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Transforming Higher Education: Harnessing Artificial Intelligence for Enhanced Learning Experiences in the Humanities

A Research Paper Submitted in Partial Fulfilment of the Requirement of a Licence Degree

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DEDICATION

With the guidance and blessing of ALLAH SWT, I embark on the journey of completing this research paper. I wholeheartedly dedicate this work to my cherished family—a source of unconditional love, inspiration, motivation, and support throughout my life. Their steady belief in my attempts has been a beacon of strength and hope. To my dearest family, your unshakable faith in me is the mainspring of my achievements. Therefore, I am eternally grateful.

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ABSTRACT

This the abstract of my research paper.

Chapter 1

INTRODUCTORY CHAPTER

1.1 Problem statement

Artificial intelligence has taken all over the industries and become a revolutionized technology. It potentially transforms various industries to be more productive (Czarnitzki et al., 2023). However, the emergence of similar AI-driven tools like "ChatGPT", which have significance capabilities, there remains a massive gap comprehending how to effectively interact with it, especially that these tools have gained prominence across sectors since their launch in late November 2020 (Marr, 2023); their full potential has not yet been used within the realm of education to foster genuine engagement and knowledge acquisition among humanities students. This has arisen questions about practical ways of integrating these tools in this context. Therefore, the key focus of this study lies in exploring how AI can be effectively integrated into education to enhance learning experiences within the humanities. The significance of this problem goes beyond implementing technology; it involves transforming education practices and methodologies. Using AI in higher education, especially in humanities, can potentially revolutionize it. Facilitating personalized learning, encouraging critical thinking skills, and en-

hancing engagement during lectures (Baskara, 2023). Addressing this gap is vital for improving the quality and effectiveness of humanities education ensuring that students have the skills to succeed in an increasingly digital and interconnected society. Therefore, exploring ways to use AI in education is an effort with significant implications, for the future of learning and acquiring knowledge.

1.2 The purpose of the study

This study examines practical ways of integrating artificial intelligence (AI) into the humanities. It also investigates effective AI-driven tools for improving learning experiences in higher education. To better understand students' perceptions and experiences, this study explores students' attitudes toward their academic performance using AI-driven tools. Furthermore, this study examines the challenges and opportunities associated with the use of AI in higher education, specifically in the humanities. By addressing these objectives, this study aligns with the goal of enriching learning experiences in humanities disciplines.

1.3 The Rationale and significance of the study

The widespread accessibility and prevalence of AI shows that 73% of US companies have already implemented AI into some aspects of their businesses as (PricewaterhouseCoopers, 2024) reports. Consequently, the fame of using AI in recent years prompted researchers to investigate practical ways of using AI tools for enhancing human productivity across various fields, including education. This study delves into AI-driven tools within a framework aimed at addressing how they can be effectively used to enhance learning experiences within humanities.

1.4 Research questions and hypotheses

1.4.1 Research questions

The study seeks to investigate the potential ways of harnessing Artificial Intelligence for Enhanced Learning Experiences in the Humanities. Hence, the following research questions will be addressed in this paper:

- What are the most effective ways to use AI-driven tools for enhancing learning experiences in higher education, especially in the humanities?
- What are students' attitudes toward their academic performance while using AI-driven tools?
- What are the challenges and opportunities associated with using AI in higher education in Morocco, specifically in the humanities?

1.4.2 Hypotheses

Following intended objectives, these hypotheses have been developed:

- Students who use AI-driven tools reveal better learning outcomes compared to those who do not in higher education, specifically in the humanities.
- AI-driven tools are significantly improving academic performance and engagement in the humanities.
- There are challenges and opportunities are associated with using AI in higher education in Morocco, specifically in the humanities.

1.5 The Organization of the paper

The monograph comprises five chapters, each serving a purpose within this study. The first chapter gives an overview of the study discussing its problem, purpose, rationale, significance, questions and hypotheses. The second chapter review of relevant literature. It reviews the most existing studies on AI in education to highlight current trends, challenges, and potential strategies for using AI-driven tools. This chapter explores emerging trends, challenges, and practical approaches for using AI-driven tools. The third chapter is designed to provide a comprehensive explanation of data-collection. It describes the research design, participants, instrument, and relevant procedures adopted for analysis. The finding chapter will analysis, interpret, and discuss data-collection in depth. The chapter also aims to either validate or reject the hypotheses of the study. Finally, the concluding chapter will focus on a summary of research objectives, methodology, and findings. Furthermore, this chapter will address the study's limitations and implications while offering suggestions for further studies.

Chapter 2

LITERATURE REVIEW

2.1 Introduction

Before discussing the study of "Harnessing Artificial Intelligence for Enhanced Learning Experiences in the Humanities," it is imperative first to appraise the most significant insights and perspectives. This chapter presents a comprehensive survey of how AI has been incorporated into higher education, emphasizing practical methods for utilizing AI-based resources to improve academic achievement and efficiency. Ultimately, the chapter concludes by addressing the obstacles that arise when implementing AI in educational institutions. The objective is to elucidate the findings surrounding this subject matter, gleaned from other researchers' diverse viewpoints.

2.2 Defining Key Concepts

2.2.1 Artificial Intelligence (AI)

AI refers to the ability of a computer system to perform human tasks that can be accomplished by human Intelligence(Sadiku et al., 2021).

2.2.2 AI-driven tools in education

AI-driven tools encompass the application of AI tools like “ChatGPT” to assist students, educators and administration in an education process. These AI-driven tools are used for planning and reactive execution of educational phases, such as student admission, lesson planning, knowledge delivery and performance evaluation (Mallik & Gangopadhyay, 2023). Additionally, it serves as an extension of human intelligence, enabling increased productivity in the educational sphere by performing tasks such as problem-solving, learning, and decision-making(Cheng, 2023).

2.2.3 Learning experience in higher education

it refers to designing and implementing educational activities to create positive and foster engaging student learning experiences (Ebner et al., 2023). it involves comprehending and assessing the students’ educational experience, including their satisfaction, self-efficacy, engagement, and self-regulated learning experience(Lyz’ et al., 2022). The focus is on improving the quality of education by enhancing students’ academic success, readiness for self-education and self-development, and subject well-being (Iordache-Platis, 2018).

2.2.4 Intelligent Tutoring Systems

ITS are educational software that incorporates AI. The software monitors students' progress, adjusts feedback, and provides hints to offer personalized guidance (Shute & Zapata-Rivera, 2010). Its aims to provide individualized, sophisticated instructional advice (Sedlmeier, 2001).

2.2.5 ChatBots

Chatbots are computer programs that replicate human conversation with a conclusion. While not all chatbots possess AI capabilities, modern chatbots are progressively integrating AI techniques to analyze human input("What Is a Chatbot?", n.d.). It enables the digitization of human interaction through written or vocal means, giving the impression of ongoing communication with another individual (Oracle, n.d.).

2.2.6 Education Data Mining (EDM)

EDM is a technique that is used to evaluate students' academic performance, assess the learning process, determine the overall quality of education, and enhance outcomes in higher education. It entails processing and analyzing large amounts of data to extract relevant information that can be used for decision-making and policy-making in the education sector (Arifin et al., 2022).

2.3 The use of AI in Higher Education

Artificial intelligence has been increasingly integrated into various aspacts of higher education, transforming traditional eduction (Wang et al., 2023). This section explores some

ways that AI can be used to enhance learning experiences and increas the academic studens' performance by focusing on personalized learning, intelligent tutoring, and administrative tasks automation.

2.3.1 Personalized Learning

The application of AI technology in higher education has been found to enhance academic performance and engagement by providing personalized learning experiences for students. By utilizing algorithms and data analysis, AI can recognize patterns in student performance and preferences, leading to personalized content and activity suggestions. This, in turn, enhances the student's learning experience, motivation, and engagement. Furthermore, AI can offer customized resources based on individual needs and learning styles while monitoring real-time progress to identify areas that require additional support and adjusting learning materials accordingly (Guerrero-Quiñonez et al., 2023) and (Lecturer, Department of Computer Science Akshara First Grade College, Anekal et al., 2023).

2.3.1.1 Intelligent Tutoring Systems (ITS) as module of Perosnalized learning

Intelligent Tutoring Systems (ITS) have shown great promise in enhancing online learning through the use of AI. They provide personalized support, immediate feedback, and ongoing monitoring for more effective and independent learning. By analyzing student data with AI algorithms, these systems deliver tailored experiences that adapt to each student's needs, offering relevant content and personalized feedback. According to a recent study by (Lecturer, Department of Computer Science Akshara First Grade College, Anekal et al., 2023), it improves adaptiveness and leverages personalized learning by taking into account the individual needs of each student. This approach to personalized learning is also supported by (Bradáč et al., 2022)

who believe it can greatly improve students' learning experiences.

2.3.2 ChatBots "ChatGPT" as a module

ChatGPT has become a valuable tool in higher education, providing students with personalized recommendations based on their learning history. With minimal input, it can accurately answer questions and assist students in improving their study skills and time management. Additionally, it motivates and engages students by offering access to a vast array of resources. ChatGPT can even assess students' writing abilities (Mohammed et al., 2023). Moreover, ChatGPT serves as an effective teaching aid by enabling educators to make informed decisions and providing personalized support outside of regular class hours. It also promotes engagement and active learning through interactive and dynamic experiences, facilitating discussions, stimulating critical thinking, and delivering immediate feedback to enhance the learning experience (Schönberger, 2023). Ultimately, ChatGPT has the potential to enhance both learning and teaching processes, serving as an invaluable tool for class preparation, exam preparation, and personalized tutoring(Domenech, 2023).

2.3.3 AI and Administrative Efficiency: Streamlining Operations

Artificial intelligence has proven to be a valuable tool in enhancing administrative processes for educators. By automating tasks, educators can prioritize important activities such as curriculum design (Drach et al., 2023). Furthermore, AI can streamline enrollment and improve retention rates, offering opportunities for resource optimization and successful online training experiences (Lukianets & Lukianets, 2023). In addition, AI's data analysis capabilities and pedagogical reporting facilitate evidence-based decision-making, empowering educators to make informed choices(Guerrero-Quiñonez et al., 2023).

2.3.3.1 Educational Data Mining (EDM) as a module

Educational Data Mining (EDM) is a powerful tool for extracting knowledge from academic, socioeconomic, and learning analytics data. By utilizing statistical analysis, machine learning, and data mining techniques (Arifin et al., 2022; Hooda et al., 2022), EDM can significantly improve academic performance, learning quality, and decision-making. Recent studies have highlighted the effectiveness of EDM in predicting students' performance using practical techniques such as J48 [1] and K-means.[2] With its potential to enhance overall efficiency and success(Prince Sattam Bin Abdulaziz University et al., 2016), the use of Data Mining methods, particularly EDM, is becoming increasingly essential for educational institutions.

2.4 Challenges of AI in higher education

The emergence of artificial intelligence (AI) and its growing utilization in educational contexts have brought numerous challenges accompanying its implementation. This section explores the obstacles and issues when integrating AI into education settings, particularly its use for academic purposes.

[1] J48 is a decision tree algorithm that is commonly used in educational data mining (EDM) for classification tasks.

[2] K-means is a clustering algorithm that is often used in educational data mining (EDM) for grouping similar data points together. It is an unsupervised learning algorithm that aims to partition the data into K clusters, where K is a predefined number. The algorithm iteratively assigns data points to the nearest cluster centroid and updates the centroids until convergence. K-means is widely used in EDM for analyzing student behaviors and identifying patterns in educational data.

2.4.1 AI bias

Concerns have been raised regarding the potential negative impact of using AI in admission or grading processes for students. When AI algorithms are trained on biased data, they can produce racially biased output. For example, in medical appointment scheduling, certain algorithms predict that black patients are more likely to miss appointments compared to non-black patients. This perpetuates racial inequalities and creates a lack of access to healthcare, highlighting the crucial need for accuracy and fairness in AI. The implications of this extend beyond the medical field and into other domains such as education, judicial systems, and public safety (Shanklin et al., 2022). Moreover, Yolder Himes suggests that biases in online exams can create barriers for students of different skin colors in STEM[3] fields. The facial detection algorithms used by the software may be biased against students based on their skin tone or gender. The study shows that students with darker skin tones and black students are more likely to be marked for review, and women with darker skin tones are selected for review more often than white men. This highlights the need for caution when using automated proctoring software, as biased AI algorithms can have significant implications for education, social justice, equity, and diversity (Yoder-Himes et al., 2022).

2.4.2 Data privacy

The issue of data privacy in AI within the realm of higher education is a significant one that must be addressed. AI technology operates by aggregating a vast amount of data from various subfields, which makes it crucial for data processing and consumption to adhere to privacy and security principles. With the advent of the Internet, the retention period of information has increased significantly. Hence, data for AI systems must be collected, utilized, shared, stored,

[3] science, technology, engineering and mathematics

and deleted in accordance with information security standards. The protection of personal information related to the lifespan of AI technology should be ensured by legal frameworks and ethical norms (UNESCO, 2022).

2.5 Conclusion

This literature review comprehensively explored the burgeoning integration of Artificial Intelligence (AI) in higher education. AI offers a multitude of benefits, including personalized learning pathways through intelligent tutoring systems and chatbots, streamlined administrative tasks via automation, and data-driven decision-making empowered by educational data mining (EDM). These advancements hold immense promise for a future characterized by optimized learning experiences and efficient institutional operations. However, challenges such as algorithmic bias and student data privacy necessitate careful consideration. To ensure AI's ethical and equitable implementation, future endeavors should focus on mitigating bias within algorithms and developing robust data security protocols. In essence, AI presents a powerful but nuanced tool for transforming higher education. By navigating the ethical and practical hurdles and harnessing its full potential, AI can revolutionize learning experiences and empower educators to cultivate a more effective and equitable educational landscape.

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