

Original Research Article

Research on the construction of freshmen's mental health big data platform under the background of digital transformation of university archives

Jiayu Jian¹, Shuhan Guo^{2*}

¹ Shenzhen University, Shenzhen, Guangdong, 518060, China

² Shenzhen Polytechnic University, Shenzhen, Guangdong, 518000, China

Abstract: With the deepening of the digital transformation of archives in colleges and universities, freshmen's mental health service faces the opportunity of technical empowerment and model innovation. The traditional mental health education model can't meet the psychological needs of freshmen in the transitional period because of scattered information and delayed early warning. The multi-dimensional student data accumulated in the digital transformation of archives provides a new basis for accurately identifying psychological risks. Based on the perspective of archives management, this paper expounds the connotation and characteristics of the digital transformation of archives in colleges and universities and the big data platform for freshmen's mental health, deeply analyzes the significance of building a big data platform for freshmen's mental health, and finally puts forward the specific implementation path from the dimensions of consolidating the data foundation, building a technical framework, building a closed loop of "monitoring-early warning-intervention" and improving the guarantee mechanism. The purpose of this study is to provide theoretical References and practical guidance for colleges and universities to optimize freshmen's mental health service by using digital archives resources, and to promote the transformation of mental health education to digitalization and intelligence.

Keywords: university archives; digital transformation; freshmen's mental health; big data platform

1. Introduction

With the rapid development of big data technology, the digital transformation of university archives has become an inevitable trend of reform in the field of education. In years, the psychological health problems of university freshmen have shown an increasing trend of complexity and incidence, and the traditional mode of psychological health education has been difficult to meet the needs psychological health services for freshmen in the new era. A large amount of archive information related to students has been accumulated in the process of digital transformation of university archives, and these data important clues that reflect the psychological state of freshmen. The digital transformation of archives provides a new idea for cracking the psychological health education of colleges and universities. Therefore, in the context the digital transformation of university archives, in-depth research on the construction of a big data platform for the psychological health of freshmen not only helps to promote the digital and intelligent transformation psychological health education in colleges and universities, but also provides a new direction for the in-depth development and application of university archives resources, which is of great theoretical value and practical.

2. Related overview

2.1. Overview of digital transformation of university archives

The digital transformation of university archives refers to the process that universities use modern information technologies such as big data, cloud computing, artificial intelligence and blockchain to systematically integrate, standardize and intelligently upgrade traditional paper archives and scattered digital archives resources, and build a new file management and application system with digital resources as the core, technology platform as the support and efficient service as the goal^[1].

The digital transformation of university archives presents multi-dimensional characteristics. On the resource level, the transformation from paper carrier to digital form is realized, and the archives scattered in

various departments are integrated through technology to form a unified digital archive and break the information island. In management, intelligent technology is introduced to realize automatic processing, such as automatically classifying and indexing files with the help of artificial intelligence, and relying on workflow engine to promote online circulation of files in the whole process, reducing manual intervention and improving management efficiency. The service model tends to be more collaborative and accurate, promoting cross-departmental resource sharing through data interface and authority management, and at the same time, deeply mining archive data to provide targeted support for teaching, management and other decisions.

2.2. Overview of freshmen's mental health big data platform

Freshmen's mental health big data platform refers to an intelligent system for monitoring, evaluating, warning freshmen's mental health status and providing personalized services under the background of digital transformation of university archives, relying on big data, artificial intelligence and other technologies to integrate all kinds of data generated by freshmen in various scenarios such as enrollment, study, life and social interaction. The platform has many remarkable features: First, the big data platform for freshmen's mental health refers to an intelligent system for monitoring, evaluating and early warning freshmen's mental health status and providing personalized services under the background of digital transformation of university archives, relying on big data, artificial intelligence and other technologies to integrate all kinds of data generated by freshmen in various scenarios such as enrollment, study, life and social interaction. The second is the synergy and closed-loop nature of services. The platform connects many departments of colleges and universities, such as student affairs department, psychological counseling center and academic affairs office, etc., and promotes data sharing and cooperation among all departments, forming a complete closed loop of "early warning-intervention-feedback". The third is the intelligence and precision of functions. With the help of data mining and artificial intelligence algorithms, the platform can deeply analyze massive data, and discover hidden relationships between data, such as the relationship between academic stress and emotional fluctuation, and the relationship between life schedule and adaptability^[2]. On this basis, we can accurately identify the freshmen with psychological risks, and realize graded early warning, which provides a basis for targeted intervention. The fourth is the strictness of privacy protection. Because it involves a large number of sensitive information of freshmen, the platform has established strict security mechanisms in data collection, storage and use, ensuring that freshmen's privacy will not be leaked through data encryption, rights management and anonymous processing, and protecting their legitimate rights and interests while exerting data value^[3].

2.3. The intrinsic relationship between the two

There is a close relationship of deep coupling and mutual empowerment between the digital transformation of archives in colleges and universities and the big data platform for freshmen's mental health: from the data basis, the digital transformation of archives provides the core resource support for the platform construction. In the process of digital transformation, colleges and universities have transformed many kinds of new information, such as the growth background in enrollment files, the fluctuation of academic records, the behavior track in life files, into standardized digital resources, which has broken the limitation of "decentralized storage and static isolation" of traditional files. From the perspective of technical architecture, the digital transformation of archives provides a ready-made technical base for platform construction. The technical infrastructure such as cloud storage system, data sharing interface and security protection mechanism formed in the transformation can be directly reused for mental health platforms. From the perspective of value logic, the two forms a closed loop of "transformation empowers application and application feeds back transformation". The ultimate goal of digital transformation of archives is to release the service value of archives, and the mental health big data platform is the concrete practice of this goal^[4].

3. The significance of building a big data platform for freshmen's mental health

3.1. Helps to enhance the in-depth development and value transformation of university archives resources

Traditional file management mostly stays in the basic function of "storage and custody", and the potential

value of file resources has not been fully released. After the digital transformation of archives, the "data value" of archives has been reactivated, and the value dimension of its service education management has been greatly expanded^[5]. By integrating the growth background information in the enrollment files, the fluctuation data of academic records, the behavior track records in the life files and other kinds of digital file resources, the platform transforms the original isolated and static file data into a vivid basis for dynamically analyzing the psychological state of freshmen, and makes the file resources achieve a qualitative leap from a "historical record carrier" to a "realistic service tool". This transformation not only enriches the application scenarios of digital transformation of archives in colleges and universities, but also makes the precipitated archives data an important think tank resource to support educational management decision-making, which provides a data-driven scientific References for accurate policy-making in colleges and universities and promotes the archives resources to play a greater role in the training of service talents.

3.2. Promote the upgrading of mental health education model in colleges and universities

The platform breaks the inherent limitations of the traditional mental health education model, and promotes the service upgrade from "experience" to "precision" with technical empowerment. In the traditional mode, mental health services are often difficult to prevent in advance due to problems such as scattered information and lagging feedback. However, the mental health education platform for freshmen built with the help of big data technology can capture the subtle changes of freshmen in their studies, life and socialization in real time^[5]. By tracking library borrowing records to judge the fluctuation of learning state, and combining with dormitory access control data to detect the abnormal life rules, the cross comparison and deep mining of these multi-source data can accurately locate the early signs of psychological risks, and make mental health services shift from "intervention after the event" to "early warning" and from "universal coverage" to "targeted policy", which significantly improves the timeliness, pertinence and foresight of mental health education in colleges and universities.

3.3. Help to meet students' individual demands

In the process of focusing on the mental health protection of freshmen, the platform always puts data privacy protection in an important position. By establishing a standardized whole-process mechanism for data collection, storage and use, the platform can realize the accurate supply of personalized services under the premise of strictly abiding by laws and regulations and not infringing on the legitimate rights and interests of freshmen. For example, for freshmen with financial difficulties, the platform can accurately identify their dual needs in economic and psychological aspects by analyzing their digital archive data such as canteen consumption and purchasing of living materials, combined with the stress tendency presented in psychological evaluation, and then link with the student aid department to push suitable scholarship application information and work-study job opportunities, and coordinate the psychological counseling center to provide targeted psychological counseling services, which not only relieves economic pressure from the practical level, but also gives emotional support from the psychological level to help freshmen overcome difficulties and grow healthily in all directions.

4. The implementation path of big data platform for freshmen's mental health under the background of digital archives transformation

4.1. Consolidate the data foundation and break the "information island"

Archival data provides resource support for mental health education in colleges and universities, and the key to consolidate this foundation is to break the information island and realize the efficient circulation and deep integration of data. In order to build a perfect mental health education platform for freshmen, colleges and universities should first establish an inter-departmental collaborative mechanism to realize centralized management of archival data and information. Colleges and universities take the existing file resources as the core, and define the scope of data collection, which covers not only basic data such as freshmen's family background and previous psychological evaluation in enrollment files, dynamic data such as course scores and attendance in academic files, but also life data such as consumption records and dormitory access control in logistics systems, as well as professional data such as evaluation results and counseling records in psychological

counseling centers. Secondly, formulate unified data standards and norms. In view of the problems that the information of freshmen in colleges and universities is scattered in different departments and the data format is not uniform, colleges and universities should establish an inter-departmental data sharing mechanism to promote the data exchange among students, teachers, logistics, psychological counseling and other departments to ensure the comprehensiveness and standardization of data collection. For example, the "family economic situation" is uniformly divided into standard categories such as "poverty", "average" and "good", and the "consumption data" clearly counts the consumption frequency and amount fluctuation in weekly units. In this process, data cleaning and desensitization should be done synchronously, invalid information should be eliminated, and sensitive data related to privacy should be anonymized, so as to ensure data quality and adhere to the bottom line of privacy protection.

4.2. Build a technical framework and strengthen the platform support capability

After consolidating the data foundation, colleges and universities need to rely on the technical accumulation of digital transformation of archives to build a technical framework suitable for freshmen's mental health education platform to provide stable support for data processing, analysis and function realization. First of all, in terms of hardware facilities, we can rely on the existing cloud data center in colleges and universities to configure servers with high storage capacity and strong computing power, adopt distributed storage technology to meet the storage needs of massive archive data, and at the same time ensure the efficiency of data processing through load balancing technology to avoid system jamming caused by data peaks. In view of the sensitivity of psychological data, private cloud can be used to store core sensitive data, and public cloud can be used to process non-sensitive behavioral data, forming a hybrid cloud architecture to balance security and scalability. Secondly, in the aspect of software technology, big data processing tools are introduced to realize the integration and cleaning of multi-source heterogeneous data, so as to ensure that archive data with different formats and sources can be effectively identified and processed; Using machine learning algorithm to build a psychological risk assessment model, model training needs to combine historical mental health file data and intervention cases, constantly optimize algorithm parameters, and improve the accuracy of identifying freshmen's psychological risks, for example, by analyzing the correlation between academic fluctuation data and psychological assessment results, so that the model can predict academic anxiety risks more accurately. At the same time, the data interface module is developed to realize seamless connection with the existing file systems of various departments in colleges and universities, to ensure that the data can be updated synchronously in real time, and to provide technical support for the dynamic monitoring function of the platform.

4.3. Focus on core functions and build a closed-loop system of "monitoring-early warning-intervention"

Freshmen's mental health platform focuses on the actual needs of freshmen's mental health services, develops core functional modules, and forms a complete closed loop from dynamic monitoring to accurate early warning to effective intervention. At the level of dynamic monitoring, the evaluation index system of freshmen's mental health status is constructed by integrating multi-dimensional archival data, covering students' learning status, social interaction, life adaptation and other dimensions. These indicators are transformed into intuitive individual psychological portraits and group psychological state heat maps through visualization technology, so that counselors and mental health teachers can grasp freshmen's mental state in real time. In the early warning module, based on the psychological risk model trained by historical archives data, multi-level early warning thresholds are set. When the system detects that the index data of a new student touches the threshold, it automatically triggers the early warning mechanism: the first-level early warning (low risk) is pushed to the counselor with the background information of the student's file to assist the counselor to carry out targeted heart-to-heart; The secondary early warning (medium risk) is pushed to the psychological workstation of the college synchronously, and a personalized counseling plan is formulated in combination with the historical data of psychological evaluation in the archives; Three-level early warning (high risk) immediately linked the school psychological counseling center, retrieved the complete psychological files, and started the professional intervention process. The key data triggered by risk should be clearly marked in the early warning information to provide data basis for intervention. In the intervention feedback module, the function of intervention record

and effect tracking is developed. Counselors and psychological teachers can enter the intervention time, method, content and students' feedback through the platform, and associate the changes of subsequent file data, and the system will automatically generate an intervention effect evaluation report. If the data shows that the intervention is effective, the case is included in the optimization algorithm of model training library; If the effect is not good, it will automatically prompt to adjust the intervention strategy and upgrade the early warning level.

4.4. Improve the safeguard mechanism to ensure the long-term operation of the platform

The stable operation of the university freshman mental health platform needs build a full-process safeguard system from the aspects of system, personnel, and funding. On the system level, universities need to introduce relevant management systems, clarify the division of powers responsibilities of various departments in data collection, use, and maintenance, standardize the approval process for data sharing, and refine the requirements for privacy protection in each link of data processing. In terms of personnel guarantee, a cross-disciplinary special team should be established, with members including archival management specialists, psychological teachers, IT personnel, and counselor representatives. Regular-training should be carried out, where archival personnel need to learn about the sensitive characteristics of psychological data, psychological teachers need to master the interpretation methods of platform data, and IT need to understand the business logic of mental health services, so as to enhance the team's collaborative efficiency through complementary abilities.

5. Conclusion

In short, under the background of the digital transformation of university archives, the construction of freshmen's mental health big data platform not only conforms to the development trend of archives digitalization, but also provides a new solution for freshmen's mental health work. By integrating archival data, building a technical framework and building a closed-loop service, a bridge between archival resources and mental health services has been built, and archival data has been transformed into an "early warning radar" for accurately identifying psychological risks, a "mirror" for dynamically monitoring psychological state and a "navigator" for implementing personalized intervention. In the future, with the continuous development of technology and practice, the archives management department of colleges and universities should give full play to the value of archives resources, endow freshmen with more functions, and provide a more valuable practical paradigm for promoting the all-round development of freshmen and promoting the digital transformation of education.

About the author

Jiayu Jian (1996.01-), male, master's degree graduate, counselor, research direction: ideological and political education.

Shuhan Guo (1992.03-), female, Shenzhen, Guangdong, master's degree graduate, assistant researcher, head of archives management business, research direction: archives management, human resource management.

References

- [1] Zhou Na, Hu Yang, Cui Zheng. The application of college archives in college students' mental health education [J]. Shanxi Archives 2024 (11): 177-179.
- [2] Cao Boqiang. Design and application of electronic health records management system for college teachers and students based on cloud platform [J]. Information recording materials 2023 (11): 175-177.
- [3] Han Ping. Establishing college students' mental health files to boost college mental health work [J]. Journal of Hubei Open Vocational College 2023 (20): 27-28.
- [4] Zhang Xiaowen. Problems and optimization strategies in the archiving of graduate freshmen [J]. Inside and outside Lantai 2025 (10): 34-36.
- [5] Shi Lilin. Research on the problems and countermeasures of college students' mental health education under the background of "internet plus"-taking S universities as an example [D]. Shandong University of Finance and Economics in 2022.