

The Application of ChatGPT-based AI Technology in the Field of Campus Psychological Counseling

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Abstract. The emergence and popularization of generative AI technology represented by ChatGPT mark the transformation from weak AI to strong AI, and bring opportunities and challenges to education. In recent years, mental health issues have gradually become a social problem faced by countries around the world, including China. These mental health issues have gradually expanded from adults and professional groups to students, and are showing a trend of "low age". Strengthening the mental health education of adolescents has become a consensus of the whole society. However, there are currently a lack of excellent counselors in primary and secondary schools, or the number of counselors is relatively small, resulting in a large amount of tasks. In order to study how ChatGPT can help school counselors provide better services, first analyze the basic principles and characteristics of ChatGPT technology. Then discuss the application practice of ChatGPT in psychological counseling, including as an auxiliary tool for counselors, a self-help psychological therapy platform, and a mental health education tool, combined with campus scenarios. Finally, explore the possible challenges and limitations of ChatGPT technology in the application of campus psychological counseling, and propose future research directions.

Keywords: ChatGPT; AI Technology; AIGC Generative AI; Educational Psychology; Psychological Counseling.

1. Introduction.

The Special Action Plan for Comprehensively Strengthening and Improving the Mental Health of Students in the New Era (2023-2025) jointly issued by the Ministry of Education, the Health Commission, the Central Cyberspace Office and other 17 departments pointed out that with the rapid development of economy and society, the growth environment of students is constantly changing, and the impact of the COVID-19 is superimposed, the problem of students' mental health is more prominent. The plan requires that primary and secondary schools should be equipped with mental health teachers. Colleges and universities should allocate full-time mental health education teachers according to a ratio of no less than 1:4000 between teachers and students, and each school should have at least two such teachers. Every primary and secondary school should be equipped with at least one full-time (part-time) mental health education teacher, and it is encouraged to have full-time mental health education teachers with a background in psychology.

However, in the actual survey, it was found that there are two problems facing current psychological counseling in primary and secondary schools. On the one hand, the number of full-time mental health teachers in schools is small, the tasks they undertake are heavy, and the time they have daily contact with students is short, making it difficult to detect students' psychological safety issues in a timely manner. Secondly, most of the current psychological counseling rooms in schools were added later, and many schools did not have a place for psychological counseling rooms in their original school planning.



In addition to the deficiencies in the school's hardware and software facilities, the school's psychological safety education is limited to offline, with weak online psychological safety education construction and few platforms, and does not make full use of AI technology to provide psychological safety education for students and parents. In recent years, with the development of AI technology, the application of digital therapy in campus mental health education has also become more and more popular. At the same time, AI has gradually penetrated into the psychological field, and its application in psychological research is becoming more and more extensive. The AI-assisted tools in the psychological field of primary and secondary schools have been proven effective in foreign countries, and the functions that can be realized include screening, evaluation, and intervention therapy. ChatGPT provides the potential value of full-time "psychological counseling", which not only fills the gap on the supply side, but also can respond to various needs.

2. Problems Faced by Teenagers' Mental Health

With the continuous development of society, the mental health problems of Chinese adolescents have also received increasing attention. In recent years, the incidence of mental health problems among adolescents has shown a rising trend year by year, which has brought considerable challenges to society.

Firstly, the current academic pressure and competitive pressure are important sources of mental health problems among adolescents. The academic pressure and competitive pressure on Chinese adolescents are very great, and many children constantly work overtime in pursuit of better grades, neglecting their physical and mental health. Some students have therefore developed anxiety, depression and other psychological problems, and even some have committed suicide and other extreme behaviors.

Secondly, social pressure is also an important cause of mental health problems among adolescents. With the rise of social networks, many adolescents rely too much on online social interaction, leading to psychological problems such as loneliness, inferiority complex, and anxiety. In addition, many adolescents are also influenced by peers, and change their thoughts and behaviors to cater to others, which can also lead to a decrease in their sense of self-worth and self-confidence.

Finally, family education is also an important factor affecting the mental health of adolescents. Some parents place too much emphasis on grades and performance when educating their children, neglecting their emotional and mental health, which can have a negative impact on their growth. Sometimes, parents have too high expectations for their children and interfere too much in their lives and studies, which can also lead to excessive psychological pressure on their children.

3. The Significance of ChatGPT in Campus Psychological Counseling

Mental health issues have received increasing attention in modern society, and the demand for psychological counselors is also increasing. However, due to the limited resources of school psychological counselors, many people cannot obtain timely psychological counseling services. The rapid development of artificial intelligence technology provides new possibilities for solving this problem, and intelligent psychological counseling is beginning to emerge. ChatGPT, as a natural language processing model, has broad application prospects. This article will explore the application of ChatGPT in campus psychological counseling, with a view to improving the efficiency and popularity of psychological counseling services, and explore its advantages, application scenarios, and future development prospects, opening up the era of intelligence for spiritual worries!

4. The Application Advantages of ChatGPT in Campus Psychological Counseling

Traditional face-to-face counseling has its limitations, such as time and space constraints, while the emergence of ChatGPT technology has brought new possibilities for online counseling. The application of ChatGPT technology in online counseling has its advantages in multiple perspectives.

1. ChatGPT, as an intelligent consulting assistant, can provide psychological counseling services anytime and anywhere. Without time and space constraints, users can obtain immediate support and advice when needed.

2. Privacy and anonymity: Psychological problems often involve personal privacy and sensitive topics, which may make some people hesitant to seek professional advice. The anonymity of ChatGPT provides a safe and private consultation environment for users, encouraging more people to actively seek psychological help.

3. Personalized interaction: ChatGPT can respond intelligently based on the user's words and emotions, establishing a personalized interactive experience. It can express empathy, provide encouragement and support, and make users feel understood and cared for.

4. Multi-language support: ChatGPT technology can provide services for users in different languages, eliminating language barriers. This makes psychological counseling more popular and accessible worldwide.

5. Emotional support: Online counseling often lacks face-to-face emotional support, while ChatGPT technology can provide emotional support by simulating human conversations. ChatGPT can respond to users' emotions and emotional needs, provide encouragement and comfort, and enable users to feel a sense of emotional interaction that is understood and supported.

6. Traceability: ChatGPT technology can record the dialogue content of the consultation process, which can be reviewed and inspected by both the user and the consultant at any time. This traceability makes the consultation process more transparent and credible, facilitating further learning and review for both the user and the consultant.

In conclusion, ChatGPT technology has broad application prospects and significant advantages in online psychological counseling. It can not only provide more convenient and flexible services, but also help users solve psychological problems through semantic understanding and personalized responses. However, it is important to recognize that ChatGPT technology still has some limitations, such as not being able to completely replace face-to-face support and professional advice given by human counselors. In order to better utilize ChatGPT technology, it is necessary to maintain an open mind, actively explore and innovate, and constantly improve the application of technology to provide users with better psychological counseling services [6].

5. The Basic Principles and Characteristics of ChatGPT Technology

ChatGPT is a language model developed by OpenAI, which was inspired by the Transformer model launched in 2017. It uses a multi-layer neural network, where each layer contains a self-attention mechanism and a fully connected network to process the input text sequence.

ChatGPT is a generative pre-trained dialogue model based on large-scale unsupervised learning for pre-training the model, followed by supervised fine-tuning for specific task training.

The pre-training phase of ChatGPT uses a large language model that learns the statistical rules and semantic representations of language through self-supervised learning from a large amount of Internet text. During the pre-training process, the model needs to generate the next word based on the context to learn the relationship between words and the semantic meaning of the context. This pre-training method enables the model to learn rich linguistic knowledge and semantic representations.

During the fine-tuning stage, ChatGPT uses supervised dialogue data for training, enabling the model to generate reasonable dialogue responses. During the fine-tuning process, the model optimizes model parameters by maximizing the probability of generating correct responses. In this way, ChatGPT is able to generate coherent and logical responses based on the given dialogue context.

In general, ChatGPT is a powerful dialogue model that can generate natural, fluent, coherent, and logical dialogue responses, with a certain degree of creativity and controllability.

6. The Application of ChatGPT in Campus Psychological Counseling

ChatGPT is a chatbot based on artificial intelligence technology, which can simulate human language behavior and provide users with answers, suggestions, and support on various topics. In recent years, ChatGPT has been increasingly applied in the field of mental health, playing an important role in bringing better health services to people [7].

6.1. Assistant Tools for Psychological Counselors

ChatGPT can be used as an auxiliary tool for psychological counselors to help them better engage in conversations with patients. Through conversations with ChatGPT, psychological counselors can gain more information and ideas, improving their understanding and analysis abilities of patients' problems. At the same time, ChatGPT can also provide answers and suggestions to common questions, helping psychological counselors better cope with various situations.

When providing counseling services for a depressed patient, a psychological counselor hopes to obtain more information about depression treatment methods and psychological interventions. With the help of ChatGPT, the psychological counselor can ask the system for relevant information, such as drug treatment plans, cognitive behavioral therapy, psychological adjustment techniques, etc. ChatGPT can provide appropriate depression treatment suggestions and psychological interventions for psychological counselors based on their professional knowledge in the field of psychology. In this way, psychological counselors can better guide patients to recover and improve treatment outcomes. [8]

The following is a demonstration of the dialogue between a psychological counselor and ChatGPT.

Hello, chatGPT. I am providing counseling services to a depressed patient. Can you provide me with some suggestions, such as medication treatment plans, cognitive behavioral therapy, and psychological adjustment techniques?



Hello! I can provide you with some suggestions on common treatment options and psychological adjustment techniques for depression. However, please keep in mind that I am just a language model and cannot replace professional medical advice. It is important to ensure that your patient receives professional medical advice and guidance.

Drug treatment scheme:

1. Antidepressant drugs: Choosing the right antidepressant requires guidance from a doctor. Common antidepressant drugs include selective serotonin reuptake inhibitors (SSRI) and tricyclic antidepressants (TCA).
2. Mood stabilizers: For patients with bipolar disorder or depression accompanied by mood swings, mood stabilizers may be an option.
3. Supplemental treatment: Sometimes, doctors may recommend supplementing with vitamins or minerals such as vitamin D, B-complex vitamins, and omega-3 fatty acids.

Cognitive Behavioral Therapy (CBT):

1. Cognitive restructuring: Helping patients identify and change negative thinking patterns and beliefs to promote positive thinking.
2. Behavioral activation: Encouraging patients to engage in positive activities to improve mood and increase life satisfaction.
3. Problem-solving skills: Teaching patients how to effectively solve problems to reduce stress and anxiety.

Psychological adjustment skills:

1. Establishing a support system: Encouraging patients to maintain contact with their friends and relatives, seeking their support and understanding.
2. Healthy lifestyle: Encourage patients to maintain a regular schedule, healthy diet, and moderate exercise.
3. Relaxation techniques: Teaching patients deep breathing, progressive muscle relaxation, and other relaxation techniques to reduce anxiety and stress.
4. Self-care: Encourage patients to develop habits of self-care, such as reading, listening to music, and keeping a diary.

Remember that everyone's situation is unique, so the best treatment plan may vary from person to person. It is recommended that you work with a professional doctor to develop a personalized treatment plan based on the specific circumstances of the patient.

6.2. Emotional Recognition Tool for Psychological Counselors

A junior counselor found that the patient's mood swings were large when communicating with the patient, but it was difficult to accurately judge their emotional state. By using ChatGPT, the counselor can input verbal and non-verbal information such as language expression, voice tone, facial expressions, etc. ChatGPT will analyze and identify the patient's emotional state (such as anger, anxiety, sadness, etc.) based on these information, and provide possible cause analysis. This will help the counselor better understand the patient's emotional state, and provide targeted psychological support and intervention.

Emotion recognition refers to the process of analyzing language, vocabulary, and tone features in text to determine the emotional state conveyed by the text, such as anger, happiness, sadness, etc. Through ChatGPT's emotion recognition capabilities, it can better understand users' emotional tendencies and provide answers that are more relevant to their needs based on their emotional state.

In terms of emotion recognition, ChatGPT can identify hidden emotional colors in text through learning and understanding from a large amount of training data. The model learns the correlation between emotional information and vocabulary from the training data. When encountering new text inputs, ChatGPT can classify the text emotion based on these correlations.

In short, ChatGPT, as a powerful natural language processing model, not only generates natural and fluent dialogue responses, but also has the ability to recognize emotions and analyze emotions. Through ChatGPT's emotional recognition and sentiment analysis, it can better understand users' emotional tendencies and emotional states, and provide more personalized and user-friendly answers and suggestions. However, when using ChatGPT for emotional recognition and sentiment analysis, it is also important to be aware of its limitations and the need to make comprehensive judgments based on context and background.

6.3. Provide Psychological Intervention Advice

In a group psychological counseling activity, counselors need to provide personalized advice based on the psychological problems of different participants. By using ChatGPT, counselors can input the basic information, psychological status, and problems encountered of each participant. ChatGPT will generate personalized psychological intervention suggestions based on this information, such as emotional regulation techniques, stress management methods, and social skills training. Counselors can refer to these suggestions to develop appropriate psychological intervention plans for each participant, improving the effectiveness of counseling.

In conclusion, using ChatGPT to provide psychological support and advice can be a very useful tool. However, when using this tool, it is necessary to remain objective, listen, guide, and respect the needs of users. It is also necessary to protect the privacy and security of users. By following these principles,

ChatGPT can be better utilized to help people cope with psychological stress and problems, allowing them to find direction and hope in difficult situations.

6.4. Self-help Psychological Therapy Platform and Mental Health Education Tools

ChatGPT can be used to develop a self-help psychotherapy platform that provides users with psychological counseling and support. Users can engage in conversations with ChatGPT to express their emotions and problems and receive corresponding responses and suggestions. This self-help psychotherapy platform can provide psychological support anytime and anywhere, helping users to relieve stress and improve their mental health.

ChatGPT can also be used to develop mental health education tools to provide users with relevant psychological knowledge and skills. Users can obtain information and advice on mental health through conversations with ChatGPT. This type of mental health education tool can improve users' mental health awareness and self-management abilities, preventing the occurrence of mental health problems.

The following is a demonstration of the dialogue between a psychological counselor and ChatGPT.

I feel very lost because our debate team lost in the grade competition. I'm so sad!



I understand your sense of loss. Losing a game is a setback, especially when we have put a lot of effort and time into it. However, failure does not mean that we are of no value or ability. It is just an opportunity for us to learn and grow from it.

First, you can review the game and identify your shortcomings. Doing so can help you understand your weaknesses and prepare for the next competition. Discuss with your teammates and share your views and suggestions to improve.

Secondly, it is important to accept failure. Failure is an inevitable part of life, and it can teach us humility and perseverance. Don't see failure as a personal failure, but rather as an opportunity to work harder and persevere.

Most importantly, don't give up. Failure doesn't mean you will always fail. On the contrary, it is an opportunity for you to work harder and strive for better results. Keep training and improving your skills, believe in your abilities, and you will definitely achieve better results in the next competition.

Finally, remember that competition is only a small part of life. Although losing a competition can make you feel down, it doesn't represent who you are. You have many other interests and talents, and continuing to pursue them can help you succeed in other areas.

Losing is a normal emotion, but don't let it hinder your progress. Learn from your failures, keep working hard, and believe in yourself. You will be able to overcome setbacks and achieve better results.

6.5. Psychological Counselor Promotion Platform

A practicing psychologist hopes to improve his psychological knowledge and counseling skills through communication with ChatGPT. Psychologists can ask questions about psychological theories, treatment methods, case analysis, and other aspects to ChatGPT. ChatGPT will provide detailed answers and suggestions based on its extensive psychological expertise. In addition, psychologists can simulate actual counseling scenarios through conversations with ChatGPT to improve their counseling skills and coping abilities.

As an emerging AI assistant, ChatGPT can generate responses that are close to human in many scenarios. In the field of public health, mental health experts are looking forward to seeing ChatGPT provide accurate and reliable information to the public to deal with psychological problems including

addiction and violence. To this end, they have begun to evaluate the response of AI systems such as ChatGPT to such health issues.

Researchers said that with improvements in programming and input, ChatGPT can identify signs and symptoms of addiction or depression in questions raised by people with mental disorders, and prompt ChatGPT to provide corresponding health resources during human-ChatGPT interaction[9].

7. Challenges and Limitations of ChatGPT Technology in the Application of Psychology Industry

Although ChatGPT has broad prospects for application in the psychology industry, it also faces some challenges and limitations. Firstly, ChatGPT's answers may be affected by data bias and misinformation, resulting in inaccurate or unreasonable responses. Secondly, ChatGPT cannot provide the same emotional support and interpersonal interaction as face-to-face counseling. In addition, ChatGPT may have security and privacy issues when dealing with sensitive information and emergencies.

7.1. Insufficient Fluency in Dialogue

Currently, ChatGPT also has the problem of insufficient fluency in dialogue. Although ChatGPT performs well in language modeling, due to the defects in its model structure, the generated text often lacks fluency and it is difficult to construct coherent dialogue scenarios. This flaw may cause users to feel confused during their interactions with ChatGPT. Therefore, the future development of ChatGPT requires more efficient improvement methods to enhance the fluency and continuity of dialogue.

7.2. Limited Vocabulary Size

The problem of limited vocabulary size of ChatGPT is also a challenge for its future development. Although ChatGPT can rely on a large corpus to expand its language model size, the selection of words and the assignment of word frequency probabilities during training, coupled with insufficient hardware configuration, may affect the performance and accuracy of ChatGPT. Therefore, the future development of ChatGPT requires more sophisticated and efficient vocabulary expansion and empowerment models.

7.3. Protection of Private Information

In the future development of ChatGPT, it is also important to pay attention to how to protect users' personal information from being leaked and abused. Although ChatGPT is trained by processing anonymous data sets, when interacting with humans, it will involve users' personal information, such as ID card number, address and bank account. Therefore, ChatGPT needs to protect the privacy of users when interacting with them, and design corresponding security mechanisms to prevent user information from being leaked, sniffed, or abused.

8. Conclusion:

This paper explores the application of ChatGPT in the psychology industry, including assistive tools for counselors, self-help psychological therapy platforms, and mental health education tools. Despite some challenges and limitations, ChatGPT has great potential to improve the efficiency and popularity of psychological counseling services. Future research should focus on improving ChatGPT's training methods and providing better emotional support and interpersonal interaction, in order to further promote the application of ChatGPT in the psychology industry [10].

Author Contributions:

This paper was jointly completed by Liu Che , Zhang Jiajia , Wang Mengmeng has made equal efforts in the research of this topic, and their contribution to the paper is average. It is hereby explained.

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