The importance of using artificial intelligence in developing the educational evaluation process

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Abstract:

The education sector, like other sectors, has witnessed radical transformations due to the rapid development resulting from the use of artificial intelligence applications, as it has an effective role in improving the quality of the educational process. This study investigates the use of artificial intelligence techniques in the evaluation process, looking into the concept of smart educational evaluation, its advantages, and the risks associated with its application.

Keywords:

Artificial intelligence_ educational evaluation_ smart evaluation_ smart evaluation_ smart evaluation applications.

Introduction

The current era represents the age of artificial intelligence par excellence as one of the most important modern technologies that have revolutionized various fields of life such as automatic programming, corrective systems, knowledge engineering, robots....

Artificial intelligence systems are still expanding their influence on many sectors, including the education sector, which is witnessing continuous development, especially with the new challenges it faces in the face of technological developments, and the need to search for basic and innovative tools to enhance the educational process has become imperative. And abandoning traditional methods and adopting advanced education methods, based on advanced technology, especially the attempt to include artificial intelligence as a tool to enhance the educational process by assessing the level of students and providing educational content in line with their individual needs. This contributes to providing the needs of learners in the digital age and creating a learning environment that keeps pace with the challenges and is characterized by flexibility and diversity.

With the entry of AI into the education sector and its ability to change the traditional education model, there has been a growing interest in recent years in how to use AI systems and its machine learning algorithms to provide an interactive educational process and a learning environment that enables teachers to create innovative educational content and transform traditional lessons into digital teaching materials that keep pace with modern developments.

With digital developments, the call has become to make more use of smart applications in the evaluation process, because these technologies are characterized by speed in finding solutions and processing data and information in a manner similar to the human mind, and in finding a solution to issues and providing immediate feedback on the answers. Especially with the important role that the evaluation process plays in the success of the educational process, through which the educator can know the extent of the success of teaching methods and means and the level of quality of teaching curricula, and represents an important indicator in assessing the extent of achieving educational goals and an important frame of reference in the

development and improvement processes that include all aspects of the educational process .

Therefore, the current study reviews the importance of using artificial intelligence applications in the process of evaluating learners as a major shift in the future of educational institutions by designing systems that constitute an alternative to traditional evaluation methods, which include the practical and performance aspect, academic achievement, learner motivation, perseverance, and needs.

The research issue can be formulated to answer the following question: What is the importance of employing artificial intelligence applications in improving the evaluation process and optimizing the educational process?

Section One: Artificial intelligence and education.

1- The concept of artificial intelligence.

The term artificial intelligence came in 1956 by "John McCarthy" and refers to modern systems and software that simulate the human mind and represents the science of designing machines interested in simulating human behavior through computer systems.

Artificial Intelligence is defined as "directing a computer to perform things that humans do in a better way to achieve efficiency and effectiveness " (Al-Azzam, 2021, p. 476).

It is also defined as "association-based automation which represents automation when computers automate reasoning based on associations in data or associations inferred from expert knowledge" (Alrifai, 2023, p 1).

2- The use of artificial intelligence in the field of education.

Artificial intelligence represents one of the most important modern technologies, whose programs and applications have appeared in many areas of life "from smart phones to self-driving cars and smart homes to wide applications in the industrial field, the health field and other areas, and these applications are expected to witness more spread in the next few years" (Al-Zahrani, 2023, p. 405)

The education sector, like other sectors, has witnessed radical transformations due to the rapid development resulting from the use of artificial intelligence applications, because of its effective role in improving the quality of the educational process and its impact on social and cultural relations within the educational environment. "It contributed to changing the social role of information and reshaped the way society views knowledge and education in the traditional environment, as information was previously considered a kind of authority in the hands of teachers or educational institutions, and with the presence of this technology, this authority decreased and students became more empowered to access information.

In addition, the ability to access a variety of global content has created a kind of cultural cross-fertilization among students, contributing to the construction of a global identity based on cultural understanding and exchange, which will affect the way students' self- and social consciousness is formed." (Babah, 2024, p. 121) Many studies at the Arab and foreign level have addressed the topic of using artificial intelligence in the educational sector across the various stages of teaching, by contributing to providing an educational environment that includes possibilities to overcome many teaching issues, especially with the changes in contemporary life, which emphasized the need for the teacher to acquire many new skills and keep pace with scientific and technical progress and train him in the applications of artificial intelligence. In addition to providing educational environments for learners that enable them to acquire self-learning and creative thinking skills, overcome difficulties and access the best available experiences, and "ease the burden of routine tasks that fall on teachers, such as lesson planning, classroom management, preparing and correcting assessments." The program also provides a learning environment that includes possibilities to overcome many teaching issues, especially with contemporary life, which emphasizes the need for teachers to acquire many new skills and keep pace with scientific and technical progress and train them in AI applications. These tools provide effective solutions to support educational and administrative

responsibilities, including differentiated learning planning, automating data management, such as recording attendance and grades, and generating classroom activities aligned with learning objectives. For example, AI can design lesson plans and suggest innovative ideas for lab experiments, assessments, and Individualized Education Plans (IEPs) for students with special needs. They can also provide creative ideas for projects on limiting the negative use of AI" (Bitar, 2025).

3-The benefits of applying artificial intelligence in education.

Artificial intelligence plays an important role in the field of education from "enhancing self-learning, improving assessment systems and enhancing learners' abilities and thus artificial intelligence can make a positive change in education and contribute to achieving comprehensive and effective education" (Rider, 2019, p38).

Among the most prominent benefits of applying artificial intelligence in education are:

-Facilitating the tasks of learners in the educational process: Artificial intelligence is used to enhance the role of educators and assist them in carrying out their daily tasks, managing their routine tasks, monitoring student performance, assessing their level, and choosing educational methods and techniques that suit their individual needs, thus contributing to reducing educational gaps and allowing equal opportunities for all students.

Provide multimedia learning content using videos, text and images, thus enabling students to understand and assimilate in different ways.

- Speed in accomplishing tasks: Through AI applications, the educator is able to accomplish his tasks quickly, enabling him to gain the time he used to spend on evaluating exam assignments in traditional ways.

- Developing self-learning systems: By providing educational programs according to each student's special needs and interests, thus providing assistance and support to all learners.

- AI tools contribute to providing support outside the classroom, bypassing time and space constraints and providing additional training and reviews for students according to their performance and academic achievement.

- Teachers benefit from digital tools in education and the use of AI-powered applications.

Section Two : The importance of artificial intelligence in the development of the calendar process.

1_Concept of the calendar.

"The roots of the calendar date back to about two hundred years BC, when the Chinese used aptitude tests to manage the performance of candidates for work Socrates considered verbal evaluation as one of the elements of measuring learning outcomes, and with the beginning of the industrial revolution in Europe, evaluation took its place as an independent discipline because evaluation is associated with the development of systems" (Mahmoud, 2004, p. 15).

Evaluation is defined as "a systematic process that requires the collection of objective and truthful data from multiple sources using various tools in light of specific objectives, in order to reach quantitative estimates and descriptive evidence based on which to make judgments or make appropriate decisions related to individuals. Evaluation is used in the scientific field to describe the process of making a judgment for a specific purpose related to the value of abilities, information, ideas, works, solutions, methods and materials, using tests, levels and criteria to assess the adequacy of things and characteristics and the accuracy of their effectiveness" (Namari, 2022, p. 393).

It is also defined as "the process that enables the teacher and the learner to know the strengths of the curriculum and strengthen them, and the weaknesses and evaluate them. Evaluation is a process of diagnosis and treatment that accompanies the curriculum from planning, implementation, and development" (Attia, 2015, p. 215).

Thus, the evaluation process represents one of the most important elements in the teaching process that helps the educator to know the learner's absorption and proximity or distance from the outcomes of the educational process, and to identify who needs more attention and what needs to be modified from the teaching methods that enable the necessary decisions and actions to be taken.

2_Employing artificial intelligence in the evaluation process.

The topic of using artificial intelligence systems and applications is the focus of attention of specialists in the field of education, due to its potential that would change the course of the educational process, improve education resources and help adapt to the new requirements of contemporary life, in light of the rapid developments and knowledge growth, and the interest of societies to make qualifying emerging to compete in the digital age the first of their development plans, which led to the employment of technological developments in modernizing the educational process, including the field of evaluation, which is living a new phase characterized by the use of technological.

This stage emphasizes the need for teachers to be more skilled in how they assess their students and break with the traditional forms of assessing students through tests consisting of questions, essays, or research. Artificial intelligence can accurately and objectively evaluate the performance of students more than teachers without exposure to subjective factors that may affect their evaluation and what is characterized by speed and efficiency, which saves time and effort for teachers, in addition to personalization, as artificial intelligence can evaluate the performance of students in a customized manner based on their strengths and weaknesses (Al-Zahrani, 2023, p. 494).

Smart evaluation systems represent one of the main applications of artificial intelligence in the education sector as an effective tool to improve the educational process, allowing the development of the evaluation process in preparation, implementation and follow-up, especially with the shortcomings of traditional evaluation systems and their low usefulness in the educational process, which emphasized the need to develop modern evaluation methods to measure the results of education. By collecting and analyzing data related to student performance to extract valuable information, prepare accurate reports and insights about student performance, modify educational curricula, and direct students to educational activities that help them develop their skills.

Artificial intelligence has been able to make a quantum leap in the world of evaluation and achieve a number of benefits, including:

- Designing smart tests that match the needs and abilities of each student while accurately analyzing the content of the curriculum and eliminating the need to write tests manually, which requires time and effort.

- Correcting exams and evaluating answers accurately and in an easy way while providing continuous feedback to students to motivate and support them.

- Designing interactive educational programs that meet the needs of each student.

- Provide continuous accurate investigation that helps meet the learning needs of each learner.

- Access learning data more comprehensively by collecting it from different sources.

-Enable educators to accurately assess their own and their students' performance and work to improve it.

Artificial intelligence (AI) applications have been the most prominent developments that have contributed to enhancing the educational experience and brought about fundamental changes in teaching methods, contributing to the development of educational systems and enhancing the experience of students in various educational institutions. Among the digital programs supported by artificial intelligence in the field of educational evaluation, we find :

-**Cort's e-assessment and test management platform**, which allowed for a variety of questions and an easy-to-use interface, characterized by the accuracy of the automated correction process for electronic tests instead of teachers spending long hours in traditional manual correction, which supports the

development of the educational process and avoids human bias for teaching staff and provides accurate reports on the weaknesses and strengths of students.

- Edcafe A is an application that enables the creation of objective and instant assessments, as well as a specific reading comprehension test that can turn any reading passage into a test that can be assessed.

-exam.net is an online test creation platform that provides teachers with an efficient way to create and administer designed tests.

-Calendar and Review: "It is a service that enables the learner to evaluate their product, including the production of a linguistic text in which the program provides appropriate correction that combines suggesting corrections and explaining the rules, as in the case of **reverso.net.**" There are programs to evaluate reading and pronunciation, such as 'Speakometer' and "Correct Spelling-Pronunciation". The matter is not limited to languages, but includes mathematics and science, as there are programs that enable the processing of mathematical situations and provide solutions with the necessary explanations, such as "Symbolab" and "mathway" (Khalidi, 2025).

3_Risks of using smart calendar.

 Despite the positive advantages of applying artificial intelligence in the educational evaluation process, it is also associated with negatives and risks such as:

_AI eliminates the need for face-to-face education, as it enables learners to acquire knowledge independently. However, this shift towards individualized learning can lead to a decline in personal and school ties and neglect of social interactions, which may contribute to promoting isolation, the absence of a sense of community, and weakening the spirit of cooperation and solidarity that forms the basis of the educational experience.

_Challenges related to the security and personal data of individuals, such as the risk of cyber-attacks targeting artificial intelligence applications.

_ The possibility of collecting personal data of individuals without their knowledge.

Conclusion

Smart evaluation systems represent one of the main applications of artificial intelligence in the education sector and an effective tool to improve the educational process, allowing the development of the evaluation process in preparation, implementation and follow-up, especially with the shortcomings of traditional evaluation systems and their low usefulness in the educational process. It emphasized the need to develop modern evaluation methods to measure educational outcomes, reconsider traditional mechanisms and curricula, and research how to adapt intelligence applications to develop the educational process and ensure its effectiveness. Despite the challenges facing the use of AI applications, the advantages of smart evaluation cannot be ignored.

 Through the above, we propose a number of recommendations:

_Intensify training courses and workshops for teachers to train them on how to use AI tools effectively to meet their educational needs.

_Adopt effective strategies and organizational procedures that are adapted to AI-based assessment programs.

_Revise the educational curriculum in line with modern technological developments and keep pace with societal and global changes.

References

1-Al-Zahrani, Nawal bint Mohammed, Amal bint Mohammed (2023). Mechanisms of employing artificial intelligence in the evaluation process for teachers of public education in the Kingdom of Saudi Arabia, Journal of Childhood and Education, No. 55.

2_ Al-Rifai, Khalid (2023). Artificial intelligence and the future of teaching and learning. UNESCO: Evidence Center.

3_Azzam, Noura Mohammed (2021). The role of artificial intelligence in raising the efficiency of the administrative systems of human resources management at the University of Tabuk. Educational Journal. Issue (84). Volume (1).

4_Babah, Houria (2024). The uses of artificial intelligence in the higher education sector - a sociological reading. Annals Journal. Volume (38). Volume (3).

5_Bitar, Haya (2024). Education and Artificial Intelligence - an innovative partnership or a challenge to human intelligence ?

6_Mahmoud, Hamdi Shaker (2004).). Pedagogical evaluation of teachers. Hail : Dar Al-Andalus.

7_Namari, Sabya Nawal bint Abdullah bin Qasim (2022). The reality of science teachers' use of e-evaluation applications in evaluating the cognitive learning outcomes of middle school students in the Department of Education. Arab Journal of Scientific Publishing. Volume(5). Issue(46).

8_Attiyah, Mohsen Ali (2015). Total Quality and Curriculum. Jordan: Dar Al-Manajah for Publishing and Distribution.

9_Khaldi, Mohammed (2025). Educational Evaluation and Artificial Intelligence: Toward a smart educational evaluation. Methodologies Journal. Issue (19).