International Education Forum, 2026, Volume 4, Issue 10
https://bbwpublisher.com/journal/IEF
Online ISSN: 2981-8605
Print ISSN: 3083-4902

Improving Undergraduate Teaching Secretary Management in the AI Era: Pathways and Countermeasures

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Abstract: With the rapid spread of artificial intelligence, artificial intelligence technology has become deeply embedded in production and everyday life, while simultaneously reshaping the management models and service ecosystems of colleges and universities. The undergraduate teaching secretary is a key post in college-level teaching management and a safeguard for the orderly delivery of undergraduate teaching. The advent of the era of artificial intelligence has brought both opportunities and challenges to the management work of undergraduate teaching secretaries, offering new ideas and methods while also imposing higher requirements. By analyzing the work content of undergraduate teaching secretaries in universities and the practical difficulties they face, this paper explores pathways for improving their management work in the era of artificial intelligence.

Keywords: Artificial intelligence; Undergraduate teaching secretary; Teaching management; Work pathways

Online publication: November 11, 2026

1. Introduction

With the continuous advancement of the national education digitalization strategy, China's higher education is shifting from a stage of large-scale informatization construction to a stage of deep application characterized by data-driven governance and empowerment through intelligent services [1]. The rapid development of the era of artificial intelligence affects not only the teaching platforms and hardware facilities of universities, but also, more profoundly, the organization of teaching, frontline management models, and the boundaries of job functions. As a core link in talent cultivation, undergraduate teaching management relies heavily on the teaching management teams of colleges for implementation, and the undergraduate teaching secretary is precisely the most basic position in this system and the one closest to teachers and students.

The undergraduate teaching management personnel of a university's college—that is, the teaching secretary—constitute the core of undergraduate teaching in the college and occupy a pivotal position in

the college's teaching work. The teaching secretary serves as the link between the academic affairs office, the college, teachers, and students, safeguards the smooth running of undergraduate teaching, and plays an important role in supporting college leaders. Teaching secretaries undertake a range of tasks, including the communication of specific teaching assignments and the feedback of information between teachers and students; the work is complex, and the responsibility is significant. As the most junior members of the university's teaching management team, undergraduate teaching secretaries directly affect the completion of undergraduate teaching through their professional competence, and they play a pivotal role in teaching management. In recent years, with the development of artificial intelligence, big-data information management platforms have been gradually applied to undergraduate teaching management in universities. On the one hand, this has made undergraduate teaching management more efficient and convenient; on the other hand, it has brought new challenges to teaching secretaries on the front line of teaching management, placing increasingly higher demands on their digital literacy. Based on an analysis of the work content and challenges faced by undergraduate teaching secretaries in the era of artificial intelligence, this paper explores how to grasp the dual impact of artificial intelligence on their work, focusing on pathways and countermeasures for empowering undergraduate teaching management, with a view to achieving professional transformation and upgrading under technological empowerment.

2. The work content and practical difficulties of undergraduate teaching secretaries in universities

Chen Baosheng, former Minister of Education and Secretary of its Party Leadership Group, once pointed out: "In higher education, the undergraduate level is fundamental. If the undergraduate foundation is not solid, everything is shaken. Talent cultivation is the essential function of a university, and undergraduate education is the root and foundation of a university; within higher education, it is an education of strategic status, an education that holds the key to all else." This demonstrates the importance of undergraduate teaching in universities. As an extremely important link in undergraduate teaching, teaching secretaries must not only clarify the standards and requirements of each stage of undergraduate teaching, but also allocate teaching resources scientifically and flexibly, reasonably control deviations in teaching, ensure the effective achievement of teaching objectives, and continuously improve the quality of talent cultivation [2].

2.1. Work content

In the undergraduate talent cultivation system of universities, the college-level undergraduate teaching secretary is a key hub connecting the university's functional departments, the college, teachers, and students, undertaking a large volume of work in teaching management execution, quality assurance, and teacher-student services. Their work spans the entire talent-cultivation process, and their tasks are complex and highly interrelated. Their work mainly includes the coordination of teaching operation affairs, teaching quality development and archive management, and teacher-student teaching services and academic communication.

2.1.1. Coordination of teaching operation affairs

The operation and coordination of teaching affairs constitute the foundational content of the undergraduate teaching secretary's work, the fundamental purpose of which is to ensure the smooth and orderly conduct of daily undergraduate teaching. Such work involves tight deadlines and numerous procedural rules, allows

little room for error, and must keep pace with the rhythm of the semester. Teaching secretaries must arrange each semester's courses in accordance with the curriculum plans of each major and teachers' teaching assignments, coordinate classroom, laboratory, and other venue resources, receive teachers' applications for class adjustment or suspension, complete reporting and information synchronization, and promptly handle various teaching emergencies to avoid teaching incidents. They must also coordinate the examination affairs of midterm, final, and retake examinations, arrange examination rooms, print, package, and archive examination papers, and handle matters related to grade review; follow up on student registration, change of major, leave of absence and resumption of schooling, and other changes in student status; review graduation and degree eligibility against the curriculum plans in advance; and receive the various teaching documents issued by the academic affairs office, transmit them upward and downward, and submit various materials on time, so as to ensure that the university's teaching-related requirements are implemented at the college level.

2.1.2. Teaching quality development and archive management

Teaching quality development and archive management are tasks related to talent cultivation development, serving the continuous improvement of undergraduate teaching quality. This work provides foundational support for the college's internal teaching quality assurance system, focusing on the collection of teaching process materials, the aggregation of teaching quality information, and support for the development of majors and courses. Undergraduate teaching secretaries are responsible for implementing the college's teaching quality monitoring work, organizing teaching supervisors' class observations and students' classroom evaluations of teaching, collecting and sorting various teaching feedback, and cooperating with the university in carrying out periodic teaching inspections at the midterm and final stages. They assist major heads in preparing application and process materials for development projects such as professional accreditation, first-class courses, teaching reform projects, and curriculum-based ideological and political education, and coordinate the collection of materials for practical teaching links such as undergraduate experiments, internships, and graduation design (theses). In accordance with archive management standards, they classify, electronically store, and back up teaching archives including curriculum plans, course syllabi, examination papers, supervision records, and teaching meeting materials, establish archive retrieval ledgers, and complete the retrieval of teaching materials and the organization of supporting materials in various teaching evaluations and professional accreditation processes.

2.1.3. Teacher-student teaching services and academic communication

As the hub and bond among the university's functional departments, the college, course instructors, and students, undergraduate teaching secretaries bear important responsibilities for providing teaching services to teachers and students. Teaching secretaries routinely provide academic policy consultation to teachers and students, answering teachers' questions about workload calculation and teaching applications, explaining to students academic policies on course selection, retaking courses, credit recognition, graduation, and degrees, and receiving academic appeal materials and making preliminary referrals. Drawing on information such as grades, course selection, and attendance, they compile lists of students at academic risk and work with counselors and major-course teachers to implement academic warnings and follow-up assistance. They collect teachers' and students' opinions and demands regarding course delivery, teaching conditions, and practical arrangements, and after organizing them, feed them back to the college and the university to help

improve teaching quality. They coordinate and resolve various conflicts in teaching operations; at the same time, they undertake the preparation, notification, minute-taking, and summary organization of various teaching-related meetings, as well as the continuous follow-up on the implementation of meeting resolutions.

2.2. Practical difficulties

In the continuous operation of the university's undergraduate teaching management system, college-level undergraduate teaching secretaries stand at the intersection of various affairs. Heavy daily tasks, constantly updated digital management requirements, and gaps in supporting institutional arrangements have brought them a number of practical difficulties in their positions. In implementing teaching operations, quality development, and teacher-student services, teaching secretaries often encounter multiple difficulties, mainly reflected in an excessive load of transactional tasks, shortcomings in digital competence, and insufficient support for career development.

2.2.1. Excessive transactional workload and blurred job boundaries

Undergraduate teaching secretaries must handle a large number of repetitive academic affairs chores daily; various work milestones pile up densely, and tasks from multiple functional departments of the university ultimately converge on the college's teaching secretary, making their work characteristically transactional, cyclical, and urgent, and running through the entire process of teaching operations [3]. Many universities have not clearly delineated the boundaries of the teaching secretary's work; in addition to routine teaching management, a large number of ad hoc reporting tasks and special surveys are also assigned to teaching secretaries. With the expansion of university enrollment, the workload of teaching secretaries has continued to rise sharply [4]. Prolonged, fragmented administrative work consumes most of teaching secretaries' energy in repetitive tasks such as forwarding notices, filling out forms, and collecting and checking materials, making it difficult for them to find time for more valuable development work such as academic analysis and teaching quality research. The long-term high-intensity working state also readily breeds occupational burnout and affects the quality of work in the position.

2.2.2. Shortcomings in digital competence and insufficient effectiveness of digital tools

As the digitalization of university education continues to advance, various academic management systems and online reporting platforms have been launched one after another, placing higher demands on teaching secretaries' data processing and platform operation capabilities. Many teaching secretaries have not received systematic digital training tailored to the realities of academic affairs and can only perform simple data export and basic form filling; they struggle when confronted with data scattered across multiple systems and with complex data verification tasks. Data are not interoperable among some campus systems, creating data silos, and even where digital platforms exist, much data still must be exported across systems, organized, and compared manually. At the same time, many teaching secretaries remain accustomed to traditional manual approaches and lack a data-driven mindset, making it difficult for them to rely on data to identify potential problems in teaching operations and student development, so the workload-reducing effect of digital platforms has not been fully realized. In addition, some teaching secretaries are older, accustomed to paper-based office work, and less receptive to new things, displaying in particular an aversion to big data technologies [5].

2.2.3. Insufficient career development support and an assessment and incentive mechanism awaiting improvement

At present, the assessment and evaluation of teaching secretaries in most universities remain oriented toward transactional results, focusing on whether teaching order is stable and whether materials are submitted on time, and rarely incorporating teaching quality research, academic assistance, or digital management innovation into the assessment indicators. Promotion channels for teaching secretaries are relatively narrow, and teaching management achievements are not highly recognized in professional title review or rank promotion, so the sense of professional identity associated with the position is generally low. At the university level, there is a lack of a regular professional training system specifically for teaching secretaries; training content tends toward policy briefing and lacks practical guidance tailored to frontline teaching management scenarios. Insufficient incentive measures at the institutional level leave teaching secretaries with little intrinsic motivation to proactively undertake teaching reform or explore new models of digital management.

3. Challenges facing the work of undergraduate teaching secretaries in the era of artificial intelligence

The integration of artificial intelligence technology into frontline teaching management in universities has brought innovation to the work of undergraduate teaching secretaries while also giving rise to a series of new problems. While serving in the management work of undergraduate teaching secretaries, artificial intelligence technology has also brought them new challenges.

3.1. Insufficient capacity for AI application

As AI tools are gradually integrated into academic affairs management, higher demands are placed on teaching secretaries' abilities in data interpretation, intelligent platform operation, and the critical appraisal of algorithmic output. Many teaching secretaries have long been accustomed to working on the basis of manual experience and lack basic AI-related knowledge; they can only operate systems superficially and find it difficult to use intelligent tools for academic profiling or teaching-data analysis; nor can they readily identify algorithmic bias or factual errors in AI-generated analysis. Most of the relevant training organized by universities tends toward macro-level theory and lacks hands-on training suited to the college academic affairs context, so many staff develop a fear of difficulty and little willingness to actively explore AI tools. The result is that intelligent systems are built but not fully utilized, making it difficult for AI's workload-reducing and efficiency-enhancing effects to be realized in practice.

3.2. Difficulty in grasping management boundaries

The widespread use of artificial intelligence is accompanied by hidden data security risks and educational ethical risks. AI-based teaching management platforms store large amounts of sensitive data in a centralized manner, including student grades, student status, and personal information, and teaching secretaries hold data query and export permissions, making privacy protection risks easy to encounter in daily work. If data are not adequately de-identified, or if files are forwarded and retained at will, students' personal information may be leaked. At the same time, AI algorithms themselves have limitations: academic warnings and teaching quality analyses automatically generated by systems may be one-sided, and judging students solely by data labels

readily leads to rigid labeling and the neglect of individual circumstances. At present, many universities lack detailed rules on data use for frontline teaching management personnel; there are no clear specifications of authority and responsibility regarding how AI output should be reviewed and which data may not be exported or used, so teaching secretaries find it difficult to grasp the ethical boundaries of data application when using intelligent tools.

3.3. The positioning of human-machine collaboration remains unclear

In many universities, intelligent academic affairs systems are designed and developed top-down by information technology departments, with frontline teaching secretaries rarely invited to participate in needs assessment at the early stage; as a result, system functions are disconnected from the college's real teaching management scenarios, and some AI modules are of limited practical value. Meanwhile, traditional assessment and evaluation systems still take task completion as the core criterion, so when teaching secretaries spend time learning AI tools and attempting digital management innovation, such efforts are rarely recognized in performance assessment, awards, or promotion. Many administrators still position teaching secretaries as transactional clerks and have an insufficient understanding of the new functions of the position under human-machine collaboration; they either place excessive faith in AI output and base management decisions directly on system results, or distrust intelligent analysis entirely and let AI systems serve merely as simple storage. Both mindsets hinder the implementation of artificial intelligence in frontline teaching management.

4. Pathways and recommendations for improvement

Artificial intelligence has brought new development opportunities to frontline teaching management, but to truly give play to AI's role, it is not enough merely to purchase intelligent systems; supporting measures and institutional arrangements are also needed. Facing the opportunities and challenges brought by artificial intelligence, universities, teaching secretaries, and relevant management departments need to collaborate in building a systematic response system, exploring improvement measures suited to teaching secretaries' daily work from the dimensions of platform optimization, competence training, data security, and assessment incentives, so as to promote a better integration of artificial intelligence with college teaching management and to advance the intelligent transformation and sustainable development of undergraduate teaching secretary work in universities.

4.1. Optimizing intelligent academic platforms and simplifying daily administrative processes

When building and upgrading AI-based academic affairs platforms, universities should listen more to frontline teaching secretaries, adjust functions according to the college's real work scenarios, connect data across separate systems, and reduce the trouble of repeated cross-system exports and manual copy-and-paste. With the help of artificial intelligence, repetitive work such as course scheduling, grade statistics, and the aggregation of basic materials can be handed over to systems for automatic processing, reducing the burden of repeatedly filling out various forms. The boundaries of teaching secretaries' work should be reasonably delineated, unnecessary miscellaneous affairs stripped away, and mechanical work handled by AI, so that teaching secretaries can devote more energy to work that requires greater human involvement, such as

communication with teachers and students and academic assistance.

4.2. Conducting scenario-based hands-on training to gradually improve AI application capacity

When organizing training for teaching secretaries, universities should make greater use of real cases from routine academic affairs work to conduct hands-on instruction, with exercises centered on such common tasks as data review, report analysis, verification of AI warning results, and the electronic processing of archives. Training can be divided into a basic class and an advanced class: basic content is aimed at all teaching secretaries, who learn to operate the basic platform, while advanced content is available to those willing to study in greater depth. Channels for exchange should also be established so that staff can share their experience with AI tools, dispel their fear of new technology, gradually learn to understand the data output by systems, and be able to identify obvious biases and errors in AI analysis results.

4.3. Standardizing data use requirements and safeguarding the bottom line of data security and ethics

Universities need to issue simple and clear rules on data use that specify teaching secretaries' authority to query, export, and forward student information. Any data containing sensitive content such as students' ID card numbers or family information must first be de-identified, and complete raw data must not be forwarded at will or retained privately. Teaching secretaries should also be reminded that AI-generated academic analyses can only serve as a reference and that conclusions about students must not be drawn from system data alone. When a warning list is generated, each case must be assessed in the light of actual contact with the student, rather than relying entirely on algorithmic conclusions. Regular reminders about data security should be provided so that everyone is clear about the red lines of data use and the risks of information leakage and one-sided evaluation of students are avoided.

4.4. Improving the assessment and incentive mechanism and establishing a sound concept of human-machine collaboration

The existing assessment methods for teaching secretaries should be adjusted so that evaluation no longer looks only at whether materials are submitted on time and whether teaching incidents occur, but also incorporates innovative work such as learning to use AI tools, using data to provide academic assistance, and optimizing teaching management processes. University and college administrators should change their mindset and recognize that artificial intelligence is only an auxiliary tool, and that the core value of teaching secretaries lies in communication and coordination, humanistic care, and the control of teaching quality. They should avoid relying entirely on AI for decision-making while also not resisting the use of intelligent tools, recognize practical achievements in digital management in awards and promotions, and mobilize teaching secretaries' enthusiasm for actively trying AI tools and innovating frontline teaching management approaches.

5. Conclusion

Artificial intelligence has brought important opportunities for reducing the workload, improving efficiency, and transforming the role of undergraduate teaching secretaries in universities. The essence of digital

empowerment is to use intelligent tools to restructure the division of labor in frontline teaching management, free up teaching secretaries' time and energy, and upgrade the value of the position. Technology alone, however, does not automatically improve job performance; without supporting measures in business process reengineering, personnel capacity development, assessment system reform, and risk prevention and control, artificial intelligence can only serve as a speed-up tool for paperwork and forms and can hardly bring about a reshaping of the professional role.

Under the model of human-machine collaboration, undergraduate teaching secretaries need to actively adapt to digital transformation, continuously improve their digital literacy, data analysis capability, and educational service capability, and expand their functions in the direction of teaching quality governance and humanistic services for teachers and students. At the university level, attention should not be limited to the construction of intelligent platforms; greater importance should be attached to building the frontline teaching management team, with simultaneous progress in data governance, training system reform, and the improvement of career development mechanisms. Only through the synergy of technological empowerment, process optimization, institutional safeguards, and personnel growth can undergraduate teaching secretaries fully play their pivotal role in the talent cultivation system and can universities continue to advance the high-quality, substantive development of undergraduate education.

Disclosure statement

The author declares no conflict of interest.

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