murillo et al., 2021). In the context of higher education Islamic

studies, the range of areas where AI may be essentially valuable include natural language processing (NLP), instant response querying systems (IRQS), intelligent recommendation systems (IRS), virtual assistant systems, automated transcription, predictive analytics, and digitization of Islamic culture and artifacts (Akgun and Greenhow, 2022). In this vein, NLP rely on intelligent language tools and sentiment analysis where the objective is to translate, summarize, interpret, and analyze source materials in Arabic including the Quran, Hadith, Islamic law, and Islamic philosophy (Moawad et al., 2018). IRQS systems encompass algorithmic data training techniques to immediately answering questions and instantaneously clarifying subject matters related, e.g., to Sunna, Hadith, and Islamic philosophy (Almazrooie et al., 2020). IRS systems employ logical functions and unsupervised learning algorithms to label learning preferences, styles, and interests and organize such label into suggested relevant course options and course contents (Almazrooie et al., 2020). IRS is a textbook example of how the personalized learning apparatus of AI in higher education may manifest itself in the context of Islamic studies (Celik et al., 2022). Virtual assistant systems (VAS) embody the realm of conversational, knowledge, and direct engagement agents that reply to chat inputs in a convenient, accessible, and user-friendly fashion (Cotton et al., 2023).

The research uses Semantic feature analysis to classify Quran verses into various topics, aiming to enhance the accuracy of this classification based on their thematic content. The method aims to provide a more accurate and nuanced classification of Quranic topics compared to traditional keyword-based methods. (Mediamer, G.2024)

Automated transcription involves translation, reproduction, simulation, and representation algorithms that disseminate rigorous content of Islamic studies to non-native speakers of Arabic (Adeleke et al., 2017). Such transcription intelligence algorithms are particularly relevant in the context of Islamic studies since many students and scholars tend to have a mother tongue different from that of Arabic (Hakak et al., 2018). Predictive analytics establish linguistic patterns, uncover conceptual discrepancies, and report insights, associations, and relationships via the set of intelligence algorithms, degenerative analytic codes, and discriminative data protocols developed for the purpose of performing data analysis on large volumes of Islamic data (Sawalha et al., 2012). Digitization of Islamic culture and artifacts go a long way into the preservation of Islamic history and heritage via utilizing intelligence technologies and image recognition algorithms to protect, store, retrieve, and share rare and valuable Islamic documents, manuscripts, texts, and hand written compositions (Raja-Yusof et al., 2013). The authors (Othman et al., 2024) aim to contribute to a deeper understanding of the effective ways to educate students in Takhrij Al-Hadith. The study compared the teaching methods of takhrij al-hadith at two Malaysian universities, finding that both used a mix of conventional and innovative approaches.

This study explores the impact of specific AI features on student achievement in higher education Islamic studies. AI holds enormous potential for enhancing learning, and this research aims to provide empirical evidence using the Information Systems Success Model (ISSM) as its foundation (DeLone & McLean, 1992). The study analyzes data from 246 students enrolled in the Quran and Islamic Studies college at the Islamic University in Medina. The ISSM framework theorizes that system quality and information quality positively influence student performance through perceived usefulness and student satisfaction.

In line with this framework, the university utilizes an advanced AI-powered Quran reader head (Maqraa). This reader leverages intelligent tools to facilitate Quranic study, offering recitations from various readers and dialects. It also offers access to desktop and online portals with features like translations, exegesis, memorization support, and advanced analysis capabilities, enhancing students' understanding of the Quran.

In view of the preceding, the study advances the following research questions:

RQ1: What is the impact of system quality on student evaluation of system usefulness?

RQ2: What is the impact of information quality on student evaluation of system usefulness?

RQ3: What is the impact of system quality on student satisfaction with system?

RQ4: What is the impact of information quality on student satisfaction with system?

RQ5: What is the impact of student evaluation of system usefulness on academic performance?

RQ6: What is the impact of student satisfaction with system on academic performance?

RQ7: What is the impact of the interdependence between student evaluation of system usefulness and student satisfaction with system on academic performance?

The rest of the study is presented according to the following sections: literature review, research design, data analysis & empirical results, and conclusion.

LITERATURE REVIEW

DeLone & McLean (1992) synthesize the extant literature and introduce ISSM where the success of an AI intervention in Islamic studies can be expressed as a function of information quality, system quality, usefulness, user satisfaction, individual impact, and organizational impact. A comprehensive and multidimensional model, ISSM is inherently consistent with Mason's (1978) information influence theory. In this fashion, ISSM defines a remarkable departure from the technology acceptance model, which reiterates the theory of reasoned action (Davis, 1989). Perhaps the most accentuated feature of ISSM is that of the interdependence and interconnection relationship governing identified success factors. In this concern, ISSM hypothesizes that information quality and system quality individually affect both usefulness and user satisfaction. ISSM further hypothesizes that the interdependence between usefulness and user satisfaction is both necessary and sufficient for a joint (or collective) impact on individual performance. Owing to such interdependence among success factors, models that estimate ISSM specifications often employ interactive terms to measure and test the impact of one success factor given the status of other factors (Al-Fraihat et al., 2020). For instance, Ibrahim (2018) employ the variables of usefulness and user satisfaction to explain the adoption of intelligent technologies by administrators in higher education. Al-Rahmi et al. (2021) apply ISSM to the context of social media in higher education and report that system quality and information quality add to the set of significant success factors. Alqahtani and Rajkhan (2020) define system quality and information quality as binding factors governing the success of e-learning platforms. Martins et al. (2019) assess the ISSM variables of system quality and information quality as success factors of AI interventions in higher education. Al-Fraihat et al. (2020) evaluate that system quality and information quality as variables driving's student satisfaction with e-learning systems in higher education. Salam and Farooq (2020) contend that system quality of web-based collaborative learning stimulates system usage, which in turns translates into higher levels of student satisfaction. Alamri et al. (2020) underline that system quality and information quality of social media learning platforms are associated positively with higher academic performance. Al-Adwan et al. (2021) develop a structural model of the success of e-learning platforms where the variables of system quality and information quality are treated as exogenous variables. Abdulhafeez et al. (2020) summarize that system quality and information quality are antecedents to academic integrity across Saudi universities' e-learning platforms. Alhabeeb and Rowley (2017) highlight that system quality and information quality tend to vary positively with the satisfaction levels of instructors and students in Saudi higher education. Fernandez-Rio et al. (2017) provide that AI learning interventions have a positive impact on the level of student motivation via the mediating influences of system quality and information quality. Castro (2019) describes system quality and information quality as capabilities of blended learning in higher education. Sayaf et al. (2022) explain student acceptance and adoption of AI educational interventions in terms of the system quality and learning quality of both teaching and learning technologies. Yekefallah et al. (2021) model system quality and information quality as precedents to student satisfaction with e-learning platforms and AI educational interventions. El Mhouti et al. (2017) hold that enhancing system quality and information quality is grounds for enhancing the effectiveness of web-based AI learning systems. Samsudeen and Mohamed (2019) maintain that system quality and information quality instigate the intentions of higher education students to adopt AI educational interventions, namely e-learning systems. Choi and Lam (2018) employ the ISSM variables of system quality and information quality to develop a deductive model of AI-powered teaching and learning. Al-Maatouk et al. (2020) adhere to a framework of technology-

task fit, and conclude that system quality and information quality are necessary for the adoption of AI society media interventions in higher education.

Taking note of the review above, the evaluation of higher education students of Islamic studies with respect to the system quality and information quality of AI interventions in terms of usefulness and satisfaction were hardly measured or investigated (Alzouebi et al., 2019). Toward this end, the study complements the extant literature with ISSM evidence of students at the college of Quran and college of Noble Hadith and Islamic studies at the Islamic university in Medina.

While previous research has explored AI in education, there is still lack of studies specifically examining the impact of AI success factors on student performance in Islamic and linguistic contexts. This study fills that gap by providing detailed empirical evidence from a well-defined sample, using a robust theoretical framework and rigorous statistical analysis. The findings highlight the importance of system quality and information quality in enhancing student performance, offering valuable insights for educators and policymakers aiming to implement AI tools effectively in similar contexts.

Research design

To answer the research questions above, the study adheres to the traditional scientific paradigm to explain: [1] usefulness of the Quran reader head AI intervention to students in terms of the intervention's system quality and information quality; [2] student satisfaction with the Quran reader head AI intervention in terms of the intervention's system quality and information quality; and [3] student performance in terms of student evaluation of the usefulness of and satisfaction with the Quran reader head AI intervention. The study thus adopts all relevant ontological, epistemological, and axiological assumptions underlying the quantitative paradigm (Creswell, 2003). Ontologically, the study assumes that the variables of system quality, information quality, system usefulness, student satisfaction, and student performance are observable and objectively measurable. Epistemologically, the study assumes that the individual effects of system quality and information quality on student evaluation of the usefulness of and satisfaction with the AI educational technology intervention can be objectively measured and tested.

Axiologically, the study maintains that investigating and capturing the impact of the system quality and information quality of the AI educational intervention on student evaluation of the usefulness of and satisfaction with such intervention will inform the design of future AI interventions in higher education. By the same token, the study holds that documenting the impact of student usefulness of and satisfaction of the AI educational intervention on student performance will inform the theories of education and educational. It can help educators understand how AI tools can be integrated into the curriculum to better support student learning and achievement. The research investigates the correlation between students' satisfaction with AI interventions and academic performance, offering insights into technology's potential to improve learning outcomes.

Study sample

The study employs a sample size of 246 students at the college of Quran and college of Noble Hadith and Islamic studies at the Islamic University of Medina. The study applies Cochran's (1977) sample size determination framework to a total student population of 674 at a 95% confidence interval, 5% margin of error, and 50% population proportion as follows: 246 = [(1.96^2) *0.5*(1-0.5) *(0.05^-2)] / [1 + {(1.96^2) *0.5*(1-0.5) *(0.05^-2) *(7163^-1)}].

Variables' measurement and coding

System quality is measured according to the validated scale measurement of accessibility (Lee et al., 2001), ease of operation (Lee et al., 2001), enjoyment (Venkatesh and Bala, 2008), compatibility (Tung and Chang, 2008), and security (Lee et al., 2001) (Table 1). Information quality is measured according to the validated scale measurement of believability, completeness, concise information, objectivity, and relevance (Lee et al., 2001) (Table 2), (Ju, B., & Stewart, J. B. 2024). Usefulness is measured according to the validated scale measurement of perceived ease of use and perceived usefulness (Venkatesh and Bala, 2008) (Table 3). Student satisfaction is measured according to the

validated scale measurement of satisfaction (Zalazar-Jaime et al., 2023) (Table 4). Student performance is measured as GPA scaled from 1 to 5. All items to variable measurements are captured on a five-point Likert-type scale. All variables are measured based on average item score and are coded as 1 for lowest score, 2 for lower score, 3 for average score, 4 for high score, and 5 for highest score.

Table 1: Measurement of system quality

Category	Measurement
Accessibility	Information is easily retrievable. Information is easily accessible. Information is easily obtainable. Information is quickly accessible when needed.
Ease of operation	Information is easy to manipulate to meet my needs. Information is easy to aggregate. Information is easy to combine with other information.
Enjoyment	I find using the system enjoyable. The actual process of using the system is pleasant. I have fun using the system.
Compatibility	Using the system is compatible with most of my learning. Using the system is appropriate for my lifestyle. Using the system is appropriate for my learning.
Security	Information is protected against unauthorized access. Information is protected with adequate security.

Table 2: Measurement of information quality

Category	Measurement
Believability	Information is believable. Information is trustworthy. Information is credible.
Completeness	Information is complete. Information is sufficient. Information is formatted compactly.
Objectivity	Information is objective. Information is based on facts. Information represents impartial view.
Concise information	Information is formatted compactly. Information is presented concisely.
Relevance	Information is relevant to my study. Information is important to my study. Information is appropriate for my study. Information is applicable to my study.

Table 3: Measurement of Usefulness

Category	Measurement

Perceived ease of use	My interaction with the system is clear and understandable. Interacting with the system does not require a lot of my mental effort. I find the system easy to use.
Perceived usefulness	Using the system improves my learning performance. Using the system in learning increases my productivity. Using the system enhances my effectiveness in education. I find the system useful for my education.

Table 4: Measurement of satisfaction
I am satisfied with the performance of the system.
I am pleased with the experience of using the system.
My decision to use the system was a wise one.

DATA ANALYSIS, DISCUSSION & EMPIRICAL RESULTS

To answer RQ1 and RQ2, the study estimates a linear model to explain student evaluation of system usefulness in terms of the ISSM variables of system quality and information. The model estimation is carried out according the functional form:

FF (1): student evaluation of system usefulness = f (system quality; information quality)

The model is specified as follows while assuming that the underlying data generating process satisfies the Gauss-Markov properties of correct specification and identically and independently distributed error terms with zero mean and constant variance:

*SF (1): usefulness (i) = b0 + b1*system (i) + b2*information (i) + e (i)*

Where usefulness is a measure of student evaluation of system usefulness, system is a measure of system quality, and information is a measure of information quality; (i) is an index for the student included in the dataset and takes discrete values between 1 and 246; b0 is an intercept parameter estimate; b1 and b2 are coefficients or parameter estimates; and e is a Gauss-Markov error term with an average value of zero and constant variance everywhere across the study sample.

The statistical model output shows that the model has a significant explanatory power of 43.5 % as measured by adjusted R squared (see Table 5). The statistical output also shows that both ISSM variables of system quality and information were replicated positively in student evaluation of the system usefulness. Furthermore, the individual impacts of the two independent variables were well-pronounced and statistically significant at all traditional levels of statistical significance.

Table 5: Answering RQ1 & RQ2 (Regressing student evaluation of system usefulness on ISSM variables of system quality and information quality.)

SUMMARY OUTPUT								
Regression Statistics								
Multiple R	0.655451							
R Square	0.429616							
Adjusted R Square	0.424902							
Standard Error	0.801859							
Observations	245							

ANOVA								
	df	*SS*	*MS*	*F*	*Significance F*			
Regression	2	117.1993	58.59965	91.13786	3.13E-30			
Residual	242	155.6007	0.642978					
Total	244	272.8						
	Coefficients	***Standard Error***	***t Stat***	***P-value***	***Lower 95%***	***Upper 95%***	***Lower 95.0%***	***Upper 95.0%***
Intercept	1.08126	0.185871	5.817268	1.88E-08	0.715129	1.447392	0.715129	1.447392
System Quality	0.226004	0.049244	4.589472	7.14E-06	0.129002	0.323006	0.129002	0.323006
Information Quality	0.448456	0.05116	8.76578	3.33E-16	0.347681	0.549232	0.347681	0.549232

To answer RQ3 and RQ4, the study estimates a linear model to explain student satisfaction with the system in terms of the ISSM variables of system quality and information. The model estimation is carried out according the functional form:

FF (2): student satisfaction with the system = f (system quality; information quality)

The model is specified as follows while assuming that the underlying data generating process satisfies the Gauss-Markov properties of correct specification and identically and independently distributed error terms with zero mean and constant variance:

*SF (2): satisfaction (i) = b0 + b1*system (i) + b2*information (i) + e (i)*

Where satisfaction is a measure of student satisfaction with the system, system is a measure of system quality, and information is a measure of information quality; (i) is an index for the student included in the dataset and takes discrete values between 1 and 246; b0 is an intercept parameter estimate; b1 and b2 are coefficients or parameter estimates; and e is a Gauss-Markov error term with an average value of zero and constant variance everywhere across the study sample.

The statistical model output shows that the model has a significant explanatory power of 41.6 % as measured by adjusted R squared (see Table 6). The statistical output also shows that both ISSM variables of system quality and information were replicated positively in student satisfaction with the system. Furthermore, the individual impacts of the two independent variables were well-pronounced and statistically significant at all traditional levels of statistical significance.

Table 6: Answering RQ2 & RQ3 (Regressing student satisfaction with the system on ISSM variables of system quality and information quality.)

Regression Statistics									
Multiple R	0.567599								
R Square	0.322168								
Adjusted R Square	0.316566								

Standard Error	0.990661								
Observations	245								
ANOVA									
	df	*SS*	*MS*	*F*	*Significance F*				
Regression	2	112.8825	56.44125	57.51038	3.68E-21				
Residual	242	237.5012	0.98141						
Total	244	350.3837							
	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*Lower 95.0%*	*Upper 95.0%*	
Intercept	1.095241	0.229635	4.769482	3.19E-06	0.642902	1.547579	0.642902	1.547579	
System Quality	0.177497	0.060839	2.917491	0.003861	0.057655	0.297338	0.057655	0.297338	
Information Quality	0.475751	0.063206	7.527024	1.02E-12	0.351247	0.600255	0.351247	0.600255	

To answer RQ5 and RQ6, the study estimates a linear model to explain student academic performance in terms of student evaluation of system usefulness and student satisfaction with the system. The model estimation is carried out according the functional form:

FF (3): student performance = f (student evaluation of system usefulness; student satisfaction with system)

The model is specified as follows while assuming that the underlying data generating process satisfies the Gauss-Markov properties of correct specification and identically and independently distributed error terms with zero mean and constant variance:

*SF (3): performance (i) = b0 + b1*usefulness (i) + b2*satisfaction (i) + e (i)*

Where performance measures student academic performance, usefulness is a measure of student evaluation of system usefulness, and satisfaction measures student satisfaction with system; (i) is an index for the student included in the dataset and takes discrete values between 1 and 246; b0 is an intercept parameter estimate; b1 and b2 are coefficients or parameter estimates; and e is a Gauss-Markov error term with an average value of zero and constant variance everywhere across the study sample.

The statistical model output shows that the model has a significant explanatory power measured by adjusted R squared (see Table 7). The statistical output also shows that both student evaluation of

the system usefulness and student satisfaction with the system were replicated significantly and positively in student performance. Furthermore, the individual impacts of the two independent variables were well-pronounced and statistically significant at all traditional levels of statistical significance.

Table 7: Answering RQ5 & RQ6 (Regressing student performance on student evaluation of system usefulness and student satisfaction with the system.)

SUMMARY OUTPUT									
Regression Statistics									
Multiple R	0.516168								
R Square	0.266429								
Adjusted R Square	0.260367								
Standard Error	0.919628								
Observations	245								
ANOVA									
	df	*SS*	*MS*	*F*	*Significance F*				
Regression	2	74.3327	37.16635	43.94662	5.23E-17				
Residual	242	204.6632	0.845716						
Total	244	278.9959							
	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*Lower 95.0%*	*Upper 95.0%*	
Intercept	1.677994	0.212866	7.882862	1.09E-13	1.258687	2.0973	1.258687	2.0973	
Usefulness	0.360929	0.067745	5.327791	2.27E-07	0.227484	0.494373	0.227484	0.494373	
Satisfaction	0.197575	0.059776	3.305281	0.001093	0.079828	0.315322	0.079828	0.315322	

To answer RQ7, the study estimates a linear model to explain student academic performance in terms of the interdependence between student evaluation of system usefulness and student satisfaction with the system. The model estimation is carried out according the functional form:

FF (3): student performance = f (interdependence between student evaluation of system usefulness and student satisfaction with system)

The model is specified as follows while assuming that the underlying data generating process satisfies the Gauss-Markov properties of correct specification and identically and independently distributed error terms with zero mean and constant variance:

*SF (3): performance (i) = b0 + b1*usefulness*satisfaction (i) + e (i)*

Where performance measures student academic performance, usefulness*satisfaction is a multiplicative measure of the interdependence between student evaluation of system usefulness and student satisfaction with system; (i) is an index for the student included in the dataset and takes discrete values between 1 and 246; b0 is an intercept parameter estimate; b1 is coefficient or

parameter estimate; and e is a Gauss-Markov error term with an average value of zero and constant variance everywhere across the study sample.

The statistical model output shows that the model has a significant explanatory power measured by adjusted R squared (see Table 8). The statistical output also shows that the interdependence between student evaluation of the system usefulness and student satisfaction with the system is replicated significantly and positively in student performance and such relationship is well-pronounced and statistically significant at all traditional levels of statistical significance.

Table 8: Answering RQ7 (Regressing student performance on the interdependence term)

SUMMARY OUTPUT								
Regression Statistics								
Multiple R	0.527824							
R Square	0.278599							
Adjusted R Square	0.27563							
Standard Error	0.91009							
Observations	245							
ANOVA								
	df	*SS*	*MS*	*F*	*Significance F*			
Regression	1	77.72785	77.72785	93.84433	5.63E-19			
Residual	243	201.2681	0.828264					
Total	244	278.9959						
	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*Lower 95.0%*	*Upper 95.0%*
Intercept	2.563614	0.121393	21.11835	6.47E-57	2.324498	2.802731	2.324498	2.802730655
Usefulness*Satisfaction	0.08295	0.008563	9.687329	5.63E-19	0.066083	0.099817	0.066083	0.099816 62

As shown in above table 8, the statistical analysis reveals a strong positive relationship between student perceptions and academic performance. The adjusted R-squared value indicates the model explains a significant portion of the variance in student performance. Additionally, the analysis

confirms a statistically significant and positive association between student evaluation of system usefulness and student satisfaction with the system, which in turn, positively influences student performance.

DISCUSSION AND INTERPRETATION OF EMPIRICAL RESULTS

The findings of this study provide valuable insights into how information systems can be designed to improve student learning outcomes. By prioritizing user experience and information quality, educators can leverage AI technology to create effective learning environments that enhance student achievement.

SIGNIFICANT RESULTS

1. System quality and information quality were both positively linked with student evaluation of system usefulness and student satisfaction. This recommends that well-designed systems with accurate and relevant information are more likely to be perceived as helpful and contribute to a positive user experience.
2. Both student evaluation of system usefulness and student satisfaction were significantly and positively related to student academic performance. This indicates that students who find the system useful and are satisfied with it tend to perform better academically.
3. The interaction between student evaluation of system usefulness and student satisfaction also had a positive and significant outcome on student performance. This suggests that the joint effect of these two factors is even stronger than their individual effects. In other words, students who find the system both useful and are satisfied with it experience the greatest benefit in terms of academic performance.

These findings highlight the importance of designing information systems that are not only functional but also user-friendly and provide students with the information they need in a clear and accessible way. By focusing on system quality and information quality, educators and developers can create learning environments that support student success. The study introduces several advances in the context of AI-enhanced education. Unlike previous research, which often focuses on general educational settings, this study is tailored to the unique environment of the Islamic University of Medina. The use of the AI-powered Quran reader head (Maqraa) with multiple readers and dialects provides a novel application of AI in Islamic Studies.

LIMITATIONS AND FUTURE RESEARCH

The research was conducted in a specific context, and the generalizability of the findings may need to be tested in other settings. Future research could explore the specific mechanisms by which system characteristics influence student evaluations, satisfaction, and performance.

CONCLUSION

The study's findings indicate that both system quality and information quality significantly influence student satisfaction and evaluation of system usefulness, which in turn positively impact student performance. This study employs a sample of 246 students at the college of Quran and college of Noble Hadith and Islamic studies at the University of Medina to test the model predictions of ISSM with respect the currently utilized Quran reader head AI intervention (Maqraa). The study results show that system quality and information quality drive both student evaluation of system usefulness and student satisfaction of the system. The study reveals that system and information quality significantly impact students' perceived usefulness and satisfaction with AI tools, which in turn, influence their academic performance. These findings support the ISSM's claim that the interdependence between perceived usefulness and satisfaction significantly impacts student achievement. The study fills that gap by providing empirical evidence from a well-defined sample of

students at the Islamic University of Medina. However, the study acknowledges limitations due to the model's scope. Future research could revisit this topic by employing an extended version of ISSM or alternative frameworks like the Technology Acceptance Model (TAM), the Impact Model, or the Unified Theory of Acceptance and Use of Technology.

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