

Generative Artificial Intelligence empowers administrative management in universities

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Abstract

Against the background of digital transformation, Generative Artificial Intelligence (GAI) technology brings new development opportunities to administrative management in universities. This article aims to explore the application value, implementation strategies, and guarantee mechanisms of generative artificial intelligence in university administrative management, in order to promote the intelligent transformation of administrative work in universities. Research has shown that generative artificial intelligence can significantly improve administrative efficiency, optimize resource allocation, innovate service mode, and provide scientific basis for decision support. This article analyzes the current dilemma of university administrative work and proposes specific implementation strategies and safeguard measures based on the technical characteristics of generative artificial intelligence, in order to provide theoretical reference and practical guidance for the modernization of university administrative management.

Keywords: Generative Artificial Intelligence; Administrative Work in Universities; Intelligent Transformation

1. Introduction

With the rapid development of information technology, generative artificial intelligence technology has gradually become an important driving force for promoting changes in various fields. In the field of higher education, the administrative management of universities, as an important support for ensuring teaching, scientific research, and social practice, urgently needs to achieve efficiency improvement and service optimization through technological means. Generative artificial intelligence, with its powerful data processing, natural language processing, and automatic generation capabilities, provides new possibilities for the intelligent transformation of university administrative management. Through researching on the technical characteristics and advantages of generative artificial intelligence, exploring its application scenarios and potential value in university administrative management, and studying its specific implementation strategies and guarantee mechanisms, we aim to provide theoretical basis and practical guidance for the innovative development of university administrative management, injecting new vitality into the development of universities.

2. The Current Situation and Challenges of Administrative Management in Universities

2.1. Administrative inefficiency

The administrative management work of universities covers multiple fields such as teaching management, scientific research management, and student affairs management. The complexity of its processes and the diversity of its tasks propose high requirements for management efficiency. However, traditional administrative management modes generally suffer from problems such as cumbersome processes and information silos, leading to low administrative

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efficiency. For example, in processes such as document approval, data statistics, and information transmission, a large amount of repetitive work relies on manual operation, which is not only time-consuming and labor-intensive, but also prone to manual errors. In addition, the lack of effective information sharing mechanisms between departments has led to low efficiency in cross departmental collaboration, further exacerbating the inefficiency of administrative work. This inefficiency not only affects the smooth operation of universities, but also restricts the innovative development in key areas such as teaching and research.

2.2. Uneven allocation of resources

The issue of resource allocation in university administrative management has long been a concern. Due to the lack of scientific data support and decision-making tools, resource allocation often relies on historical experience judgments or games between secondary units, resulting in uneven resource allocation. For example, some popular subjects or key projects may receive excessive resources due to policy bias or external support, while some fundamental subjects or new domains face the dilemma of resource scarcity. This imbalance not only affects the coordinated development of various disciplines within universities, but may also lead to resource waste and redundant construction. In addition, the opacity of resource allocation can easily lead to internal conflicts within units, further weakening the overall competitiveness of universities.

2.3. Low service quality

The quality of administrative services in universities is directly related to the satisfaction of teachers and the social reputation. However, uneven quality of administrative services is endemic in universities. On the one hand, the lack of necessary training and guidance of administrative staff makes it difficult to meet the growing service needs of teachers and students; On the other hand, the lack of standardization and normalization in service processes constantly leads to problems such as complex procedures, long-time waiting and information opacity. For example, students may spend a lot of time dealing with affairs such as student scholarship applications due to unclear processes. These issues not only affect the efficiency of teachers and students, but may also have a negative impact on the public opinion of universities.

2.4. Lack of innovation

In the context of rapid development of digitization and intelligence, the administrative management of universities urgently needs to achieve transformation and upgrading through technological innovation. However, the current administrative work in universities generally lacks innovative motivation. On the one hand, the inertia thinking and institutional constraints of traditional administrative management models limit the application and promotion of new technologies; On the other hand, administrative personnel have insufficient awareness of emerging technologies, coupled with the lack of effective incentive mechanisms within universities, resulting in weak innovation awareness. In terms of information technology construction, many universities are still in the basic stage of data entry and storage, and have not fully utilized technologies such as big data and artificial intelligence to achieve intelligent and automated administrative management. The lack of innovation drive not only makes it difficult for university administrative work to adapt to the development needs of the new era, but may also lead to its gradual loss of advantages in the increasingly fierce competition in higher education.

3. The Application Value of Generative Artificial Intelligence in University Administrative Management

3.1. Improve administrative work efficiency

Generative artificial intelligence has powerful data processing and analysis capabilities, capable of automating the processing of large amounts of data and information, reducing tedious operations and time consumption. In the administrative work of universities, many repetitive and tedious tasks can be completed through generative artificial intelligence, such as document organization, data entry, information retrieval, etc. The automation of these tasks can significantly improve the efficiency of administrative work, allowing administrative personnel to invest more time and energy into more creative and strategic work.

3.2. Optimize decision support

Generative artificial intelligence has powerful data analysis and prediction capabilities, which can mine and analyze large amounts of data to discover objective laws and development trends in administrative work. By introducing advanced artificial intelligence technology, universities can build a more intelligent and automated administrative management system, achieving digitalization, networking, and intelligence of administrative work. In the

administrative work of universities, generative artificial intelligence can provide decision-makers with accurate and comprehensive data support and analysis reports, helping them better understand the operational status and development trends of universities, and make more scientific and reasonable decisions. In addition, generative artificial intelligence can provide strong support for university development planning and strategic planning based on historical data and predictive models.

3.3. Improve service quality

Generative artificial intelligence can achieve intelligent interaction with teachers and students through technologies such as natural language processing, providing more convenient and efficient services. Through technologies such as deep learning, generative artificial intelligence can understand the needs and preferences of teachers and students, and provide them with more accurate services. For example, an Intelligent online-counselor system can be developed to provide consultation; meanwhile, an intelligent reservation system can be built to facilitate teachers and students in booking conference rooms, laboratories, and other resources; An intelligent recommendation system can be built to recommend relevant academic resources and activities to teachers and students based on their interests and professional backgrounds. These intelligent service methods can enhance the satisfaction of achievement of teachers and students, and strengthen the competitiveness of universities.

3.4. Promote resource sharing and collaborative cooperation

Generative artificial intelligence can break down information silos and promote information sharing and collaborative cooperation among different departments. In the administrative work of universities, there are often information barriers and communication barriers between different departments. Through the application of generative artificial intelligence, automated collection and integration of information can be achieved, promoting collaboration and information flow between different departments. Generative artificial intelligence not only improve resource utilization efficiency, but also enhance the overall competitiveness and innovation capability of universities.

4. Application Strategies of Generative Artificial Intelligence in University Administrative Work

4.1. Clearly define application scenarios

The application of generative artificial intelligence technology in university administrative work requires a clear definition of specific application scenarios. Universities should take into consideration of the characteristics and needs of administrative work, and determine the specific application areas of generative artificial intelligence through systematic needs analysis and scenario planning. For example, in the field of teaching management, generative artificial intelligence technology can be used to achieve intelligent course scheduling, course resource recommendation, etc; In the field of scientific research management, one can optimize the process of scientific research project application and achievement management through their data analysis capabilities; In the field of student affairs management, intelligent online-counselor system can be used to improve counselling efficiency. By clarifying the application scenarios, universities can ensure that the application of generative artificial intelligence technology is targeted and effective, thereby truly solving pain points in administrative work, improving work efficiency and management quality.

In the process of clarifying application scenarios, universities can adopt a demand-driving approach, collecting the actual needs of teachers and students through researching and interviewing, considering the technical characteristics of generative artificial intelligence to develop practical and feasible application plans. For example, a questionnaire survey can be conducted to perceive the main pain points of teachers and students when handling administrative procedures.

4.2. Choose appropriate technology and platform

The diversity and rapid development of generative artificial intelligence technology provide universities with rich choices, but also put forward higher requirements for technology selection. When selecting technology and platforms, universities should comprehensively consider factors such as technology maturity, applicability, scalability, and cost-effectiveness. For example, for text processing tasks such as document organization, one can choose a technology platform with strong natural language processing capabilities, such as the GPT series model; For data analysis tasks such as scientific research data mining, priority should be given to selecting technical tools with efficient data analysis capabilities. In addition, universities also need to pay attention to the stability and compatibility of technology, ensuring that generative artificial intelligence systems can seamlessly integrate with existing administrative management systems, and avoiding the impact of technical conflicts or data silos on overall operational efficiency.

In the process of technology selection, universities can draw on successful cases from other educational institutions and choose technology platforms that have been verified through practice. For example, we can examine the experience of well-known universities at home and abroad in the application of generative artificial intelligence, and choose technical solutions that are suitable for our own needs. At the same time, universities should establish long-term cooperative relationships with technology suppliers to ensure the continuous updating and maintenance of technology platforms.

4.3. Strengthen data management and security assurance

The application of generative artificial intelligence technology highly relies on high-quality data supporting, therefore, data management and security have become key issues that universities must focus on. Firstly, universities should establish a comprehensive mechanism for data collection, storage, and processing to ensure the accuracy, completeness, and timeliness of data. For example, by building a data management platform, standardized integration and sharing of data from multiple departments can be achieved. Secondly, universities need to adopt multi-level security measures to ensure the security and privacy of data. Specific measures include: using encryption technology to protect sensitive data, establishing strict access control mechanisms to limit data usage permissions, and regularly conducting data-security risk assessments. In addition, universities should establish data ethics standards, clarify the boundaries and responsibilities of generative artificial intelligence technology in data use, and avoid ethical disputes or legal risks caused by technological abuse.

In terms of data management, universities can introduce data governance frameworks, such as the Data Management Knowledge System proposed by the Data Management Association (DAMA), to ensure the systematization and standardization of data management. At the same time, universities should strengthen monitoring of data quality and improve data availability through methods such as data cleaning and deduplication. In terms of security, universities can draw on internationally recognized data security standards, to establish a comprehensive information security management system. In addition, universities should strengthen the training of administrative personnel on data security awareness, ensuring that they can strictly comply with data security regulations in their daily work.

4.4. Cultivate professional talents and teams

The successful application of generative artificial intelligence technology cannot be achieved without the support of professional talents. Colleges and universities should strengthen the construction of administrative teams through various means, enhance the technical abilities and innovative consciousness of administrative personnel. Firstly, the information technology application level of the administrative team can be rapidly improved by introducing external experts or collaborating with technology companies; Secondly, it is necessary to strengthen the training of internal employees and help administrative personnel master the basic principles and application skills of generative artificial intelligence through special lectures, practical operations, and other methods. In addition, universities need to establish interdisciplinary collaborative teams, integrate professional strengths in fields such as computer science, management, and education, and promote the research and application of generative artificial intelligence technology. In the process of team building, universities should focus on creating an open and collaborative cultural atmosphere, encouraging knowledge sharing and innovative cooperation among team members, and providing intellectual support for the sustainable development of generative artificial intelligence technology.

In terms of cultivating digital literacy, universities can establish specialized training programs and design differentiated training content for administrative personnel in different positions. For example, for technical management personnel, emphasis can be placed on training the technical principles and system operation skills of generative artificial intelligence; For ordinary administrative personnel, emphasis can be placed on training in technical application and operational skills. In addition, universities can also stimulate the learning interest and innovation potential of administrative staff by organizing activities such as technology salons and innovation competitions. Universities can establish cross departmental technical collaboration groups, regularly carry out technical exchanges and project cooperation, and promote the promotion and application of generative artificial intelligence technology throughout the school.

5. Conclusion

Generative artificial intelligence, as an advanced technological means, has brought many changes and opportunities to the administrative work of universities. By applying generative artificial intelligence technology, universities can have a positive impact on improving administrative work efficiency, optimizing decision support, enhancing service quality, and promoting resource sharing. However, there are also some issues that need to be paid attention to during the application process, such as strengthening data management and security, cultivating professional talents and teams, etc. In order to ensure the smooth promotion and sustainable development of generative artificial intelligence in

university administrative work, it requires joint efforts and support from various aspects such as the government, universities, and enterprises.

The application of generative artificial intelligence technology in university administrative work is a continuous process of exploration and development. With the continuous advancement of technology and the constant transformation of university administrative work, it can be foreseen that generative artificial intelligence will play a more important role in university administrative work. Therefore, universities should actively respond to the call of the times, fully utilize the advantages of generative artificial intelligence technology, promote the intelligent transformation of administrative work, and inject new vitality into the development of universities. At the same time, we should also pay attention to the limitations and potential risks of technology, strengthen technology research and regulation, and ensure the development of generative artificial intelligence technology in university administrative work safely, stably, and sustainably.

Compliance with ethical standards

Disclosure of conflict of interest

No conflict of interest to be disclosed.

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