

# **REVOLUTIONIZING HIGHER EDUCATION: AN INVESTIGATION INTO THE IMPACT OF ARTIFICIAL INTELLIGENCE ON UNIVERSITY ADMINISTRATION IN HECHUAN DISTRICT CHONGQING, CHINA**

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## **ABSTRACT**

The objectives of this study were to examine the role of AI in enhancing administrative efficiency in educational institutions by streamlining processes such as student enrollment, course registration, financial aid, and degree audits, as well as its impact on the day-to-day operations of school administrators. To analyze the influence of AI on student experiences, focusing on aspects such as personalized learning, adaptive assessments, and targeted academic support and how these changes affect the responsibilities of school administrators. To investigate the potential benefits, drawbacks, and ethical considerations of implementing AI in educational administration, including data privacy, algorithmic bias, implications for university administrators, faculty, and staff roles and responsibilities, and the potential for job displacement or up skilling. The researcher Investigation into the Impact of Artificial Intelligence on University Administration in Hechuan District Chongqing, China. This includes 12,650 students, and the sample size employed in this research was approximately 387.73. This size was determined by utilizing the Taro Yamane sample size.

**Keywords:** Revolutionizing Higher Education, Artificial Intelligence

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## INTRODUCTION

Artificial intelligence (AI) has made significant strides in recent decades, altering the global landscape in numerous areas. Originating from research laboratories and permeating the digital realm, AI has become a groundbreaking force, pushing the limits of human potential. Its remarkable influence on the world has enhanced human abilities and revolutionized living, working, and communicating. AI combines computer science, mathematics, linguistics, and cognitive psychology as a multidisciplinary field, making it an integral part of contemporary society. By mimicking human intelligence in machines, AI has triggered a sea change in various industries such as healthcare, education, finance, and environmental conservation. This extraordinary blend of human expertise and machine learning has resulted in unparalleled innovations, significantly improving our quality of life. In our increasingly interconnected world, AI-powered technologies are essential in tackling intricate global issues, from climate change to socioeconomic inequalities. The merging of AI and human creativity has unlocked new realms of possibility, enabling us to accomplish goals once considered purely fictional. Nevertheless, as we embark on a new phase of AI-fueled progress, it is vital to ensure that the advantages of this transformative technology are responsibly and moderately utilized, protecting the well-being of all humankind.

Artificial intelligence (AI) has been making its mark on various aspects of organizational operations, and administrative functions are no exception. The integration of AI-driven tools and techniques has led to increased efficiency, accuracy, and innovation in administration, ultimately improving overall organizational performance.

**Automation of Routine Tasks:** AI has enabled the automation of repetitive and mundane tasks, freeing administrative staff to focus on more strategic and value-added activities. For instance, AI-powered chatbots can handle routine customer inquiries, while Robotic Process Automation (RPA) tools can manage data entry tasks and process documentation (Davenport & Ronanki, 2018).

**Enhanced Decision-Making:** AI-driven analytics tools can process large volumes of data, providing insights that aid in better decision-making. Administrators can leverage these insights to optimize resource allocation, predict trends, and identify potential areas for improvement (Brynjolfsson & McAfee, 2017).

**Improved Communication and Collaboration:** AI-powered communication tools can enhance collaboration within organizations. For example, natural language processing (NLP) algorithms can analyze and summarize large volumes of text, making it easier for team members to access and understand relevant information. Additionally, AI-driven translation tools can break language barriers, enabling more effective communication in multinational organizations (Rock & Grant, 2016).

**Talent Management and Development:** AI can streamline talent management processes by automating tasks such as resume screening, scheduling interviews, and providing personalized feedback to employees. Furthermore, AI can identify skill gaps and recommend targeted training programs, fostering continuous employee development (Bessen, 2019).

Artificial intelligence (AI) has significantly influenced the education sector, offering numerous opportunities for enhancing learning experiences, personalizing education, and streamlining administrative tasks. Here, we review some key areas where AI has made a notable impact on the education industry:

**Personalized Learning:** AI-driven adaptive learning systems can analyze student performance data to tailor learning experiences based on individual needs. These systems can identify areas where students struggle and provide targeted resources or adjust the pacing of instruction accordingly (Luckin, Holmes, Forcier, & Griffiths, 2016). Personalized learning improves student engagement and outcomes by delivering more relevant and practical educational experiences.

Intelligent Tutoring Systems: AI-powered intelligent tutoring systems (ITS) offer individualized student support by simulating one-on-one interactions with a human tutor. ITS can provide immediate feedback, address misconceptions, and guide students through problem-solving processes, leading to better learning outcomes (Vanlehn, 2011).

Automated Assessment and Feedback: AI algorithms can evaluate student performance on various tasks, from multiple-choice questions to complex written assignments. Automated assessment tools can provide immediate and personalized feedback, enabling students to learn from their mistakes and improve their understanding of the subject (Sgute & Zapata-Rivera, 2012).

Efficient Administration and Resource Allocation: AI can streamline administrative tasks like scheduling, enrollment, and record-keeping, allowing educators to focus on teaching and curriculum development. Furthermore, AI-driven analytics can help institutions optimize resource allocation, predict enrollment trends, and identify areas for improvement (Graesser, Hu, & Sottilare, 2018).

Enhancing Teacher Professional Development: AI can support teacher professional development by identifying areas for growth and recommending targeted training resources. By analyzing student performance data and classroom observations, AI can provide actionable insights for educators to enhance their instructional strategies (Holstein, McLaren, & Aleven, 2019).

The rapid development of artificial intelligence (AI) has significantly influenced the education industry worldwide, with China being no exception. The Chinese government has recognized AI as a vital component of its national strategy, with the education sector identified as a critical area for investment and innovation (Liu & Guo, 2020). This literature review explores how AI has impacted the education industry in China, focusing on online learning platforms, intelligent tutoring systems, assessment and feedback, education policy and resource allocation, and language learning.

### **Online Learning Platforms and MOOCs**

In recent years, AI-driven online learning platforms and Massive Open Online Courses (MOOCs) have emerged as popular tools for providing quality education to a broader population in China. Liu, He, and Zhang (2021) discuss the growing prominence of platforms such as Squirrel AI and Xueersi Online School, which leverage adaptive learning algorithms to offer personalized learning experiences tailored to individual student needs.

### **Intelligent Tutoring Systems**

With a large and diverse student population, China faces challenges in providing quality education, especially in rural areas with a shortage of qualified teachers. Wang et al. (2019) highlight the country's investment in AI-powered intelligent tutoring systems (ITS) as a solution, offering customized learning support and simulating one-on-one tutoring interactions to bridge this gap.

### **AI-driven Assessment and Feedback**

Using AI-based assessment tools in China has improved the efficiency and accuracy of evaluating student performance. Liu et al. (2021) emphasize the benefits of real-time feedback provided by these tools on various tasks, from multiple-choice tests to written assignments, enabling students to learn from their mistakes and enhance their understanding of the subject matter.

### **Education Policy and Resource Allocation**

Liu and Guo (2020) examine the role of AI-driven analytics in informing decision-making and optimizing resource allocation within the Chinese education system. They argue that by analyzing large datasets, AI can help identify trends, predict future enrollment, and pinpoint areas for improvement, leading to more effective policy implementation and resource management.

### Language Learning and Translation

The growing demand for English language learning in China has led to the emergence of AI-driven language tools as a popular solution. Zhang et al. (2020) review using AI-powered language learning platforms such as Liulishuo and VIPKid, which leverage natural language processing (NLP) and machine learning algorithms to offer personalized language instruction and feedback.

In summary, AI has made a notable impact on the education industry in China, addressing various challenges and offering significant benefits in terms of personalized learning experiences, intelligent tutoring systems, efficient assessment and feedback, optimized education policy and resource allocation, and language learning. As AI technology advances, its influence on the Chinese education sector is expected to expand and evolve.

Therefore, the significance of studying the impact of AI on school administrators in China lies in various key areas, including efficient resource management, enhanced decision-making, addressing inequalities, adapting to emerging technologies, and ensuring ethical implementation. By understanding the effects of AI on administrators, strategies can be developed to optimize resource allocation, make informed decisions about curriculum development and teacher training, and address educational disparities between urban and rural areas. Furthermore, this understanding will enable administrators to effectively lead and manage their institutions in an increasingly AI-driven world while developing guidelines to ensure responsible AI implementation, protecting the interests of students, teachers, and other stakeholders. Overall, this research will contribute to developing effective strategies for integrating AI into the Chinese education system, ultimately improving the quality of education and fostering a more equitable learning environment for all students.

## LITERATURE REVIEWS

### Concept and Theory of Artificial Intelligent

Artificial intelligence (AI) has its roots in the mid-20th century, with the foundational work of Turing (1950) on machine intelligence (see Figure 1), which later evolved into the Turing Test. AI as a field of study was formally established at the 1956 Dartmouth conference, where McCarthy, Minsky, Rochester, and Shannon (2006) proposed that machines could be programmed to exhibit intelligent behavior.

Early AI research was focused on symbolic AI, which aimed to represent knowledge and perform reasoning using symbolic representations (Newell & Simon, 1972). During this period, researchers developed AI systems such as the General Problem Solver (GPS), which demonstrated problem-solving capabilities using heuristics (Newell & Simon, 1963), and SHRDLU, which displayed natural language understanding in a limited domain (Winograd, 1972). In the 1980s, AI research shifted towards connectionism with the development of artificial neural networks inspired by the human brain's structure and function. The introduction of the back propagation algorithm enabled these networks to learn from data and adapt their weights, leading to improved performance in tasks such as pattern recognition. The 1990s witnessed a resurgence of interest in AI as researchers explored hybrid approaches that combined symbolic and connectionist methods (Sun & Bookman, 1994). This period also saw the rise of Bayesian networks, which allowed for probabilistic reasoning and uncertainty management in AI systems (Pearl, 1988). More recently, the advent of deep learning, a subfield of machine learning that involves training large artificial neural networks with multiple layers, has led to remarkable advancements in AI (Goodfellow et al., 2016). These advances have enabled AI systems to achieve human-level performance in tasks such as image recognition (Krizhevsky, Sukever, & Hinton, 2012), natural language processing (Devlin, Chang, Lee, and Toutanova (2018), and game playing (Silver et al., 2016).

### **Concept and Theory of Revolution**

The concept and theory of revolution have been a subject of extensive inquiry throughout history, with numerous scholars and thinkers presenting diverse perspectives on the origins, attributes, and outcomes of these transformative events. This literature review offers a comprehensive overview of the key theoretical contributions to understanding revolution, emphasizing the seminal works of distinguished scholars, including Marx, Lenin, Arendt, and Skocpol. In examining these influential theories, this review will delve into four primary dimensions: the definition and nature of revolution, the significance of class struggle, the crucial role of political and social factors, and the far-reaching consequences of revolutions on the broader fabric of society and politics.

### **Concept and Theory of University Administration**

University administration is a critical aspect of higher education, encompassing the management and organization of academic institutions. The study of university administration focuses on developing and applying theories and concepts that contribute to effective leadership and governance in higher education. This literature review aims to provide an overview of critical theoretical contributions to understanding university administration, focusing on the works of prominent scholars and practitioners in higher education management, organizational theory, and leadership. The review will discuss the following aspects: the evolution of university administration, the role of leadership, governance, and decision-making, and the impact of external factors on university administration.

The concept and theory of the administrative process form the foundation of effective management and decision-making in various organizations, including those in the public and private sectors. This paper discusses critical theories, models, and research findings in the field of the administrative process, highlighting their contributions and applications.

### **Classical Administrative Theory**

#### **Henri Fayol's Principles of Management**

Fayol, H. (1949). *General and Industrial Management*. Sir Isaac Pitman & Sons Ltd. Henri Fayol's work presents 14 principles of management that form the foundation of modern management theory (Table 1). These principles emphasize the importance of division of labor, authority and responsibility, discipline, unity of command, unity of direction, subordination of individual interests, remuneration, centralization, scalar chain, order, equity, and stability of tenure, initiative, and *esprit de corps*. Fayol's principles have shaped the contemporary understanding of management and administrative processes, emphasizing the need for efficient organization and clear communication.

#### **Max Weber's Theory of Bureaucracy**

Max Weber, a German sociologist, developed the Theory of Bureaucracy as a model for organizing and managing large, complex organizations. In his work "Economy and Society: An Outline of Interpretive Sociology" (1968), Weber described bureaucracy as an ideal type of organization that relies on a rational and systematic approach to administration.

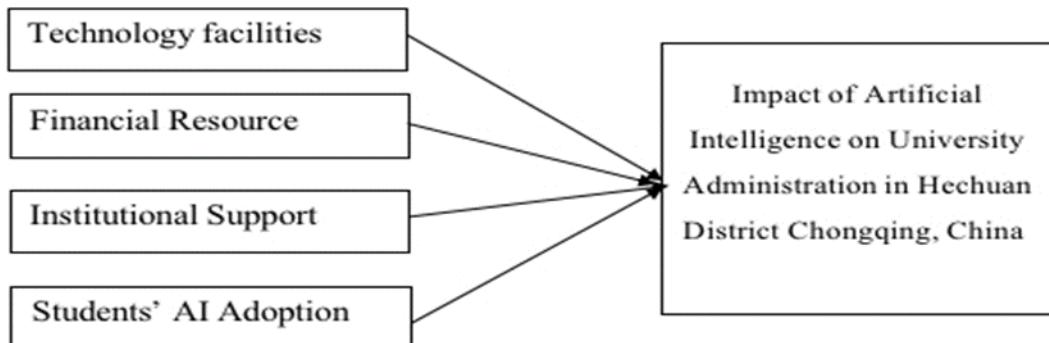
### **Concept and Theory of Administrative Process**

The concept and theory of administrative processes have been the subject of extensive study and discussion in management, organizational theory, and public administration. This literature review aims to provide an overview of critical works and theoretical perspectives that have contributed to our understanding of administrative processes, emphasizing the historical development of the field and its continued relevance in contemporary research and practice.

### **Concept and Theory of Organization Outcomes**

The concept and theory of organizational outcomes have been a central focus in management, organizational theory, and public administration. This literature review aims to provide an overview of critical works and theoretical perspectives that have contributed to our understanding of organizational outcomes, emphasizing the factors that influence the

effectiveness and efficiency of administrative processes and their ultimate impact on organizational performance.



**Figure 1** Conceptual Framework

## RESEARCH METHODOLOGY

### Research Instrument

Quantitative research

Data Collection Tools for Quantitative Research The researcher used a questionnaire with a rating scale of 5 levels: highest, high, moderate, low, and very low; they developed an improvement from the research questionnaire Likert scale (Likert, 1932), The questionnaire is divided into two parts are:

Part 1 The status of the respondents It was a multiple-choice question with four questions to the demographics of the respondents.

Part 2 In this part is the study of the Impact of Artificial Intelligence on University Administration in Hechuan District Chongqing, China. It is a 5-level estimation scale question asking about factors of linguistic landscape as dependent variables are divided into two areas as follows:

Input Factors

Technology facilities

Financial Resource

Institutional Support

Students' AI Adoption

Process

Student enrollment

Course Registration

Academic Advising

Financial Aid

Part 3 This part examines the outcome factors of the influence of artificial intelligence on university administration in Hechuan District, Chongqing, China. It utilizes a 5-point assessment scale to inquire about factors of the linguistic landscape, which serve as independent variables and are categorized into two distinct domains. Perception Improve efficiency.

Accuracy

Personalize student learning experience Reading Attitude

## RESEARCH RESULTS

This research has explored the impact of artificial intelligence (AI) on higher education administration in the Hechuan District, Chongqing, China, by gathering insights from 15 school administrators. The findings indicate that AI has the potential to revolutionize higher education

by streamlining administrative processes, enhancing student experiences, improving learning outcomes, increasing efficiency, and strengthening research capabilities.

The successful implementation of AI in university administration relies on adopting best practices, such as clear goal setting, collaboration, comprehensive needs assessment, ethical consideration, staff training and support, continuous monitoring and evaluation, scalability, and transparency. Addressing ethical concerns about data privacy, security, transparency, accountability, inclusivity, and potential biases is crucial for AI's responsible and ethical integration.

As AI continues to play a more significant role in higher education administration and operations, the future of higher education in Hechuan District is envisioned to include data-driven decision-making, greater efficiency, improved learning outcomes, increased accessibility and inclusivity, enhanced collaboration and networking, and a focus on lifelong learning and skills development. This transformation can potentially contribute to the region's overall development, fostering a skilled and innovative workforce capable of driving economic growth and prosperity.

Overall, this research highlights the transformative potential of AI in higher education administration and underscores the importance of adopting best practices and addressing ethical considerations for its successful integration. By leveraging AI in university administration and operations, higher education institutions in Hechuan District can unlock significant benefits for students, faculty, staff, and the broader community.

Based on the insights gathered from the 15 school administrators, the research findings provide an understanding of the impact of artificial intelligence (AI) on higher education administration in the Hechuan District, Chongqing, China. The key findings of this research are as follows: AI has the potential to significantly enhance various aspects of higher education administration, such as streamlining administrative processes, improving student experiences, personalizing learning, and increasing access to information and support services.

Successful AI integration relies on adopting best practices, including setting clear goals and objectives, fostering collaboration and stakeholder involvement, conducting comprehensive needs assessments, addressing ethical considerations, providing staff training and support, continuously monitoring and evaluating AI initiatives, considering scalability and flexibility, and promoting communication and transparency.

Ethical concerns and considerations arising from AI implementation, such as data privacy and security, transparency and accountability, bias and discrimination, job displacement and skills development, and inclusivity and accessibility, need to be addressed through strategic planning, policy development, continuous monitoring, training and support, and stakeholder engagement.

AI-driven tools and systems can increase efficiency, cost-effectiveness, and data-driven decision-making within higher education institutions, resulting in improved resource allocation, better strategic planning, and enhanced overall performance.

Integrating AI in higher education administration can improve learning outcomes, strengthen research capabilities, and increase accessibility and inclusivity in learning environments.

As AI continues to play a more significant role in university administration and operations, the future of higher education in the Hechuan District is expected to be characterized by enhanced student experiences, data-driven decision-making, greater efficiency, improved learning outcomes, strengthened research capabilities, increased accessibility and inclusivity, enhanced collaboration and networking, and an emphasis on lifelong learning and skills development.

In summary, the research findings suggest that AI has the potential to revolutionize higher education administration in the Hechuan District, Chongqing, China. By adopting best practices and addressing ethical concerns, institutions can harness the benefits of AI to enhance

their operations, improve learning outcomes, and contribute to the region's overall development.

## DISCUSSION & CONCLUSION

Based on the findings of this research, several suggestions for further research are proposed: Further research is needed to explore the factors contributing to financial stress among university students, particularly in China. This research could examine the impact of financial literacy programs or other interventions to improve students' financial management skills.

Additional research is needed to investigate the impact of social support and coping strategies on students' mental health in different cultural contexts. Cross-cultural research could provide valuable insights into the cultural factors that influence the effectiveness of social support and coping strategies in promoting mental well-being.

Further research could explore the impact of the university environment on students' mental health, particularly regarding trauma and adverse experiences. This research could investigate the effectiveness of trauma-informed practices in higher education institutions and their potential for promoting students' mental well-being.

Research could examine the role of technology and social media in shaping social support and coping strategies among university students. This research could explore the impact of technology on students' mental health and identify potential strategies for promoting the positive use of technology to support mental well-being.

Finally, the research could investigate the effectiveness of different interventions promoting mental well-being among university students. This research could evaluate the impact of interventions such as counseling services, mindfulness programs, or peer support groups on students' mental health and identify best practices for promoting mental well-being in higher education institutions.

This study examines the influence of artificial intelligence (AI) on higher education administration in the Hechuan District of Chongqing, China. It connects to previously conducted studies in the area. The main conclusions of this study are consistent with other studies that have investigated the possibilities of AI in higher education.

### **Enhancement of Student Experience:**

This research indicates that AI can significantly improve student experiences in higher education institutions. This is consistent with Bastinade, Rai, and Shaikh (2018) results, who discovered that AI could help personalize learning experiences and improve access to information and support services. Furthermore, the research conducted by Alghazo, Alghazo, and the research team of Al (2020) highlighted the beneficial effects of artificial intelligence (AI) for improving student engagement and cultivating a student-centered learning environment.

### **Data-Driven Decision-Making and Improved Efficiency:**

The research findings indicate that using AI-driven tools and systems can enhance efficiency, cost-effectiveness, and data-driven decision-making inside higher education institutions. This is consistent with the results of Zhu, Yu, and Riezebos (2016), who conducted a study illustrating the potential of artificial intelligence (AI) in enhancing resource allocation, streamlining administrative procedures, and enhancing strategic planning.

The examination of ethical considerations is of paramount importance in this context.

The research underscores the significance of addressing ethical concerns and considerations about implementing artificial intelligence (AI) in higher education. This assertion is corroborated by Boddington's (2017) study, which explores the difficulties associated with data privacy, security, transparency, accountability, and the imperative of responsible integration of AI.

### **Enhanced Educational Achievements and Enhanced Research Proficiencies:**

The results of this study indicate that artificial intelligence (AI) can enhance educational achievements and bolster research capacities within the realm of higher education. The findings align with the research conducted by Roll and Wylie (2016), which demonstrated that artificial intelligence (AI) can potentially support personalized learning, adaptive course materials, and early intervention systems. These advancements have enhanced learning outcomes and cultivated a more proficient workforce.

In summary, the results of this study are consistent with previous research endeavors that have examined the possibilities of artificial intelligence in higher education. The contributions made by the 15 school administrators in the Hechuan District, Chongqing, China, add to the existing academic literature that supports the potential transformative impact of artificial intelligence (AI) in higher education administration. These insights highlight the significance of implementing best practices and addressing ethical considerations to integrate AI technologies effectively.

### **Suggestion**

The results of this study establish a basis for future investigation into the application of artificial intelligence (AI) in the management of higher education in the Hechuan District, Chongqing, China. The subsequent recommendations are put up for prospective investigation in this domain:

Longitudinal studies refer to research designs that collect data from the same individuals or groups over an extended period. It is recommended to undertake longitudinal research to evaluate the enduring effects of artificial intelligence (AI) integration on university administration, student experiences, and learning outcomes. This study aims to offer significant insights into the long-term impacts and potential obstacles of integrating artificial intelligence (AI) in higher education.

The field of Comparative Studies encompasses the examination and analysis of various subjects, drawing upon similarities and differences to gain a deeper understanding of their This study aims to examine the disparities in artificial intelligence (AI) deployment and its consequences among diverse higher education institutions, such as public versus private and large versus small establishments. Additionally, it seeks to investigate these variations across different regions or nations. This study aims to ascertain the contextual factors potentially impacting the outcomes of artificial intelligence (AI) projects in university administration.

**The Influence of Artificial Intelligence on Education:** This study examines the influence of integrating artificial intelligence (AI) in teaching and learning practices. Specifically, it will explore the involvement of faculty members in AI-enhanced classrooms, evaluate the efficacy of AI-driven instructional strategies, and assess the enhancement of student abilities and competencies resulting from AI integration.

Scholars can further advance the current understanding of the influence of artificial intelligence (AI) on higher education administration and contribute to the formulation of efficient strategies and optimal approaches for leveraging AI's potential in higher education institutions by considering these recommendations for future research.

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