
Research on the Development Path and Challenge of the Professionalization of College Student Affairs Management in the Big Data Era

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Abstract: With the rapid development and widespread application of big data technology, university student affairs management faces unprecedented opportunities and challenges. Big data technology provides abundant information resources and advanced data analysis methods for university student affairs management, promoting the digitalization, refinement, and personalization of management work. However, how to achieve professional development in university student affairs management in the big data era remains an urgent issue to be addressed. This paper explores the professional development path of university student affairs management in the big data era, analyzes applications in data management, data analysis, and decision support systems, and discusses challenges encountered during implementation, including data privacy protection, technical application differences, and talent cultivation. Finally, it proposes strategies to optimize the professional development of university student affairs management, aiming to provide theoretical support and practical guidance for university management reform.

Keywords: big data; universities; student affairs management; professional development; data analysis; challenges

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1. Introduction

The advent of the big data era has brought profound transformations across industries. As the cornerstone of talent cultivation, universities now face the dual pressures and challenges of digital transformation. Student affairs management, a vital component of university administration, encompasses students' daily academic life, living conditions, and mental health. Traditional management models have become inadequate to meet the increasingly complex and diversified needs of modern higher education. By providing comprehensive student data resources and analytical tools, big data technology empowers universities to achieve precision and professionalism in student affairs management.

Despite the vast potential of big data technology in student affairs management, universities still face practical challenges such as uneven technology adoption, inadequate data privacy protection, and a shortage of specialized talent when leveraging big data to enhance management professionalism. Consequently, advancing the professionalization of student affairs management in the big data era has become a critical issue in higher education reform. This paper explores this challenge and proposes corresponding countermeasures and recommendations.

2. Literature review

2.1. The impact of big data on university management

In his 2023 study “Strategies for Professional Development of Student Affairs Management in Universities in the Big Data Era”, Li Luo highlights that big data technology is primarily applied in university administration for information collection, data analysis, and decision support systems, significantly enhancing management efficiency and precision^[1]. Particularly in student affairs management, big data technology enables comprehensive understanding of students’ learning behaviors, psychological states, and daily habits, thereby providing more personalized and refined services.

2.2. Professional development of student affairs management in higher education institutions

In their 2022 study “Modernization of Student Dormitory Access Control Management in the Information Age,” Han Chuangju and Guo Juanpu noted that with the continuous advancement of information technology, university student affairs management has been progressively evolving toward professionalization. This professional approach not only requires administrators to possess deeper expertise and skills but also necessitates leveraging advanced technological tools to enhance management efficiency^[2].

2.3. Challenges and issues in big data applications

In his 2021 paper “Strategies for Enhancing Student Education Management in Universities under the New Media Perspective,” Zhou Donghu noted that while big data technology provides crucial support for university administration, practical implementation still faces challenges such as inadequate data privacy protection, subpar data quality, and insufficient data analysis capabilities among administrators^[3]. These issues are particularly pronounced in student affairs management and require gradual resolution through policy support and technological safeguards.

2.4. Data-driven decision support system and student affairs management

Ren Zixiong (2021) proposed that big data not only provides universities with extensive student data, but also offers powerful data analysis tools for university administrators through decision support systems. The application of decision support systems enables universities to more accurately analyze student needs, predict student development trends, and thereby formulate more scientific management policies^[4].

3. The professional development path of student affairs management in universities in the era of big data

3.1. Establishing a comprehensive student data collection and analysis system

In the era of big data, the foremost task in student affairs management is to establish a comprehensive student data collection and analysis system. Universities should utilize intelligent technologies to gather multidimensional data on students’ academic performance, daily life, and psychological well-being, and develop a unified data management platform. By integrating and analyzing this data, institutions can achieve precise and personalized student management.

3.2. Promoting data-driven decision support systems

Higher education institutions should enhance the development of data-driven decision support systems. These systems enable administrators to monitor student dynamics in real time and formulate more scientific management strategies based on big data analysis. For instance, by analyzing students’ academic performance, attendance records, and mental health status, schools can identify potential issues early and provide personalized support and guidance.

3.3. Promoting personalization and refinement in student affairs management

With the support of big data technology, university student affairs management can evolve from the traditional “one-

size-fits-all” approach to personalized and refined services. Through data analysis, institutions can provide customized support for diverse student groups, including academic tutoring, psychological counseling, and career guidance, ensuring comprehensive and individualized care throughout their university experience.

3.4. Cultivate a professional student affairs management team

Higher education institutions should prioritize cultivating student affairs management teams with both data analysis capabilities and innovative thinking. With the rise of big data technology, student affairs administrators must not only possess traditional management skills but also master data analysis techniques to make evidence-based decisions. Furthermore, universities should enhance professional training programs to elevate the professional competence of these administrators.

4. Challenges in student affairs management in universities in the big data era

4.1. Data privacy and security issues

In the era of big data, students’ personal information and academic records are extensively collected and utilized, making data privacy and security a pressing concern. Universities must implement robust data protection mechanisms to safeguard student data confidentiality and security. Furthermore, institutions should comply with relevant laws and regulations to ensure the legality of data collection and usage.

4.2. Data quality and data integration issues

Big data technology requires universities to accurately and efficiently collect and process student data. However, in practice, data quality varies significantly, with instances of incomplete or inaccurate data. Additionally, data silos across departments hinder the efficiency of data integration. Therefore, universities need to strengthen data collection standards and management protocols to ensure data accuracy and completeness.

4.3. Differences in technology application and bottlenecks in management capabilities

When implementing big data technologies, universities exhibit significant disparities in data management and analytical capabilities due to varying levels of technological investment and staff training. Some institutions lack essential technical infrastructure and qualified professionals, resulting in suboptimal application outcomes. Therefore, universities should increase investments in technological equipment and talent development to enhance their data utilization capabilities and standards.

5. Path optimization and strategies

5.1. Enhance policy support and financial investment

Higher education institutions should seek policy support and financial investment from the government and society to promote the widespread application of big data technology in student affairs management. The government should introduce relevant policies to encourage the digital transformation of universities and provide necessary technical support and financial guarantees for schools.

5.2. Establish a multi-department collaboration mechanism

Higher education institutions should establish mechanisms for data sharing and multi-department collaboration to facilitate the integration and exchange of data across different departments. By breaking down data barriers and enhancing the efficiency of information flow, the effective operation of student affairs management systems can be ensured.

5.3. Advancing the development of data governance and security management systems

Higher education institutions shall establish comprehensive data governance and security management systems to ensure the security and legality of student data. Strict regulations shall be formulated for data collection, storage, analysis, and usage to protect students' privacy rights and personal data security.

6. Conclusion

The big data era presents both new opportunities and challenges for student affairs management in higher education. Institutions should leverage big data technologies to enhance the professionalism of student affairs management, driving precision, personalization, and efficiency in student services. However, achieving this goal requires addressing issues such as data privacy, data quality, and disparities in technology adoption. By strengthening policy support, increasing technological investment, cultivating talent, and fostering interdepartmental collaboration, universities can advance the professionalization of student affairs management, ultimately delivering more comprehensive and personalized services to students.

Disclosure statement

The author declares no conflict of interest.

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