

Application Research of Large Language Models in Psychological Guidance and Diagnostic Support in Vocational College Scenarios

Jiayuan Fang, Yifan Wei

Jiangxi Arts & Ceramics Technology Institute, Jingdezhen 333000, Jiangxi, China

Copyright: © 2026 Author(s). This is an open-access article distributed under the terms of the Creative Commons Attribution License (CC BY 4.0), permitting distribution and reproduction in any medium, provided the original work is cited.

Abstract: With the rapid development of artificial intelligence technology, the application of large language models in education and mental health has attracted increasing attention. Centering on the needs of psychological counseling and diagnostic support in vocational colleges, this study explores the potential role of large language models in students' mental health management. By constructing an intelligent auxiliary system based on natural language processing, it realizes the identification of students' psychological states, emotional counseling, and the generation of counseling suggestions. The research finds that the system can improve the efficiency of psychological counseling to a certain extent, provide personalized support, and alleviate the shortage of psychological counseling resources. The results show that large language models have high application value in mental health services of vocational colleges, offering new ideas and practical references for building an intelligent and precise student psychological care system.

Keywords: Large language model; Vocational colleges; Psychological counseling; Diagnostic support; Intelligent auxiliary system

Online publication: March 26, 2026

1. Introduction

As the number of students in vocational colleges continues to rise and academic pressure intensifies, students' mental health problems have become increasingly severe, leaving psychological counseling and diagnosis faced with shortages of resources and professional staff. Statistics indicate that psychological distress among vocational college students is growing increasingly serious, and traditional mental health services can no longer meet their demands. Artificial intelligence, especially large language models, has shown great application potential in education and mental health. It can realize emotion recognition, psychological state assessment, and personalized counseling suggestion generation through natural language processing technology. Although existing studies have effectively combined intelligent question-and-answer with psychological counseling, systematic applications in vocational colleges remain relatively limited. The purpose of this study is to explore the application modes of large language models in psychological counseling and diagnostic support in vocational colleges, construct an intelligent auxiliary system, improve counseling efficiency, optimize personalized services, and provide a theoretical basis and practical references for university mental health management.

2. Current situation and demands of mental health management in vocational colleges

2.1. Characteristics and common problems of students' mental health

In vocational colleges, students' mental health conditions present diverse characteristics and problems ^[1]. Students generally suffer from heavy academic and employment pressure. Given the characteristics of vocational education, students are required to master professional skills while undertaking theoretical learning, resulting in a heavy academic burden. When facing the real pressure of entering society, many vocational college students experience intensified emotional fluctuations and are prone to psychological problems such as anxiety and depression.

Students in vocational colleges are generally young with immature psychological development and insufficient self-regulation ability. When encountering academic troubles, interpersonal conflicts or family pressure, many students struggle to cope effectively, showing negative emotions such as low mood and self-denial. Their inadequate psychological adaptability further exacerbates mental health issues. Relevant studies have also shown that vocational college students tend to have narrow social networks, and many lack a stable support system. In a new campus environment, factors such as distance from family and alienation from friends may make students feel lonely and alienated, leading to psychological maladjustment. With diversified student sources in vocational colleges, students from different regions and cultural backgrounds face varied challenges in adapting to campus life, and the manifestations and severity of their mental health problems vary from person to person.

Psychological counseling resources and services in vocational colleges are often confronted with an imbalance between supply and demand ^[2]. On the other hand, many colleges are still deficient in the allocation of psychological counseling resources. Most vocational colleges lack full-time psychological counselors, and mental health services are mostly provided by part-time teachers or student club volunteers, leading to insufficient professionalism and systematicness of psychological counseling.

At present, the shortage of psychological counseling resources makes it difficult for mental health services to satisfy students' actual needs. Limited by inadequate resources, the opening hours and consultation quotas of psychological counseling rooms cannot cover all students in need. Surveys show that most students tend to seek help from friends and relatives rather than professional psychological counseling when facing psychological distress. This phenomenon not only reduces the effectiveness of psychological counseling but may also aggravate students' psychological burdens. With the development of internet technology, some vocational colleges have gradually tried to expand psychological counseling services by digital means.

2.2. Current status of psychological counseling resources and services

Vocational colleges often face a real mismatch between the supply of psychological counseling resources and the actual demand for services ^[2]. On the one hand, with the increase of social life pressure, students' mental health problems have become increasingly prominent, and psychological distress such as depression, anxiety and academic pressure has become common among student groups. On the other hand, many colleges are still deficient in the allocation of psychological counseling resources. Most vocational colleges lack full-time psychological counselors, and mental health services are mostly provided by part-time teachers or student club volunteers, leading to insufficient professionalism and systematicness of psychological counseling. At present, the shortage of psychological counseling resources makes it difficult for mental health services to satisfy students' actual needs. Limited by inadequate resources, the opening hours and consultation quotas of psychological counseling rooms cannot cover all students in need. Surveys show that most students tend to seek help from friends and relatives rather than professional psychological counseling when facing psychological distress. This phenomenon not only reduces the effectiveness of psychological counseling but may also aggravate students' psychological burdens. With the development of internet technology, some vocational colleges have gradually tried to expand psychological counseling services by digital means. Online mental health platforms and mobile applications have been introduced to provide psychological assessment, emotion management, crisis intervention and other services.

However, these platforms vary in application effect and popularity. Some students are very resistant to online psychological counseling, mainly due to a lack of trust in its professionalism and privacy protection. At the same time, the use of such platforms is restricted by the popularity of information technology, as not all students possess sound mental health literacy and corresponding technical capabilities.

In the face of increasingly serious mental health problems, improving the accessibility and professionalism of psychological counseling resources is an urgent issue that needs to be addressed. By developing diversified psychological service modes, cooperating with internal and external school institutions to integrate resources, and introducing intelligent AI systems, the current resource shortage can be effectively alleviated. Regularly carrying out mental health education and publicity activities to raise students' attention and willingness to participate in psychological counseling is also an important way to optimize psychological counseling services.

The current situation of psychological counseling resources and services in vocational colleges reveals multiple challenges in urgent need of improvement. Only by innovating service modes, upgrading professional standards and strengthening publicity and education can we better meet students' mental health needs and promote their all-round development.

3. Application potential of large language models in psychological support

3.1. Functions and implementation of intelligent auxiliary systems

Building a smart auxiliary system based on large language models is important for psychological counseling programs in vocational colleges^[3]. This system can perform real-time mental health evaluation, emotional counseling, and offer guidance and suggestions.

Real-time mental health assessments play important roles. By collecting and analyzing the texts and voices of students, this system utilizes natural language processing to detect students' emotional states and psychological features. With sentiment analysis algorithms, it can quickly estimate students' emotional state, such as anxiety, depression and excessive stress, relying on the high semantic understanding power of large language models, which can help the system address different problems of students in various situations.

Emotional counseling. The algorithm can communicate with the students in real time to give emotion regulation advice and resources. When the agent detects emotional changes, it produces an appropriate response according to preset counseling strategies (positive psychological hints or psychological adjustment suggestions) to detect and control students' negative emotions promptly and actively assist students in moving their mood in an appropriate direction.

Suggestive Response. The agent performs real-time analysis based on the current state in order to assist students with psychological counseling suggestions, such as coping skills and lifestyle adaptations.

Special Needs. Students can automatically submit their evaluation results to the psychologist. The system adjusts the function in real-time, which is better aligned to real-world needs.

Personalized services reflect our current education in interface with intelligent AI. Students are tracked and analyzed over the years and their mental health files are recorded. The files can help students learn their emotion and psychological conditions, and are used to recommend school psychological counselors to make specific mental health plans^[4]. Intelligent AI can be used with the help of intelligent AI models and the guidance of counselors, but is broadly used in psychological support services for vocational colleges, and can help teach college students to manage their mental well-being and to give new ways of improving students' psychological health.

3.2. Practice of personalized psychological care and emotional counseling

Students run into all sorts of mental health challenges during their school years, and getting them the right emotional care at the right time matters enormously. AI models bring new options here for personalizing mental health support. With better data processing and language understanding, these models can take a close look at a student's psychological state

and then generate suggestions that feel relevant, not generic ^[5].

One key advantage is how they grasp and interpret emotions. They can take in what a student says on multiple levels, not just the surface meaning, but the emotional tone and the specific psychological difficulties underneath. Imagine a student typing into a chat system, expressing anxiety or depression. The model can parse that input, run the data through a psychological analysis, and come back with suggestions that speak directly to what the student is going through. This knack for reading emotions comes from a deep, nuanced understanding of language and emotional expression, which makes the counseling system much more useful than a one-size-fits-all script.

Personalized identification doesn't end with recognizing the emotion; it also means tuning the response to fit the student's own background and circumstances. By using machine learning algorithms, large language models comb through chat histories, psychometric results, and other bits of relevant information to put together a psychological profile. That profile becomes the basis for counseling that actually fits. For instance, if the system learns about a student's academic pressures and personal interests, it might suggest specific offline activities or coping strategies that genuinely help relieve stress.

The conversation itself can also be reshaped in a more therapeutic direction. Through human-like dialogue, the model invites students to open up and reflect on what they're feeling. Often, that kind of exchange brings considerable emotional release. With psychological theory guiding the design of dialogue scripts, the system can help students work toward their own solutions, not just hand them a prepackaged answer.

In short, AI-driven personalized care and emotional counseling can fill the gaps that traditional approaches leave open, especially when it comes to reaching more students with more meaningful support. This area of exploration shows just how much potential large language models have in college mental health services, and it is already pushing forward the development of intelligent counseling systems. As the technology matures, we can expect even more targeted, individually tailored solutions, which should go a long way toward improving both the effectiveness and the efficiency of mental health management.

4. Conclusion

This paper conducts a systematic study on the application of large language models in psychological counseling and diagnostic support in vocational colleges, constructs an intelligent auxiliary system based on natural language processing, and realizes psychological state identification, emotional counseling and personalized counseling suggestion generation. The research results show that the system plays a significant role in improving psychological counseling efficiency and alleviating the shortage of counseling resources, providing practical references for constructing an intelligent and precise student psychological care system.

The research findings show that the system can effectively improve the efficiency of students' psychological counseling and plays a very important role in helping students alleviate psychological and emotional problems, providing a reference for schools to build an intelligent and precise student mental health management system.

That said, this study isn't without its limits. One obvious issue is the relatively small dataset. Another is that the model still struggles to read more complex or layered psychological states. These are not trivial problems, and they point to where future work could go. Moving forward, several directions look promising. Training the model on multi-source data should help boost accuracy. Bringing in multimodal information, rather than relying on text alone, could allow a much fuller analysis of emotions and mental states. There's also a strong case for exploring human-machine collaboration in counseling: figuring out how intelligent tools and professional psychologists can work together, not as replacements for each other, but as genuine partners. Ultimately, the goal is to build something more scientifically grounded, a support system that actually fits the realities of mental health management in vocational colleges.

Funding

2025 Jiangxi Provincial Education Department Science and Technology Research Project (Project No.: GJJ2505601);
2025 Jingdezhen City Soft Science Guidance Project (Project No.: 2025RKX013)

Disclosure statement

The authors declare no conflict of interest.

References

- [1] Huang S, Fu F, Yang K, et al., 2024, Empowerment of Large Language Models in Psychological Counseling through Prompt Engineering. 2024 IEEE 4th International Conference on Software Engineering and Artificial Intelligence (SEAI), 2024: 220–225.
- [2] Behrend TS, Landers RN, 2025, Participant Interactions with Artificial Intelligence: Using Large Language Models to Generate Research Materials for Surveys and Experiments. *Journal of Business and Psychology*, 40(6): 1275–1297.
- [3] Tutuk T, Maraliolu A, 2025, A Study of Research in Special Education within Guidance and Psychological Counseling. *Journal of Yüzüncü Yıl University, Faculty of Education*, 22(3): 850–865.
- [4] Jiang H, Qin H, Ren L, et al., 2025, Parental Psychological Control and Cyberbullying in Vocational College Students: The Role of the Moral Disengagement and the Dual System of Self-Control. *Journal of Psychology in Africa*, 35(3): 355–360.
- [5] Lin Z, 2026, Large Language Models as Psychological Simulators: A Methodological Guide. *Advances in Methods and Practices in Psychological Science*, 9(1): 21.

Publisher's note

Whioce Publishing remains neutral with regard to jurisdictional claims in published maps and institutional affiliations.