

# The Application of Big Data Technology and Method in Moral Education in Colleges and Universities

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**Abstract**—With the growth of science and technology and the progress of scientific and technological means, we have entered a new era of "big data", which influences and quietly changes our lives. In this new era, combined with the characteristics of their own and effective application of the technology and methods of big data, moral education in colleges and universities should seek favorable opportunities in a timely manner, and progressively realize the integration of digital technology and humanistic spirit, the complementary integration of network education and real education, the complementary integration of data thinking and traditional experience, and the complementary integration of situational awareness and ubiquitous education. In doing so, the effective development of moral education in colleges and universities can be improved constantly.

**Key Words**-Big Data; Colleges and Universities; Moral Education

## I. INTRODUCTION

"BIG DATA", for most people, is a strange and familiar words. So what is "big data"? At present, there is no consensus answer for the relevant experts and scholars at home and abroad. However, Victor Meyer and Kenneth Cukier made the definition of "big data" in the book *"Big Data - A Revolution that will Transform How We Live, Work, and Think"*: ".....big data is an unprecedented way to analyze massive amounts of products and services, or deep insight." That is, big data is based on the analysis of large amounts of data and massive information, and more practical value of the report would be obtained, so as to guide people's social practice, right judgments and choices, and guide things in a favorable direction. It is clear that the era of big data not only brought opportunities and challenges for moral education in colleges and universities, but also provided new ways and new perspectives for the innovation of moral education in colleges and universities. Therefore, the effective integration of big data technology and methods in moral education in colleges and universities will improve the effectiveness and pertinence of moral education in colleges and universities.

## II. THE COMPLEMENTARY INTEGRATION OF THE DIGITAL TECHNOLOGY AND HUMANISTIC SPIRIT

The rapid development and wide application of digital technology in colleges and universities has become a necessary way of moral education in colleges and

universities. In short, the digital technology of moral education in colleges and universities refers to the moral education technology of colleges and universities which is composed of digital moral education resource library, moral education resource transmission network, moral education resource retrieval and front-end platform. Digital information technology is the core technology of moral education in colleges and universities. However, without it, other kinds of moral education technology which attached to it would like a tree without the root. The essence of digital moral education in colleges and universities is the construction of moral education in colleges and universities, supported by information and digital technology, and construct a perfect educational model from the aspects of the cognition, the theory, the essence, and the mode. Through the continuous application and popularization of this model, moral education can be improved on the basis of digitization, and eventually play a huge role. Humanistic spirit education is an important part of moral education in colleges and universities, and correspondingly, the emphasis of moral education should be emphasized on the humanistic spirit. Because the humanistic spirit is based on the humanities and various cultural factors extracted from the values, common norms and normative features, and so on. First of all, based on a deep understanding of the nature of man, it means a kind of thoughts and feelings. In other words, the humanistic spirit is for people, concerned about people, and understanding people, and the meaning of humanistic spirit is very rich: from a moral point of view, it is the study of human needs and beliefs; in the sense of justice, it is the thinking and analysis about fair and free. Based on human thinking, the humanistic spirit highlights the human subjectivity, emphasizes the leading role of human nature, and discovers love and concern for people. Besides, humanistic spirit puts respect for people on the pursuit of the highest point, puts people's personality needs in a more important position, and seeks to study the proposition of life and the ultimate concern for human beings. At present, with the digital technology, the extension of moral education in colleges and universities has unlimited possibilities, but it's easy to be a great tool for examination oriented education to instill knowledge, and ignore the traditional humanistic spirit education.

In other words, the emerging technology really facilitate the moral education in colleges and universities. However, in the course of education in the past, there is a

stylized and blind respect for digitization, a lot of education has become a simple skill training; digital survival leads to a certain degree of abstraction and symbolization of college students; to some extent, the lack of humanistic spirit has caused college students' moral and psychological difficulties, and so on. In short, in the past, there is a "indoctrinating knowledge" in the classroom, instead, digital education refers to "machine implanting knowledge". In the era of big data, moral education must be complementary and integrated with digital and humanistic education. Specifically, first, the complementary combination of digital technology and humanistic spirit could be realized in the control of content. We should make full use of digital technology and network technology to classify and filter information, inject human color into the network, give full play to the role of people in the process of controlling bad information, and try to guide college students with positive events and energy; data mining and analysis for behavior toward college students predict their future possible behavior trends. For different college students, different humanistic spirit education content is pushed. Second, the complementary combination of digital technology and humanistic spirit could be realized in the way of education. In a sense, humanistic spirit, the source of governance, should have an effective impact on the entire network environment, and the core position of college students should be placed in the construction of the overall moral environment. However, the humanistic spirit embody all aspects of college students, such as pursuit, belief, morality, human and temperament, and self-cultivation, each of which has specific humanistic connotation and civilized idea. Therefore, the traditional way of education will inevitably weaken in the humanistic spirit education in colleges and universities. The application of advanced data technology has diversified in the ways of humanistic spirit education among college students. Third, the complementary combination of digital technology and humanistic spirit could be realized in the way of content communication. Digital information technology has spread the spirit of humanity and gained universal significance beyond time and space. Therefore, educators should quickly spread the content of moral education in colleges and universities, and learn how to make good use of digital information technology in the process of moral education in colleges and universities. The content of moral education that embodies humanistic spirit can be effectively displayed to college students, and learn and use various technical forms in the course of various types of communication.

### III. THE COMPLEMENTARY INTEGRATION OF ONLINE EDUCATION AND REAL EDUCATION

Moral education in colleges and universities is gradually divided into network education and real education, both of which have connections and differences. On the one hand, the reality of moral education is the basis of network

moral education. Network morality is the projection of the virtual world of real morality on the internet. Reality is the root of morality. "Realistic morality has an intrinsic value orientation to network morality. Man is not only the subject of the real life, but also the subject of the network social life. No network behavior can exist independently from the activities in the real space". At present, the number of college students using the network is very large. They have dual identities both in real society and in network subjects. They follow certain behavior patterns in social activities because of consensus, which is the product of history, and it can exert a subtle influence on college students. This is the real social morality. And the scope of the actual social moral education must include the network moral education, and it has certain leading and directive function, and become the spiritual power and foundation of the construction of network moral education system. On the other hand, the network moral education is the extension and development of the actual moral education in the network. In the era of big data, the development of moral education could match big data backgrounds in the aspects of cognition, viewpoint and mode of traditional moral education. The development of moral education fully adapt to the needs of network society and personal development, and further enhance network development and all-round development of people. In each stage, network moral education can enrich the content of network moral education continuously, make college moral education show more vitality, and create a better educational environment; though constantly absorb new ideas and values under the background of the new era, network moral education can be based on a kind of sublation of the practical moral education. Combined with the outstanding achievements in the teaching of real morality, big data and internet technologies are constantly being innovated and developed; Network moral education can accurately grasp the specific needs of college students, that it is good for educators to focus on the problems that may occur and make accurate evaluation, so that education can be better close to college students and close to college students, and finally the efficiency and effectiveness of moral education can be improved.

Through the combination of network moral education and practical moral education, the actual effect of moral education in colleges and universities will be greatly improved. First, the network moral education and the reality moral education have the common education direction. Guidance, standardized and guided from three levels: concept, goal and behavior, is a unified whole. And the main contents of the ideal faith education is the system of Marx theory, and the education goal is the policy of the party, and the main content of the behavior of education is the socialist morality and law. However, when carrying out education activities, we should follow the law of moral cognition and behavior development of college students. Second, in the ideological and

behavioral level, political consensus, ideological coherence and unified behavior are achieved. The stability of the network society will directly affect the stability of the real society. Therefore, both network moral education and practical moral education should play a stabilizing role, and stabilize the order of the network society and the real society. The important task is to let students have a unified understanding of basic moral concepts, and achieve unity of behavior through the unity of cognition. Third, moral education, an important part of education, is very important for college students. Morality, a bond from the heart, comes from the control of college students about right and wrong. A man of virtue must be a man of self - restraint. It is necessary to change the external norms of college students into their own norms, and guide them to become “socialist moral models”, “leaders of good faith” and “fair and just defenders”. Fourth, moral education could better stimulate the intrinsic motivation of college students. The premise of the joint effect of network moral education and practical moral education is that educators should fully exert their internal power, and then tap their potential and exert their potential on the basis of college students’ preferences. The network contains a lot of information content and related value system, a new position and a new position has been set up for the moral education of college students, which complement the two positions of the real society and the network society, and give full play to the network’s high vividness and image specificity. In this process, students can realize the pleasure of study, and learn, study, and accept knowledge with a positive attitude, and develop their potential constantly.

#### IV. THE INTEGRATION OF DATA THINKING AND TRADITIONAL EXPERIENCE

The effect of “information cocoon room” appeared in the moral education at colleges and universities from complex content, fragments of information, accurate push in the era of big data. College students always choose according to their preferences, so that as the silkworm, students wrapped themselves up, and “their own preconception will become ingrained” and it’s easy to make themselves very narrow. Therefore, in the face of new situations, new problems, educational researchers and workers must combine the traditional experience of education, set up data thinking, tear down the wall of thinking at the same time, and provide a strong ideological guidance for the big data era of moral education in colleges and universities. On the one hand, data thinking is a new way of thinking in college moral education. First, data thinking requires comprehensive thinking. According to the actual demand, the data

thinking provides the corresponding information and the service for the university student, and become a systematic, multi-functional, integrated information and services organism as much as possible, and fully grasp and develop the mode of thinking, cognitive level, personality needs of college students. Second, data thinking requires vague thinking. When the moral status of college students is at an ambiguous time, educators could use vague thinking to make a general sense of their own feelings about college students’ moral status. Then, combining the actual experience, we can make up for the defects. This requires educators to combine their own abstract reasoning ability and comprehensive generalization ability, and precise solutions are proposed for the salient features of college students. “Big data..... help us get closer to the truth”. Third, data thinking requires open thinking. Nowadays is an open era, that has broken through the natural environment of the natural economy and planned economy. Open thinking is the end of a long closed state of neglect, and the small world of human environment that has broken through the past natural, planned and economic conditions. With the development of information technology, especially information network technology, the characteristics of social informatization and networking are becoming more and more obvious". Thus, in the process of moral education, educators have special sensitivity and value judgments of the data, so as to form the experience of moral education to theoretical guidance in the era of large data, and better guide the practice of education.

On the other hand, in moral education in colleges and universities, data thinking and traditional experience are combined organically. First, the use of portable intelligent education carrier. Through the use of micro-blog, WeChat, and related information publishing platforms, college moral educators provide information about moral education for college students, on which educators can also set new issues. Combined the actual experience of your own moral education, educators should be strict with the internet, and give positive and correct moral knowledge to college students. At the same time, educators should pay attention to their moral feelings, hone their moral will, and guide their moral behavior. Second, education information should be properly streamlined. In the big data era, the speed of reading and the content and length of reading make college students become more and more impetuous. It is a kind of fast food reading. “Communication is as good as building. The more concise, the better.” Therefore, the moral education of college students must be changed according to the development of society. The classical educational content that has been precipitated in the traditional educational experience has become shorter,

novel, focused and attractive. In the form of education, it can be transmitted by micro-blog, WeChat and other pictures, language, video and so on. Third, the classification of the students. The classification of data by big data also makes college students become different groups. According to the different classification of College students, educators have individualized education. Through data analysis, college students are classified into different types according to their achievements, sources, gender, family status and personality characteristics, and then carry out different types of education. Four, the educational structure tends to be flat. The educational information is more diverse, and the channels of education are more diverse. The logic of education is even more flat. Every college student is engaged in education and receiving activities at the same time. Moral education is no longer confined to teachers, classes, schools, and any ordinary person who specializes in moral education have the dual subject identity of the pedagogue and the pedagogue, and can be used as the producers and disseminators of educational information to participate in the process of moral education.

#### V. THE INTEGRATION OF SITUATIONAL AWARENESS AND UBIQUITOUS EDUCATION

Educational activities are always based on certain situations, and knowledge learning, neither objective nor subjective, is an interactive state and the construction of college students in the process of interaction with environment, knowledge learning. Thus, on the one hand, college students' moral education needs to integrate various situations into the field of education. In other words, situational awareness is the necessary way of moral education in colleges and universities. Through the theory of situational cognition, "knowledge and activities are inseparable", the learning activities of college students need to be implemented in the real environment where they lived. Only a combination of college students' real environment learning, practical activities can really form capacity. The role of educators is to provide the real learning situation, build a learning support, understand students' previous knowledge and experience, encourage students to use them to construct knowledge and meaning in the physical and social environment, and promote the development of students' comprehensive quality and ability. On the other hand, ubiquitous education is the trend of moral education in colleges and universities. Ubiquitous education is "omnipresent" education, and cloud computing, networking, rich media and mobile phones and tablet PCs is the basis of it. At present, college students have been easily connected with wireless networks, mobile networks and personal portable devices

to connect with any place, so they are increasingly looking to be able to use their own equipment at any time and any place to learn, live, and entertain with the network connections they need. Perhaps a child is already using a cell phone or tablet computer before he goes to school, and online education may come earlier than school education. With the arrival of the big data era, no matter college students are in daily life, education and study, social education, all exist in the network of time and space, and accept the network education. In a word, in the big data era, great changes have taken place in the situation of moral education in colleges and universities. Ubiquitous networks cover the learning environment of colleges and universities. Faced the trend of ubiquitous education, moral education in colleges and universities must be appropriately adjusted.

So how can we combine situational cognition with extensive education in college moral education? Specifically, first, ubiquitous learning situation is created. educators must create ubiquitous learning situations that are appropriate to the needs of college students, optimize the choice of students to learn equipment, learning content, learning resources, modestly accept students' learning activities and provide suitable learning services, and continuously improve the students' learning evaluation. Second, ubiquitous educational information can be pushed. Context awareness refers to the situation information of the service object is collected or sensed through the sensor. According to the situation information, the current situation of the object being analyzed and judged, and then the appropriate business services are selected and offered. With the development of big data technology, ubiquitous sensor networks perceived context, and generated a great deal of situational data about university morality. Through situational modeling, the current situation model of college students is formed, educators acquire students' daily habits and characteristics by observing the student's past situational data. On this basis, through data mining and dynamic analysis, the interest model of each college student is presented. According to the current situational models and interest models for college students, proactive personalized education information can be pushed to college students. Third, the effect of ubiquitous learning can be assessed. In order to better understand the college students and their learning environment and the effect of learning, educators need to use big data technology to collect large amounts of data about college students' learning, and analyze, handle and modeling the situation of college students using a variety of learning resources, the situation of interacting with others, the status of psychological and emotion, personal preference changes, knowledge or skill changes, and the location and the

related social practices, etc.. And educators explain the massive data about college students collected from the personal level, curriculum level, professional level, school level, social level, and then evaluate the effects of various educational models and the effects of learning. In this way, the teaching process, the learning process and the learning environment can be improved continuously.

## VI. CONCLUSIONS

All in all, in the contemporary information society, each of us is a data source, generating a lot of data every day, passing and storing massive amounts of data. The rapid development of information processing technology represented by “big data” and “cloud computing”, is constantly changing the social economy and people’s daily life style. They not only create a variety of possibilities for people’s lives, but also profoundly affect the reform of moral education in colleges and universities. Moral education activities in colleges and universities have gradually begun to rely on the Internet, information technology and data resources. However, moral education in colleges and universities is a complex system engineering, and an important part of the implementation of the “fundamental task of morality education”. Aiming at the existing problems and shortcomings of moral education in colleges and universities, moral education in colleges and universities in the new period should be effectively supported by big data technology and methods, put forward specific methods of moral education improvement, promote moral education evaluation pluralism, realizing individualized moral education, and strive to achieve real results gradually.

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