



The role of artificial intelligence in improving the quality of learning outcomes

Case Study

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Table Of Contents

Abstract.....	ii
Acknowledgment.....	iv
Introduction.....	1
Problem Statement.....	1
Study Questions.....	1
Objectives Of the Study	2
The Importance Of Studying.....	2
Study hypotheses.....	3
The limitations of this study included	3
Study Approach:.....	3
Literature Studies	4
Reference	i

Abstract

The integration of technology in various sectors to enhance performance is a key aspect of the fourth industrial revolution (4IR). Artificial intelligence, along with robots, plays a crucial role in continuously evaluating and improving organizational operations. By analyzing and optimizing tasks, unnecessary functions are eliminated to enhance quality and reduce costs. In the higher education sector, , AI applications have been instrumental in maintaining and enhancing learning outcomes. Algorithms, machine learning, and virtual interactions have facilitated learning for students and improved educational materials. Digital platforms have played a significant role in bridging the gap between universities and students, ensuring quality learning outcomes.

المستخلص

يعد دمج التكنولوجيا في مختلف القطاعات لتعزيز الأداء جانباً رئيسياً للثورة الصناعية الرابعة (4IR). يلعب الذكاء الاصطناعي، إلى جانب الروبوتات، دوراً حاسماً في التقييم المستمر للعمليات التنظيمية وتحسينها. ومن خلال تحليل المهام وتحسينها، يتم التخلص من الوظائف غير الضرورية لتحسين الجودة وخفض التكاليف. وفي قطاع التعليم العالي، لعبت تطبيقات الذكاء الاصطناعي دوراً أساسياً في الحفاظ على نتائج التعلم وتعزيزها. لقد سهلت الخوارزميات والتعلم الآلي والتفاعلات الافتراضية التعلم للطلاب وتحسين المواد التعليمية. لعبت المنصات الرقمية دوراً مهماً في سد الفجوة بين الجامعات والطلاب، مما يضمن نتائج تعليمية عالية الجودة.

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Introduction

Artificial intelligence (AI) has the potential to transform the learning and teaching process, making it more personalized, engaging, and efficient. AI in education involves the utilization of AI technologies like machine learning and natural language processing to enhance the overall learning experience. This includes the use of algorithms to analyze data, recognize patterns, and make predictions, allowing educators to tailor learning experiences for individual students. The advantages of incorporating AI in education are substantial. Personalized learning, a key benefit of AI in education, can result in improved student outcomes as students can learn at their own pace and in a manner that aligns with their unique learning styles. Intelligent tutoring systems, chatbots, and automated grading and assessment can enhance efficiency, save teachers' time, and offer more precise and consistent feedback. Nevertheless, there are challenges associated with the implementation of AI in education. Issues such as privacy and security concerns, lack of trust, cost implications, and potential biases must be addressed. Ethical considerations, including ensuring accessibility, transparency, and fairness in AI-based education systems, also need to be carefully considered. Despite these challenges, the potential impact of AI in education is vast. AI can facilitate improved data analysis, empowering educators to make informed, data-driven decisions. This review highlights the role of AI in education management and promotion, illustrating the profound effect of AI on the education sector.

Problem Statement

The research problem was defined in the following main question: “What is the role of digital platforms in improving the quality of learning outcomes?” For universities? "

Study Questions

A group of sub-questions branch out from the main research problem, which are set out as follows:

- What is the role of digital platforms in developing the educational process?
- How can e-learning platforms address teaching obstacles?
- Do digital platforms contribute to improving the performance of their users, including professors and students?

- What is the quality of educational outcomes resulting from the application of digital education platforms?

Objectives Of the Study

The research aims to:

- Identifying digital platforms and demonstrating their value in improving the quality of educational outcomes.
- Identifying the elements for the success of implementing electronic platforms directed to education.
- Studying the experience of some Saudi universities in using digital platforms during the Corona crisis
- Providing a generalizable reference model on the advantages of applying educational digital platforms.

The Importance Of Studying

It is expected that the results of this research will benefit:

- **Professors:** Highlighting the importance of using electronic platforms, creating educational content, and preparing lectures and meetings Encouraging distance learning. And meetings via electronic platforms in light of the spread of the Corona pandemic Juha from
- **Students:** Research contributes to supporting continuous learning and lifelong education, and motivating students to engage in experiences During e-learning, creating a learning environment suitable for completing studies and addressing academic failure and dropout. For electronic platforms after the Corona pandemic
- **Universities and educational institutions:** Urging universities to intensify interaction To put pressure on the costs of education and on the academic level and on the economic level and benefit from the advantages By improving the quality of learning outcomes and at the research level by facilitating access to and benefit from information.
- **Administrative and technical staff:** Contributing to providing electronic services remotely, reducing work pressure and overcoming obstacles Logistics (lack of offices, equipment, etc.).

- **Researchers:** Encouraging experts and specialists in the field of education to pay more attention to studying digital platforms and highlighting their role Economic, social and environmental.

Study hypotheses

The study assumes what

- Digital platforms play an essential role in developing the educational process.
- E-learning platforms address traditional teaching obstacles.⁶
- Digital platforms contribute to improving the performance of their users, including professors and students.
- The application of digital education platforms positively supports the quality of educational outcomes

The limitations of this study included

1. Objective boundaries: Objective limitations were limited to the impact of applying digital education platforms on the quality of learning outcomes For Saudi universities .
2. Spatial boundaries: The field scope of this study included 4 government universities in Saudi Arabia(King abdulaziz university, king saud university, king faisal university, Umm AL-Qura university).
- . Time limits: The study took place during the academic year 2024 in period from 24/2/2024 to 19/4/2024
- 3.

Study Approach:

The study relied mainly on the descriptive analytical approach, which focuses on describing the role of electronic education platforms in improving learning outcomes in Saudi universities, by analyzing the phenomenon of e-learning through digital platforms, its determinants, and its academic and scientific effects. This is also proven by choosing a case study of a group of universities in the Kingdom, in which it relied on collecting accurate and comprehensive data using a directed questionnaire. The study was also linked to tests and standards, especially (data analysis), and then interpreting the statistics obtained and coming up with recommendations that contribute

to developing Functions and tools of digital learning platforms and demonstrating good practices for their use by professors and students.

Literature Studies

- **Artificial Intelligence and Its Role in Education [1]**

The analysis suggests that the field of education ought to welcome contemporary teaching techniques and essential technology. Upon further examination, educational institutions must integrate AI technologies as an imperative component of both the present and future of education. It is imperative to conduct statistical testing on the research in order to enhance comprehension and ensure that the conclusions can be applied more broadly moving forward.

- **Artificial Intelligence in Higher Education and Learning [2]**

This paper primarily examines the advancements of AI in higher education and its impact on teaching and learning processes. It delves into the educational implications of emerging innovations in facilitating student learning and the strategies employed by institutions to foster growth and development. Recent breakthroughs and the rapid progress in advanced education are thoroughly investigated to forecast the future landscape of cutting-edge instruction. A comprehensive analysis is conducted through a systematic review to provide a detailed understanding of the role of AI in higher education.

- **The Role of Artificial Intelligence in Improving the Quality of Education and Research [3]**

The purpose of the study is to determine the role of artificial intelligence in improving the quality of education and research. To achieve this goal, a content analysis was used. Of note is the SWOT analysis method, which was used to identify the positive and negative aspects of the integration of artificial intelligence into scientific and pedagogical life. The results show that the use of artificial intelligence technologies in the field of education is a promising and promising area for further development. The analysis conducted in this context revealed that innovative technologies have become an essential component of modern education. Based on the results of the study, both positive aspects and disadvantages in the use of these technologies can be identified. Among the advantages are the high adaptability of AI, the possibility of individualised

learning, accessibility, and a wide range of applications, from primary school to higher education and research. It is important to note that these technologies can be used to achieve learning success regardless of geographical region, making them global in nature.

- **Ways Artificial Intelligence Will Shape eLearning [4]**

The study aims to emphasize the importance of artificial intelligence (AI) in eLearning. The research question being examined is how eLearning and the utilization of artificial intelligence can enhance the accessibility and cost-effectiveness of education. As such, the study aims to determine whether the integration of Artificial Intelligence in e-learning will enhance the quality of education provided in different universities. The approach taken to tackle this issue involves a theoretical framework and quantitative research to explore the impact of Artificial Intelligence in e-learning. The findings suggest that artificial intelligence in eLearning equips learners with skills without the need for an instructor. The AI system provides relevant information that prepares learners for the professional environment. The significance of this research project lies in making education more accessible and enhancing the lives of individuals with disabilities.

- **The role of Artificial Intelligence in Education: Current Trends and Future Prospects [5]**

The researchers in this study delve into the utilization of artificial intelligence in the field of education, examining the current tools and applications, market trends, research advancements, opportunities, challenges, and constraints of AI in education. The study specifically explores the diverse applications of AI in education such as classroom monitoring, recommendation systems, intelligent tutoring, sentiment analysis, student retention, dropout prediction, and student grading and evaluations. Additionally, the researchers scrutinize various works in related domains and sub-domains like big data in education, educational data mining (EDM), and learning analytics. The analysis of educational applications is approached from multiple angles, offering a detailed overview of the platforms and tools developed through research efforts, while also acknowledging the existing limitations, potential obstacles, and opportunities for future improvements. This comprehensive examination serves as a foundation for further research endeavors in the realm of e-learning.

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