

AI Empowerment and Paradigm Shift Promoting Mental Health Education for College Students

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Abstract: Contemporary mental health issues among college students are characterized by increasing complexity, concealment, and digitalization, while traditional mental health education models face practical dilemmas such as the decoupling of knowledge and action and the mismatch between supply and demand. Based on the theory of pedagogical integration, this paper explores how AI technology drives the transformation of mental health education toward literacy cultivation and precision intervention by creating deep experiential scenarios, constructing personalized support systems, and implementing data-driven process evaluations. The results indicate that under the premise of adhering to educational laws and ethical norms, the orderly promotion of deep integration between AI and mental health education is an effective measure to build a high-quality psychological education system and respond to the needs of the era.

Keywords: Artificial Intelligence; Mental Health Education; Pedagogy; Paradigm Shift; College Students' Psychology

Published: Apr 12, 2026

DOI: <https://doi.org/10.62177/chst.v3i2.1221>

1. Introduction

In the context of the new era, the mental health of college students has become one of the core issues in talent cultivation within higher education. The Action Plan for Comprehensively Strengthening and Improving Mental Health Work for Students in the New Era (2023–2025) explicitly states the need to unify the acquisition of knowledge with the improvement of comprehensive quality and to regard the quality of mental health work as an important indicator for measuring the level of educational development, school governance capacity, and talent cultivation quality^[1]. Mental health issues among college students are increasingly characterized by complexity, concealment, and digitalization, with a high incidence of mild-to-moderate mental health disorders. Currently, mental health education in universities primarily relies on classroom lectures, offline group counseling, and appointment-based psychological consultations. These methods face challenges such as standardized teaching, static assessment, and fragmented services, which makes it difficult for traditional models to meet contemporary needs^[2].

In July 2024, the Decision of the CPC Central Committee on Further Comprehensively Deepening Reform to Advance Chinese-Style Modernization pointed out that we should promote educational digitalization, empower the construction of a learning society, and strengthen the guarantee of lifelong education^[3]. The comprehensive advancement of the educational digitalization strategy provides a technological opportunity for the reform of mental health education. Against this backdrop, exploring the path of deep integration between AI technology and mental health education pedagogy to promote a paradigm

shift has become an inevitable pursuit for universities aiming to build a high-quality psychological education system and respond to the psychological needs of college students in the new era. Starting from the practical dilemmas of traditional mental health education, this paper analyzes the technical value of AI as a catalyst for pedagogical transformation, constructs a new paradigm for mental health education, and clarifies the feasibility foundations and ethical boundaries, thereby providing theoretical references and practical insights for the implementation of AI-empowered mental health education.

2. Systematic Inquiries Facing Traditional Mental Health Education

The profound changes in the mental health ecology of contemporary college students have posed systematic challenges to traditional models. This can be specifically analyzed from the dimensions of new characteristics of college students' mental health, core problems of traditional education models, and structural imbalances in resources and capabilities.

(1) Firstly, the mental health status of college students presents new characteristics of complexity, concealment, and digitalization. While mental health knowledge is becoming increasingly widespread today, the psychological distress of college students has not diminished. Instead, it has taken on entirely new characteristics due to the penetration of digital life and changes in the growth environment. On the one hand, as digital natives, Generation Z students are immersed in highly controllable digital social environments for long periods, which weakens their offline real-life interaction skills^[4]. Social inability and the phenomenon of being highly active online while remaining socially anxious offline have become quite common. When facing real-world issues such as offline socializing and job interviews, they are prone to composite psychological distress such as anxiety, alienation, and internal friction. On the other hand, the psychological needs of college students are highly concealed. The 2024 Survey Report on the Mental Health Status of Chinese College Students shows that students face multiple pressures during their university years. Although 80 percent of college students know that their schools provide free psychological counseling services, only 2.8 percent have actually used them^[5]. Driven by a sense of stigma, most students are reluctant to expose their psychological distress to the public eye and prefer to seek emotional relief through online channels. Furthermore, digitalization has become the primary carrier for psychological expression among college students. Their emotional states are often presented in digital forms such as internet texts and online behaviors. Instead, traditional offline mental health screening methods struggle to capture these digital psychological signals, leading to a lack of timeliness in psychological early warnings.

(2) Secondly, the traditional mental health education model has core problems of decoupling knowledge and action and mismatching supply and demand. In terms of education, classroom teaching predominantly focuses on imparting theoretical knowledge and lacks safe venues alongside immediate feedback mechanisms for students to practice^[6]. Although students master certain theoretical knowledge, they cannot apply it flexibly in real-life situations, ultimately forming a knowledge-action gap. Meanwhile, some students also show insufficient attention to the courses and hold improper learning attitudes. In terms of services, traditional psychological counseling usually adopts an appointment-based and formal offline model. However, the emotional needs of college students often arise during non-working hours, such as late at night, and possess immediate characteristics. They also have extreme demands for privacy protection and generally reject formal communication scenarios. This prevents a large amount of mild and moderate psychological distress from receiving timely relief, causing it to brew and escalate in silence, thereby forming a service contradiction of supply and demand mismatch.

(3) For the third point, there is a structural imbalance between resource allocation and professional capabilities in mental health education. From the perspective of practical implementation in higher education, the structural imbalance of insufficient resource allocation and lacking professional capabilities further exacerbates the limitations of traditional models^[7]. For one thing, the construction of mental health education faculty in universities lags behind. The teacher-student ratio is far below national requirements, and the number of professional psychological counselors is highly limited. A large amount of mental health education work is concurrently handled by administrative counselors whose energy is dispersed, making it difficult to carry out refined and personalized psychological counseling and intervention^[8]. For another thing, the professional capabilities of existing mental health educators mostly focus on traditional psychological counseling and guidance. They lack digital technology application and data interpretation capabilities, making it difficult to adapt to the development requirements of educational digitalization. Even if some universities have introduced digital tools such as psychological assessment

systems, they remain merely at the level of simple screening and cannot achieve dynamic analysis and precise intervention of students' psychological states through data mining, leaving the profound value of technological tools underutilized.

3. AI as a Catalytic Medium for Teaching Paradigm Transformation

The maturity of artificial intelligence technology provides an unprecedented catalytic medium for responding to the aforementioned systematic inquiries. Its revolutionary significance lies not in replacing human teachers, but in its ability to solve several long-standing structural problems in mental health education in unprecedented ways.

(1) AI has the capability to bring teaching from a group overview to the level of individual insight. By continuously and gently analyzing multimodal data generated by students within a compliant scope, such as anonymous text emotional expressions and learning behavior patterns, AI can help educators surpass empirical intuition and build dynamic individual and group psychological profiles. This data insight makes the educational ideal of teaching students in accordance with their aptitude possible for large-scale practice in the highly personalized field of mental health^[9].

(2) AI has the potential to create embodied learning experiences. Based on AI technologies such as virtual reality and high-fidelity conversational agents, it can create a highly simulated, absolutely safe, and infinitely repeatable psychological simulation training space for students. Students can practice a difficult conversation or face a stressful situation, and immediately receive an objective analysis report on their emotional reactions, behavioral choices, and cognitive patterns. This learning experience deeply integrates the essence of situated learning theory and experiential pedagogy, aiming to directly promote the transformation of knowledge into practical behavior.

(3) AI technology can extend the boundaries of psychological support and build an all-weather and low-threshold preliminary support network^[10]. A well-designed AI conversational agent based on evidence-based intervention principles can play the role of a first responder and an intelligent companion. It can provide immediate emotional acceptance and guide students through simple mindfulness exercises, emotional journaling, or cognitive restructuring. This effectively fills the gaps in time and accessibility of the traditional service system, becoming an important bridge and buffer zone leading to professional human counseling.

4. Moving Towards a New Paradigm of Mental Health Education in Universities

Based on the technical characteristics of AI and the transformation needs of mental health education, the deep integration of the two should lead to a precise, immersive, and synergetic new educational paradigm. This paradigm focuses on the substantial development of students' psychological literacy as the core, reconstructs the educational evaluation system, teaching scenarios, and service ecology, promotes the optimal reorganization of educational elements, and achieves a fundamental shift in mental health education.

(1) Precision of the evaluation process shifts from static evaluation to dynamic process evaluation. The premise of precise teaching is precise evaluation. AI shifts mental health education evaluation from traditional static pre-tests and post-tests to continuous and multi-dimensional process evaluation, building a closed-loop system of data collection, analysis and modeling, precise intervention, and effect feedback. Through compliant means, AI collects students' structured assessment data, unstructured emotional data, and virtual training practice data to achieve comprehensive psychological state capture. Meanwhile, with the help of big data mining and machine learning, it integrates and analyzes data to build dynamic psychological profiles, enabling universities to identify types of psychological distress, predict development trends, and achieve proactive early warnings. Educators can accordingly formulate personalized cultivation plans, adjust teaching content and pace, provide data support for the allocation of educational resources, and track intervention effects in real time to form a dynamic adaptation between evaluation and teaching.

(2) Immersive teaching experience shifts from a single classroom to a physical-virtual integrated teaching scenario. The effective integration of AI technology promotes the systematic reconstruction of the teaching paradigm of mental health education. The traditional teaching model breaks through the single field of the offline classroom and gradually transforms into a three-in-one physical-virtual integrated ecology comprising online theoretical learning, virtual simulation training, and offline reflection and internalization. Among them, the theoretical lecture segment is migrated to online platforms,

where students can independently complete knowledge acquisition according to their individual pace, successfully breaking the limitations of time and space. The core skill training is carried out in AI-driven virtual situations, where learners obtain instant intelligent feedback through repeated practice in the psychological simulation space, forming a closed loop of skill acquisition. The offline face-to-face segment focuses on deep reflection and practical transfer. By organizing sharing and centralized counseling, teachers guide students to internalize coping strategies from virtual situations into practical wisdom in real life.

(3) Synergetic service shifts from isolated service to a multi-agent linked ecology. The introduction of AI shifts education from the isolated service of a single entity in the psychological center to a multi-agent synergetic service ecology involving AI, teachers, administrative counselors, and professional counselors, achieving role reshaping and functional complementarity of all entities. As a super teaching assistant, AI undertakes standardized and repetitive basic work, including ubiquitous screening, daily emotional companionship, data sorting, and preliminary early warnings, freeing professionals from tedious tasks. Professional counselors focus on precise offline intervention for severe psychological distress and provide professional guidance for other educators. As the primary persons responsible for daily student management, administrative counselors undertake the verification of psychological early warnings and daily psychological care, becoming the crucial bond connecting AI, counselors, and students. Professional course teachers integrate psychological literacy cultivation into professional teaching to achieve all-round education.

5. Feasibility Foundations and Insurmountable Ethical Boundaries

The new paradigm of AI-empowered mental health education is not merely a technological conception, but possesses a triple feasibility foundation of policy, technology, and practice. At the same time, because it involves students' sensitive psychological privacy, insurmountable ethical boundaries must be strictly maintained to avoid the negative impacts brought by technology alienation, ensuring that technology always serves the core goal of psychological education.

(1) AI is the feasibility foundations of empowering mental health education. First, it is the top-level design support at the policy level. Policies such as the national educational digitalization strategy action plan and the 14th Five-Year Plan for digital economy development explicitly promote the deep integration of AI and education teaching. The Guiding Outline for Mental Health Education of University Students also requires universities to use information technology to innovate educational forms, providing policy basis and direction guidance for the integration of AI and mental health education.

Second, it is the mature development guarantee at the technological level. AI-related technologies such as natural language processing, virtual and augmented reality, big data analysis, and machine learning are becoming increasingly mature, and hardware costs are continuously decreasing. They can achieve precise emotion recognition, high-fidelity virtual scene construction, and dynamic modeling of psychological data. Cloud computing technology provides support for secure data storage and analysis, turning technological empowerment from conception into reality.

Third, it is the pilot exploration and verification at the practical level. Many universities in China have already carried out practical explorations of AI-empowered mental health education. For example, Xidian University has built a one-stop student community mental health intelligent defense line featuring AI empowerment and diverse synergy. A research team at Tianjin Normal University utilized AI technology to achieve precise identification of students' depressive states, providing a scientific basis for early intervention in psychological crises^[11-12]. These pilots have achieved dynamic monitoring of psychological states and precise intervention for social anxiety, verifying the feasibility and effectiveness of technological integration and providing valuable experience for the implementation of the new paradigm. Meanwhile, as digital natives, college students' acceptance and adaptability to AI technology also lay a solid student foundation for practical implementation.

(2) AI is the ethical boundaries of empowering mental health education. Therefore, we need to achieve three things as follows. First is strictly hold the absolute red line of data security and privacy protection. Psychological data is the most sensitive personal information. A full-process data governance system must be constructed, strictly following the principles of minimum necessity, informed consent, clear purpose, and secure encryption. Data collection must obtain explicit consent from students, and only necessary information should be collected. Anonymization and desensitization processing must be conducted during the processing stage. Advanced encryption technology is adopted in the storage stage to restrict access

permissions. The usage stage should only serve mental health education and must not be used for commercial purposes. Meanwhile, data destruction and emergency mechanisms should be established to effectively protect student privacy. Second is to be alert to the risk of technology alienation and clarify the auxiliary positioning of AI. AI applications need to prevent risks such as algorithmic bias, false information, and excessive emotional dependence. Universities need to establish algorithmic review mechanisms to correct implicit biases and existing false information. Real-life social guidance should be integrated into AI design to strengthen offline interpersonal care. Core tasks such as psychological diagnosis, deep intervention, and value guidance must be completed by professional teachers and psychological counselors^[13]. Third is to uphold the subjectivity of educators and strengthen digital intelligence literacy and educational original aspiration. The value of technology depends on its users. AI empowerment does not weaken the role of educators but places higher demands on their professional capabilities^[14]. Universities need to establish a systematic digital intelligence literacy training system for teachers, conducting hierarchical and classified training on AI technology application, psychological data interpretation, and physical-virtual integrated instructional design, so that educators can proficiently control technology. At the same time, through the construction of teachers' ethics and style, the original aspiration of education is strengthened, allowing educators to keep in mind that the core of mental health education is spiritual communication and emotional resonance. By organically combining technological application with humanistic care, they hold fast to their irreplaceable responsibilities of professional judgment and value guidance.

6. Conclusion

The empowerment of college students' mental health education by AI is essentially a profound transformation of the educational paradigm. Starting from better responding to the complex, concealed, and immediate realistic psychological needs of the post-00s generation of college students, and by deeply integrating technological capabilities with advanced teaching methods, it promotes mental health education practice to move from ambiguity to precision, from preaching to experience, and from isolation to synergy. This process fully unleashes the potential of artificial intelligence in education, allowing educators themselves to focus more on their irreplaceable professional judgment, emotional care, and value guidance.

Funding

No

Conflict of Interests

The authors declare that there is no conflict of interest regarding the publication of this paper.

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