

Exploring the Path of Implementing Precision Education in College Student Affairs Under Data Empowerment

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Abstract

Along with the development of information technology, the era of big data is a new wave and a new environment for college student affairs that cannot be avoided. The new era requires college student affairs to implement accurate cultivation programs, improve student cultivation quality and enhance school management effectiveness. The development and progress of big data provides technical support and guarantee for accurate cultivation of students. The lack of data collection, analysis and application capabilities is the basic status of student affairs in Chinese universities using big data to serve students. To this end, this paper proposes the following paths to promote the implementation of accurate cultivation of students in college student affairs: promoting the construction of informatization of college student affairs, enriching and improving the content and methods of college student affairs, strengthening the construction of data-based capacity of student affairs teams, and building a mechanism for the safety protection of student affairs data.

Key words: College student affairs; Data empowerment; Ideological and political education; Precision education; Information technology

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INTRODUCTION

General Secretary Xi Jinping stressed at the National Conference on Ideological and Political Work in Colleges and Universities that “new media and new technologies should be used to make the work come alive, promote a high degree of integration between the traditional advantages of ideological and political work and information technology, and enhance the sense of modernity and attractiveness.” The Ministry of Education’s “Implementation Outline of the Quality Improvement Project of Ideological and Political Work in Colleges and Universities” proposes to build “ten” education systems, among which the quality improvement of management education and the quality improvement of network education require the combination of hard standardized management and soft education and guidance, which also means new requirements for the level and ability of college student affairs in the new era. This also means new requirements for the level and ability of student affairs in the new era.

To grasp the potential impact of Big Data, look to the microscope. The microscope, invented four centuries ago, allowed people to see and measure things as never before—at the cellular level. It was a revolution in measurement (Steve, 2012). At present, personal opinions, preferences and behavioral habits are highly data-driven, and big data thinking and technology are widely used in all aspects of state institutions, social sectors and people’s lives. As a highland of talents and innovation, higher education institutions should follow the trend of information technology, focus on the central aspect of cultivating students, rely on modern information technology, deepen the reform of student management, continuously improve the precision of education, meet the personalized needs of students through refined education management, and strive to promote the modernization of the governance

system and governance capacity of student affairs in higher education. What to train, how to train and for whom to train” is the fundamental question, accelerate the modernization of education, and run a good education to the satisfaction of the people.

1. DATA EMPOWERMENT OPENS UP A NEW ERA OF IMPLEMENTING PRECISE EDUCATION IN COLLEGE STUDENT AFFAIRS

1.1 The New Era Calls for the Implementation of Precision Education in College Student Affairs

1.1.1 Inherent Requirements for the Personalized Development of College Students

Personalisation is the inevitable choice for human development. Marx, in his “Philosophical Manuscripts on Economics of 1844”, identified “man as the highest essence of man” as “free and conscious activity”, pointing out that the highest stage of human development is the free development of each person, and that personalized development is also the historical necessity of human development. Personalisation is a fundamental requirement for realising the Chinese dream. General Secretary Xi Jinping pointed out that “to realise the Chinese dream, we must carry forward the Chinese spirit”, which is to carry forward the national spirit with patriotism as the core and the spirit of the times with reform and innovation as the core. The fundamental way to cultivate students’ innovative ability is to provide them with personalised education and to cultivate their rich personalities. Especially for higher education schools that train high-level talents, the implementation of personalised education is urgent.” It is only by actively promoting the personalised development of university students that we can implement the Party’s education policy and provide talents for the realisation of the Chinese dream. Personalisation is an important form of quality education. The fundamental aim of quality education is to improve the overall quality of students, which means respecting students and recognising their individuality, and to teach them according to their abilities and promote their healthy growth.

1.1.2 Inherent Requirements of the Function of Talent Cultivation in Higher Education

The new era has put forward higher requirements for the cultivation of talents in colleges and universities, not only to cultivate students with professional knowledge and professional skills, but also to focus on the cultivation of students’ innovation ability, practical ability and other comprehensive qualities. In order to achieve the management goal of the organization, the traditional college student affairs tends to focus on the teachability of students and ignore the subjectivity of students, resulting in a state of existence in which the main body

of university students is lost. The student affairs in the new era is no longer a process of “reforming” and “being admonished” by students, but should respect the main position of students’ development and make students participate in student affairs independently, learn to self-manage, self-education and self-growth.

The new era puts higher demands on the evaluation standards of students in universities, not only for explicit evaluation, but also for objective, comprehensive and rational evaluation. Traditional student affairs is more about making judgments on students through some simple, explicit and unidimensional indicators such as academic performance and student cadre status. The development of students does not depend on a single indicator, but on the overall quality of the individual. For the vast majority of ordinary students with average grades, average performance and average characteristics, the existing assessment system often lacks a starting point. As China’s education and teaching reform continues to deepen, the traditional “rough and tumble” approach to talent development, student management and student evaluation systems are becoming increasingly inadequate to meet people’s expectations of education. The new direction of teaching reform is “precision”, which focuses on the personalised development of talents.

1.1.3 The Inherent Requirement for Improving the Work Efficiency of Colleges and Universities

At present, there are two major contradictions in college student affairs: First, the teacher-student ratio is too high. Since the expansion of universities, the number of students in universities has been rising year after year. Although the Regulations on the Construction of Counselors in Ordinary Higher Schools clearly require that “higher schools should set up full-time counselor positions according to the overall teacher-student ratio of not less than 1:200”, only a few universities can meet this requirement due to the strong mobility of student affairs team. The small number of student affairs force has seriously restricted the effectiveness of student management. Secondly, the quality of staff is weak. The counsellors have an important influence on the students of universities, and are the guides and mentors of students’ healthy growth. There is no scientific and reasonable approach to student training, creating an awkward situation in which both student development and counsellor growth are in exploration. The implementation of precise management and services can, to a certain extent, alleviate the outstanding contradictions in student affairs.

1.2 Big Data Provides the Basis For Implementing Precision Education in Student Affairs

Big data will have a revolutionary impact on the development of education, with its ability to effectively integrate data on student behaviour, learning, social interaction and health in colleges and universities,

providing a basis for promoting the modernization of the governance system and governance capacity in colleges and universities, especially the precision of student management. As student affairs practitioners continue to integrate technology into their work, opportunities to use big data may help inform modern student affairs practice (Cabellon & Junco, 2015). Students' work in higher education should adapt to the transformation of the era of big data development, "change according to the matter, advance according to the time, and new according to the situation", and better serve the growth and success of students and the development needs of education.

1.2.1 Advances in the Development of Data Collection Techniques

The recent developments in data technology allow us to have scalable and flexible data capture, storage, processing and analytics (Baig & Jabeen, 2016). Without "massive" data, fine-tuned management and services are water without a source, wood without a foundation, and with no place to start. In the past, due to the limitations of data collection and processing technology, it was very difficult to understand students comprehensively through data. However, in the era of big data, all aspects of students' life on campus are highly data-driven, with learning, employment, emotions and communication all becoming data, and "the human spiritual world, which was previously difficult to objectify and data-driven, has become as objectively descriptive and recognisable as the material world". The dense dimensionality and frequency of this process data provides an extremely rich data resource for student management.

1.2.2 Support Is Provided for Accurate Student Profiling

Higher education institutions often track student attendance at events across divisions of student affairs to learn more about what activities students participate in, as well as what students are reached by the programmatic efforts of the division (Ro, et al, 2017). Big data has enabled the management of students in universities to move from macro-groups to micro-individuals, bringing student management services closer to the people they serve in a more personalised way. The use of big data for accurate student profiling allows for a complete and accurate grasp of each student's situation. The use of big data to monitor life and learning can be used to manage student management in a timely manner. The use of Big Data for diversified assessment allows for effective guidance, better reflection and self-development of students. This will enable us to provide students with a more precise management and service based on their needs, their overall situation and their individual characteristics.

1.2.3 Pre-construction of Data Capacity in Colleges and Universities

Along with the development of information technology, in recent years, universities have gradually realized the

qualitative impact of information technology on the transformation of education, and have continuously increased their investment in the construction of information data. At present, our universities have basically established and perfected various information management systems such as academic affairs management, information management, library management, logistics management, etc. The popularization of services such as campus WIFI, camera coverage and the popularity of smart phones have generated a huge amount of data consisting of text, pictures, audio and video, which makes the work of students in universities have the characteristics of big data. At the same time, in the process of promoting the construction of information technology, universities have cultivated a large number of technically proficient managers of online student affairs. All these have laid the preliminary foundation for our universities to carry out precision education.

2. DEFICIENCIES IN THE USE OF BIG DATA TO IMPLEMENT PRECISION EDUCATION IN HIGHER EDUCATION INSTITUTIONS

At present, universities generally recognise the importance of big data in student management, and are able to adjust their own work concepts, methods and approaches in a timely manner and formulate student management development plans from the perspective of big data. However, compared with other leading fields, big data technology in colleges and universities is still in its embryonic stage. Faced with the new era of big data, college student affairs should not only actively embrace big data and welcome it, but also think about how to use it to improve the effectiveness of student affairs and promote the overall development of students.

2.1 Deficiencies in Data Processing Capabilities

2.1.1 The Level of Information Construction Is not High

Under the active advocacy of the state, most universities have basically formed a consensus on the construction of student affairs system around big data, and have taken corresponding measures to improve the informatization of student affairs, such as introducing office software and establishing online office automation system. However, to assume that the informatization of student affairs has been achieved based on this is actually a misunderstanding of the technology and requirements of big data. At present, there are fewer cases where big data information is actually used in students' daily work, the development of data and information applications is slow, and the transmission of digital information still stays on the basis of relying on third-party mobile communication or

communication software to complete. At the same time, it is difficult to invest a lot of energy and financial resources in the application of big data technology in current college student affairs, which to a certain extent stifles the possibility of further development of university education management.

2.1.2 Inadequate Systematization

At present, most universities have established corresponding data storage systems for specific modules of student education management, such as student registration system, party affairs system and employment system, but student affairs is a systematic and complex project, which needs to cooperate with multiple forces such as enrollment, teaching affairs, party affairs, security and employment system, etc. At present, there is a lack of comprehensive systems available for student management, and there are problems such as unified software versions, basic data. There is a shortage of comprehensive systems for student management, with inconsistent software versions, low integration of basic data, incompatible data types, obvious information silos, disorderly data flow and poor sharing rate, which reduces the efficiency of student affairs and brings obstacles to the work of big data analysis in universities.

2.2 There Are Deficiencies in the Ability to Use The Data

2.2.1 Inadequate Data Analysis and Processing Capabilities.

As the aborigines of the network, the data formed by daily network interaction and communication, such as audio, video, text, pictures and emails, are more complex and diverse. Meanwhile, various network platforms of colleges and universities, as information data sources, also produce huge data streams in real time. Along with the gradual increase of data awareness in university student management, the focus on the storage and use of data has begun to bear fruit, so the possession and mastery of massive data in college student affairs. However, the statistical standards of these massive data are inconsistent and the degree of structure is low, and how to dig valuable information from the huge data resources to improve the efficiency and quality of student affairs, and thus better serve the development needs of students, has become a major problem facing the college student affairs.

2.2.2 Insufficient Reserve of Data Talents.

The rapid development of the Internet has led to an explosion of information data, which is becoming more and more heterogeneous, and this requires specialised personnel to analyse and interpret the data. In foreign countries, many universities have set up specialised institutions to collect and collate data. In China, however, there is no special data management agency, which leads to poor data integrity and low accuracy. Secondly, many teachers in colleges and universities lack proper data mining and database management skills, and many

of them even focus their work on students' daily life and study, lacking big data thinking, making it more difficult to use data information technology to analyse and improve working methods, and more difficult to carry out characteristic and personalised student education. Thirdly, from the perspective of the structure of student management staff in universities, most of the student management work is undertaken by counsellors, who have very limited ability in big data processing and can only carry out simple data description and statistics, while it is difficult to play the advantages of big data in the process of student management.

2.3 Inadequate Protection Against Data Security

2.3.1 Insufficient Awareness and Capacity for Data Security Protection

A large amount of data information is often a great security risk. Information security is a key issue that needs to be addressed in the development of the big data industry, especially as "personal data privacy leaks have become the hardest hit area of network leaks in China in recent years", and the wide scope, large volume, rapid spread and concentrated outbreak of leaks often catch people off guard (Wang, 2014). How to protect students and teachers from information leakage and ensure the security of private information is one of the main challenges in the construction of campus information security in the era of big data.

As providers and users of foreword technology, students in higher education have a strong awareness of and ability to protect data security, and are basically able to protect their own information security and adhere to the ethical requirements of data security. However, the rapid progress of the information age, the rapid changes in science and technology, coupled with the fact that students are still growing mentally, the process of surfing the Internet and playing with mobile phones may also induce information and data leakage, coupled with the rampant network hackers and viruses, which also bring security threats to data resources. For owners and users of student data in universities, security awareness and ethical education in the process of data demand and utilisation and data mining are slightly inadequate. The security capacity in terms of campus network security construction also needs to be strengthened.

2.3.2 Inadequate Institutional Data Security Protection Mechanisms

While advances in technology often bring unexpected ethical issues, the rules that limit or change people's actions are often lagging behind, and the same ethical issues are faced by students working in higher education. As educational researchers, we systematize data collection and, sometimes, control the context of data creation, all to improve understanding of educational policy and practice. These systematic processes increase the usefulness of educational data but also increase the risks of exposure

and harm to subjects. Collected data can be misplaced, stolen, or subjected to malicious analysis that reveals identities. (Ho, 2017) Because big data is highly correlated, data analysis may uncover issues that student affairsers did not anticipate at all, deviating from the original intent of the data analysis; and because of the widespread use of various electronic devices, personal privacy issues need to be addressed. Do schools and student affairsers have the right to know everything about their students? Is it justifiable to expose all information about students to our full view? Data security and storage is also a major issue, and how to ensure that data is not compromised and used maliciously by unscrupulous individuals.

For these problems, universities rely more on moral restraint through education and mainly on the self-awareness of data collectors and managers. In terms of the safe use of student data in colleges and universities, we have to rely on mechanisms and systems to ensure the rationality of data demand and utilization by establishing management systems in terms of data security protection to prevent the arbitrariness of data mining. It is necessary to ensure the reasonable and legal flow of data and the value of secondary and repeated use of data by constructing corresponding constraint mechanisms.

3. THE PATH TO PROMOTE COLLEGE STUDENT AFFAIRS TO IMPLEMENT PRECISE EDUCATION

3.1 Increase the Construction of Information Technology for College Student Affairs

Education informatization drives the modernization of education, which will realize the all-round innovation of education ideas, concepts, methods and means. Facing the new era of big data, universities should actively embrace big data and welcome it, follow the principle of top-level design on the basis of the existing achievements of student affairs informatization construction, aim at perfecting the comprehensive student management system, comprehensively consider the characteristics of students' needs, improve the degree of informatization of student affairs process and systematically promote student affairs informatization construction.

3.1.1 Shift in Thinking and Focus on Big Data Building

To better adapt to the development requirements of the era of big data, the work of students in colleges and universities must first change their mindset and establish a sense of big data by using the mindset of big data to solve the problems of big data, rather than following the traditional mindset to solve the problems of big data. Relevant management departments of universities should raise awareness to change their thinking, enhance the importance of big data at the strategic level, and promote the development of big data applications. Establish and

improve the big data guarantee system to give full play to the advantages of big data technology in student affairs. Strengthen the publicity of big data and create a strong atmosphere of understanding, awareness, discussion and application of big data, so that all students and teachers are aware of the importance of big data. Accelerate research geared towards big data application technologies, and use this to further promote the development of big data application technologies. To integrate big data thinking into practical work, analyse the deep-seated reasons behind the data, and provide technical support for student affairs.

3.1.2 Develop Standards to Enable Data Development and Sharing

Data integration is a daunting task for any institution, and universities are no exception. In order to avoid the problem of "information silo" in the process of informatization construction, universities should set standards and build data sharing mechanism at the early stage of informatization promotion to ensure the function of data. With reference to the requirements of "Management Information Standards of Higher Education Institutions" and the actual situation of the university, it is possible to establish the code specification of basic information of university students, unify the code of students, unify the code of departments and unify the data code of all business systems to ensure the uniqueness and accuracy of data code. At the same time, the school should build a big data sharing platform to realize the interconnection and data sharing among various systems, so as to fundamentally eliminate the problem of "information silos" and "information chimneys" and provide a solid data foundation for statistical analysis of big data.

3.2 Improve the Contents and Methods of Nurturing College Student Affairs

3.2.1 Establish an Early Warning Mechanism for Student Management

As the aborigines of the Internet, university students are relatively dependent on the Internet, and many of them are willing to confide and share through the Internet when they encounter academic problems, emotional problems and interpersonal situations. The main function of big data is to predict the possibility and probability of events through the analysis of massive data. Therefore, universities should establish an early warning mechanism for student management, using technical means such as the collection, mining and relevant analysis of big data to understand students' confusion and difficulties in a timely manner, give guidance, help and intervention in a targeted manner, ring the alarm bell in advance to safeguard and promote the healthy growth of students.

3.2.2 Promote Transformational Innovation in Management Models

Another is recognition and appropriate adaptation of student affairs programs and services to "the centrality of technology in their [students'] lives", higher numbers

of students with serious mental health concerns , increasingly diverse student populations , and the need to redefine traditional notions of what ' student development ' entails , both in theory and in practice “. (Barr, McClellan & Sandeen, 2014)Big data is affecting every field. In business, medical and other fields, decision-making behavior will increasingly be based on data analysis, rather than relying more on experience and intuition as in the past (Wiktor & Kenneth, 2013). This requires that student affairsers in universities should comply with the requirements of the development of the times, innovate education and teaching methods, not only to achieve the change of thinking from focusing on causality to focusing on both correlation and causality, but also to reconstruct the student management mode with the help of big data technology, to create education programs tailored to students' learning needs and to achieve the all-round development of students.

3.3 Strengthen the Data-Based Capacity of the Student Affairsforce

In the era of big data, higher requirements are put forward for the student affairs team in colleges and universities, which not only needs to be able to skillfully apply the laws of education and teaching, but also has the awareness and processing ability of big data. The advent of the era of big data requires the student affairs team of universities to innovate their working methods, enhance their awareness of big data and big data processing ability, continuously improve the effectiveness of student affairs and better cultivate the new generation of the times.

3.3.1 Strengthen the Training of the Student Affairsforce

The informatization level of student affairsers in colleges and universities is directly related to the effect of education. Improving the informatization ability of college student affairs is an important guarantee to achieve precision education. First of all, it is necessary to have the awareness of big data. Student workers should be fully aware of the important value and significance of big data for improving college student affairs, and attach importance to the collection, collation and analysis of big data from the ideological level. They should also consciously develop sensitivity to data information and cultivate the holistic, mixed and relevant thinking required by big data. Secondly, it is necessary to innovate the way of working. The advent of the era of big data, promote the work of students in colleges and universities to get out of the traditional work mode, break the shackles of traditional concepts, research new problems, solve new problems, and constantly explore new methods of student affairs constantly promote the new development of student affairs. Finally, to have the ability to use big data. Training through lectures, exchanges, special studies and other forms to improve the ability of student affairs teams to collect, analyze and process big data, improve the ability

to screen and discriminate information.Using big data as an important auxiliary tool for ideological and political education work, giving full play to the advantages of big data technology, avoiding the risk factors of big data, making it more suitable for ideological and political education work, prompting the ideological and political work of colleges and universities to shift from macro to micro, implementing personalized education for each student, and effectively improving the effectiveness of ideological and political education work in colleges and universities.(Wei, 2016)

3.3.2 Formation of a Diverse Data-Based Team

At present, talents with big data processing ability are relatively scarce, and talents with both student management experience and data processing ability are even scarcer. We should not turn away from big data because of the lack of big data talents, so universities should mainly focus on the existing student affairsforce to strengthen data capability training and enhance teachers' data awareness and data processing and analysis ability. At the same time, a small number of talents should be introduced to specialise in data mining and analysis, using computer technology to carry out data collection and data fusion to achieve personalised recommendations for learning resources, tailor-made academic plans, timely analysis of campus public opinion and real-time prediction of student thought dynamics. In addition, we should promote cooperation between schools and enterprises to accelerate the research and development of big data. Using the respective strengths of enterprises and universities, we will carry out new product development and design, prompting universities to deepen education and teaching reform and improve the quality of talent training.

3.4 Build a Mechanism to Protect the Security of Student Affairs Data

In the era of Big Data, how to ensure data security has become a worldwide concern today. The advancement of technology has cleared the obstacles to the collection and storage of big data, which has become an important asset. Protecting these assets is not only a technical issue, but also a management issue. In order to prevent excessive collection and leakage of information, universities should establish a security protection mechanism for information collection, use and supervision.

3.4.1 Standardise the Student Affairs Data Collection Process

At present, universities are basically open about the collection of big data. Students' basic information, growth experience, interests, interpersonal relationship, behavioural performance and other information, even including some extremely secret personal information are collected. In student affairs, on the basis of ensuring students' personal privacy and preventing misuse of student information and data, the act of data mining and

analysis that is conducive to the growth and success of students and the achievement of the university's talent training goals is worth encouraging and advocating. But which organisations or individuals can mine and study students' personal information data? How can information data be used so that it does not interfere with students' learning and lives? Are the results of the information analysis relevant to the actual situation of students? To what extent should the results of information analysis be published so as not to affect the physical and mental development of students? These issues of information security must be reasonably resolved as soon as possible, and a management system that defines the authority and scope of data mining and use needs to be established and improved in a timely manner. (Liang & Q, 2013) Data mining is not an end in itself; the goal is to better serve students, provide personalised guidance and support, and better enhance the effectiveness of ideological and political work. Therefore, what should not be made public should not be made public, immature results should not be applied, and no authenticated conclusions should be made but rather secondary references. In short, both the collection, scope of use and authority of data and information of university students should be safeguarded by building relevant systems, through which the collection and use of various types of data will be responsible to departments and dedicated persons, and strict control will be exercised to regulate the collection, processing and use of each department in a comprehensive manner.

3.4.2 Improve Mechanisms for Monitoring Student Affairs Data

"Big data is big risk". While we enjoy the convenience of big data, we must not ignore the threat posed by data breaches and the legal and ethical issues that may arise from them. If the vast amount of personal information of students is not properly stored, it could be misappropriated for other purposes, putting students at risk. At the same time, the huge volume, relevance, accuracy and high value of use of student data increases the risk of student privacy breaches in universities. Therefore, universities should clarify the operation authority and management responsibility of confidential data, implement strict administrative management and operational supervision; implement relevant information technology means to avoid illegal intrusion and leakage incidents; strengthen the daily supervision of key databases and conduct real-time self-examination and supervision; through the above measures, the security of the use of large databases is placed under strong supervision with a high degree of law, forming a normal, standardized Through the above measures, the security of the use of large databases will be placed under strong legal supervision, forming a normal, standardised and institutionalised monitoring mechanism, and effectively safeguarding the vital interests of the school and its teachers and students.

4. CONCLUSION AND RECOMMENDATIONS

Along with the creation and development of online information, big data is inexorably changing people's lifestyles and habits of thought. Big Data brings both opportunities and challenges to student affairs, providing new technical support and advanced methods for traditional education, while inevitably bringing certain problems such as information security and privacy protection.

Based on the analysis of the new requirements for higher education in the new era and the technological innovation brought by big data, this paper focuses on the positive significance of big data technology for college student affairs, which helps to realize precision education and personalized services for college student affairs. At the same time, it also analyses the shortcomings of the current student affairs in China's universities in the application of big data, and proposes measures to embrace and meet the era of big data by strengthening the construction of student affairs informatization, improving the mode and content of student affairs, strengthening the training of student affairs team and constructing information security guarantee mechanism, so as to deeply explore the laws of student management, enhance the effectiveness of college student affairs and improve the cultivation of talents in universities. The quality of student affairs will be improved.

As student affairs under data empowerment is an emerging research field, it is still in the preliminary stage of practical application, and there are not many research findings to draw on. With the author's limited knowledge of big data and student affairs, coupled with the limitation of information resources, this paper is only a preliminary and superficial study on the response strategies for implementing precision education in college student affairs, and there are still some shortcomings that need further in-depth analysis and exploration. The author is willing to strengthen the theoretical knowledge in the future, continue to study this work in depth, and add to the education cause of college student affairs under the background of big data in China.

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