Journal of Education and Educational Research
ISSN: 2957-9465 | Vol. 20, No. 1, 2026

Research on the Construction and Optimization of the "One-Stop" Student Community Academic Guidance System of Big Data Technology Empowerment

Yuxiang Xu

Zhenjiang College, Zhenjiang, Jiangsu, 212100, China

Abstract: With the deepening of the digitalization strategy of education, the "one-stop" student community comprehensive management model has become an important carrier for universities to implement the "three-round education" and achieve the fundamental task of moral education. However, the comprehensive education function of the current "one-stop" student community has not been fully released, and the deep integration of academic guidance system and student community construction still faces many challenges. This research focuses on the construction and optimization of academic guidance system under the "one-stop" comprehensive management model of student community, with big data technology as the starting point. The study takes Jiangsu universities as typical cases for in-depth analysis, aiming to provide theoretical support and practical reference for universities to deepen the reform of the "one-stop" student community comprehensive management model and improve the effectiveness of education based on big data technology.

Keywords: Big Data Technology; One-stop Student Community; Academic Guidance System; Precise Model.

1. Introduction

The rapid development of digital technology is having a systematic impact on the education field, profoundly reshaping the teaching methods of teachers, the learning methods of students, and the educational mechanisms of schools. The party's 20th national congress report for the first time incorporates "education digitalization" into the national strategic framework, clearly stating "promoting education digitalization, building a lifelong learning to learn society and a learning-oriented country." 2024 In September, General Secretary Xi Jinping further emphasized at the National Education Conference "to deepen the implementation of the national education digitalization strategy, expand the benefit of high-quality educational resources, and improve the public service level of lifelong learning." Under this background, higher education is undergoing a profound transformation from traditional management mode to modern governance mode of data-driven and intelligent empowerment. 2019 In, the Ministry of Education issued the "Opinions on Deepening the Reform of Undergraduate Education and Teaching to Comprehensively Improve the Quality of Talent Training," which required actively promoting the establishment of a college-based student management model in universities and carrying out pilot work on the construction of a "one-stop" student community comprehensive management model.[1] 2022 In the year, the Ministry of Education clearly proposed to promote the "one-stop" comprehensive management model of student communities, achieving effective coverage of more than 1,000 universities. Each university actively responds to mining out and optimize the education function of student communities, promote the linkage between ideological and political theory courses and student communities, and strive to form a "three-round education" pattern of all staff, whole process, and all-round education.[2]However, from the perspective of the new situation and new requirements for deepening the reform of "three-round education" and implementing the fundamental task of cultivating moral character and nurturing people, The comprehensive education function of the "one-stop" student community, as the forefront of student party building work, the practice of "three-round education", and the model highland of safe campuses, has not been fully stimulated and released. Specifically, there are the following prominent issues: First, the academic guidance system lacks deep integration with student community construction, failing to integrate academic guidance closely into students' daily life space. Second, universities have not fully utilized big data technology to accurately profile and systematically analyze students' development needs, and academic guidance work still largely remains at the experience-driven level. Third, the multiple subjects of academic guidance (Management cadres, professional teachers, academic tutors, counselors) The coordination mechanism between them is not yet perfect, and the joint force of education has not been fully formed. Based on the above questions, this research focuses on the construction and optimization of the college academic guidance system under the "one-stop" management model of big data technology empowerment, aiming to answer the following core research questions: (1) What is the theoretical basis and internal mechanism of the "one-stop" student community academic guidance system of big data technology empowerment? (2) How to build a "precise" academic guidance model for big data technology empowerment? (3) How to establish a scientific and reasonable diversified evaluation system for academic guidance? (4) How to systematically optimize the academic guidance work of universities from the three levels of "technology-model-system"? In theory, the research on empowerment academic guidance system of big data technology is not mature. Most of them focus on the current situation description, problem analysis and strategy suggestions. From a practical perspective, this study provides an operational framework for universities to deepen the reform of the "one-stop" student community comprehensive management model based on big data technology by constructing a "precision" academic guidance model and a diversified evaluation system.

2. The Main Components and Guarantee Elements of Academic Guidance System

2.1. Four-Dimensional Model of Academic Guidance System

The academic guidance system under the "one-stop" student community comprehensive management model can be divided into four core dimensions: System construction, team construction, platform construction, and guidance models. The four dimensions are not simply parallel, but show a layer-by-layer nested structural feature-the system as the framework, the team as the execution body, the platform as the technical foundation, and the model as the value realization path. The four elements work together to form the functional whole of the academic guidance system.

System construction plays a fundamental role in the academic guidance system. A relatively complete institutional system should cover three components: coordinated promotion mechanism, incentive and restraint mechanism, and interconnection mechanism. The key to the collaborative promotion mechanism lies in breaking down departmental barriers, opening up data channels and business processes between the student affairs department, academic affairs department, and information technology department, and elevating cross-departmental collaboration from occasional work coordination to institutionalized operation. The logic of the incentive and constraint mechanism is to link the effectiveness of academic guidance with the evaluation of teacher titles, counselor assessments, and cadre evaluation systems, thereby activating the endogenous motivation of multiple entities to participate in academic guidance. Without a system design that is compatible with incentives, it is difficult for multiple departments to transform from vision to action.[3] The interconnection mechanism focuses on the smooth flow of information and resource flow in the three-level academic guidance network of schools, colleges, and communities, avoiding the attenuation of information in hierarchical transmission and the idle circulation of resources in block segmentation.

Team building is the core support of the academic guidance system. A well-structured and capable academic guidance team should cover five types of roles: management cadres, professional teachers, academic tutors, counselors, and peer mentors. Each type of subject should assume differentiated functional positioning in the guidance chain. Management managers are responsible for top-level design and resource allocation. Professional teachers provide guidance on subject learning methods and scientific research enlightenment; Academic tutors focus on the development planning and growth path design of individual students; Counselors coordinate daily education management and value guidance, serving as a hub connecting students with various guidance resources. Peer mentors rely on peer demonstration and experience transfer to play a complementary role in education. The five roles have different focuses, but the key is that the guidance information cannot be presented as fragmented pieces in front of the students-this requires the establishment of a normalized communication and connection mechanism within the team.

The platform construction is the technical foundation of the academic guidance system. The big data management platform provides the necessary material conditions and technical capabilities for precision chemical industry guidance, and its functional architecture can be divided into three levels. The data collection layer accesses multiple data sources such as the academic system, student affairs system, campus card system, and library system. The data analysis layer is responsible for user profile construction, learning situation analysis, and academic risk prediction. It is the core capability of the platform. The service output layer provides functions such as academic warning push, personalized resource recommendation, and guidance process recording for specific application scenarios. The three-layer architectures must ensure the continuity of data flows and service flows. Any breakage of any link will restrict the final effect of precise guidance.

The guidance model answers the question of "how to provide" academic guidance. Under the constraints of "one-stop" student community, the guidance model should be based on the development goals of individual students, and build a multi-dimensional innovative guidance carrier around "academy + community + mentor + course + classroom". The essence of this model is to expand the guidance behavior from a single administrative space to the diverse scenarios of student life, promote the integration of the first classroom and the second classroom, the complementarity of online guidance and offline guidance, and the coordination of individual counseling and group counseling—the degree of integration of three dimensions. It determines the actual arrival rate of the guidance model on the student side.

2.2. The Guarantee Elements of The Academic Guidance System

The academic guidance system needs the support of four types of guarantee elements from the blueprint to the operation. First, organizational security. Establish a leading group for academic guidance work at the school and college levels, and form clear division of responsibilities and cross-level cooperation procedures. The ambiguity of authority attribution and responsibility boundaries is the main risk point for the failure of organizational guarantee. Second, the system. Supporting documents such as the implementation measures for academic guidance work, assessment and evaluation methods, and funding guarantee methods have been introduced to transform academic guidance from temporary work arrangements to institutionalized practices that can be followed. Third, data conditions. Establish unified data standards and cross-departmental sharing agreements to ensure the comprehensiveness, accuracy, and timeliness of data collection while maintaining the bottom line of student data privacy and information security. Fourth, the cultural atmosphere. Forming a "student-centered" educational consensus within the school allows management cadres, professional teachers, and counselors to form an inherent recognition of the value of academic guidance, rather than seeing it as an additional burden.[4]

3. The Construction of Precise Mode of Academic Guidance

3.1. The Logical Architecture of the Precision Chemical Industry Guidance Model

The core logic of the precision chemical industry guidance model can be summarized as a closed-loop system of "precise portrait-precise supply-precise evaluation". This closed loop is driven by big data technology and centered on student

development needs, achieving dynamic matching between guidance supply and student needs. Accurate profiling is the starting point for guiding the precision chemistry industry. By integrating multi-source data of students in school and using data mining, such as cluster analysis, association rule mining out, and text sentiment analysis, a five-dimensional student profile model covering academic ability, learning behavior, psychological state, interests, and developmental needs is constructed. This profile is not a static label, but a dynamic updated data model that can reflect the development trajectory of students in real time. Precise supply is the core of precision chemical industry guidance. Based on the analysis results of student profiles, the platform uses big data analysis and intelligent recommendation technology to tailor personalized learning plans and career development paths for students.[5]Specifically: (1) At the academic planning level, intelligently recommend course combinations and learning paths based on different professional training programs and students' abilities and interests. (2) At the level of learning support, through analysis of learning situations and prediction of academic risks, automatic triggering of hierarchical warning mechanisms to match corresponding academic assistance resources; (3) At the psychological care level, use sentiment analysis and semantic mining techniques to timely identify students' mental confusion, emotional fluctuations, and potential psychological problems, and provide early intervention and precise assistance. Accurate evaluation is the guarantee of precision chemical industry guidance. By establishing a process-based evaluation and effect-based evaluation mechanism, we can monitor the quality and educational effect of guidance activities in real time and provide data feedback for accurate continuous optimization.

3.2. "College + Community + Mentor + Course + Classroom" Multidimensional Innovative Guidance Carrier

In the "one-stop" student community scenario, this study proposes a "five-in-one" multi-dimensional innovative guidance carrier of "academy + community + mentor + curriculum + classroom": The college dimension focuses on general education and cultural immersion, broadening students' academic horizons and humanistic literacy through activities such as classic reading, academic salons, and cultural lectures. The community dimension is characterized by life-oriented education and peer assistance, integrating academic guidance into students' daily lives and community interactions, creating a community education ecosystem of "life is education". In terms of mentors, a three-mentor system of "academic mentor + research mentor + career mentor" is constructed, responsible for guiding learning strategies, cultivating research abilities, and planning career development. The curriculum dimension develops a series of academic guidance courses, covering modules such as learning methodology, time management, academic writing, and information literacy, forming a systematic academic guidance course system. The classroom dimension embeds academic guidance into professional classroom teaching, promoting the transformation of teachers from "knowledge imparters" to "learning promoters."

3.3. The Operation Mechanism of The Precision Chemical Industry Guidance Model.

The operation of the precision chemical industry guidance model follows the six-step closed-loop process of data collection-profile generation-requirement identification-solution matching-intervention implementation-effect feedback. The first step is to collect real-time behavior data and learning data of students in various business systems through the big data management platform. The second step is to use data mining algorithm to generate multi-dimensional student profiles and update them dynamically. The third step is to automatically identify the category and priority of students' academic guidance needs based on profile analysis. The fourth step is to intelligently match and generate personalized guidance plans from the guidance resource library. The fifth step is to implement precise intervention by the corresponding category of guidance personnel. Step 6: The system tracks the intervention effect and returns the feedback data to the profile model and recommendation algorithm to achieve continuous optimization. This closed-loop mechanism ensures the adaptability and continuous improvement of the precision chemical industry guidance model.

4. The Optimization Path of Academic Guidance

4.1. "Technology-Model-System" Three-Dimensional Optimization Framework.

The construction of "one-stop" student community and the development of academic guidance work is a kind of mutual interaction and mutual promotion. Based on the analysis of the elements, precision models, and evaluation systems of the academic guidance system in the previous text, this study proposes a three-dimensional optimization framework of "technology-mode-system" to systematically promote the optimization and upgrading of academic guidance work under the empowerment of big data technology. In terms of technology, the key is to consolidate the data foundation. First, standardize data governance and establish standards covering the entire process of data collection, storage, processing, sharing, and security to ensure the data quality of the big data platform. Second, deepen the integration and value-added of data, break through the barriers of academic affairs, student affairs, library, logistics, employment, and other systems, and achieve cross-system correlation analysis. Third, introduce artificial intelligence technologies such as natural language processing, knowledge graph, and intelligent recommendation to continuously improve the intelligence level of the platform and make academic guidance services more accurate, timely, and personalized. In the model dimension, the focus is on reconstructing processes and supply. Promote the transition of academic guidance from passive response to active service, and establish a hierarchical warning and active intervention mechanism based on academic risk prediction and student profiles.-Shifting from standardized supply to personalized customization, designing differentiated programs for student groups of different grades, majors, and development intentions. From a single subject to multiple collaborations, we will build an academic guidance ecosystem centered on students and involving multiple forces both inside and outside the school. In terms of system, the

goal is to improve the long-term mechanism. Improve the organizational leadership and overall coordination mechanism, form a three-level work network of schools, colleges, and communities, and clarify the responsibilities and authorities of various guiding entities at all levels; Establish an incentive, constraint, and assessment system, and incorporate the effectiveness of academic guidance work into the assessment of teachers' teaching performance, counselor work, and college development evaluation; Establish a quality monitoring and continuous improvement mechanism, and drive the iterative optimization of academic guidance work through regular evaluation feedback and data analysis.

4.2. Case Analysis and Path Verification of Jiangsu Universities.

Taking Jiangsu universities as a typical case, this study conducted a verifiable analysis of the above optimization path. As a major province in higher education, Jiangsu has diverse types of universities and complete levels of education. It has a good practical foundation in the construction of "one-stop" student communities and the digital reform of education. Through visits and surveys, this study found that: At the technical level, some universities in Jiangsu have initially established student big data analysis platforms, but there are still problems such as inconsistent data standards and insufficient system interconnection. At the model level, the academic guidance of most universities is still mainly in the form of "face-to-face" with counselors, and the level of precision needs to be improved. At the institutional level, the academic guidance work lacks a unified assessment standard and quality monitoring mechanism. In response to the above problems, this study suggests that Jiangsu universities take the lead in promoting the following pilot measures: Establish a provincial-level student development data center to promote cross-school data sharing and benchmarking analysis; The academic guidance system should be included in the assessment indicators for high-quality development of universities; Relying on the construction of "one-stop" student communities, creating a demonstration benchmark for precise academic guidance models, and forming a replicable and promotable "Jiangsu experience".

5. Conclusion

This study shows that big data technology empowers the academic guidance system with a solid theoretical foundation: The theory of collaborative governance provides an analysis framework for multi-subject collaboration, and the theory of precise education supports the personalized guidance model of data-driven. The system includes four core dimensions: system construction, team construction, platform construction, and guidance mode, and requires coordination in organization, system, data, and culture. The combination of "accurate profile-precise supply-precise evaluation" and "academy + community + tutor + course + classroom" can promote the transition of academic guidance from experiential and standardized to data-driven and personalized. The optimization framework around the three levels of technology, model, and system provides an operational path for the systematic advancement of this work-technology is the engine, model is the carrier, and system is the long-term guarantee.

Acknowledgments

Funding Projects: Jiangsu Provincial Philosophy and Social Sciences Project for Higher Education Institutions (2025; Project No.: 2025SJSZ1016); Zhenjiang College of Higher Vocational Education Counselor Special Program (2025; Project No.: FDYZD11).

References

[1] Wang, Y. Y. (2025). Research on the practice of party building leading the "one-stop" student community comprehensive management model-Taking a certain vocational medical college as an example. *Office Business*, (12), 164–166.

[2] Ye, L. J., Xia, J. G., & Yang, Y. H. (2021). Practical exploration of cultivating college students' patriotism in community party building in the new era. *School Party Building and Ideological Education*, (13), 86–88. https:// doi. org/10.19865/j.cnki.xxdj.2021.13.022.

[3] Wang, H. (2024). Deepening ideas for the "one-stop" student community comprehensive management model.*China Higher Education*, (5), 45–48.

[4] Shi, F. (2024). Comprehensively consolidating the digital foundation of a learning society. *Journal of Beijing Xuanwu Hongqi Amateur University*, (4), 1–2.

[5] Han, L. (2025). Research on the "one-stop" and "three-round education" model path of big data technology empowerment higher vocational colleges. *Science and Education Guide*, (6), 140–142. https://doi.org/10.16400/j.cnki.kjdk.2025.06.046.