

Application of Big Data Technology in Psychological Crisis Intervention Platform of College Students

Shuting Liu

*College of Engineering Technology
Xi'an Fanyi University
Xi'an 710105, China
69922865@qq.com*

Abstract—With the rapid development of Internet technology, the information resources have greatly enriched the horizons of college students. They are under certain pressure of study and employment in such times, especially when facing the changes of emotions, social environment and family environment, they tend to have an unbalanced mentality. This paper first summarizes the psychological crisis intervention, and analyzes the "big data" of psychological crisis intervention and the current situation of college students' psychological crisis intervention. Based on the application of big data technology in college students' psychological crisis intervention platform, it proposes the construction of college students' psychological crisis intervention platform. The advantage of big data is used to construct a psychological crisis intervention platform to monitor students' psychological dynamics in real time, change the prevention of psychological crisis from passive to active, and carry out appropriate intervention and assistance to problem students, so as to achieve the goal of using big data technology to promote the mental health of college students.

Keywords—*Big data, Data mining, Psychological crisis interventions, Platform, College students*

I. INTRODUCTION

The combination of big data and education is about creating real change, according to Victor Mayer Schoenberg, a leading British big data expert. It also summarizes the three core elements of big data improvement learning and education: feedback (feedback), personalization (individualization) and probability prediction (probabilistic predictions) [1]. As an important bearer of big data, colleges use the powerful charm of big data to guide their own better development. "In the age of big data for educational change, whoever occupies big data on education grasps the future of education [2]. "Big data has a profound impact on education management, with the advantage of big data, to early warning and intervention of college students' psychological crisis, through the collection, integration and analysis of all kinds of big data, timely understanding of the activities of college students, analysis of psychological situation, students with psychological crisis tendency to identify and early warning, To eliminate the crisis in the bud, to avoid the occurrence of vicious events, to promote the healthy growth of college students, to maintain the safety and stability of the campus.

II. PSYCHOLOGICAL CRISIS INTERVENTION

Psychological crisis refers to a marked change in living conditions as a result of sudden and severe disasters, major life events or psychological pressures, in particular difficulties that are difficult to overcome with existing living conditions and experience, To cause pain and unease, often accompanied by despair, apathy, anxiety, and vegetative neurological symptoms and behavioral disorders [3]. Psychological crisis intervention refers to the timely provision of appropriate psychological assistance to individuals in a state of psychological crisis in order to get rid of difficulties as soon as possible. As a prelude to crisis intervention, effective early warning of crisis can enable psychological workers to foresee the possible psychological crisis ahead of time, react in time, prevent trouble in the first place, and it is a kind of management ahead of time.

III. "BIG DATA" OF PSYCHOLOGICAL CRISIS INTERVENTION

McKinsey (MGI), the world famous consulting company that first formally proposed the concept of "big data", defined big data as: Big data refers to data groups whose size exceeds the ability to capture, store, manage and analyze traditional database software tools [4]. Big data analyzes and excavates its potential value from the massive data, summarizes the law, forecasts the development trend.

In recent years, the incidence of suicides and hurtful incidents caused by psychological problems among college students is on the rise, which has caused different degrees of injury to students, families, colleges and universities and society. With the advent of the era of network, QQ, WeChat, MicroBlog and other social networking platform for college psychological health research provides a large amount of data, the big data technology and the integration of college students' psychological crisis intervention platform, through the analysis of large data, dynamic master the thoughts and actions of college students, broaden the channels of information, the prediction of large data helps crisis warning, so as to realize the early prevention and early intervention of psychological crisis of college students, establish an effective interactive mechanism, make the object intervention of college students from passive to active intervention of the main body, play to college students' psychological crisis early warning and prevention of suicide in the enthusiasm, initiative, So as to truly achieve the good effect of

psychological crisis intervention [5]. According to the development plan for the Internet of things (2016-2020), it has become a national strategy to promote the wide application of new technologies and new business forms such as the Internet of things and big data. With the deepening of research, the research on psychological crisis prevention and intervention strategies of college students under the background of big data will be a new trend of development in the future.

IV. PRESENT SITUATION OF PSYCHOLOGICAL CRISIS INTERVENTION IN COLLEGE STUDENTS

Currently, colleges and universities often adopt the following methods in psychological prevention and intervention:

A. Use Mental Health Files

At present, most colleges and universities have established mental health files for students, observed the students' basic situation and daily performance, and exchanged with their parents in time. According to the information of students' daily performance and test scores, the school education department and the school work department timely grasp the basic situation of students in school and clarify their daily performance and personality characteristics [6]. Through the analysis of psychological files data, we find out the students with psychological defects to prevent the occurrence of crisis. Generally speaking, psychological experts believe that when students tend to commit suicide or self-harm, the influence of the external environment is only the external condition of crisis, and the essence of which lies in the existence of certain psychological defects.

B. Positive Education of College counselors

Psychological crisis is gradually formed and has a long incubation period, so positive education is carried out after the students report in to avoid the crisis. Before entering the university, freshmen have experienced the selection of college entrance examination. From preparation for college entrance examination to college admission, they have to make arduous efforts. They are easy to form their excellent ideas in study and life. Colleges and universities are also places where talents gather. Once their existing psychological fixation is broken, they are prone to psychological imbalance, in the long run, under the situation which cannot find the catharsis, easy to cause the crisis situation to take place. Therefore, college counselors often adopt psychological education for freshmen to guide students to form correct three views [7].

C. Setting up Emergency Management Mechanism of Colleges and Universities jointly with various departments

The emergency management department is mainly composed of students' affairs division, office of academic affairs, student class cadre and so on. College student class cadre and dormitory administrators are all individuals closely related to students' life and study [8]. They spend the most time together. They can easily find students with problems in communication, as soon as the trend of psychological crisis is detected, report it to students' affairs division immediately. Students' affairs division in the first time to unify the organization and management, and quickly form specific and refined emergency treatment steps.

However, the causes of psychological crisis of students are complicated and difficult to control. At present, these prevention methods cannot be dynamically monitored, which leads to the poor timeliness of psychological crisis prevention. Students' living environment and family experience are interwoven to influence the psychological changes of students. The dynamic changes of these factors will lead to the occurrence of students' inferiority, anxiety and depression [9].

In the context of big data, through the application of big data technology to the psychological crisis intervention platform of college students, and the dynamic monitoring of students' psychological path changes with the help of various data, it is convenient to explore students' psychological activities, guarantee the accuracy and real-time of students' psychological prediction, and realize the timely treatment of students' psychological crisis [10].

V. APPLICATION OF BIG DATA TECHNOLOGY IN PSYCHOLOGICAL CRISIS INTERVENTION PLATFORM OF COLLEGE STUDENTS

The psychological crisis intervention platform of college students must apply big data technology scientifically, construct a perfect psychological crisis intervention system, track the warning data of college students' psychological crisis in real time, and realize dynamic monitoring. In order to realize the timely handling of students' psychological crisis and ensure the accuracy of students' psychological prediction.

A. Scientific application of information technology

Using big data mining technology, college students various information, including basic information, psychological trends and other information, are recorded in the psychological crisis intervention platform of college students. By the school psychological workers with the help of big data to identify and assess the psychological crisis of students. With the help of the expanded screening index, the psychological crisis warning of students can be controlled in real time, and students can be prevented from suffering from other factors to a great extent and psychological problems appear [11].

B. Constructing a perfect intervention system of Psychological crisis

Firstly, the psychological counseling department provides professional data by means of psychological assessment form and psychological counseling questionnaire. Secondly, the early warning indicators were expanded, the mechanism of early

warning indicators was optimized as the basis, and data mining and analysis were conducted with the help of big data technology.

The original data are analyzed and processed according to three algorithms of data mining, which mainly include classification algorithm based on decision tree, classification algorithm based on artificial intelligence technology and network algorithm based on pattern recognition technology [12]. Through the early warning and processing of the initial data, the target data is obtained, and then the target data is explored to obtain the final mining results. The mining results and warning indicators are fully combined, such as the combination of daily data and interpersonal relationship data of college students, the combination of students' academic performance and negative emotional data, and the fluctuation situation of each data is evaluated through data detection, and finally the students are given psychological crisis warning and intervention by professional psychological consultants.

Psychological crisis intervention as a tedious work, the psychological counseling department can only provide professional treatment for students with psychological problems, but in the process, schools, parents and students should cooperate. The relevant departments of the school need to regularly track the students situation, obtain accurate data, and provide accurate economic and policy support by the school administration as the early warning decision maker for college students' psychological crisis. So that the early warning staff can smoothly carry out the early warning work of psychological crisis, and deal with the psychological crisis of students in time. Moreover, the psychological problems of students are often influenced by their own environment and social background, which cannot be replicated. Therefore, in view of the actual situation of each student, it is necessary to arrange sufficient professional psychological early warning personnel to set up the corresponding crisis warning system. After completing an early warning work, The early warning results can be reported to the relevant departments in time to facilitate the repair of the warning system and improve the accuracy of the early warning system.

C. Dynamic Management of warning data of college students' psychological crisis

Because the original data preservation and processing have time-effect deviation, it cannot meet the demands of college students' psychological changes. Therefore, it is necessary to supervise and control students' psychological changes warning data by means of big data technology. For example, while using raw data management to process structured data, some semi-structural and non-structural data should be collected and integrated with big data technology. Big data has the characteristics of fast data collection and processing, which can effectively improve the timeliness and dynamics of college students' psychological crisis warning.

VI. CONSTRUCTION OF PSYCHOLOGICAL CRISIS INTERVENTION PLATFORM FOR COLLEGE STUDENTS

The department of psychological education in colleges and universities holds basic information about students, regular daily performance information, communication with parents, etc., students affair department, office of academic affairs, and the relevant colleges focus on the students' exam results, the consumption of campus cards and the use of the cards in the library, to a certain extent, reflecting the students' daily performance, interests and hobbies, personality hotspots, and so on. Therefore, in the era of big data, the data sources of college students' psychological warning include not only psychological data obtained by routine psychological censuses, psychological screening and outpatient consultation, but also behavioral data related to students' study and life during school [13]. The analysis and mining of student behavior data should be considered in the construction of psychological crisis intervention platform.

With the help of information technology, a psychological crisis intervention platform is constructed, which can realize the dynamic monitoring of student' data and provide data support for psychological prevention. The model of the psychological crisis intervention platform is showed in Figure 1..

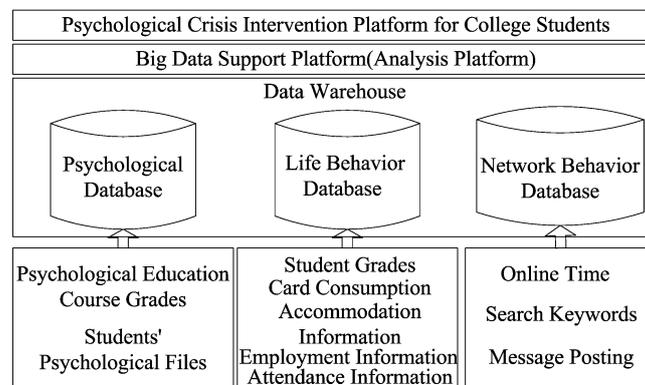


Figure 1. Psychological crisis intervention platform of Model

From the above figure, the database layer of psychological crisis intervention platform is composed of psychological database, life behavior database and network behavior database. The psychological database mainly stores students' psychological data, including students' psychological files, psychological education course grades, etc., which comes from the records provided by the school's mental health education work department and counselors. These include not only the

information collected in the process of psychological diagnosis, but also the information recorded in the daily observation, as well as the newly acquired real-time data, as well as the historical data accumulated over a long period of time. The life behavior database mainly stores the student study and life correlation result data. Mainly includes the student grades, the card consumption, the employment information, the accommodation information, the attendance information and so on, comes from the office of academic affairs, the finance office, the student department, the logistics management office and so on department. The network behavior database mainly stores students' online data, which comes from the data of online time, search keywords, message Posting and other data provided by the information construction department of the school.

On the basis of psychological crisis intervention database, data mining and analysis were carried out. The technology of data mining is to discover the new relational relationship by analyzing the implicit and meaningful data existing in the database. It can achieve multiple functions, such as automatic prediction of trend and behavior, data association analysis, concept description, deviation detection, etc. Mining hidden, unknown and potentially useful information from the psychological crisis intervention database can improve the scientificity and predictability of mental health education.

At the top, data mining results are provided to authorized users, who can see real-time and dynamic data of students' mental state. When the abnormal data state is found, psychological intervention measures should be taken to avoid the occurrence of students' psychological crisis behavior, and to reduce the injury caused by psychological problems to individuals and them [14].

VII. CONCLUSION

Under the background of big data technology, by integrating the original, scattered, simple and unrelated data into the psychological crisis intervention database and carrying out data mining, we can supervise the psychological situation of college students. To provide data support for psychological workers, make psychological prevention work from passive to active, find out students' psychological problems and intervene in time, so as to reduce the impact of psychological factors on students' development. Finally, the data serve universities and students.

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REFERENCES

- [1] Victor Mayer Schoenberg and Big Data Peer, *The future of learning and education*. Z.J.Zhao, Y.N.Zhang, Translation. Shanghai: East China normal University Press, 2015.
- [2] T.Chen, *National Governance in the age of Big Data*, Beijing: Chinese social science publishing, 2015, pp. 163.
- [3] R. Wu, J. Y. Wang and J. Y. Chen, "The dilemma and countermeasures of the communication between home and school in the psychological crisis intervention of colleges and universities." *J. Chinese Journal of School Health*, vol. 38, pp. 106-108, 2017.
- [4] X.K.Guo, *Big data*. Beijing: Tsinghua University Press, 2013.
- [5] C. Z. Wu, "Research on the application of big data technology in ideological and political education in colleges and universities," *J. Journal of Huaihai Institute of Technology(Humanities & Social Sciences Edition)*, vol. 10, pp. 11-13, 2017.
- [6] J. M. Wang and P. Liu, "Research on students' psychological archive construction under the background of big data," *J. Automation & Instrumentation*, pp. 92-94, 2018.
- [7] D. D. Li, "On the role played by counselors in the prevention of psychological crisis of higher vocational college students," *J. Education Modernization*, vol. 3, pp. 66-67,70, 2016.
- [8] F. F. Chen and X. B. He, "Application of big data technology in the prevention of psychological crisis of college students," *J. Education Modernization*, pp. 111-112, 2018.
- [9] X. M. Zhao and K. Y.Zhao, "Research on Left-behind Children's School Education based on Big Data Platform," *J. Modern Educational Technology*, pp. 32-37, 2018.
- [10] X. J. Li, "Education approach to rural college students' mental health in the era of big data," *J. Journal of Hubei University of Economics(Humanities and Social Sciences)*, pp. 125-127, 2017.
- [11] S. F. Diao and J. H. Chen, "Big data and adolescent psychological crisis warning and intervention," *J. Journal of Harbin Vocational & Technical College*, pp. 101-103, 2018.
- [12] T. M. Liu., *Data Mining Technology and its Application*, Beijing: National Defense Industry Press , 2001, pp. 34-179.
- [13] L. P. Goldsmith, G. Dunn and R. P. Bentall, "Therapist effects and the impact of early therapeutic alliance on symptomatic outcome in chronic fatigue syndrome," *J. PLoS One*, vol. 10, 2015.
- [14] Z. F. An and P. Zhang, "Research on data analysis and feedback system construction of college studentsundefined mental health under the background of big data," *J. Studies in Ideological Education*, pp. 93-96, 2016.