

# Feasibility Study of Big Data Promoting Students' Learning and Development

## Taking the Chinese Language and Literature Major as an Example

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**Abstract**—With the development of The Times, the education and development mode for college students has to be reformed to develop a new learning mode so that college students can get out of the current dilemma of learning and development. How to realize the comprehensive improvement of college students' quality is the primary problem faced by high education and the urgent problem to be solved in the current talent strategy. The advent of the era of big data makes it become an opportunity to solve this dilemma. Big data brings not only technological change but also thinking innovation. Taking students majoring in Chinese language and literature as an example, this paper analyzes the availability of big data in contemporary college students' learning from different aspects such as students themselves and school construction, so as to help reconstruct the learning mode of contemporary college students and cultivate all-round talents.

**Keywords**—big data; data thinking; learning model; cultivation of talents

### I. INTRODUCTION

Improving college students' professional learning ability is always an important link in talent training. However, due to the restriction of students' self-control and uneven learning level, in particular, students majoring in Chinese language and literature need to learn a wide range of subjects, and how to achieve efficient learning is an urgent problem to be solved. Therefore, big data is applied as a new concept and method to students' independent learning, to reconstruct the learning mode of contemporary college students, and to comprehensively improve students' quality, realizing high-quality talent cultivation.

### II. ANALYSIS OF CONTEMPORARY COLLEGE STUDENTS' ACADEMIC SITUATION

The major of Chinese language and literature is a traditional major with a long history in China's general higher education. Through the study of this major, students can understand the history and culture of China and even the world, which is not only conducive to the promotion of cultural conservation and their own quality, but also has great humanistic and social scientific value. The contents of

the major of Chinese language and literature can be called a connection with ancient times, modern times, China and foreign countries. However, most of the students hold a narrow cognition of Chinese language and literature, which is a subject just like in primary schools, and cannot understand and master the learning methods of the major well. Therefore, it is urgent to establish a correct learning concept.

When college students first enter the university, they are faced with many unknown difficulties in their study. First is the change of learning mode. Previously they are supervised to learn by teachers, now they have to take the initiative to learn. Also, the knowledge has become more refined and deeper than what was learned before. The classroom atmosphere has also become relatively free and students have more personal time after class. The learning capacity doubled, so students need to take time to have a self-digestion after class. The highly self-conscious learning mode makes quite a few students unable to adapt quickly, and the problem of learning disorderly also emerges. Secondly, the content of study is very complicated. The compulsory courses of Chinese language and literature are: modern Chinese, ancient Chinese, modern and contemporary literature, ancient literature, foreign literature, literary theory and other subjects. When entering the stage of higher education, Chinese language and literature is greatly different from the Chinese learning in middle school, with the content becoming wider and deeper. As a result, many students cannot master scientific learning methods, digest the intensive learning or even understand what is taught in class in the early stage of admission. This is mainly because the majority of knowledge learning and literacy improvement in literature classes need the accumulation and support of a large number of known materials, and students must master the learning methods and then can they fully improve their self-cultivation.

While professional learning has become more and more profound, more and more emphasis has been placed on independent research learning. This requires students not only to broaden their scope of knowledge and vision, but also to study, to be able to have their own analysis of what

they have learned and even what they have heard and seen, so as to improve their aesthetic awareness and critical thinking. At present, most students majoring in Chinese language and literature are stuck in learning and reciting, unable to realize the deep transformation of knowledge, and unable to have relatively excellent research results. That is to say, what contemporary college students need to change in their learning is not only the concept, but also the practicality after mastering the knowledge, as well as finding ways to improve their learning ability and professional quality.

### III. THE CONNECTIONS OF BIG DATA AND STUDENT DEVELOPMENT

Big data has been integrated into people's lives since *Nature* launched the special issue of "big data" in 2008. In fact, big data is not exactly a concept. It has gone from "too much information to process" to "a source of new knowledge and value". [1] Big data not only focuses on the amount of data, but also pays more attention to the information hidden behind the data, which also marks people's progress from the digital era to the data-intensive era. It is urgent for education to keep up with The Times, attach importance to the application of data, promote the development of teaching and students with innovation, and let students change from absorbing information to actively finding information. Data can not only provide students with a large amount of practical cultural learning information, so that they can broaden their horizons, grasp and expand what they have learned, but also realize their intrinsic value in their use and thinking of the knowledge, and create new values on this basis.

In the era of big data, everything is quantifiable and everything can be collected and utilized as data. That is to say, both the data of students' study in school and the data of teachers can be turned into effective information for analysis and utilization. No matter it was their learning needs or current situation analysis, or to enrich professional knowledge, expand literary materials or other aspects related to Chinese language and literature can be showed by digital and then provided to students in the most comprehensive, fastest and most convenient way. In other words, in the information age, no one can be separated from the information data. All people are part of the information society and every behavior may be stored and analyzed as a data. In order for students to make effective use of data for development, teachers must have a good understanding of the characteristics and thinking patterns of data and its importance to students' life.

"As a massive and complex data set, big data has four levels of characteristics, which are generally summarized as 4V, namely: Volume (scale), Velocity (high speed), Variety (diversity) and Veracity (authenticity). [2] That is to say, big data has a large scale and wide coverage, and it is completely possible to realize the data collection of colleges and universities. At the same time, data collection can be updated in real time with high efficiency, which is not only convenient for students to know the learning status in time, but also conducive to the school's analysis of students'

learning status. What's more, data can show what is neglected in study and life through data. Authenticity is the basis on which data can be used. All data is not made up of thin air but based on facts.

The advantages of big data not only lie in the storage and management ability of data information, but also in the analysis and judgment ability of data information, namely big data analysis method (BDA). In the process of data information analysis and processing, big data analysis (BDA) mainly adopts full data analysis and correlation analysis.

Different from the traditional random analysis method, full data analysis mode refers to the use of all data. Before network information technology has appeared, people's concept lags behind. While doing research project, people can only use part of the data to analyze and study the problem. Data collection is not only difficult, but also highly random, and a lot of effective information will be missed in the closed way, which is easy to cause research results deviation, or not being comprehensive enough, etc. "Full data model is an ideal research method, which can not only guarantee the comprehensiveness of data possession, but also avoid the misunderstanding caused by the one-sided character of data." [3] This is a piece of good news for students' professional study and research, because the model of full data analysis abandons random sample study and implements the whole concept of sample as a whole. It emphasizes to make full use of each data and aggregate each data into a whole, focusing on the analysis and research of the whole. In short, students can grasp problems from a macro perspective and have an overall perception by using the full-data analysis model. Based on the full-data, detailed information can be realized and the accuracy of professional knowledge can be improved. In the full data model, multiple aspects of the same problem can be seen from the data, so as to avoid one-sided results and cognition in learning research.

The law of correlation analysis of data is based on the application of related data, the cognition of phenomenon results, and the method of analyzing and studying problems. Instead of pursuing causation, it focuses on "what" it truly means. Its most significant thing is to change people's thinking, so as to inject new ideas into professional learning and research. In the past, many students taking the research and learning are often searching for the cause by the result or searching for the results by the reasons, lacking a long-term vision, which will not progress. In the era of big data, people should change the concept. People should no longer blindly pursue cause of effect but let the data make a voice, so as to have an objective and concrete understanding of things and phenomena. People can collect the correlation between data, analyze problems in connection, predict the results, focus on the future in the present, grasp the future direction, and form the ability of independent thinking.

### IV. USAGE OF BIG DATA TO COMPLETE THE TRANSFORMATION OF STUDENTS' THINKING

Thought guides action, and only by changing the way you think can you act. Keeping pace with The Times is the unavoidable way for students to keep up with the

development. Students majoring in Chinese language and literature should first master the reading ability, which is not the kind in middle school, but a deeper, broader and more targeted reading. Reading, as a basic quality and skill of Chinese literature students, is far from what they should be. First of all, there is no clear indication of "what to read". Students do not know how to choose excellent reading materials, and even reading classics will produce a gap. In fact, the correlation principle of big data can be fully applied to analyze and select learning materials, which can not only ensure effective learning, but also connect students' learning through the network of intersections and connections, so as to enhance the organization and purpose of learning. Now there are multiple channels to absorb information, and the information without any deletion will be directly put in front of students. They must improve their own quality to have the ability to distinguish, to recognize the formation and to criticize using literary theories.

Students should not only master good reading skills, but also be able to internalize the culture to write. Writing is a basic ability. The major of Chinese language and literature in university should not only cultivate all-round talents, but also improve students' writing ability. If reading is the ability of students to absorb and internalize, then writing is the ability of output and externalization. If reading is the ability of students to absorb and internalize knowledge, then writing is the ability of output and externalization. That is to say, students need to analyze the data on the basis of massive reading, and after internal digestion, they need to combine their own practices and ideas to write in an innovative way, so as to break the current rigid writing paradigm.

Chinese students also need to have a critical eye and an ability to evaluate literature. Most students tend to judge the quality of a work from their own likes and dislikes, or from a certain point of view, and cannot see the overall or be completely objective. Therefore, the core of big data changing students' thinking is at being able to look at the problem comprehensively, to have an objective basis for making aesthetic judgment, to understand the material in detail as much as possible, and even to have a general grasp of the relevant content, so as to make correct and responsible judgments. For example, when studying a writer in literature subjects, it is necessary to understand and master the author's life time, life experience, family environment, relatives and friends, literary works and so on. Only by understanding these contents can people make a comprehensive and objective evaluation of the author. Therefore, to from an objective standpoint, students should base their literary criticism and appreciation on data and use their personal emotional experience only as a supplement in order to constantly improve their literary literacy and judgment ability.

#### V. GREAT IMPORTANCE ATTACHED TO DATA AND TECHNOLOGY APPLICATION IN SCHOOLS

Schools should have a targeted establishment and application of the database. Now with the support of big data, people can not only store a large number of cultural

materials as data records, but also update the database at any time. Big data is best at extracting useful information from jumbled data. When students use data, they can break all limitations. They will be no longer limited to a single work of a certain era but the whole. Not only does this allow you to have comprehensive data, but it also allows you to rank all the data according to its relevance. Take Ming dynasty novels as an example. Through big data technology, an index of characters in Ming dynasty novels can be built. With all the discovered novels of the Ming dynasty as the analysis samples, people can set the elements of the characters' names, and search, analyze and sort out the big data by itself, then they can have an index of characters' names in the Ming dynasty novels. When the existing index is digitized, even if people don't know the quadrature number, they can find the corresponding content quickly and accurately after entering the text by big data technology. What's more, when the index matches the original text, the original text can be read directly after consulting the index, eliminating a second search. Of course, big data can do more than that. After obtaining the original text, you can further read the text materials of other versions provided by big data. In this way, the data looked up through the index can be regarded as complete. Therefore, students can improve their learning efficiency, figure out literary problems, and expand and improve on the original basis.

When establishing the database, teachers should not only include the huge knowledge system and the objective and authoritative research results, but also build an effective customized database for students. The fastest way for students to use time efficiently and to study and introspection during college is to file for students. Through the analysis of these raw data, students can grow and change step by step. At the same time, data filing is equivalent to modeling for students. And teachers' teaching contents are evaluated through the data without omission. This can not only promote students' study, but also promote the reform and improvement of university majors. It's necessary to establish the database for students and take students as the research center to make the education get a breakthrough. This is not only a kind of feedback to learning, but also a kind of value utilization of data, efficient integration and presentation. Driven by big data, teachers can use data thinking to innovate education and find new development directions.

In the era of big data, any data will become considerable, quantifiable and available. Due to changing factors such as students' learning situation and problems in teaching, the data will be updated in real time according to these changes. Therefore, in order to make efficient use of these data for corresponding analysis and research, it is necessary to combine quantitative analysis with variable analysis. At this time, big data will give full play to its efficient and convenient data analysis ability and discrimination ability, and greatly improve the efficiency of students' learning and educational researches.

Teachers can consider the development of the students and schools from vertical and horizontal respects. Vertically, students can form a timeline according to their admission

time. Based on big data, teachers can arrange students' data in an orderly way, so that the development direction of students is clear. Horizontally, a category group can be formed through the analysis of the school's professional subjects. In that case, the correlation analysis method of big data can be used to connect relevant data to form a data network. This can not only allow teachers to have a comprehensive and in-depth understanding of a certain aspect of students' learning, but also make use of the data to expand accordingly and discover more possibilities hidden in students. When the vertical and horizontal data network is used, more information that cannot be obtained in normal research will be found. In such an interconnected network, teachers can always pay attention to the problems and changes in school teaching, or the update of subject research forms and contents, as well as students' learning status and changes, so as to timely understand the learning situation and adjust the teaching accordingly. As a result, teachers can achieve modern teaching.

It is an important proposition for colleges and universities to make students adapt to the society and cultivate all-round talents majoring in Chinese language and literature. Big data provides a way to realize the idea of lifelong learning through education. As mentioned before, personalized database for students is not only available data retained by the school, but also data used by students for their whole life, and even a qualitative supplement after graduation. For example, the employment or further education after graduation, such data update is conducive to the school to make statistics of the employment situation of our graduates, to fill the learning gap through the employment orientation of students, to update the curriculum and teaching focus, to constantly improve the teaching model, and to combine academic and practical elements.

The major of Chinese language and literature is an informative subject. In such an era of high Internet accessibility and development, online education, as a supplement to classroom education, provides students with education in more than one university. It is an urgent education problem to realize the diversity of education and give students more choices. It is necessary for higher education to develop online education, break the sense of space and time of traditional teaching, integrate resources, cooperate with multiple schools, compensate with the diversity of classroom, and maximize the effective use of classroom resources. Both the daily teaching videos and the elaborate courses can be displayed as learning materials in the data resources, so as to promote the innovation of teaching mode and the promotion of lifelong learning concept. The common purpose of colleges and universities is to cultivate talents, so it is impossible to realize the remote sharing of teachers in the age of big data. As information technology is becoming more and more advanced, what should be eliminated is the educational discrimination against students, giving full play to the biggest role of the big data, giving students the right to learn and choose, mining the internal possibility of their

development, and realizing the maximum development of students.

## VI. CONCLUSION

The era of big data is an era of change. Gary King, a sociology professor at Harvard University, said: Big data is a revolution. The huge data resources have enabled every field to start the process of quantification, whether in academia, business or government, every field will start the process of quantification. In the process of social quantification, it is necessary for the development of college students and the development mode of colleges and universities to keep pace with The Times. They should not only update the teaching philosophy, but also the research thinking, and actively introduce and develop new technologies to promote the process of college education reform, so as to provide more and more scientific education for current students and cultivate high-quality talents. Contemporary college students are the mainstay of national development, so teachers must attach importance to college education, promote the popularization of lifelong education, realize the common progress and development of information society and knowledge-based society, and open up a new world for national development.

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