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Research on the strategy of improving the quality and efficiency of college paperwork based on AI technology

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Abstract

With the rapid development and popularization of artificial intelligence in the digital era, the work of college paperwork is facing new challenges and opportunities. This paper is based on the requirements of the era of college paperwork in the context of digital transformation, in-depth analysis of the existing problems of college paperwork, focusing on the advantages of the application of AI technology, and discussing how to improve the quality and efficiency of college paperwork with the help of AI and other technologies. Fully combined with the actual work of receiving documents, sending documents, writing manuscripts, file management and other aspects of the work, put forward the specific measures to improve the efficiency and quality of the work of documents under the background of digitization, aiming to provide theoretical support for the modernization of the transformation of university administration and management work and practical reference.

Keywords: College Administrative Work; AI Technology; Administrative Efficiency; Digital Transformation

1. Introduction

The administrative work of colleges and universities is the key support to ensure the normal operation of schools and realize the goals of education and teaching. Among them, paperwork, as an important means of information transmission, decision-making implementation and communication and coordination, runs through all aspects of university management. With the rapid development of information technology, AI technology has shown great potential for application in various fields, which provides a new opportunity for the change of college paperwork. How to integrate AI technology into the college paper process, solve the existing problems, improve the quality and efficiency of the paper, and become an important topic for college administrators to study.

- The requirements of the times of college paperwork in the context of digital transformation
- The significance of college paperwork in the modernization of the university governance system

Documentation work throughout the whole process of university governance, is to promote the modernization of the governance system and governance capacity of universities and colleges of key links and important grasp, is the democratic decision-making and scientific management of universities and colleges, and close contact with teachers and students of the masses of the reliable basis.

First, it is a bridge of information transmission and communication: the office work is an important channel of information exchange within the school and between the school and the outside. Schools need to receive policy documents from higher education departments in a timely manner, accurately interpreted and conveyed to various departments within the school to ensure that the direction of school development is consistent with the national

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education policy. The school departments also use the documents to provide feedback to their superiors on the progress of their work and to raise questions and demands. The work of handling documents promotes information sharing and communication among all levels of the school, enables all parties to reach a consensus on the school's development goals and tasks, and promotes the synergistic development of various tasks.

Secondly, it is decision-making support and implementation guarantee: scientific decision-making is the core of university governance, and college documents provide strong support for decision-making, such as timely collection and collation of domestic and international developments, and timely solicitation of opinions and suggestions from relevant departments, which provide comprehensive reference for decision-making. At the same time, office documents are also a guarantee for the implementation of decision-making, school decision-making in the form of documents issued, a clear division of tasks, time nodes and work requirements, the implementation of various departments in accordance with the documents to ensure that the decision-making on the ground.

Thirdly, standardized management and cultural heritage: all kinds of college rules and regulations, workflow in the form of documents to determine and publish, provide guidelines for teachers and students behavior. Documents also carry the historical memory and cultural heritage of the school, such as the documents of the school anniversary over the years, minutes of major events, motivate teachers and students to inherit the spirit of the school, enhance the cohesion of the school and sense of identity.

Fourthly, supervision and evaluation and problem feedback: the work of documents is an important support for supervision and evaluation in the modernization and governance process of colleges and universities. When troubleshooting problems, on the one hand, you can track the process of handling documents and investigate the problems and risks in the process step by step, and on the other hand, you can carry out the deployment of work and show the results through the production of documents and issuance of documents, so as to supervise and assess the effectiveness of the work. After the discovery of the problem, the higher authorities can deploy the work through the document, the relevant units can feedback and solicit suggestions through the document, linkage to promote the solution of the problem, and constantly improve the governance capacity.

1.1. The necessity and feasibility of the digital transformation of university paperwork

From the point of view of necessity, at the policy level, the state is actively promoting the construction of digital China, and the field of education has followed the pace and introduced a series of policies to promote the digitalization of education. The Education Informatization 2.0 Action Plan puts forward "responding to the development of information technology, especially intelligent technology, and actively promote the 'Internet + education'", which clearly requires to improve the level of informationization of education management. As an important part of education administration, the digital transformation of university paperwork is an inevitable requirement to implement the policy and comply with the development trend of education, which helps universities to integrate into the national education informatization situation. At the business level, the traditional mode of handling documents is difficult to meet the current needs, and in the context of the growing annual average volume of document processing, and under the pressure of the timeliness brought about by the increase in the proportion of urgent documents, there is an urgent need to digitally transform in order to improve the quality and efficiency of the work of handling documents.

From the feasibility analysis, on the one hand, there is a solid technical foundation. Big data, artificial intelligence and other technologies have been widely used in various fields, and the increasing maturity of AI technology provides key support for the full utilization of AI technology in the work of universities and colleges. On the other hand, colleges and universities themselves have a good application foundation. Colleges and universities have rich human resources, teachers and students have strong learning ability, administrative staff can quickly master digital office skills after training, but also the introduction of professional and technical personnel to enrich the digital office work team. Colleges and universities have been in the process of information technology construction, has accumulated a certain amount of hardware facilities and network infrastructure, able to carry the operation of the digital office system.

2. The current situation and existing problems in the work of higher education paperwork

2.1. Four major obstacles in the work of receiving documents

Receipt of documents in the work of the university office administrators need to receive documents in a timely manner and do a good job of registration, according to the content of the document and the degree of urgency of the classification process, submitted to the relevant leaders and departments to read and understand the need to deal with the document for tracking and supervision of the instructions. This flow process still has certain problems. First, the source of

documents from a variety of channels, including paper documents, different e-government platform documents, etc., the source of information is scattered, time-consuming and prone to omissions. Secondly, the implementation of documents is inefficient. The flow of documents from the approval of leaders to the implementation of departments has many links and a long-time span, which leads to delays in the transmission of information and affects the efficiency of work implementation. Third, cross-sectoral collaboration in the information silo phenomenon, due to the management system and mechanism problems, inter-departmental technical level differences and even departmental conflict of interest, may cause the document information transfer is not timely, inaccurate, increase communication costs. Fourth, the lack of intelligent early warning for document approval tracking, the lack of application of intelligent technology may lead to the lack of real-time monitoring, insufficient overdue reminders, and also the inability to integrate information and risk prediction based on the importance of the document, the departments involved, the historical processing time, the processing progress, and feedback from the relevant personnel.

2.2. Typical Pain Points in Document Issuance Work

Documents are drafted, proofread, scrutinized, issued, numbered, and published according to work requirements. In the proofreading process, on the one hand, manual proofreading is difficult to avoid omissions, and there are limitations in checking formatting standards, grammatical errors, data accuracy, etc.; on the other hand, the review of policy compliance, analysis of real-life development dilemmas, and the combination of the school's historical and cultural heritage are all highly dependent on personal experience, and how to find the right balance between manual and AI technology application in proofreading is an important issue. In the review process, as it involves the opinions of multiple departments and different leaders, the cost of communication and coordination is high, and it is easy to have inconsistent opinions and repeated revisions, which prolongs the issuance cycle and reduces the timeliness of document issuance. In the issuance, numbering, issuance and other links, manual registration and production is very easy to produce errors and omissions.

2.3. Key challenges in manuscript writing

Writing various types of manuscripts requires a great deal of administrative staff's writing skills, information-gathering ability and ability to grasp the dynamics of school development. First, the creation cycle is long. Writing work mainly relies on manual access to information, combing ideas and organization of language, time-consuming and laborious. Major speeches have gone through many layers of review and approval, and the average revision of multiple versions, the creation cycle is long. Second, the content is not innovative enough. Here involves personalized expression and political norms of the balance of the problem, how to comply with the premise of political norms to ensure that the content of the innovative vitality of the writers need to have a deep political literacy, good writing skills and rich practical experience. Third, the quality of the manuscripts is not high. Due to the lack of effective data support and precise language analysis tools, speeches, reports and other content are prone to homogenization, lack of relevance and other problems, making it difficult to meet the needs of different occasions and audiences. Fourth, there is a lack of accuracy. Documents involving policies need to solicit opinions and suggestions from different departments, and if the communication in the early stage is insufficient and the mid-term gatekeeping is not strict, it may lead to problems such as duplication of content and unclear responsibilities.

2.4. The reality of the dilemma in file management

For the processing of documents to be collected, classified, sorted and other finishing work and archiving, for the school's teaching, research, management and other work to provide archives access and utilization services. This process is not fully skilled in the application of AI technology, which brings certain problems. First, the efficiency of classification and retrieval is low: based on manual classification, or involving multiple categories of documents, based on the content of the archives and pre-set categories for classification, subjective and prone to error. Secondly, there are limitations in storage and utilization: paper archives require a lot of space for storage, high requirements for safekeeping conditions, and are susceptible to moisture, insects and oxidation. Although electronic files save space, but the format is diverse, complicated version, poor compatibility. Such as the early electronic documents, due to format incompatibility, may not be able to open or content garbled. Moreover, the utilization of files, mostly passive access, can not take the initiative to explore the value of the archives, it is difficult to meet the diversified and deep needs of colleges and universities. Third, inadequate security risk prevention and control: traditional management methods are difficult to deal with complex security threats. Such as encountering sudden natural disasters, paper files are easy to damage; in the face of network attacks, electronic files may be stolen, tampered with. In addition, human factors may also lead to the leakage of archive information, such as operating errors or irregularities by archive managers.

3. Advantages of the application of AI technology in the college office and practice paths

3.1. Speed up the processing speed of receiving documents

The processing of receiving documents mainly includes four major links: checking, registering, categorizing and processing. In the registration link, AI technology can be relied on to extract the theme keywords and processing deadlines for the content of the relevant documents, which can be used in the daily processing of the water registration ledger, not only to facilitate a quick understanding of the subject of the document, but also for the subsequent retrieval of the document. Classification link, in the registration link to extract keywords, time requirements based on the use of AI technology to achieve automatic classification of documents, on the one hand, in accordance with the classification of the subject of the document, such as personnel, finance, etc., on the other hand, automatically differentiate between urgent and non-urgent documents, which is also conducive to the use of the law of the four quadrants of time management in the work of the actual work, to improve the efficiency of handling documents. In the processing link, relying on AI technology for different types of documents to design a specific processing process, accurate push to the relevant leaders and departments, automatically complete the transmission of documents and reminders, significantly shorten the document processing time, improve the flow of efficiency.

3.2. Improve the precision of document issuance work

AI-driven grammar checking tools and proofreading tools can detect spelling mistakes, grammatical errors and punctuation problems in documents in real time, and can automatically adjust the document format (e.g., fonts, paragraphs, title styles, etc.) according to preset templates or rules to ensure that the issuance of documents conforms to the specifications and to avoid affecting the professionalism of issuance of documents due to low-level errors. You can compare the key information in the document (such as date, name, data, etc.) to ensure consistency, in order to improve the accuracy and credibility of the document. Can analyze the semantics of documents, identify redundant, vague or inappropriate expressions, and provide optimization suggestions to improve the readability and expression of documents. Based on historical document data and school rules and regulations, the content of the issued documents can be reviewed for compliance, reducing compliance risks. It can optimize the rule base based on the review history data and establish machine learning model iteration mechanism to reduce the subjectivity and omission of manual review. The revision history of documents can be automatically tracked to identify the differences between different versions, avoiding version confusion and improving the efficiency of team collaboration. Format standardization review (automatic punctuation correction, layout compliance detection) - content review - policy thesaurus comparison - legal risk scanning --Process review - the standard process of checking the authority of the countersigning department.

3.3. Develop a new degree of manuscript writing

The first step of using AI writing aids is customized corpus construction, integrating important speeches, policy documents, and school history materials in the past 5-10 years, and collecting information on school development results, hotspots of concern to teachers and students through big data analysis, so as to provide rich data support for the writing of manuscripts. The second step is to use text generation technology to generate a three-stage model of AI application, which are based on the type of activity, audience characteristics of the framework proposal to generate an intelligent outline, based on the latest policy statements and current affairs hotspots to automatically fill the content, and based on emotional analysis to ensure that the style of the text to match the characteristics of the object. For meeting minutes, report summaries, etc. can be extracted directly using AI technology to generate. The third step is to carry out human-computer collaboration embellishment, staff on this basis for personalized modification and improvement, saving a lot of time and energy.

3.4. Tapping the thickness of file management

The digitalization and intelligence of archive management is an inevitable trend, and AI technology is an important means. The final destination of receiving, sending and writing manuscripts is archiving. The first step of archiving can make use of AI technology, according to the key words of the content subject identified automatically, and intelligently archive according to the preset classification standards, further improving work efficiency and preventing human errors and omissions. The development and utilization of archive information resources is the fundamental purpose and great significance of archive management, which can rely on intelligent search engines and other technologies to further improve the efficiency of archive retrieval, and can also use data mining and predictive analysis and other technologies, based on the school's development experience, to further discover the laws and trends, predict the future direction of development, and to provide a reference basis for the university's strategic planning and teaching reform. Of course, the confidentiality management of the file is also very important, you can use face recognition, data encryption and other technologies, can carry out intelligent security and risk control, to protect the file information security.

4. Digitalization background to improve the quality and efficiency of university office measures and system construction

4.1. Build an integrated document management platform

Colleges and universities can build an integrated document management platform based on AI technology, which further integrates higher-level document reception, on-campus document management, writing material library and other functional modules to facilitate the unified management of documents. The platform can cover the whole process of document handling work, and the platform can obtain document data in time by seamlessly connecting with the e-government system and on-campus office automation system; the platform can realize linkage and docking with the archive management system, and it can be archived with one key after completion of the process. The platform can realize the automation of all elements of the document handling work. In the process of handling documents, AI technology is used to carry out intelligent classification and labeling, which facilitates direct retrieval for processing; the tracking and reminder function of document flow is set to ensure the efficiency and transparency of document flow.

4.2. Strengthen the application of AI technology in document handling work

The application of AI technology in document handling has a broad prospect and significant advantages, which can effectively improve the efficiency and quality of document handling. At the same time, it is more important to establish a school information database to collect information on the development history of the school, teaching and research achievements, teacher and student activities, etc., so as to provide data support for the application of AI technology.

4.3. Strengthen AI technology ability training

In order to comply with the trend of the times, the popularity and proficiency of the application of AI tools should be further improved in the routine paperwork of colleges and universities. First, in terms of organization, colleges and universities can set up composite positions such as digital secretaries, and staff members are required to have skills in official document processing, writing experience and AI proficiency at the same time. Secondly, the training of the staff of document handling is strengthened by carrying out thematic training, self-study punch cards and other forms of training to improve the ability to apply AI technology. Thirdly, based on the work reality and development characteristics of our school, we will continuously summarize the experience of using AI technology and issue work guidelines, etc., to further improve the efficiency and quality of the school-wide document handling work.

4.4. Establishment of risk prevention and control mechanisms

In the process of using AI technology to handle documents, it is necessary to pay attention to security management and risk prevention and control under the premise of complying with laws and regulations. In the face of the complex internal and external situation, it is necessary to attach great importance to the confidentiality management of documents, some of which are classified documents and internal documents, and it is necessary to improve the relevant system, and further clarify the security norms and the main body of responsibility for the production, sending and receiving, storage, use, copying and destruction of such links. At the same time, there should be a risk detection mechanism, through the establishment of a sensitive information database, automatic identification, intelligent filtering of sensitive information, automatic recording of the handling process, to prevent the leakage of sensitive information to the outside world, but also to provide support for the audit of the process of retrospective.

5. Conclusion

In the context of digitization, the integration of AI and other technologies into university document handling is an inevitable trend to improve the quality and efficiency of document handling and promote the modernization of university administration. Through the construction of an integrated document management platform, strengthening the application of AI technology in document handling work, adjusting the organizational structure and personnel AI technology ability training, and establishing risk prevention and control mechanisms and other measures, it can effectively solve the existing problems of document handling in colleges and universities, improve the efficiency and quality of document processing, and provide more powerful administrative support for the development of colleges and universities. However, the application of AI technology in college documents is still in the exploratory stage, which requires colleges and universities to constantly practice, summarize experience, and continuously improve the application strategy and management mechanism, so as to give full play to the advantages of AI technology and realize the high-quality development of college documents.

Compliance with ethical standards

Disclosure of conflict of interest

No conflict of interest to be disclosed.

References

[1] Peng Yinggang. Digitalization to enhance the efficiency of official document processing practice and thinking[J]. Friends of secretary, 2024 (03).

[2] Chen Zhe. The use of information technology means to improve the quality and efficiency of handling documents[J]. Secretary work, 2022 (04) ;45