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ORIGINAL ARTICLE

The reality of using generative artificial intelligence applications by teaching and administrative staff in the institutes of sciences and technologies of physical and sports activities from the perspective of faculty members

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ABSTRACT

The current research aimed to identify the reality of the use of generative artificial intelligence applications by the teaching and administrative staff in the institutes of science and technology of physical and sports activities from the point of view of professors and administrators, and the research sample consisted of 40 professors of the institutes of science and technology of physical and sports activities of the universities of Messila and Souk Ahras were randomly selected, as well as 20 administrators of the two institutes and were selected in an intentional way. The study relied on the questionnaire as a tool for data collection prepared by the researchers and included (19) paragraphs in two axes, and the results showed that the teaching staff of the institutes of science and technology of physical and sports activities in Algeria use the applications of generative artificial intelligence to a moderate degree, while the administrative staff use them to a weak degree.

Keywords: Sport management, Generative artificial intelligence, Teaching staff, Administrative staff, Institutes of science and technology of physical activities and sports.

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INTRODUCTION

There is no doubt that the world is currently witnessing a true revolution in the scientific and technological fields. This is clearly reflected in the rapid pace of digital transformation and the advancements achieved in information processing systems and digital means of communication. Among the most notable developments in this context is what is known as artificial intelligence, which represents a breakthrough and a qualitative leap—not only in the technological field but across all sectors in general.

Generative artificial intelligence is considered one of the most significant types of AI. It has brought about a genuine revolution in how information is processed, enabling easy access to data through various methods and applications. It has reached the point where machines can replace humans in processing information. In this regard, the Saudi Data and Artificial Intelligence Authority (Sdaia, 2023, p. 5) highlights that generative AI marks a quantum leap in how machines interact with users and create innovative, original content—such as generating and converting texts into images or videos.

Moreover, this technology can analyze and critique texts, summarize books and novels, and provide educational models that benefit students, teachers, and educational administrators alike. This illustrates the great significance of generative AI in the educational field and the wide array of services it offers, from processing information and proposing ideas to educational planning and other pedagogical and didactic tasks.

On the other hand, the university—anywhere in the world—is the leading engine that drives society toward development and the improvement of public life, thanks to the output of its research laboratories. A clear example of this is the emergence of artificial intelligence and its growing applications, which are becoming increasingly competitive with and comparable to human intelligence. This has prompted us to focus on the reality of using generative AI applications in the teaching and administrative processes within institutes of physical activity and sports science and technology in Algerian universities, as perceived by faculty members.

Due to the importance of this topic, several studies have explored the role and significance of generative AI in the educational field. One such study is that of Al Muslim (2023), a master's thesis from Jazan University in Saudi Arabia titled Trends of Science Teachers Towards the Use of Artificial Intelligence Applications in the Educational Process for the Primary Stage in the Jazan Region Education Department. This study aimed to examine the attitudes of science teachers toward the use of AI applications in education and to identify the challenges they face.

Another relevant study is by Kabdani and Baden (2021), which sought to determine the relative importance of AI application use in Algerian higher education institutions. The study concluded that 81% of the research sample viewed the use of AI applications as a current top priority in higher education.

In light of the above and based on previous studies on artificial intelligence, most findings confirm the importance of utilizing AI applications. Therefore, this study aims to highlight the current state of using generative AI applications by faculty and administrative staff in selected institutes of physical activity and sports science and technology in Algeria.

With this in mind, we must ask the following question:

> *What is the reality of the use of generative artificial intelligence applications by faculty members and administrators in physical activity science and technology institutes in Algeria?*

Two other questions fall under this question:

- What is the reality of the applications of generative artificial intelligence by the teaching staff in physical activity science and technology institutes in Algeria?
- What is the reality of applications of generative artificial intelligence by the administrative staff in physical activity science and technology institutes in Algeria?

Importance of the study

The importance of the current study stems from the significance of the topic it addresses—namely, the use of generative artificial intelligence by the teaching and administrative staff, which plays a vital role in enhancing the success of the educational process. It is essential to explore the subject of generative AI in both teaching and administrative contexts and to shed light on its actual use within the educational and administrative processes at institutes of science and technology of physical and sports activities in Algeria.

Identifying the concepts and terms

Definition of the emotional intelligence

The concept of generative artificial intelligence: It is the set of AI applications that contribute to facilitating the access and construction of learning in the educational process, and facilitating and accelerating the process of communication between the administrative body and the faculty through planning, programming, budgeting, etc.

Artificial Intelligence (AI) includes any a computer application that is able to perform tasks that mimic human intelligence, such as machine learning, and language processing Natural Language Processing, and recognizing patterns. learning from data, and helping in sequences, and Generative Artificial Intelligence (GenAI) is one of artificial intelligence (AI), that creates new content in response to the demands of the in interfaces or platforms chat in natural language natural language automatically, and the content on in the form of text, or diagrams, or images, or audio, or videos, or data. (Council, 2024. P1).

Concept of faculty

It refers to the parties involved in the teaching process, including professors in the institutes of science and technology of physical activities and sports in Algeria, who are interested in studying the reality of their use of generative AI applications in the teaching process.

The university faculty member is considered the basic and essential element in the educational process because he leads the educational and educational work and deals with students directly, affecting their scientific and social formation. (Bassiouni, 2020. P314).

Administrative body

It refers to members who hold managerial positions, whether they are professors or administrative staff, belonging to the institutes of science and technology of physical activities and sports in Algeria, to study the reality of their use of generative artificial intelligence applications.

The distribution of the administrative function between the central government in the capital and local or independent bodies, so that these bodies exercise their administrative function under the supervision and control of the central government. (Al azzam, 2021.p.487).

METHODOLOGY

Study population and sample

This study was conducted within selected Institutes of Science and Techniques of Physical and Sports Activities in Algeria, focusing on both academic and administrative personnel. The research sample consisted of 40 professors and 20 administrative staff members, including faculty and non-teaching employees, all selected through a random sampling method. Spanning from October 8, 2024, to December 15, 2024, the study aimed to provide insights within this specific institutional and temporal framework.

Method of the study

Based on the nature of our research, we chose for our study the descriptive method, as the descriptive method aims to collect data to try to answer questions related to the current situation of the members of the research sample, and descriptive research does not stop at collecting data, categorizing and tabulating it, but includes some interpretation of this data.

Study tools

A questionnaire card was designed by the researchers, drawing on specialized references and previous studies related to the topic. The card consisted of 19 statements, with 10 statements focusing on the teaching staff and 9 addressing the administrative staff. Each statement was accompanied by four levels reflecting the extent of AI application usage: "*Not Used*," "*Low Degree*," "*Moderate Degree*," and "*High Degree*." The response options were assigned numerical values of 1, 2, 3, and 4, respectively. The total score was then calculated, where a score of 9 represented the lowest level on the questionnaire card, while a score of 40 indicated the highest level. A higher score reflected greater proficiency of both professors and administrators in utilizing generative AI applications.

Psychometric properties of the questionnaire

Reliability

The reliability of the questionnaire card was verified by applying it to a sample of 08 professors who meet the basic sampling conditions, we calculated the discriminant validity by the method of peripheral comparison validity and the results are shown in the following tables:

Table 1. Reliability of the questionnaire card by the peripheral comparison reliability method.

Category	Number of individuals	Arithmetic mean	Standard deviation	t-value	Degree of freedom	Significance level	Category
Minimalism	04	1.46	0.25	6.98	6	.09	Function at .05
Upper	04	2.31	0.19				

From the results of Table 1, It is clear that the value of (t) is equal to (6.98) and is significant at the significance level (.05), which means that there are statistically significant differences between professors with high grades and professors with low grades, and therefore the study tool has discriminant validity.

Stability

The stability was calculated by applying Cronbach's alpha and the results are shown in Table 2. Stability was also calculated by the split-half method and the results are shown in Table 3. It is clear from the above that the study instrument has a high degree of reliability and stability.

Table 2. Coefficient of stability of the instrument by the internal consistency method.

Study tool	Cronbach's αcoefficient
Faculty axis	0.93
Administrative authority axis	0.80
The tool as a whole	0.94

Table 3. Coefficient of stability of the instrument by the split-half method.

Study tool	Correlation coefficient between the two parts of the questionnaire	Spearman and Brown's correlation coefficient after correction	Significance level
Study Instrument	.94	.97	.05

Statistical processing methods

- Frequencies and percentages.- Arithmetic mean.- Standard deviation. - T-test to calculate differences. -K squared (k^2).

RESULTS

Presentation and analysis of the results of the 1st sub-hypothesis:

Table 4. Presentation and analysis of results for axis one: the reality of using generative artificial intelligence applications by teaching staff.

Variable	Mean	Standard Deviation	Calculated Chi-Square (χ^2)	Tabulated Chi-Square (χ^2)	Degrees of Freedom	Statistical Decision
The reality of using generative artificial intelligence applications by the teaching staff	3.71	4.37	19.06	18.307	10	Statistically significant

Through the table, it is observed that the arithmetic means for the use of generative artificial intelligence applications among the teaching staff reached 3.71, indicating a relatively high level of usage on the adopted evaluation scale. This level likely reflects a good degree of awareness and engagement with these technologies in academic circles. However, the high standard deviation (4.37) indicates significant variation in usage levels among teaching staff, which may reflect disparities in technical competencies, interest, or access to these applications.

The calculated chi-square test result (19.06), which exceeds the critical value (18.307) at 10 degrees of freedom, confirms the presence of statistically significant differences in the use of these applications. This suggests substantial variations in how teaching staff adopt generative artificial intelligence, possibly due to factors such as academic specialization, technical training, or the nature of academic work. This result indicates that the teaching staff, as a group, demonstrates notable engagement with generative artificial intelligence, aligning with global trends toward integrating advanced technologies in education and scientific research.

In contrast, the table presents a markedly different picture for the administrative staff. The low arithmetic mean (1.82) indicates a very low level of use of generative artificial intelligence applications. This figure may reflect a limited need for such applications in administrative tasks, a lack of awareness, or insufficient training.

The standard deviation (1.73), although lower than that of the first axis, suggests relative homogeneity in the data, implying that most administrative staff share similarly low levels of usage.

Table 5. Presentation and analysis of results for axis two: the reality of using generative artificial intelligence applications by administrative staff.

Variable	Mean	Standard Deviation	Calculated Chi-Square (χ^2)	Tabulated Chi-Square (χ^2)	Degrees of Freedom	Statistical Decision
The reality of using generative artificial intelligence applications by the administrative staff	1.82	1.73	2.98	18.307	10	Not statistically significant

The calculated chi-square value (2.98), which is significantly below the critical value (18.307) at the same degrees of freedom (10), confirms the absence of statistically significant differences in usage among administrative staff. This suggests that the adoption of generative artificial intelligence is uniformly low across this group. This limited adoption may be attributed to the nature of administrative tasks, which may not yet demand deep integration with advanced technologies, or to a lack of institutional policies promoting the use of such tools.

The comparison between the two axes reveals a clear disparity in the use of generative artificial intelligence applications between teaching and administrative staff. While teaching staff demonstrate active engagement with these technologies, administrative staff have yet to reach a comparable level of adoption. This gap may be reflective of the different demands of academic and administrative roles—academic work increasingly requires the use of innovative tools for teaching and research, whereas administrative roles may still rely on more conventional methods.

From a scholarly perspective, these findings can be interpreted through the lens of technology adoption theories, such as the Technology Acceptance Model (TAM), which emphasizes factors like perceived ease of use and perceived usefulness. Teaching staff appear to perceive greater benefits from the use of generative artificial intelligence—whether for enhancing teaching effectiveness or facilitating research productivity—whereas administrative staff may not find these technologies as applicable or beneficial to their daily responsibilities.

DISCUSSION

The results offer a comprehensive overview of the use of generative artificial intelligence (AI) applications among teaching staff in the institutes of sciences and technologies of physical and sports activities in Algeria, highlighting a clear variation in usage levels. Statements one, two, three, five, seven, and ten—focused on knowledge, the ability to use AI, and its applications in teaching—show a higher frequency of responses at the *moderate level*. Most of these statements yielded statistically significant chi-square values, except for the third, which did not reach statistical significance. These findings reflect a sound level of theoretical awareness and a moderate capability among faculty to employ generative AI, suggesting a recognition of its educational potential. However, several statements underscore challenges in practical implementation. Statement four, which addresses the use of AI to generate educational materials such as texts, images, and videos, recorded a higher frequency of *low-level* responses and yielded a statistically significant chi-square value, indicating limited application in content production. Similarly, statements six and eight—relating to the use of AI in

scientific research—showed a higher frequency of "*not used*" responses, also with statistically significant results, revealing a weak integration of AI in research activities. Statement nine, concerning training opportunities for teaching staff, showed a high frequency of responses indicating inadequate training. However, the chi-square test was not statistically significant, suggesting divergent views on this issue. These findings reveal a notable gap between theoretical awareness and practical application of generative AI. This disparity can be attributed to multiple factors, most notably the lack of training and qualification, as confirmed by Muslim (2023), who observed that despite generally positive attitudes toward AI among educators, institutional support and incentives remain insufficient. The absence of comprehensive training programs is particularly evident in statement nine, which points to a major obstacle hindering faculty from effectively incorporating AI into their practices. Additionally, some educators expressed concerns that AI may inhibit creativity and the spirit of scientific inquiry, a sentiment reflected in the low reported use of AI in research (statement eight). In this context, Kabdani and Baden (2021) emphasized that AI integration is a stated priority within Algerian higher education; however, the actual implementation still lags behind due to persistent practical barriers. Alghamdi (2024) has underscored the role of AI in enhancing teaching quality, improving decision-making, and reducing institutional costs, while the SDAIA (2023) elaborated on its versatile applications, including content creation, text editing, and multimedia production. Nonetheless, the weak adoption of AI for educational output—as indicated in statement four—may be attributed to limited trust in the reliability of AI-generated content and an ongoing reliance on traditional pedagogical methods. Furthermore, Alghamdi and Gado (2024) highlighted AI's potential to enhance instructional flexibility and reduce the pressure associated with improvised teaching, reinforcing the untapped potential of these technologies within academic environments. These results underscore a disconnect between institutional policies advocating for digital transformation and the on-ground reality marked by insufficient support and training.

To promote the effective integration of generative AI, it is recommended to implement specialized training programs tailored to practical academic needs—particularly in content development and data analysis for research. Additionally, offering incentives to encourage faculty engagement and establishing clear institutional policies that provide access to technological resources are essential. Building trust in AI outputs and addressing negative perceptions regarding its influence on originality and academic integrity will be critical in unlocking its full potential.

The results also provide a clear depiction of the reality of using generative artificial intelligence (AI) applications by administrative staff in the institutes of sciences and technologies of physical and sports activities in Algeria, revealing a generally low level of utilization with a notable consistency in respondents' answers. The first and second statements, which pertain to knowledge and ability to use these applications, recorded a higher frequency at the *moderate level*, with statistically significant chi-square values. This indicates a reasonable level of theoretical awareness among administrative staff, reflecting a recognition of AI's potential—yet one that does not translate into effective practical application, as evidenced by the responses to the subsequent statements. In relation to specific administrative domains, statements three through six—which explore AI use in programming and planning, human resource management, financial and accounting tasks, and coordination and communication—showed a higher frequency of "*not used*," with most yielding statistically significant chi-square values (except for the third). This low level of application points to fundamental barriers to integrating AI in administrative contexts. For instance, the minimal use in human resources and financial management may be attributed to institutional reliance on traditional methods or apprehension regarding errors caused by AI misuse. While electronic management is widely acknowledged as essential to improving administrative performance, the results reveal that the necessary competencies and training remain underdeveloped. Statement seven, which addresses the availability of institutional facilities for AI use, recorded a high frequency of "*rarely*," with a statistically significant chi-square

value. This underscores the lack of technological infrastructure and institutional support—a conclusion consistent with the findings of Shireiro and Boughelgoul (2022), who highlighted the need for organizational culture reform to support AI integration. Likewise, statements eight and nine—related to administrators' recommendations and the provision of training—showed a high frequency of "*not at all*," supported by significant chi-square values. These results confirm the absence of training opportunities and incentives, which are essential for enabling adoption. In this regard, Dahia and Ben Sayeh (2023) emphasized that while AI holds promise in automating and optimizing tasks within sports administration, its benefits require both trained personnel and structured programs—both of which are currently insufficient. Statement five, dealing with financial and accounting management, also points to legal and regulatory constraints that restrict administrators from adopting AI tools, particularly due to centralized accounting laws and bureaucratic controls. Radwan (2004) emphasized the urgency of re-engineering traditional administrative structures into electronic systems, suggesting that current legal frameworks need to be updated to accommodate technological advancements. Statement six, focused on coordination and communication, reflects an acknowledgment among administrators of AI's potential, yet highlights a gap in skills and capabilities necessary to leverage such tools effectively. This is consistent with Laayadi and Ben Mohammed (2021), who argued for the importance of developing digital tools in sports administration to strengthen communication and institutional efficiency. Beyond structural and legal challenges, researchers point to additional obstacles such as work overload, limited time, and entrenched reliance on traditional administrative practices. These factors limit administrators' ability to explore, test, and adopt AI technologies. Moreover, scepticism about AI's relevance to administrative work and a general lack of confidence in its efficacy further hinder progress.

To address these issues, a multi-dimensional approach is needed. It is recommended to implement intensive training programs targeting practical AI applications in planning, communication, and data management. In parallel, institutions should invest in building the necessary technological infrastructure and develop clear policies that promote AI integration. Providing incentives for administrative staff to adopt these technologies is also essential. Most importantly, fostering a supportive organizational culture is critical to facilitating the transition toward digital transformation and enhancing administrative performance in alignment with institutional goals.

CONCLUSIONS

At the conclusion of the study, it becomes clear that the use of generative artificial intelligence applications by the teaching staff in the institutes of sciences and technologies of physical and sports activities in Algeria is at a moderate level. Statements related to knowledge, ability to use, and application in teaching show a higher frequency of responses at the "*moderate*" level, with statistically significant chi-square values in most cases, indicating a relatively good level of theoretical awareness.

However, statements concerning the production of educational content and scientific research reflect a higher frequency of responses at the "*low level*" or "*not used*," which suggests a limited practical application. This may be due to a lack of training and the presence of negative attitudes toward the use of such technologies.

In contrast, the use of generative artificial intelligence applications by the administrative staff appears to be at a very low level. While statements regarding knowledge and ability show a higher frequency at the "*moderate*" level, those related to planning, human resource management, financial operations, and communication recorded a higher frequency at "*not used*," with statistically significant chi-square values in most instances.

Moreover, statements related to institutional infrastructure and training showed higher frequencies at "*rarely*" and "*not at all*," indicating a lack of institutional support and insufficient staff qualification for the adoption and integration of generative artificial intelligence applications.

AUTHOR CONTRIBUTIONS

The four authors collected, analysed, and processed the data for this study. The first author was responsible for proposing the study's parameters and general frameworks. Also, data analysis. The other authors collected the study data and analysed the study data.

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DISCLOSURE STATEMENT

No potential conflict of interest was reported by the authors.

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