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THE MEDIATING EFFECT OF SERVICE QUALITY BETWEEN ARTIFICIAL INTELLIGENCE AND ACADEMIC PERFORMANCE AMONG STEM STUDENTS IN ALGERIA: AN SEM ANALYSIS

With the significant advancements in technology and artificial intelligence (AI) algorithms and the substantial benefits that they offer in all fields, policymakers in the higher education sector, as in other sectors, have focused on the importance of adopting these technologies and benefiting from them as much as possible to improve the quality of services provided to students and enhance their academic performance. Based on this importance, the present study attempts to highlight the effect of AI on students' academic performance (SAP), with the mediating role of service quality (SQ) in Algerian higher education institutions (HEIs). Data was collected utilizing an online questionnaire from a random sample consisting of 214 final-year master's students in Science, Technology, Engineering, and Mathematics (STEM) disciplines at the University of Continuing Education in Saida, Algeria. The data was analyzed relying on the Structural Equation Modeling analysis (SEM) using the Jeffrey Amazing Statistics Program (JASP). The results of the study showed that AI has a direct and significant effect on SAP. Moreover, there is a statistically significant effect of AI on SQ. Furthermore, the results indicated that SQ, in turn, directly and positively affects SAP. Additionally, the findings revealed that SQ mediates the effect between AI and SAP. The study's implications provide crucial insights for policy and decision makers in HEIs, highlighting that integrating AI applications into higher education is a valuable initiative to enhance SQ and SAP. Meanwhile, the research presents a set of recommendations that should be taken into account, most notably the urgent need to provide the necessary infrastructure for AI implementation to maximize its benefits, promote a culture of AI adoption, and encourage autonomy in administrative work within universities to reduce bureaucracy that hinders creativity and digital initiatives.

Keywords: *Artificial intelligence, Higher education, Service quality, Students' academic performance, SEM Analysis, University of Continuing Education.*

INTRODUCTION

The rapid advancement of technology, particularly in the fields of AI, is fundamentally transforming the way individuals operate, communicate, behave, and act (Aguado-García et al., 2025). These

technological developments not only enhance the efficiency of daily processes but also open up new avenues for thinking and interaction (Aldhafeeri et al., 2025). These innovations compel us to re-evaluate our understanding of human knowledge and capabilities, raising important questions about whether these technologies will surpass the traditional boundaries of human experience (Zakhem et al., 2025). AI plays a vital role in higher education activities such as teaching, research, and learning. It is utilized to improve personalized learning, and in research, it is an effective tool for facilitating productive analyses. Researchers utilize AI tools to find information, verify facts, translate, and analyze data, among other applications (Falebita et al., 2025). These tools can produce text that is human-like, help with coding, summarization, language translation, and provide real-time feedback. Both students and teachers have found them appealing due to their accessibility and adaptability, especially for tasks involving academic support and content creation. As a result, more AI is being used in academic settings, which has improved student performance and motivation. (Lee et al., 2024). Students, as part of the digital generation, are among the prominent adopters of this cutting-edge technology, using AI applications for various purposes, which reveals that they possess a strong understanding of technological applications and their advantages in many fields (Ahn, 2025).

In this context, D. M. Bamasoud et al. (2025) indicated that a significant number of students have already begun using AI as part of their study routines. In the United States, for example, over 40% of students aged 18–29 used ChatGPT for academic purposes within its first year of release. Similarly, preliminary evidence in the Middle East and Africa (MEA) region indicates growing interest in using AI to support learning, particularly in resource-constrained educational environments (Routray & Mohanty, 2025). While this trend offers the potential for learning to become more personalized, accessible, and efficient, it also raises some concerns. Critics warn that over-reliance on AI may negatively impact critical thinking, facilitate academic misconduct, and challenge traditional assessment models (Kalniņa et al., 2024).

Although its algorithms are still under development, a study by G. Andreou and P. Christani, (2025) revealed the significant benefits of current AI applications in areas such as education, customer service, and content creation. However, evidence of their long-term success is still being investigated (Hu et al., 2025).

Research gap and aim. Despite the increasing popularity and widespread adoption of these applications, the factors governing university students' performance and satisfaction with them remain largely unexplored, particularly in some developing African countries geographically close to Europe and seeking to emulate its successful technological experience. In Morocco, for example, a study by R. Mjahad et al. (2025) demonstrated that while AI integration can enhance educational practices, its overuse can negatively impact student-teacher interactions and social interactions. Similarly, a study by K. Mohamed et al. (2024) revealed that despite the strong interest in expanding their knowledge in the field of AI, students at Mohammed VI University in Rabat, Morocco, have a limited awareness of the benefits of AI applications in higher education due to a lack of training opportunities. Likewise, a study by M. Selmi et al. (2025) found that AI has provided significant opportunities for personalizing learning and teaching in Tunisian universities, improving administrative services, and supporting students' mental health. However, its full integration into HEIs has raised significant security challenges for students, affecting their privacy. Recognizing the role of AI in higher education, this study will attempt to uncover the role of AI in enhancing SAP through the mediating role of SQ in developing North African countries such as Algeria.

This section is followed by a review of the literature, the development of a conceptual model, and the formulation of hypotheses. Following that, methodology, findings, discussions, conclusions, implications and recommendations, limitations, and areas for future research.

LITERATURE REVIEW

Artificial intelligence. AI has evolved over the decades, and its applications in education have expanded significantly. Early systems, such as intelligent tutoring systems, provided rule-based adaptive learning aimed at particular knowledge fields (Jin et al., 2025). With advancements in machine learning, natural language processing (NLPs), and data availability, more sophisticated AI tools have emerged, such

as generative AI and large language models, enabling the production of coherent academic texts, the provision of instant feedback, and assistance with complex research tasks (Yuen et al., 2025). In the era of the fourth industrial revolution, AI represents a branch of computer science devoted to creating machine intelligence comparable to the natural intelligence observed in humans and animals, capable of learning and applying deductive reasoning like human cognition (Na et al., 2022).

In its broadest sense, X. Liu and K. F. Yuen (2025) described AI as a system that demonstrates intelligent behavior by analyzing its environment and autonomously performing actions to achieve specific objectives, replicating human intellectual capabilities through advanced machine-driven processes.

Services quality. SQ combines the terms "service" and "quality". Service refers to "any remedy or relief that one party can offer to another that is essentially intangible and does not result in the ownership of anything". Quality has become recognized as a worthwhile tool for increasing operational productivity and work performance. In one term, SQ is defined as a service provider's ability to satisfy customers efficiently, thereby enhancing business performance (Singaraj et al., 2019).

In higher education settings, M. A. O'Neill and A. Palmer (2004) described SQ as the discrepancy between what students want and how they actually perceive the service. SQ is a crucial factor for success in HEIs and an important element of educational achievement. (Seitova et al., 2024), and a crucial element for enhancing organizational competitiveness (Manea, 2014). It can have tangible consequences on both the university and its members, including students, who are the primary stakeholders in HEIs (Avcı et al., 2015).

Students' academic performance. In the educational context, SAP is a major source of interest, not only for improving the country's educational and economic systems, but also for its impact on students at the individual level, given its profound effects on their future success and well-being (Carroza-Pacheco et al., 2025). Good SAP serves a vital role in students' continuation of studies, employment opportunities, financial stability, completion of courses, and graduation (Hailu et al., 2024).

In the higher education setting, it is difficult to specify a single, all-encompassing term for SAP due to its multifaceted nature, as it includes interrelated contextual, individual, and systemic factors (Chacón-López & López-Martínez, 2026)

S. Horanicova et al., (2024) define SAP as the degree to which a student meets their short- or long-term educational objectives, as measured by cumulative grade point average (CGPA) or an ongoing evaluation. A. M. Carroza-Pacheco et al., (2025) describe good SAP as students achieving a high cumulative GPA (Grade Point Average). Suleiman et al., (2024) view it as the outcome of learners' academic achievements and are affected by variables like family, friends, schoolmates, educators, motivation, economic resources, and engagement in subject-related domains.

CONCEPTUAL MODEL AND HYPOTHESES DEVELOPMENT

AI and SQ. Several previous studies have indicated the relationship between AI and SQ in the higher education context. A study by P. Sebopelo et al. (2025) revealed that the use of AI systems, such as automated grading and feedback systems, ChatGPT, and chatbots, significantly contributed to enhancing the quality of open and distance learning in HEIs. In another study based on constructivist learning theory, the results showed a strong and positive association between AI and SQ in higher education at the University of Nairobi in Kenya (Shikokoti & Reuben, 2024). The same findings were confirmed in another study conducted in Botswana, which revealed that the integration of AI significantly impacts students' perceptions of the SQ (Sebopelo, 2024). Additionally, a study by M. Krishnakumar and K. Balasubramanian (2024) showed how AI can improve the quality of higher education in four areas: administrative procedures, teaching, learning, and assessment. Based on this literature, the following hypothesis is put:

H1: AI has a positive and significant effect on SQ

AI and SAP. Following a meta-analysis of over 700 research papers, a study by M. D. Adewale et al. (2024) showed that the integration of AI in education has had tangible benefits for SAP in open and distance learning environments. Similarly, another study showed that AI tools contributed to mitigating learning difficulties and improved SAP (Bressane et al., 2024). Furthermore, the outcomes of a study by

H. A. Altememy et al. (2023) indicated a significant impact of AI-based teaching applications on the SAP and achievements in Iraqi universities. In another study by L. L. D. Mallillin (2024) demonstrated that AI accurately targets students' specific educational interests, facilitating the provision of extended and enhanced educational experiences and offering them the necessary assets and services to improve their academic performance. Therefore, this study presents the following hypothesis:

H2: AI has a positive and significant effect on SAP

SQ and SAP. In a study of 380 undergraduate students in Bilbao, Spain, Peña-Lang et al. (2023) found that the dimensions of SQ significantly influence students' achievement and overall SAP. Similarly, T. T. A. Ngo et al. (2025) found that SQ has an impact on student satisfaction and SAP in the higher education sector in Vietnam. In a relevant study, Z. Z. Oliso et al., (2024) revealed that there is a significant and positive impact of SQ on SAP in three public universities, which account for 30% of the ten public HEIs in Ethiopia's southern region. Considering that, we propose the following research hypothesis:

H3: SQ has a positive and significant effect on SAP

The mediation effect of SQ between AI and SAP. As revealed by previous studies, the mediation role of SQ between AI and SAP is evident in various ways. For example, a study by N. N. Hamadneh et al. (2022) demonstrated that the use of AI improved the quality of e-learning services, which in turn positively impacted SAP in blended learning. Similarly, a comparable study conducted on a sample of 911 students at the University of Guayaquil in Ecuador found that the SQ of higher education supported by AI enhanced SAP (Pacheco-Mendoza et al., 2023). In the same vein, a study by T. M. Y. Elmasry (2022) revealed that the SQ of e-learning driven by AI had a significant impact on SAP at Unaizah Colleges in the Kingdom of Saudi Arabia. Hence, we propose the following.

H4: SQ mediated the effect between AI and SAP

To better comprehend the connection between variables, we developed a conceptual model, as depicted in the figure below.

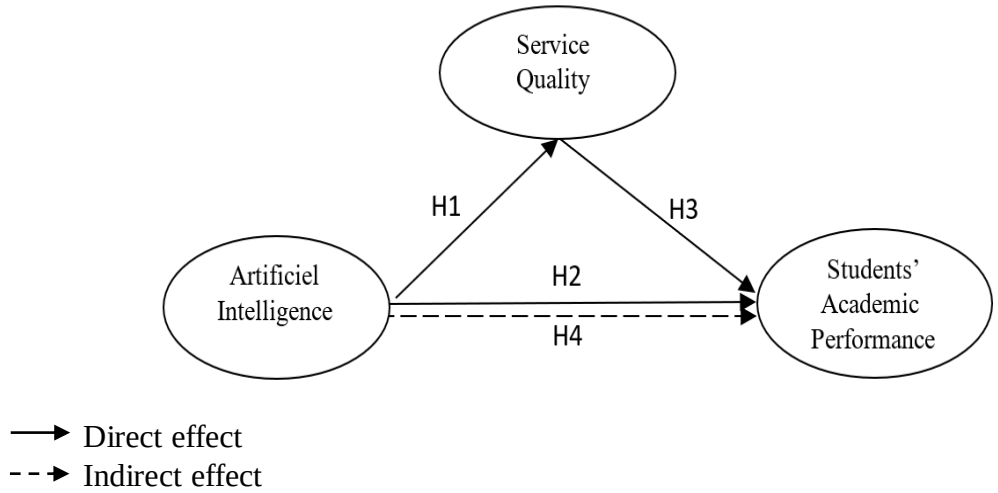

Figure 1. **Conceptual Model**

Developed by authors

METHODOLOGY

To investigate the relationship between AI, SQ, and SAP in Algerian HEIs, the researcher focused on the final-year master's students in STEM disciplines at the University of Continuing Education in Saida, Algeria, who are 336 students, upon information acquired from the Vice Rectorate in charge of higher education at the undergraduate level.

In this research, we utilized an online survey to gather data from students. To guarantee reasonable representation, we distributed the survey randomly to all students via email and Facebook. After two weeks, we obtained 237 responses, of which 23 were incomplete and 214 were useful for final analysis, accounting for 63.69% of the overall number of participants.

The instrument was adapted from previous research and is divided into two sections: (1) the respondents' demographic (gender, age, and Field). (2) 18 items pertain to AI (Lin et al., 2024), SQ (Phonthanukitithaworn et al., 2022), and SAP (Al-Mamary et al., 2025). The five-point Likert scale was employed, with indicators ranging from strongly disagree (1) to strongly agree (5).

ANALYSIS AND RESULTS

Characteristics of respondents

Table 1

Characteristics of Respondents

Variable	Category	Frequency	%
Gender	male	95	44.39
	female	119	55.60
Age	18-22	75	35.04
	23–27	63	29.43
	28-32	42	19.53
	≥ 33	7	03.27
Field	Science	52	24.29
	Technology	48	22.49
	Engineering	85	39.71
	Mathematics	29	13.55

Developed by authors using JASP outputs

In terms of the participants' characteristics, the table above showed that (44.39%) of the survey participants were female, and (55.60%) of the participants were male. Regarding age groups, (35.04%) of students were enrolled between 18 and 22, followed by those between the ages of 23 and 27 (29.53%), 28 and 32 (19.53%), and students 33 and older (3.27%). Students studying science made up the largest percentage of participants (24.29%), followed by students studying technology (22.49%), engineering (30.71%), and mathematics (13.55%).

Structural equation modelling (SEM). To assess the proposed model and evaluate the suggested hypotheses, the SEM technique was utilized with the JASP program. The SEM technique involves two phases: first, assess the outer model, and then test the causal associations between the constructs in the inner model (Anderson & Gerbing, 1988).

Outer model. Before investigating the suggested hypotheses, the outer model should first be assessed using a number of measures. Begin with the indicator's reliability (Hair et al., 2021). J. F. Hair et al. (2021) proposed that indicators' outer loadings equal to or greater than 0.60 are sufficient for analysis, whereas indicators' outer loadings equal to or greater than 0.70 are deemed highly significant and guarantee the outer model's validity in identifying the latent variables. Therefore, four indicators were dropped from the final analysis: two AI indicators, namely "The use of AI facilitates communication with professors and administration during and outside of study time" and "The use of AI provides students with diverse options for understanding courses", and two SAP indicators: "Using AI has contributed to my overall academic success'' and ''I have experienced better time management in my academic tasks since using AI". These indicators were removed due to their weak loads, which did not meet the 0.7 threshold, and would later negatively affect the convergent and discriminant validity of the instrument (Hair et al., 2021). While the remaining indicators that overreached the threshold value and better supported model matching were kept, as shown in the table below.

Table 2

Internal Consistency and Reliability Results

Latent	Indicator	Factor loading	α	CR	AVE	Source
AI	AI01	0.809	0,921	0,807	0,720	(Lin et al., 2024)
	AI02	0.855				
	AI03	0.925				
	AI04	0.796				
	AI05	0.900				
	AI06	0.812				
SAP	SAP01	0.819	0,892	0,823	0,654	(Al-Mamary et al., 2025)
	SAP02	0.887				
	SAP03	0.884				
	SAP04	0.778				
SQ	SQ01	0.902	0,901	0,814	0,711	(Phonthanukitithaworn et al., 2022)
	SQ02	0.835				
	SQ03	0.751				
	SQ04	0.815				

Developed by authors using JASP outputs

The internal consistency reliability was tested using α (Cronbach's Alpha) and CR (composite reliability), as exhibited in Table 2. (α) values varied between 0.892 and 0.921, and (CR) values varied between 0.807 and 0.823; all these values exceeded the specified cutoff of 0.70 (Hair et al., 2021). Additionally, the average variance extracted values (AVE) ranged from 0.654 to 0.720, exceeding the specified threshold of 0.50, indicating sufficient convergent validity (Fornell & Larcker, 1981).

Table 3

Discriminant Validity

Constructs	Fornell–Larcker criterion			Heterotrait-monotrait (HTMT) criterion		
	AI	SQ	AP	AI	SQ	AP
AI	**0,701**					
SQ	0,511***	**0,712**		0.276		
AP	0,623***	0,577***	**0,809**	0.446	0.460	

Developed by authors using JASP outputs

The table above presents the results of discriminant validity, which was first evaluated by estimating the square root of AVEs (SRAVEs) utilizing the Fornell-Larcker criterion, which refers to the degree of variation between two or more constructs (Hair et al., 2021). The SRAVE for each factor should be greater than its highest correlation with any other factor. By utilizing the HTMT (Heterotrait-Monotrait) criterion, the analysis revealed that all values are below the threshold value

of 0.85 (Hair et al., 2021). According to these results, the requirement for discriminant validity was thus satisfied.

Inner model.

Common Method Bias (CMB). The study proactively addressed the CMB concern by collecting data for all variables using a single survey. Three separate factors were identified by the preliminary analysis using Harman's single-factor test; the primary factor accounted for 39.26% of the variance, which is below the recommended value (50%) (Podsakoff et al., 2003).

Normality and collinearity. To ensure the validity of our model for assessing hypotheses, we examine its feasibility using normality and collinearity tests. We first looked at the predictor constructs' collinearity using the tolerance values (T) and the variance inflation factor (VIF). Hair et al., (2021) specify that the VIF value must be smaller than 5 and the tolerance value must be higher than 0.2, with VIFs ≤ 3.421 and Ts > 0.413. Demonstrates the lack of collinearity issues.

In terms of normality, we depended on the mean, standard deviation, skewness, and kurtosis (M, SD, Sk, and Ku). The results in the table below show that the factors with greater scores of M and SD have values of 3.721 and 1.125, successively, while the smaller values are 3.022 and 1.045. This implies that Saida University's AI, SQ, and AP levels are above average. The Sk ranged from -0.588 to -0.225 (±2), while the Ku ranged from -0.307 to -0.568 (±2). As a result, we conclude that the sk and ku values fulfilled the criteria for normal distribution (Tabachnick & Fidell, 2013).

Table 4

Results of Normality

Main Construct	Mean	SD	SK	KU
AI	3.325	1.125	-0.498	-0.568
SQ	3.721	1.045	-0.225	-0.429
SAP	3.022	1.087	-0.588	-0.307

Developed by authors using JASP outputs

Model Fit. After meeting the criteria of collinearity and normality, the inner model was formed to assess the model fit. As illustrated in the Figure 2 below.

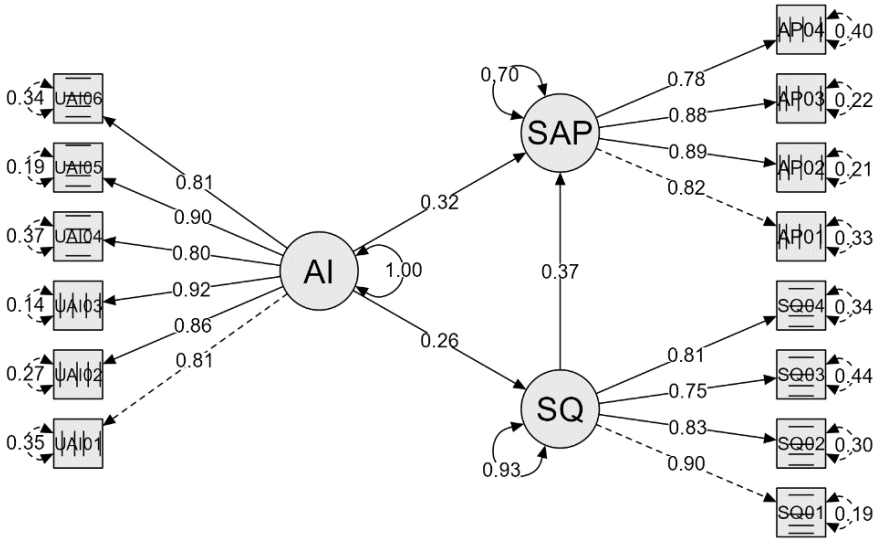

Figure 2. **Inner Model**

Developed by authors using JASP outputs

Table 5

Model Fit

Fit Index	p-value	χ^2 / Df	GFI	CFI	SRMR	RMSEA	TLI
Value	0.00	365.212 / 74 (4. 93)	0.986	0.944	0. 077	0.077	0.932
Threshold		<5.00	>0.90	>0.90	<0.08	<0.08	>0.90

Developed by authors using JASP outputs

According to Table 5, the inner model has an acceptable fit index. The χ^2 /df value (4.93) was smaller than 5.00. GFI (0.986). CFI (0.944) and TLI (0.932) were higher than 0.90. SRMR (0.077) and RMSEA (0.077) were below 0.08. This demonstrates that all fit indices satisfied the goodness-of-fit requirements (Byrne, 2016).

Testing Hypotheses.

Table 6

Results of Testing Hypotheses

Hypotheses	Causal Path	Std. estimate (β)	Z-value	p	95% Confidence interval		Decision
					Lower	Upper	
H1	AI → SAP	0.322	5.582	< .001	0.209	0.435	Significant
H2	AI → SQ	0.257	4.089	< .001	0.134	0.380	Significant
H3	SQ → SAP	0.372	5.870	< .001	0.248	0.497	Significant
H4	AI → SQ → SAP	0.096	3.678	< .001	0.045	0.147	Significant

Developed by authors using JASP outputs

Concerning the hypothesis test results. The table from earlier clarifies that the Cr values for the proposed hypotheses were 7.092, 4.089, and 5.870, respectively, which exceeded the recommended value of +1.96 (Hair et al., 2021).

According to Table 6, (H1) was confirmed, as the estimates showed that the regression weight of AI in SQ is significant ($\beta = 0.322$, $p \leq 0.05$), meaning that AI has a positive and significant effect on SQ. Furthermore, AI has a positive and significant effect on SAP ($\beta = 0.257$, $p \leq 0.05$), accordingly, (H2) was affirmed. Additionally, the outcome demonstrated that SQ positively and significantly affects SAP ($\beta = 0.372$, $p \leq 0.05$), endorsing (H3).

Regarding the mediated effect, the results in Table 6 confirmed (H4) ($\beta = 0.096$, $p \leq 0.05$), which indicates the indirect effect of AI on SAP through SQ.

Concerning the explanatory power of the model, the explained variance in SQ (R^2) was 0.067, indicating that the exogenous variables (AI) explain 6.7% of the variance in SQ. However, the explained variance in SAP was 0.304, signifying that AI and SQ together explained 30.4% of the variance in SAP.

DISCUSSUION

In line with previous research, the results of this study confirmed that AI has a significant positive effect on SQ (Krishnakumar & Balasubramanian, 2024; Sebopelo, 2024; Sebopelo et al., 2025; Shikokoti & Reuben, 2024). This finding indicates that the integration of AI has enhanced the SQ in

higher education by improving students' personalized experiences and the quality of the content provided to them, which has become entirely digital with the Fourth Industrial Revolution. Moreover, it addresses their expectations regarding the integration of AI in higher education while simultaneously tackling the technological challenges associated with previous e-learning experiences.

The results also revealed that AI positively affects SAP. This finding goes hand in hand with that reported by other researchers (Adewale et al., 2024; Altememy et al., 2023; Bressane et al., 2024; Mallillin, 2024). This finding suggests that AI in the educational environment improves students' learning process and enhances their training and comprehension of educational materials to a greater extent. AI systems contribute to providing relevant information quickly to students and enabling them to analyze qualitative and quantitative data more efficiently, organize tasks, and receive immediate feedback on their coursework.

The experimental findings confirmed a statistically significant effect of SQ on SAP, aligning with prior research (Mphahlele et al., 2025; Oliso et al., 2024; Peña-Lang et al., 2023). This result highlights that the current service standards in Algerian HEIs effectively support students in achieving their academic objectives. It can also be argued that the adoption of the electronic learning strategy, officially implemented in Algeria following the COVID-19 pandemic through interactive digital platforms, has notably contributed to enhancing student performance.

Regarding the mediating effect, the results confirmed that SQ mediates the effect between AI and SAP, consistent with previous studies (Elmasry, 2022; Hamadneh et al., 2022; Pacheco-Mendoza et al., 2023). The logical explanation for this finding is that SQ enhanced by AI systems improved SAP by providing opportunities for intelligent online courses, enabling precise scientific research with the assistance of generative AI tools, and facilitating online testing to overcome the challenges of in-person attendance. Moreover, it provided access to a wide range of educational resources and instant support, thus enhancing students' learning experience and allowing them to develop critical thinking skills through intellectual challenges that require analysis and problem-solving. Furthermore, it fostered interaction and engagement between students and instructors by creating interactive and dynamic learning environments. These facilities have enabled students to improve their academic achievement and performance.

CONCLUSION

This study aimed to explore the mediating role of SQ in the relationship between AI and SAP in Algerian HEIs. Four hypotheses were formulated based on the literature. Data was gathered using an online survey from a random sample of 214 final year master's students in STEM disciplines at the University of Continuing Education in Saida, Algeria. Data was analyzed using JASP software. The results revealed that AI has a direct effect on both SAP and SQ, and the latter directly affects SAP. Furthermore, the results indicated that AI has an indirect effect on SAP through SQ.

Implications and recommendations. The results of this research reveal crucial insights for decision-makers in the Algerian higher education sector. Firstly, the integration of AI applications in HEIs is an insightful and productive initiative that requires cultural, technical, and managerial changes to achieve the best possible results. Therefore, university administrations need to provide the necessary prerequisites for the implementation of AI, to maximize its benefits. Second, even though the descriptive analysis results indicated that Saida University's level of AI application is acceptable (above average), there is a necessity to overcome certain obstacles that prevent AI from being fully implemented and widely adopted, such as some administrators' opposition to initiatives utilizing contemporary technology. Therefore, administrative decision-makers must take these obstacles into account when formulating educational policies and work to spread a culture of AI use, especially in disadvantaged countries like Algeria. Thirdly, this study clearly demonstrates that AI contributes to improving SQ at Saida University, as a weak correlation ($\beta = 0.257$) was found between the two variables. Consequently, those responsible for the higher education sector in Algeria should provide opportunities for digital freedom and autonomy in administrative work within universities to reduce the bureaucracy that hinders creativity and initiative.

Limitations and Suggestions for Future Directions. This study, like others, suffers from certain limitations that clear the way for further research. First, the study relied entirely on quantitative data, which limits the depth of understanding. Therefore, it is recommended that subsequent studies utilize quantitative

and qualitative data to obtain more comprehensive insights. Second, the research's data was collected from a limited sample of final-year master's students in STEM disciplines at a single HEI, namely the University of Continuing Education in Saida. Therefore, future studies could extend the target sample to encompass other academic levels (undergraduate and doctoral) and other HEIs, thus increasing the generalizability of the final results. Third, data collection took place during the first few days of the academic year, a period of exploration for returning students (those who had previously interrupted their studies and enrolled in the master's program this year) regarding the benefits of AI applications. Therefore, future studies could explore the role of AI at the end of the academic year, after its use throughout the entire year, providing a deeper understanding of its effects.

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ПОСЕРЕДНИЦЬКИЙ ЕФЕКТ ЯКОСТІ ПОСЛУГ МІЖ ШТУЧНИМ ІНТЕЛЕКТОМ ТА АКАДЕМІЧНОЮ УСПІШНІСТЮ СЕРЕД СТУДЕНТІВ STEM-СПЕЦІАЛЬНОСТЕЙ В АЛЖИРІ: SEM-АНАЛІЗ

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З огляду на значний розвиток технологій і алгоритмів штучного інтелекту (ШІ) та суттєві переваги, які вони надають у всіх сферах, політики у секторі вищої освіти, як і в інших галузях, приділяють особливу увагу важливості впровадження цих технологій і максимально ефективному їх використанню для підвищення якості послуг, що надаються студентам, і покращення їхньої академічної успішності. Виходячи з цієї важливості, дане дослідження намагається висвітлити вплив ШІ на академічну успішність студентів за участі посередницької ролі якості послуг в алжирських закладах вищої освіти Дані були зібрані за допомогою онлайн-анкетування серед випадкової вибірки, що складалася з 214 студентів випускного курсу магістратури спеціальностей «Наука, технології, інженерія та математика» (STEM) Університету безперервної освіти м. Саїда, Алжир. Аналіз даних здійснено методом структурного моделювання рівнянь (SEM) із використанням програмного забезпечення Jeffrey Amazing Statistics Program (JASP). Результати дослідження показали, що ШІ має прямий і значущий вплив на академічну успішність студентів. Крім того, виявлено статистично значущий вплив ШІ на якість послуг. Подальші результати засвідчили, що якість послуг. своєю чергою, прямо й позитивно впливає на академічну успішність студентів. Додатково отримані дані виявили, що якість послуг виступає посередником у впливі між ШІ та академічною успішністю студентів. Практичні наслідки дослідження надають важливі висновки для політиків і керівників закладів вищої освіти, підкреслюючи, що інтеграція застосувань ШІ у вищу освіту є цінною ініціативою для покращення якості послуг та академічної успішності студентів. Водночас дослідження подає низку рекомендацій, які слід враховувати, зокрема нагальну потребу забезпечити необхідну інфраструктуру для впровадження ШІ з метою максимізації його переваг, сприяти формуванню культури використання ШІ та заохочувати автономію в адміністративній діяльності університетів, щоб зменшити бюрократію, яка стримує творчість і цифрові ініціативи.

Ключові слова: *академічна успішність студентів,вища освіта, штучний інтелект, якість послуг, Університет безперервної освіти, SEM-аналіз.*