

The supply-side precision reform and innovation of ideological and political education in colleges based on big data technology

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Abstract. Accurate supply of ideological and political education is an innovative practice to adapt to the diverse needs of students, realize the effective docking between the supply side and the demand side, and reform the supply mode of ideological and political education resources. Big data technology and thinking logic are characterized by diversity, accuracy and timeliness, which are highly consistent with the accurate supply of ideological and political education in colleges and universities. The application of big data technology to construct a precise supply model of ideological and political education integrating data collection, orderly storage, portrait analysis, supply consultation and effect evaluation will be conducive to improving and enhancing the pertinence, coverage, acceptability and acquisition of students' ideological and political education.

1. The role of big data technology in supply-side reform and innovation of ideological and political education in colleges

1.1 The diversity of big data reflects the diversity of ideological and political education needs of college students

The multi-type of big data refers to its diverse data sources, various types, complex structure, and diversity. The sources of college students' ideological and political data information resources include academic generation, practical activities and social networking. From the perspective of teaching links, there are basic class, generated class and result class data, etc. From the structural level, there are structured, semi-structured and unstructured data, etc. From the carrier level, there are mobile terminals, PC computers and practical activities. These data recorded and presented the ideological and political learning practice of college students online and offline, in and out of class and on the spot online, as well as the ideological dynamics and behavioral representations in the process of development and change. In view of the actual differences of college students' ideological and moral concepts, academic development level, learning behavior and education level, this paper puts forward the private system, individualized teaching and "one-for-one supply" of ideological and political education. In the era of big data, improving the ideological and political education resources supply precision is not only to collect students' grade, professional, student status, such as basic information, and learn to collect the ideological and political learning line frequency, residence time, the collection times, comment, forwarding generative data, and statistical analysis, final grade, and teachers in the middle of the class, generative and summative evaluation quantitative qualitative data information. This paper analyzes the actual situation of the development of college students' ideological and political studies, and predicts the purpose and content of college students' ideological and political education. Large variety of data sources and characteristics should be the diversity of the demand for ideological and political education and college students' high degree of fit, large scale, diversity of students, data collection and analysis, forecast the diversity of students' needs, focusing on dynamic, etc., for the ideological and political education supply side precision reform and innovation to provide the scientific data to support.

1.2 The accuracy of big data contributes to the accuracy of ideological and political education supply in colleges and universities

Big data emphasizes the initiative and accuracy of data transmission. Accurately depict "student portraits" is to improve the ideological and political education resources supply the necessary premise of precision. We should pay attention to ideological and political education of college students' traditional compulsory theory and practice, and also should pay attention to reflect the world outlook, the outlook on life, politics, morality, such as network teaching, but should also focus on macro, meso micro ideological and political education environment. In order to correctly grasp the personalized ideological dynamics of college students and supply ideological and political education resources accurately, it is necessary to conduct scientific and accurate mining, analysis and prediction with the help of big data. According to the ideological and political education of college students' online learning data, educators can judge its ideological trend, accurate to supply the ideological and political education content, even can also according to the correlation of college students' network learning trace. Similar to push the related information of ideological and political education, the ideological and moral cognition, emotion, meaning and the state to correct guidance.

1.3 The timeliness of big data improves the effectiveness of ideological and political education supply in universities

In the era of big data, data generation is faster, with more ways and wider dissemination. Colleges and universities should deal with the massive growth of data in a timely and effective manner. Otherwise, with the dynamic flow of data, the value of data will soon become invalid. The supply of ideological and political education in colleges should meet the needs of college students as the subject of education, adapt to the characteristics of "post-00s" college students who are easy to accept new things on the Internet, stimulate their interest in learning, and constantly develop and innovate the supply of resources. With the continuous popularization of mobile client, college students can give very fast feedback to the current affairs they are keen to pay attention to, which not only reflects the habit characteristics of college students' online ideological and political education, but also reflects their ideological and political status, learning behavior representation and academic development level. The precision reform and innovation on the supply side of ideological and political education resources in colleges and universities is to promote the development, integration, utilization and personalized push of resources on the basis of constantly updated student data. In order to improve the actual effect of ideological and political education, but with the crawler technology quickly gather data analysis and mining, and screened for the first time to know college students' thoughts and learning dynamic, forecast analysis the behavior of college students, college students can find out demand pain points, targeted to the ideological and political education of college students to carry on the accurate and timely supply.

2. Supply-side precision reform and innovation model of ideological and political education in colleges and universities

2.1 Theoretical basis of big data supply-side precision reform and innovation model

The scientific construction of the supply-side precision reform and innovation model of big data ideological and political education relies on the support of relevant discipline theories. Humanistic theory, constructivism theory and evaluation of incentive theory provide scientific theoretical basis for promoting the supply-side reform of college education, respecting the status of college students as the subject of education, stimulating their inherent learning potential, and realizing the teaching in accordance with students' aptitude, guidance and accurate supply in the process of education. Every college student is a unique individual, with differences in psychological characteristics, ideological quality, moral behavior and academic status. With the development of the information age and the progress of the society, the needs of college students for ideological and political education are constantly changing, and their position as the subject of education is becoming more and more

prominent. The supply-side precision reform and innovation of ideological and political education in colleges and universities needs to stick to the student-oriented principle and pay attention to the grasp of the growth rules of students, so as to move their hearts, stimulate their interests, develop their potential and guide their growth. Ideological and political education supply side accurately the reform and innovation for college students provides a personalized learning, self education and self improvement space, in this situation, college students can combine their own interests and hobbies, moral cognition and academic development of accurate positioning, leak fill a vacancy, foster strengths and circumvent weaknesses, customized personalized learning solutions, achieve the dialectical unity of personality freedom and comprehensive development. In the supply-side precision reform and innovation of big data ideological and political education, attention should be paid not only to the demands of college students' knowledge, emotion, intention and action, but also to the evaluation of their learning effect. We should strengthen the ideological, political and scientific guidance of the supply of educational resources, monitor and adjust the personalized learning effect of students, and constantly adjust the supply of ideological and political education in universities by means of "positive" and "negative" incentives, so as to ensure the normal operation of the precise reform and innovation on the supply side of big data ideological and political education.

2.2 Main structure of the big data supply-side precision reform and innovation model

In order to improve the ideological and political education resources are scarce, low development and utilization, such as the supply channel single status, to respect the principal position of college students, demand of diversity, for its differentiation native academic level, the network characteristics such as actual situation, to realize the ideological and political education college students' learning needs and supply side precision reform and innovation of mutual promotion and coordinated development, colleges and universities must grasp the strategic opportunity for implementation of education data, the ideological and political education supply, carefully designed integrated use of ideological and political education resources, analysis of the ideological and political education the relationship between the data elements, and relying on big data technology, Combined with the diversification of the ideological and political needs, build by data collection (basic data layer, process data and the result data layer), orderly storage (large-scale clustering layer analysis, multi-type, high speed and low value mining layer) and image analysis (thought idea, behavior representation layer), supply consulting (lock students, the contents of the selected layer and expanded carrier layer), effect evaluation (layer diagnosis, forecast and adjustment layers) of five big modules of ideological and political education supply side precision innovation structure model. The five modules and the internal elements of each module are unified in the big data supply-side precision reform and innovation system. They are mutually premise, interdependent and infiltrate and develop, jointly pushing forward the supply-side precision reform and innovation of ideological and political education in colleges and universities, and facilitating the innovation of ideological and political education in colleges and universities.

3. Precision reform and practical innovation on the supply side of network ideological and political education in colleges and universities

3.1 Data collection

College student data collection should adhere to the ideological and political education resources supply side precision reform and innovation as the goal, through the network learning platform technology, network evaluation of network reading technology, Internet technology, intelligent crawler perception such as collecting, recording, perception of ideological and political study in the process of the whole data, for data analysis, portrait painted, accurate supply and teaching evaluation to provide data security, the ideological and political education is the supply side precision reform and innovation of digital cornerstone. College students' data on ideological and political learning is like an "iceberg", which includes explicit data that are easy to collect, measure, process and share, as well as implicit data that are difficult to climb, calculate, analyze and compatible. The ideological and

political learning data collected by colleges and universities only account for the tip of the iceberg. The traditional ideological and political data resources of college students mainly come from the structured data such as the learning files and terminal exams in the process of ideological and political education. With the popularization of mobile Internet and the rise of online ideological and political education, online learning traces of college students become one of the sources of ideological and political education data in colleges and universities. In addition to structured data, the network ideological and political education resource data of college students also includes some video, pictures, electronic error book and other information (such as: sina aiwen knowledge sharing, tencent education and learning files) and geospatial information of college students in the Internet community. Colleges and universities need to continuously explore the hidden data "below the iceberg", dig out its deep value, and comprehensively collect the big data of college students' ideological and political learning "above the iceberg" and "below the iceberg". College students, therefore, data collection, including basic data layer (name, gender, age, interests, special skills, student number, professional, credits, student status, etc.), process the data layer (search, browse, exercises, / download, review, forwarding, carrier frequency, learning time, learning, learning content, etc.) and the result data layer (classroom performance, network performance, grades, the final result, teacher evaluation, etc.), the collected college students online, inside and outside the classroom, process the results of the ideological and political learning process such as dominant hidden data, It enriches the data resources of college students' ideological and political education information.

3.2 Ordered storage

The orderly storage of college students' data sorts and sorts out the complex ideological and political education data, such as the data generation process, the degree of structure, the source carrier, etc. It USES statistics, clustering, correlation and social network analysis methods for analysis and prediction. The validity and reliability of scientific detection data can depict college students with real and reliable data and help the accurate supply of "products" and "services" of ideological and political education in colleges and universities. Big data has the characteristics of low value density. How to realize big data analysis from fuzziness to accuracy, classification to clustering, isolation to correlation? One of the Bridges is big data storage, analysis tools and methods. College students' data analysis methods include statistical analysis and visualization (EXCEL, R language, etc.), clustering (SPSS, etc.), phase locked dig dug (SSAS, etc.), social network analysis (UCINET, etc.) on college students' ideological and political education activities such as "4 v" characteristics of big data analyzing large-scale clustering integration, multi-type, high speed and low value mining processing. Statistical analysis and visualization is to use EXCEL and other statistical analysis software to make statistics and analysis on the students' ideological and political education learning frequency, duration, achievement and other data, and to visualize the presentation by broken line graph, scatter graph, radar graph and other charts. Cluster analysis is the similarity analysis and clustering of the basic status quo, interest and specialty, academic development level and social communication network of college students by SPSS and other statistical software, which improves the pertinence, effectiveness and accuracy of ideological and political education resources in colleges and universities. Correlation mining is to use SSAS and other mining software to mine the contents read, followed and visited by college students in the process of ideological and political activities on the Internet, predict the relevant contents that college students may be interested in, and provide and push ideological and political education information to college students in a targeted way. Social network analysis is the statistical analysis of the interaction of ideological and political knowledge among college students by using social software such as UCINET, which can fully develop the data resources of college students' thoughts and behaviors, and predict the requirements of college students' ideological and political education supply reform. Meanwhile, a variety of big data methods can be cross-mixed to form a scientific data analysis force, so as to infer the learning interest and tendency of college students and predict their next learning behavior.

3.3 Portrait analysis

Based on the data of ideological dynamics and behavioral representations in the ideological and political education activities of college students, the portrait of college students is a prerequisite for the precise reform and innovation on the supply side of ideological and political education in colleges and universities. Stratified supply of college students' educational resources is an old topic. In the era of big data, colleges and universities comprehensively record and divide the online and offline ideological and political learning of college students, analyze their ideological and political concepts and psychological conditions, predict their learning behavior representation, and then conduct personalized and accurate supply. The structure of ideology and morality is a stable whole with world outlook as the core and composed of various elements of three subsystems: psychology, thought and behavior. Portrait of college students includes ideological and ideological layer (ideological and moral character, political status, physical and mental health, interests and specialties, employment intentions and other dimensions) and behavioral representation layer (academic development, learning habits, academic burden, social communication and other dimensions). The ideological and moral dimension of college students includes four parts: (1) ideological and moral cognition: cognition, judgment and evaluation; (2) ideological, moral and emotional feelings: love, hate, likes and dislikes, right and wrong; (3) ideological and moral beliefs: principles and norms; (4) ideology and moral character: spiritual strength, moral quality, etc. The dimensions of political status include: the masses, members of the communist youth league, active applicants, probationary members, party members, etc. The dimensions of physical and mental health include: positive, psychosomatic, depression, loneliness and interpersonal communication; Interests and specialties include current politics, party building, modern history, MAO zhongte, etc. The dimensions of employment intention include: postgraduate entrance examination, administration, entrepreneurship and entry; The dimensions of college students' academic development include: learning frequency, network performance, classroom performance and final scores, etc. The learning habit dimension includes "three micro end" learning mode, learning before teaching, mixed learning, etc. The dimensions of academic burden include difficulty, heavy study, teachers' pressure and exam-oriented examination, etc. The social communication dimension includes sharing and forwarding between classmates, between teachers and students, and between friends, exchanging comments and so on. The ideological and behavioral representation layers of student portraits permeate, influence, connect and promote each other, providing scientific basis of concepts and behaviors for the supply-side precision reform and innovation of ideological and political education in colleges and universities.

3.4 Supply and consultation

Supply consultation in colleges and universities adhere to the ideological and political education, direction and political ideological and political learning the basic principles of demand orientation unifies, accurately depict college portrait, depth understanding of the demand for ideological and political education, use a variety of new education carrier of ideological and political education content to mobile client, E-mail, information notification and online communication way to accurately supply to college students, strengthen the benign communication university and students, improve the satisfaction of supply consultation. Firstly, the accurate portrait of students can provide a scientific basis for the supply and consultation of colleges and universities by targeting students (ideological dynamics, learning conditions, academic pressure, interests and diverse needs, etc.). Secondly, it selects ideological and political education content related to students' needs (core content, current political content, sectional content, knowledge system structure, etc.) to meet students' personalized needs, insists on accurate supply of ideological and political education, and provides ideological, political and leading advice. Thirdly, expand students' favorite carriers ("three micro end", mooc, flipped classroom, mixed teaching, etc.), and select learning methods suitable for college students' digital aboriginal characteristics; Finally, the supply-side precision reform and innovation of ideological and political education in colleges and universities are carried out. In the era of big data, data is objective and static. The value of the ideological and political data generated by college students does not lie in the accumulation of data, but depends on the scientific integration, analysis,

mining and application of the data by colleges and universities to form a supply and consultation mode centered on college students. Is the purpose of the construction of college students' ideological and political education supply consultation in order to promote the all-round development of college students, improve their ideological and moral quality, with large data reconstruction needs, preferences, and motivation of college students, selection of the ideological and political education of college students' actual demand "product" and "service", and the high quality education resources in college students' favourite way of precision for college students.

3.5 Effect evaluation

To evaluate the effect of college students' ideological and political learning can guarantee the normal operation of ideological and political education supply and consultation in colleges and universities. So, in order to promote college students' physique and comprehensive quality all-round development as the goal, make full use of the subjective and objective, process, and summative, artificial combined with intelligent comprehensive evaluation way, such as the ideological and political education resources supply side accurately the reform innovation is in line with the ideological and political education discipline attribute and new era college students personality characteristics, different requirements and actual academic development evaluation is of great significance. Big data era, adhere to the innovation of ideological and political education in colleges and universities to supply side accurately the innovation evaluation system is helpful to deal with the relationship between the university and college students, improve the efficiency of supply of colleges and universities, students autonomous learning drive, solve the supply of all kinds of difficulties in the process of education resources, promote the objectivity of college students' image analysis, supply consultation of precision and scientific to evaluate. Therefore, the learning effect evaluation of college students includes the diagnosis layer (early warning or incentive of thought dynamics, learning effect, academic performance and other conditions), the prediction layer (analysis and prediction of diversified demand and supply-side precision reform and innovation) and the adjustment layer (optimize the supply of teaching resources and improve the quality of education and teaching). First, accurately diagnose the development level of college students' ideological and political studies, timely push early warning or incentive information about the recent academic status to students, teachers and parents, so that students can grasp the progress of their learning process and the gap with other students in the first time, and constantly adjust their learning methods; Secondly, systematically and perceptively analyze the interests of college students in ideological and political learning, predict their diverse needs, prepare in advance to provide related ideological and political education resources, meet the personalized and diverse learning needs of college students, and promote the organic unity of individual freedom and comprehensive development of college students. Finally, according to the study of university students for the ideological and political education supply side accurate feedback the result of innovation, continuous optimization, update and adjust in accordance with the level of college students' academic development of ideological and political education "product" and "service", and improve the ideological and political education level and quality of supply side precision of reform and innovation, to boost the ideological and political education in colleges and universities teaching. It is worth noting that there are still many problems worth studying and thinking about in carrying out ideological and political education of college students based on big data. For example, how to protect information privacy in the process of data collection, how to interpret the implicit "meaning" of college students in data analysis, how to conduct quantitative analysis on the portrait of students, how to coordinate the overall layout of colleges and universities, and how to achieve effective sharing of ideological and political education data and cross-departmental extension data in colleges and universities. Big data development progresses day by day, universities should keep pace with The Times, advancing the layout, the recent situation and trend of development of the scientific analysis of big data and the impact on the ideological and political education innovation of dialectical, analysis of the problems existing in the ideological and political education resources supply, promote the implementation of the strategy for the ideological and political education of big data to improve ideological and political education in colleges and

universities digital repository, in-depth research and development data in cutting-edge technologies, promote the ideological and political education resources of the data acquisition, integration, storage, mining, analysis and sharing and so on, the construction of digital and intelligent of colleges and universities, improve the quality of ideological and political teaching, promote the development of college students' comprehensive quality comprehensive.

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