

Original Article

# Artificial Intelligence Impacts on Higher Education

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**Abstract:** Artificial intelligence (AI) is poised to revolutionize various aspects of society, and higher education is no exception. Its transformative potential extends to the way we work, learn, and live. This qualitative research aims to analyze the profound impact of AI on higher education, delving into the changes it brings about. Additionally, the study will explore how higher education institutions can actively contribute to the development of AI. Furthermore, this research will investigate the utilization of AI in delivering and supporting higher education. As a pioneering endeavor in this emerging field, this study will offer valuable insights for educators and contribute to the advancement of academic theory.

**Keywords:** Artificial Intelligence, Robotics, Automation, Higher Education.

## I. INTRODUCTION

Artificial intelligence (AI) refers to the development and utilization of computer systems or machines that possess the ability to perform tasks typically requiring human intelligence and logical reasoning. While AI has the potential to greatly improve our world, it is not without its challenges. Let's consider the case of driverless vehicles as an example. Driverless vehicles represent a significant technological advancement in the field of transportation, offering numerous benefits to both the automotive industry and consumers from both economic and practical perspectives. By eliminating the need for human drivers, these vehicles relieve individuals from the monotonous task of driving and contribute to a reduction in accidents caused by factors such as fatigue. However, it is important to acknowledge that driverless vehicles may ultimately replace traditional taxi, truck, and Uber drivers. Researchers from MIT, namely Daron Acemoglu, along with Pascual Restrepo from Boston University, conducted a groundbreaking study that revealed a significant consequence of technological advancements. In a separate research endeavor conducted by scholars at Oxford University in the United States face a high risk of being replaced by AI systems. Astonishingly, this threat is not projected to emerge in the distant future but within the next 20 years. Moreover, of jobs across Europe are confronted with a similar menace from machines. Consequently, the question of how individuals can maintain competitiveness in the job market in the face of such a severe AI, robotics, and automation threat has become a paramount concern. Furthermore, the reaction of higher education institutions to aid their students in navigating the challenges of the AI age is of utmost importance. Recognizing these pressing issues, this nascent study aims to delve into the impact of AI on higher education and explore the proactive and reactive changes implemented within the realm of higher education. As part of this longitudinal action research, one of the researchers, an administrator, will play a pivotal role in formulating curriculum and policy modifications to effectively respond to and leverage the transformative disruptions caused by AI.

## II. LITERATURE REVIEW

Artificial intelligence (AI) can be classified into Weak and Strong AI. Weak AI, also known as artificial narrow intelligence, is designed to be focused on a narrow task. One example of Weak AI is the self-driving vehicle. It is specialized for a specific task. Another category is the Strong AI, also known as artificial general intelligence. Strong AI is capable of most (if not all) cognitive functions that a human may have and can apply intelligence to more than one specific problem (Kurzweil, 2005; Voss, 2017). Strong AI is considered by many prominent researchers and industrialists such as Stephen Hawking, Bill Gates, and Elon Musk as an existential threat to human civilization. In this research, we focus on Weak AI and the use of the term AI subsequently in this article means Weak AI. Proceedings of the Thirteenth Midwest Association for Information Systems Conference, Saint Louis, Missouri May 17-18, 2018

## III. IMPACT OF AI

According to the Forbes Technology Council, the potential of artificial intelligence (AI) is projected to reach an impressive trillion in the global economy by AI's applications extend beyond popular platforms like Amazon and YouTube advertisements. It has found its way into various domains, including fashion recommendations and spam email filtering. Virtual assistants such as Siri, Google's Assistant, and Cortana have become an integral part of people's lives, representing a global trend. In the finance sector, AI plays a crucial role in securing bank accounts and monitoring transaction requests. Moreover, self-driving vehicles have emerged as another notable application of AI, with several countries already experimenting with driverless trucks for efficient goods delivery.

#### IV. AI EFFECTS ON HIGHER EDUCATION

According to and the advancement of AI technology is anticipated to bring about substantial changes in the future job market, leading to both job replacements and displacements. As a result, the skill sets required for the workforce will undergo significant transformations. Numerous studies have consistently shown that jobs involving routine and structured tasks are more susceptible to automation and are likely to be replaced by AI in the near future. Conversely, occupations that encompass unstructured job tasks and require the management of people are deemed more challenging to be automated and hence less prone to displacement by AI. In light of these developments, higher education institutions must adapt and evolve continuously to ensure their programs remain relevant and equip students with the skills necessary for the changing job landscape. Higher education is poised to experience significant transformations due to the widespread integration of AI, particularly in two key areas: curricula and enrollment. The influence of AI on curriculum development within higher education institutions will be far-reaching. The inherent strengths of AI lie in its unparalleled speed, accuracy, and consistency, making it a formidable force to contend with. It is evident that attempting to compete with AI on these dimensions would be a futile endeavor. However, it is crucial to recognize that AI still lags behind in soft skills, such as creativity, innovation, critical thinking, problem-solving, socialization, leadership, empathy, collaboration, and communication. Therefore, while it remains essential to provide students with a foundation in hard skills such as science, math, and engineering, higher education must also emphasize the cultivation of soft skills. By offering opportunities and training to enhance these skills, universities can equip students with a holistic education that prepares them for the multifaceted demands of the future. In response to this evolving landscape, some forward-thinking universities have already begun offering AI and Machine Learning courses, not solely to computer science students but also to those studying business. Business managers and executives must possess a comprehensive understanding of AI's capabilities, limitations, and implications within the business world. By incorporating AI education into various disciplines, higher education institutions can foster a well-rounded and adaptable workforce for the AI-driven future. AI's influence on higher education extends beyond its instructional applications to its impact on enrollment trends. In light of the threat of automation, majors within the liberal arts and humanities disciplines are poised to experience a surge in popularity. These areas are generally considered less susceptible to being overtaken by AI advancements. Conversely, fields like accounting and financial analysis, which are more vulnerable to AI disruption, may witness a significant decline in student enrollment. Moreover, the growing wealth disparity coupled with a potential surge in unemployment may render higher education financially unattainable for a substantial portion of the population student enrollment. Moreover, the growing wealth disparity coupled with a potential surge in unemployment may render higher education financially unattainable for a substantial portion of the population.

#### V. THEORETICAL FOUNDATION ORGANIZATIONAL CHANGE

Organizational change refers to the examination of how an organization modifies its structure, strategies, operational methods, technologies, or organizational culture to initiate and implement change within the organization. It involves studying the consequences of these changes on the organization itself. Organizational change can be characterized as a continuous, active, and evolving process. With the emergence of AI, which is expected to bring about significant transformations in higher education, it becomes crucial to explore various organizational change theories and models that can serve as the conceptual and theoretical basis for understanding these changes.

##### A) *Lewin's Change Management Model*

According to Kurt Lewin's theory in 1946, a successful change process consists of three stages: unfreezing, changing, and freezing. In the unfreezing stage, individuals must be encouraged to objectively evaluate their current situations. This initial step can be quite challenging since it requires breaking through the barriers of complacency and self-righteousness. Once people have acknowledged the necessity for change, they progress to the changing stage. During this phase, a long-term perspective and a positive mindset become essential. This is particularly relevant when considering the impact of AI on higher education, as the future in this domain can be complex and unpredictable. Finally, once the transition stage has been completed, the freezing stage comes into play. This stage aims to ensure that the changes implemented are maintained, rather than reverting back to the original status quo.

##### B) *Kotter's 8 Step Change Model*

- 1) Increase the urgency for change
- 2) Build a team dedicated to change
- 3) Create the vision for change
- 4) Communicate the need for change
- 5) Empower staff with the ability to change
- 6) Create short-term goals
- 7) Stay persistent
- 8) Make the change permanent

## VI. RESEARCH METHODOLOGY

In this research study, a qualitative longitudinal action research approach will be employed. Action research is a methodology that emphasizes problem-solving and entails a reflective process of progressive problem-solving led by individuals collaborating with others. It is also regarded as part of a 'community of practice,' aiming to identify potential issues and find resolutions. The essence of action research lies in actively engaging in a change situation while concurrently conducting research. It is commonly implemented within established, long-term organizations to ensure the continuity of the research endeavor as a whole. By undertaking an action study, valuable insights can be gained into the research questions at hand, offering supportive evidence to address the research focus effectively.

In this particular study, one of the researchers holds an administrative position in a college. This administrator actively engages with other administrators and faculty members both within and outside their college and institution to formulate policies and plans that will enhance their college's readiness for the era of AI. Given the context, action research is an appropriate and fitting research methodology to employ. Through action research, the researcher can systematically and meticulously examine their own plans and policies, utilizing a scientific and well-established research method.

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