Education Reform and Development, 2026, Volume 8, Issue 3
https://ojs.bbwpublisher.com/index.php/ERD
Online ISSN: 2652-5372
Print ISSN: 2652-5364

Exploration of Practical Paths for Mental Health Education in Colleges and Universities Under the Background of Artificial Intelligence

Zhinan Li[1], Yu Cheng[2], Dan Zhao[3]

[1]College Student Mental Health Education and Development Center, Dalian Minzu University, Dalian 116650, Liaoning, China
[2]Student Affairs Office, Dalian Minzu University, Dalian 116650, Liaoning, China
[3]School of Computer Science and Engineering, Dalian Minzu University, Dalian 116650, Liaoning, China

Abstract: Against the current social background, college students' mental health issues have gradually become a key topic affecting social stability and educational development. With technological advantages such as data mining, intelligent analysis, and real-time interaction, artificial intelligence (AI) technology provides core support for colleges and universities to break through bottlenecks in mental health education and innovate practical paths. It can effectively promote the transformation of mental health education from experience-driven to data-driven, and accurately respond to college students' psychological needs and problems. Based on this, this paper analyzes the core advantages of AI in mental health education and explores the practical paths of mental health education in colleges and universities, aiming to provide theoretical support for improving the effectiveness of college mental health education in the new era.

Keywords: Artificial intelligence technology; Mental health education; Talent cultivation; Colleges and universities; Educational reform

Online publication: April 10, 2026

1. Introduction

Policy documents such as the "Outline for Building a Strong Education Country (2024—2035)" and "Opinions of the Ministry of Education and Eight Other Departments on Accelerating the Advancement of Educational Digitization" clearly propose to use AI to assist educational reform, open up new development tracks, and shape new development advantages. AI technology has brought new development opportunities for college students' mental health services and innovated the theoretical and practical models of college students' mental health courses. However, the current traditional college students' mental health courses remain at the level of knowledge indoctrination, and 90% of students report that they cannot contextualize and apply psychological knowledge. The traditional mental health education model has certain limitations in addressing college students' mental health issues, and there is an urgent need to introduce new concepts and methods to improve the effectiveness

of mental health education. The in-depth integration of AI and college mental health education is not only an inevitable requirement to comply with modern educational reform but also a key practical path to enhance the effectiveness of mental health education.

2. Practical principles of college mental health education in the background of AI

The essence of college mental health education is to pay attention to the psychological development, emotional needs, and growth confusions of contemporary college students. As a tool to assist mental health education, AI technology cannot replace the core role of humanistic care in psychological counseling and emotional resonance. Therefore, teachers need to adhere to the people-oriented principle and integrate humanistic care into the entire process of technological empowerment. They should not only give play to the technical advantages of AI to improve educational effectiveness but also respect students' individual differences, psychological needs, and personal dignity, avoid the loss of humanism caused by technological alienation, and realize the organic unity of technical rationality and humanistic care. For example, with the support of intelligent data, teachers should use data as a basis for auxiliary judgment, understand students' real psychological states face-to-face, provide certain emotional resonance and psychological support, and make up for the deficiencies of intelligent interaction in emotional perception and empathy expression [1]. In addition, teachers need to base themselves on the core needs and actual conditions of college mental health education, reasonably select and scientifically apply AI technology, so that technological empowerment is in line with educational goals, adapts to students' needs, and conforms to the actual situation of colleges and universities. Avoid resource waste and poor effectiveness caused by excessive use of technology and blind following, realize the precise connection and efficient integration of technology application and educational practice, and make technology truly serve the improvement of mental health education effectiveness.

3. Advantages of AI in the practice of college mental health education

3.1. Expand mental health education resources and enhance intervention adaptability

The development of AI technology has enriched college educational resources, with various mental health platforms and intelligent mental health service software emerging one after another. Through these platforms and software, college students can fully access massive data, choose learning content and progress according to their own needs, and realize personalized learning. On the one hand, with the help of AI technology, college teachers can build an intelligent mental health education resource platform, systematically integrate and efficiently reuse diversified mental health education resources, including psychological popular science articles, self-help adjustment courses, psychological assessment tools, online consulting services, crisis intervention guidelines, etc., to build a unified resource library, laying the foundation for the subsequent development of mental health education [2]; on the other hand, using intelligent recommendation algorithms, teachers can accurately push suitable resources to each student according to their psychological portraits, interest needs, problem types, etc., allowing students to independently obtain high-quality and adaptive mental health education content, and realize the personalized supply of resources.

3.2. Accurately meet the psychological needs of different students and realize personalized intervention

College students' mental health presents characteristics such as complexity, stratification, and diversification.

However, traditional mental health education usually adopts a unified large-class teaching model, ignoring differences in students' individual psychological traits, growth backgrounds, and problem causes, making it difficult to meet the personalized psychological needs of different students. AI technology has precise adaptation capabilities. It can use big data analysis technology and intelligent algorithms to conduct in-depth analysis of students' mental health data, growth experiences, personality traits, problem demands, and other information, build accurate and dynamic personal psychological portraits, and accurately locate the core causes, severity, and psychological needs of each student's psychological problems [3]. Based on students' personal portraits, AI platforms can automatically generate customized intervention plans, clarifying intervention goals, content, paths, and rhythms, adapting to the psychological acceptance and improvement needs of different students. At the same time, with the help of natural language processing, emotion recognition, and other technologies, college teachers can accurately capture emotional changes and potential demands in students' expressions, adjust counselling strategies and communication methods in real time, and realize personalized interactive counselling.

3.3. Accurately warn students' psychological states and improve intervention effects

Mental health education is a key part of the college talent training system and an important carrier to help students achieve all-round development. College teachers need to constantly observe students' psychological states, achieve full-process intervention, and build the first line of defense for students' mental health. AI has powerful data mining and intelligent analysis advantages, with which teachers can build a full-dimensional and dynamic psychological screening and early warning system [4]. With the help of multiple channels such as intelligent platforms, mobile terminals, and campus management systems, collect students' online and offline multi-dimensional data, including psychological assessment questionnaire data, daily behavior trajectory data, social interaction data, etc., to achieve full coverage of screening scope and real-time data collection, comprehensively and objectively reflecting students' mental health status; at the same time, machine learning algorithms conduct in-depth mining of the integrated massive data, which can accurately capture the psychological change rules hidden behind the data and identify early signals of students' psychological abnormalities. In this way, early warning information can be timely pushed to mental health teachers and counsellors, providing them with accurate intervention bases [5]; in addition, carriers such as virtual psychological counsellors and intelligent consulting platforms extended by AI technology can provide 24/7 uninterrupted psychological companionship and counselling services, providing students with continuous preliminary counselling services, thereby improving intervention effects.

4. Current application status of college students' mental health education under the background of AI

With the in-depth integration of AI and higher education, research on the application of AI in college students' mental health education, such as intelligent psychological screening, personalized psychological counselling, curriculum research, and immersive scenario application, has increased significantly. However, the overall technical application is still in the exploration stage. At present, the application of AI in college students' mental health education is mainly reflected in the following aspects.

4.1. Research on mental health screening and crisis early warning

In college mental health screening, some schools have developed systems that rely on computer software,

personal computer terminals, and servers to realize the connection of functions such as remote self-test by patients, remote communication between teachers and students, and illness rehabilitation forums. The system mainly includes a health assessment module, a self-diagnosis and treatment module, a treatment and counselling module, a follow-up treatment module, and a re-examination and assessment module [6].

In terms of psychological crisis early warning, Shuai Xueqian et al. constructed an early screening model for college students' depression based on technologies such as artificial neural networks and knowledge graphs; Zhang et al. enhanced data technology through large language models, believing that this model can significantly improve the recognition accuracy of traditional machine learning models for suicidal ideation.

4.2. Research on psychological counselling and intelligent companionship

A number of AI chat robot products have been launched. Internationally, AI psychological counselling robot products such as Woebot and Wysa can provide college students with on-demand psychological counselling services. At present, AI-driven virtual assistants and chat robots have been applied in some colleges and universities. These tools can provide 24/7 mental health support, answer students' questions, and adjust the content of conversations according to students' emotional reactions. Wuhan University of Technology built the "Wuli Xinsheng Mental Health Education Dialogue Platform" based on the open-source "Feixing No. 1" large model developed by iFLYTEK, using the SmileData psychological counselling dataset collected by PaddlePaddle AI Studio and the PsyQA dataset released by Tsinghua University as AI parameter training texts, and continuously improving it. The platform can perform natural language processing and analysis on psychological help-seeking questions raised by college students, and can not only provide dialogue training for psychological counsellors but also help students with psychological problems.

4.3. Research on mental health education courses

AI has brought new possibilities for innovating mental health teaching models, formulating personalized learning plans, and enhancing learning experiences. For example, the Mental Health Counselling Center of Sun Yat-sen University proposed a three-tier architecture smart education platform: Model layer: As the technical foundation of the platform, it is responsible for flexibly accessing and intelligently routing multiple leading AI large language models in the industry to ensure the strength and diversity of underlying capabilities. Engine layer: As the core hub of the platform, through nine major engines such as knowledge extraction, Retrieval-Augmented Generation (RAG), and multi-dimensional analysis, it accurately combines the general capabilities of underlying AI with the professional needs of mental health education courses. Application layer: As a functional interface directly facing teachers and students, it covers the entire "teaching, learning, and management" scenarios before, during, and after class, as well as management, realizing the comprehensive penetration of AI capabilities [7]. Tsinghua University relied on the course "Prevention and Intervention of Psychological Crisis" to develop the AI-SP agent of generative AI, forming the "CARE" teaching model. This teaching model creates an immersive classroom teaching situation through virtual visitor dialogue and real-time feedback. Research shows that students in the experimental group have significantly improved situational sense of substitution, depth of reflection, and classroom participation. Further in-depth interviews also show that students' learning experience is more immersive and self-aware.

4.4. Application of VR technology in immersive psychotherapy

Currently, in the process of college students' mental health education, VR technology is mainly used to create

specific situations for participants in psychotherapy, increasing the real experience of psychological training and psychotherapy [8]. Zhang Zhisong and Li Fuhua conducted an intervention experiment with the virtual reality psychological relaxation training system, and the results showed that virtual reality technology is conducive to alleviating college students' anxiety problems. Zhang Mengyang integrated role-playing game elements into the sandplay therapy process based on augmented reality technology to enhance the experience. At present, many colleges and universities use VR/AR technology to create immersive training scenarios in the on-campus psychological center, providing students with psychological training scenarios in various situations, and offering flexible, diverse, and interactive psychological training methods for students.

5. Practical paths of college mental health education in the background of AI

5.1. Build a smart teaching platform and innovate mental health and education models

The content of traditional college students' mental health courses is singular, and it is impossible to construct course content according to students' dynamic psychological needs. Building a multi-functional, integrated smart teaching platform based on AI can effectively solve the contradiction of being unable to provide precise teaching content according to students' needs. Realize an AI workbench in the resource center of the smart teaching platform, including AI applications, AI practices, intelligent agents, learning situation analysis, etc. [9]; the data center integrates multi-source data such as students' classroom performance, online scores, psychological assessments, courseware, course maps, and discussions, providing teaching decision support for further classroom teaching according to students' personalized classroom performance and needs. At present, many colleges and universities have developed 24/7 intelligent learning companions. Using AI learning companions as students' all-weather learning partners, they can interact at any time and obtain real-time feedback; make full use of online digital resources, and the combination of online and offline education models can give full play to the technical advantages of AI and provide flexible and diverse educational forms.

5.2. Integrate multi-source information and draw students' psychological portraits

Colleges and universities can dynamically analyze students' multi-dimensional behavior data through systems such as big data mining, machine learning algorithms, emotion recognition technology integrated with multi-modal data analysis, including social network behavior, students' specific walking patterns, online learning behavior, campus card consumption, psychological assessment results, and other multi-source data, establish dynamic psychological files, and form an integrated portrait of students' psychological analysis. For example, some colleges and universities use emotion recognition technology integrated with multi-modal data to analyze the assessment and early warning of college students' depression and anxiety states; in some colleges and universities, the AI system establishes dynamic files of students' psychological growth through comprehensive analysis of students' behavior data and psychological assessment results, and conducts risk and support classification as needed, providing an important basis for subsequent precise intervention and resource allocation. Students generate massive amounts of data during their stay at school. After integrating these data, with AI's powerful data analysis and modelling capabilities, there are infinite possibilities for drawing students' personalized mental health portraits. AI can depict each student's psychological characteristics, behavior patterns, and cognitive styles in a multi-dimensional and all-around way, and dynamically assess students' mental health levels.

5.3. Connect full-time online services and enhance the self-service function of psychological counselling

At present, the individual psychological counselling provided by colleges and universities for students has problems such as insufficient service coverage, a small number of counsellors, and most psychological counselling requiring appointment systems, which cannot meet students' timely psychological needs. Chat robots with chat, psychological counselling, and psychological training functions can greatly meet students' timely, private, self-service, and all-weather personalized psychological needs [10]. Colleges and universities can use intelligent interaction technology, chat robots, and other means through campus APPs and other software to build an all-weather psychological support platform according to their own conditions. For example, Tsinghua University's "Qingxin" intelligent psychological assistant can immediately answer 98% of common psychological questions. AI also combines VR technology and biofeedback technology, using psychological theories such as positive psychology, humanistic psychology, and CBT, cognitive behavioral therapy, to provide students with immersive psychological training and psychotherapy for psychological problems such as anxiety, depression, and social phobia. For example, chat robots such as Woebot adopt the CBT cognitive behavioral therapy framework to help users identify negative thinking patterns and provide coping strategies through dialogue with users. At the same time, some colleges and universities use VR technology to create immersive scenarios, guiding visiting students to conduct mindfulness meditation and deep breathing exercises to help them relieve anxiety.

Funding

2025 Undergraduate Education and Teaching Reform Research Project of Dalian Minzu University, "Digital Reconstruction and Practice of College Students' Mental Health Courses Based on AI" (Project No.: YB202527)

Disclosure statement

The authors declare no conflict of interest.

References

[1] Zhang JQ, 2024, Exploration of Practical Paths for Large Model Empowering College Mental Health Education from the Perspective of New Quality Productivity. Guangxi Education, 2024(36): 120–123.

[2] Yuan KG, Li LH, Li XY, 2024, Discussion on Integrating Mental Health Education into AI Courses in Colleges and Universities. Chinese Journal of School Health, 45(12): 1831–1832.

[3] Ding MJ, 2024, Connotation, Characteristics and Strategies of the Modernization of Chinese-Style College Mental Health Education. Journal of Hubei Normal University (Philosophy and Social Sciences Edition), 44(06): 127–134.

[4] Yan H, Chen RX, 2024, Research on the Path of College Mental Health Education Under the Background of Converged Media. Journal of Mudanjiang College of Education, 2024(08): 37–41.

[5] Yang YP, 2024, Practice and Reflection on the Integrated Construction of School Mental Health Education Courses. Modern Teaching, 2024(12): 26–29.

[6] Gao YW, Zhang JY, 2024, Research on the Improvement Strategy of College Mental Health Education Based on

Educational Digitization. Achievement, 2024(12): 61–62.

[7] Tao J, Ma JQ, 2024, New Development of College Mental Health Education in China in the New Era. The Party Building and Ideological Education in Schools, 2024(11): 84–88.

[8] Li Y, 2024, Research on the Application of AI Technology Assisting College Mental Health Education. Modern Business Trade Industry, 45(11): 225–227.

[9] Liu XY, 2024, Discussion on College Students' Mental Health Education in the Digital Age. Life and Partner, 2024(19): 57–59.

[10] Li B, 2024, New Leap Forward in the Paradigm of College Mental Health Education in the Information Age. Jiangsu Higher Education, 2024(01): 91–96.