

# Research on the Direction of Digital Empowerment for the Transformation of Mental Health Services in Higher Education Institutions from the Perspective of Ecological Learning

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## Abstract

**In the digital age, college mental health services are facing the need for change. Based on the ecological learning concept, this study analyzes the direction and path of its change. The study points out that services can be innovated from four dimensions: model, subject, curriculum, and evaluation: by integrating online and offline resources, expanding service scenarios; building a multi-governance network, and improving the service platform; promoting the integration of mental health education into all disciplines to form an education system; establishing a dynamic evaluation mechanism to achieve accurate feedback, so as to activate the coordination of ecological elements of college mental health services and meet students' psychological needs. In terms of development paths, it is necessary to strengthen policy and institutional guarantees, deepen technology research and development and application, integrate resources from colleges, families, and society, and strengthen the construction of the teaching staff. These directions and paths of change are interrelated and constitute a complete system, providing theoretical and practical references for colleges and universities to improve the quality of mental health services.**

## Keywords

**Ecological learning concept; digitalization; mental health education.**

## 1. Introduction

In the context of the digital age, with the rapid development of information technology and the rapid changes in society, the mental health problems of college students have become increasingly prominent and have become an important factor affecting the all-round development of students and social stability. The report of the 20th National Congress of the Communist Party of China clearly proposed to "pay attention to mental health and mental hygiene", which shows that the party and the country pay great attention to the mental health of the people. In order to further respond to this strategic call, the government has successively issued a series of policy documents, such as the "14th Five-Year Plan for National Health" and the "14th Five-Year Plan for the Construction of a High-quality and Efficient Medical and Health Service System", which clearly incorporate mental health content into the national development goals. Today, facing the new challenges brought by the digital age, such as network dependence, information overload, and interpersonal alienation, the mental health problems of college students have become more complex and diverse. Therefore, how to carry out innovative reforms in college students' mental health education under this background and build a more scientific and effective college mental health service model has become an important issue that needs to be solved urgently.

This study aims to deeply analyze the challenges faced by mental health services in colleges and universities in the digital age, explore its direction of change based on the ecological learning concept, build a new model of mental health services in colleges and universities that adapts to

the needs of the times, and provide theoretical basis and practical guidance for improving the mental health level of college students.

## 2. Theoretical Overview

### 2.1. Ecological Learning Perspective

The ecological learning perspective is a concept that applies ecological principles to the field of educational learning. It studies and reveals a dynamic, holistic, and context-rich learning world, and emphasizes the integrity, relevance, dynamic balance, systematicity, openness, and sustainability of learning, as shown in Figure 1.

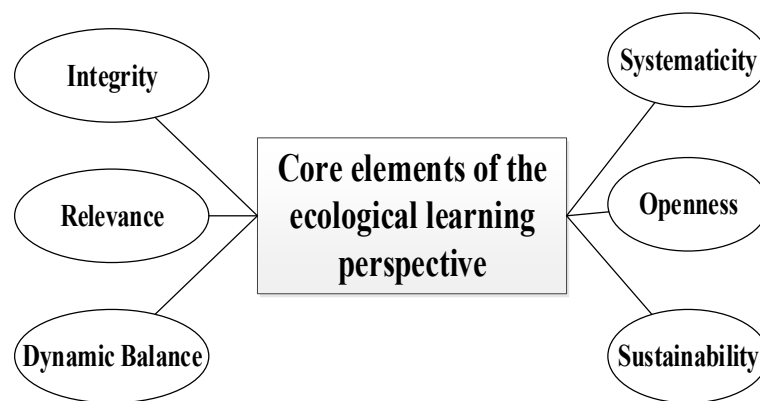


Figure 1. Core elements

From this perspective, the interaction between learners and their environment becomes particularly important. Learners are not only passive recipients of knowledge, but also interactors with resources in the environment, and they interact closely through the cycle of perception, thinking, action and reflection. At the same time, the ecological learning view further focuses on and emphasizes the integrity and continuity of the learning process, spanning multiple dimensions of cognitive, emotional and social development. Therefore, the comprehensiveness of the learning environment needs to be considered to promote the all-round development of learners. Mental health services in colleges and universities also need to start from the continuity of the learning process and the subjectivity of learners, pay attention to the characteristics of individual students and the learning process, attach importance to the interaction between real situations and individuals, and thus promote the harmonious and sustainable development of the learning ecology.

### 2.2. Mental Health Service Theory

The theory of mental health services mainly includes three aspects: prevention theory, early intervention theory, and continuous support theory. Among them, the prevention theory emphasizes the prevention of psychological problems by carrying out mental health education, popularizing mental health knowledge, and enhancing the psychological quality of individuals. The early intervention theory advocates intervention in the early stages of psychological problems to avoid the deterioration of problems and reduce treatment costs. The continuous support theory believes that mental health services should not be limited to crisis intervention, but should also provide long-term support and follow-up services to help individuals gradually recover and maintain a good mental state. By building a comprehensive mental health service system, it helps to effectively promote the mental health development of students and reduce the incidence of psychological disorders.

In the process of the development of this theory, under the guidance of Marxist theory, the theory of human nature and the theory of comprehensive and free development of human beings in Marxist human theory further provide inspiration for the development of mental health services. The natural attributes of human beings require that mental health services must grasp the physiological characteristics and corresponding psychological development level of the object; the social attributes of human beings require that mental health services must pay attention to the impact of social relationship factors on psychological growth; the theory of comprehensive development of human beings points out the goal for mental health services, that is, to cultivate people with rich personalities and comprehensive and free development.

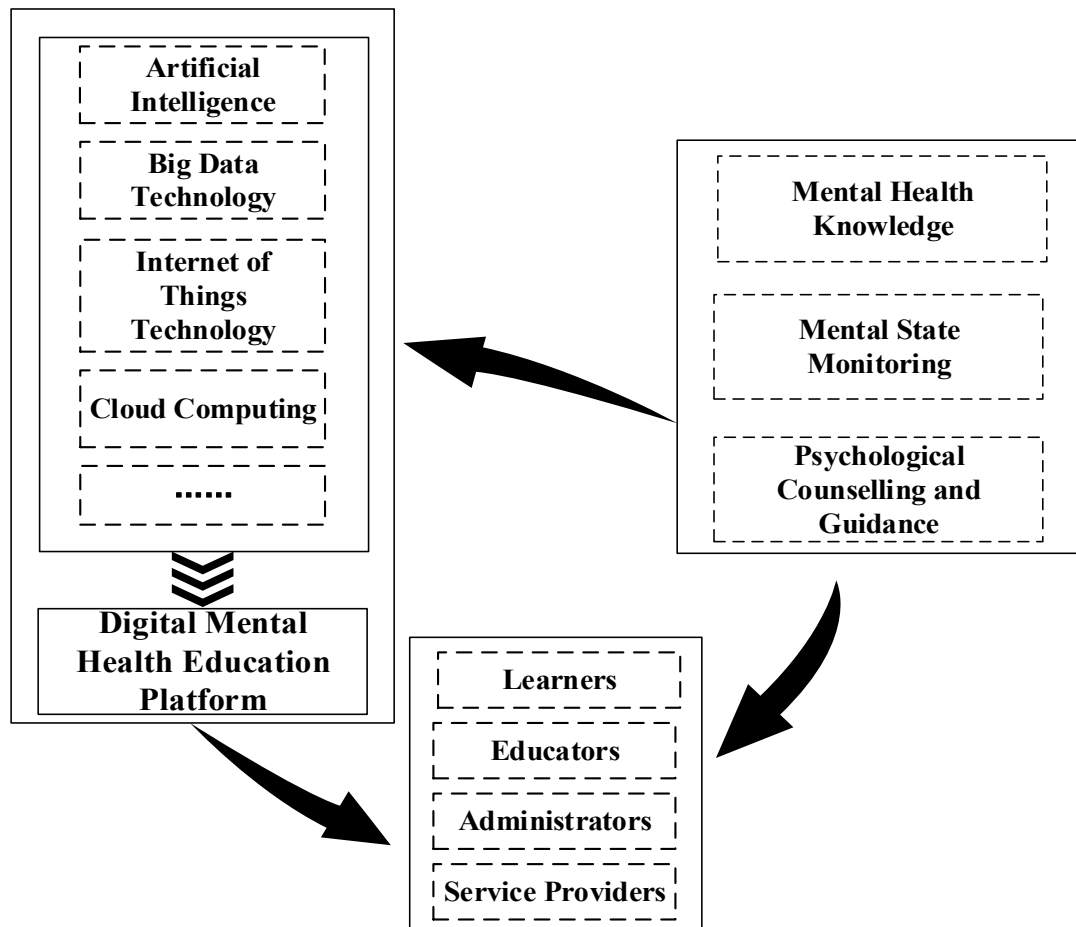
### **2.3. Institutional Theory**

Institutional theory emphasizes the influence of institutional environmental factors on shaping organizational operating rules and behavioral boundaries, and is legitimate, universal and mandatory. For example, in order to comprehensively strengthen and improve the mental health work of students in the new era and improve students' mental health literacy, the Ministry of Education and other 17 departments issued and issued the "Special Action Plan for Comprehensively Strengthening and Improving the Mental Health Work of Students in the New Era (2023-202518051)", which provides institutional guarantees for the transformation of mental health services in colleges and universities. Under the guidance of the document, colleges and universities have established and improved various rules and regulations, incorporated college students' mental health education into the school's talent training system and the school's ideological and political education work system, and formulated opinions or implementation methods for college students' mental health education around the standardized management of mental health education and consulting institutions, psychological crisis prevention and intervention, and psychological counseling work processes, established assessment and reward and punishment mechanisms, formulated annual work plans, and comprehensively built a four-level mental health education work network of schools, colleges, student classes, and student dormitories to achieve standardization, specialization, and systematization of mental health services.

In addition to hard factors such as laws, regulations, and policy orientations, institutional environment factors also include soft factors such as social culture and values. Soft factors generally affect the cognition and demand of college teachers and students within the organization for mental health services, and then affect behavior. For example, college organizations can create a good service image and cultural atmosphere by providing mental health services that meet social expectations and strengthening cooperation and exchanges with all sectors of society, thereby further promoting the construction and improvement of the mental health service system.

### **2.4. Theory of integrating digital technology into education**

The theory of integrating educational technology with digital technology emphasizes the deep integration of modern digital technology into the educational process, thereby innovating educational models, teaching content and teaching methods. In the field of mental health services in higher education institutions, the construction of a digital mental health education platform, as shown in Figure 2, enables the widespread dissemination of mental health knowledge, real-time monitoring of mental states, personalized psychological counselling and guidance, as well as data-driven mental health risk assessment and precise intervention. The application of these technologies not only improves the coverage and service quality of mental health services, but also breaks through the limitations of time and space, and can provide more convenient, immediate and private psychological support.



**Figure 2.** Mental Health Education Platform Operating Mechanism

This theory focuses not only on the innovation of technology itself, but also on how digital technology can be combined with educational concepts, teaching practices and learning needs to build a learning ecosystem[2][3], thereby achieving a deep transformation and efficiency improvement of college mental health services. For example, using big data analysis and artificial intelligence technology to dynamically track and evaluate students' mental states, provide scientific basis for educators, and then design and adjust mental health education strategies and optimize services to achieve a healthy and harmonious learning ecology.

### 3. Analysis of the Current Status of Mental Health Services in Colleges and Universities Under the Background of Digitalization

#### 3.1. Service Model

At present, college mental health services are operated in a "primary offline, supplemented by online" mode, forming a traditional framework of individual counseling, group counseling, and course teaching, and a complementary combination of digital tools[1][4]. Individual counseling relies on face-to-face scenarios with strong confidentiality to provide in-depth support for students with academic anxiety and emotional distress; group counseling helps students with social phobia and interpersonal relationship sensitivity improve their social adaptability through activities such as role-playing and scenario simulation. However, the traditional model is limited by time and space and it is difficult to cover the needs of all students. The intervention of digital tools has gradually broken this limitation. For example, some colleges and universities have opened online appointment systems, 24-hour psychological assistance hotlines, and even piloted AI psychological assessment robots, but the overall focus is still on offline counseling,

and online services are only used as supplementary channels. A complete digital service ecosystem has not yet been formed.

### 3.2. Service Content

At present, the content of mental health services in colleges and universities presents the hierarchical characteristics of "basic coverage + precise intervention"[5]. At the level of knowledge popularization, colleges and universities across the country have included "College Students' Mental Health Education" into compulsory courses, covering modules such as self-cognition, emotional management, and stress coping, and combined with interactive forms such as case analysis and group discussions to enhance student participation[9]. At the same time, relying on special time nodes such as "525 Mental Health Day", theme lectures, psychological drama performances and other activities are carried out. At the crisis intervention level, students at risk of psychological crisis are regularly screened through psychological scales, and mental health files are established and dynamically tracked. In addition, emergency plans are formulated for crisis events, and the linkage process of counselors, psychological counseling centers, and hospital referrals is clarified.

### 3.3. Digital applications and existing problems

With the development of science and technology, digital technology has penetrated into some aspects of college mental health services, but the depth and breadth of application are limited[7][8]. On the one hand, big data and AI technology are used for psychological assessment and early warning, and potential risks of students' mental health are identified by analyzing students' behavioral data. However, the lack of depth of digital technology integration also causes big data analysis to remain at the basic statistical level, which poses a risk of misjudgment. On the other hand, online platforms have become an important carrier for service extension, providing psychological assessment, self-help courses, online consultation and other functions, but the platform content is mostly static knowledge push, lacks personalized intervention tools, and the student usage rate is low, and the service satisfaction rate is not high. Virtual reality technology has also been gradually developed and piloted for intervention in social phobia and post-traumatic stress disorder, but the equipment cost is high and the application scenario is single, and it has not yet been promoted on a large scale. In addition, the family-school-community collaborative mechanism has not yet been established, and it is difficult to share students' psychological files with families and hospitals in a timely and effective manner, which restricts the timeliness of crisis intervention.

## 4. Change Direction and Mechanism from the Perspective of Ecological Learning

Under the guidance of the ecological learning concept, college mental health services can be regarded as an ecosystem composed of multiple elements interacting and evolving together, in which there is a complex and close interaction between the environment and individual psychology, and factors such as students, educators, environment and technology jointly affect the effectiveness and quality of services. The integration of digital technology provides a strong driving force for the upgrading and transformation of this ecosystem[10][11].

### 4.1. Model innovation: integrating online and offline resources to promote multi-dimensional expansion of service scenarios

The ecological learning concept focuses on the dynamic interaction between "individual-environment-resources" and emphasizes the synergistic coexistence of various elements in the system. Under the wave of digitalization, this concept provides key guidance for the innovation of mental health service models in colleges and universities. Online education breaks through

the limitations of time and space, and provides students with a large amount of mental health knowledge with rich and diverse resources. The online mental health course library covers a wide range of topics such as emotional management, stress coping, and interpersonal relationship management. Students can learn flexibly and independently according to their own needs. Offline education, with the unique advantages of face-to-face communication, creates an environment full of emotional warmth and deep interaction, helping students internalize and absorb what they have learned, and apply it in practice. In the teaching practice of mental health courses, students preliminarily build a knowledge framework through online pre-study, and then concretize abstract knowledge in offline activities such as classroom group discussions and role-playing, and deepen their understanding and application of mental health knowledge in simulated real situations.

At the same time, digital technology gives unlimited possibilities for the expansion of service scenarios. Taking VR technology as an example, by simulating real scenarios such as social phobia and workplace pressure, students can conduct interpersonal communication skills training and stress coping strategy practice in a virtual but highly simulated environment, effectively activating the two-way feedback mechanism of "environment-behavior" in the ecosystem. The students' behavioral performance in the virtual environment, in turn, prompts the system to optimize and adjust, and provide training programs and support that are more in line with individual needs. For students with more complex psychological problems, online preliminary communication assessment, with its convenient and efficient characteristics, can quickly collect students' basic information, preliminarily judge the problem tendency, and provide detailed basis for offline precise counseling. The two work closely together to form a complete ecological chain of mental health education that is linked and synergistic, and promote the steady improvement of students' mental health literacy in an all-round and sustainable manner, and maintain the stability and development of the mental health ecosystem.

#### **4.2. Collaboration among entities: building a co-governance service network and improving a diversified service platform**

The stability and prosperity of the ecosystem depends on the diversity and synergy of the elements within the system, as well as the self-regulation ability of each subject. In the field of mental health services in colleges and universities, this concept is reflected in the urgent need to build a co-governance service network and improve the diversified platform. The diversified digital mental health service platform built by colleges and universities has built an "energy station" with rich ecological resources. Among them, the family in the social support network provides emotional foundation, peers provide peer understanding and support, and the community creates a positive social atmosphere; in professional service resources, psychological counselors use their professional knowledge to conduct in-depth psychological intervention, and psychiatrists provide medical diagnosis and treatment suggestions; psychological science videos and AI training tools in self-help resources meet students' needs for independent exploration and initial self-regulation. These diverse resources converge into a multi-level resource pool, integrating functional modules such as psychological counseling appointments, psychological assessments, knowledge popularization, online course learning, and peer mutual assistance and communication communities. All parties and resources perform their respective duties on the platform and are closely related, just like different species in the ecosystem collaborate with each other in their respective ecological niches to jointly maintain ecological balance.

With the help of big data analysis technology, the platform can accurately understand students' psychological needs based on their browsing records, learning progress, assessment results and other behavioral data on the platform, and then push personalized mental health resources

to achieve dynamic adaptation of service resources and student needs, build a rich and diverse mental health service ecological environment, and fully meet students' diverse psychological needs. In addition, the ecological learning concept focuses on cultivating students' independent mental health management capabilities and giving them the self-regulation function in this ecosystem. Colleges and universities teach students the skills to identify psychological states and master various psychological adjustment methods, such as relaxation training and cognitive reconstruction, by offering relevant courses and holding special lectures. With the help of self-monitoring tools created by digital technology, such as the mental state recording APP, students can record their own emotional fluctuations, stressful events, etc. in real time. The APP generates visual charts based on the data, intuitively presents the trend of psychological changes, and pushes adjustment suggestions in time when abnormalities occur. In this process, students change from passively accepting mental health services to actively participating in self-management, becoming a key element with subjective initiative and vitality in the mental health ecosystem, actively participating in the self-repair and optimization of the ecosystem, and promoting the entire mental health service ecosystem to develop in a healthier and more sustainable direction.

#### **4.3. Curriculum integration: Integrate mental health education and create a full-discipline education system**

The ecological learning concept emphasizes that learning is an organic whole, and that various disciplines and fields are interrelated and mutually influential. In the higher education system, mental health education is integrated into the courses of various disciplines, so that mental health education can penetrate into all aspects of students' learning. For example, in literature courses, by analyzing the psychological changes and emotional conflicts of characters in literary works, students are guided to understand the complexity of human nature and the diversity of psychology, and cultivate students' empathy and emotional perception abilities; in science and engineering courses, combined with situations such as frustration coping and teamwork in scientific research projects, students are taught how to maintain a positive attitude under pressure, improve problem-solving skills and team communication skills. This interdisciplinary integrated teaching model breaks the barriers between traditional mental health education and professional disciplines, and builds a comprehensive and three-dimensional education ecosystem.

In this process, teachers from different disciplines become the co-promoters of mental health education. While imparting professional knowledge, they skillfully integrate mental health elements into teaching content and teaching process, forming a good atmosphere for all-staff education. In their daily professional studies, students are subtly influenced by mental health education, which not only improves their professional quality, but also enhances their psychological adjustment ability and psychological resilience. Different disciplines complement and promote each other, just like different ecological factors in an ecosystem promote the prosperity and development of the entire system through material circulation, energy flow and information transmission, providing solid psychological support for students' all-round growth, so that mental health education is truly integrated into the "blood" of college education and becomes an indispensable part of students' growth process.

#### **4.4. Evaluation optimization: multi-dimensional dynamic evaluation and accurate feedback to promote development**

The healthy development of the ecosystem requires a continuous and accurate monitoring and feedback mechanism to ensure that all elements are in good condition and work together. Therefore, it is also necessary to build a multi-dimensional dynamic evaluation system in college mental health services. Traditional single mental health evaluation methods, such as regular psychological assessment, are difficult to fully and timely reflect the complex and

changeable mental state of students. The multi-dimensional dynamic evaluation system integrates multiple evaluation methods. In addition to traditional evaluation, it also includes multi-dimensional information such as observation of students' daily behavior, online learning trajectory analysis, peer evaluation, and teacher evaluation. Through the analysis of campus behavior big data, such as the frequency and participation of students in libraries, gymnasiums, and social occasions, we can gain insight into students' social activity, interests, and psychological state; with the help of online learning platforms, we can record students' learning time and interactive participation in mental health courses, and evaluate students' learning enthusiasm and knowledge mastery; in the peer evaluation stage, students evaluate each other's emotional stability and interpersonal relationship management ability based on daily interactions, providing a perspective closer to real life scenes; teachers comprehensively judge students' psychological conditions from classroom performance, homework completion, and communication and interaction with students.

The above multi-source data are gathered to form a dynamic portrait of students' mental health, accurately feedback students' psychological development trajectory and real-time status. The evaluation results are no longer just used to diagnose psychological problems, but more importantly, provide a basis for personalized mental health education and intervention. For students with good mental state, provide expansion resources and activity suggestions to further improve psychological quality; for students with psychological fluctuations or potential problems, timely push targeted psychological counseling courses, psychological counseling appointment reminders, etc. Through this precise feedback mechanism, a self-regulation mechanism is formed in the system, which enables college mental health services to respond quickly to student needs, adjust service strategies and content in a timely manner, realize the precision and personalization of mental health services, help students always maintain a good mental state in a dynamically changing learning and living environment, and promote the continuous optimization and healthy development of the college mental health service ecosystem.

## **5. Development Path of Mental Health Service Reform**

### **5.1. Strengthen technical support and innovative applications**

Colleges and universities should increase their technological investment in the field of mental health services, introduce advanced digital technologies such as artificial intelligence, big data, and virtual reality, and encourage professionals to apply technological innovation. For example, using artificial intelligence technology to develop intelligent psychological counseling robots, it can provide students with preliminary psychological support and answer common questions at any time, relieve the work pressure of psychological counselors, and improve service efficiency. Big data technology can be used to analyze students' psychological data, explore potential psychological problems and group psychological characteristics, and provide accurate data support for mental health education and intervention. Virtual reality technology can create immersive psychotherapy scenarios, such as simulating social phobia scenarios, to help students conduct exposure therapy in a virtual environment and overcome psychological barriers. At the same time, colleges and universities should strengthen cooperation with technology companies to jointly develop technical products and solutions suitable for college mental health services and promote the deep integration of technology and mental health services.

### **5.2. Improve the integration mechanism of mental health service resources**

Integrate the mental health service resources inside and outside the school to form a joint force. On the school side, break down the barriers between departments, strengthen the cooperation

of the Mental Health Education Center, the Student Affairs Office, the Academic Affairs Office, and various colleges, and realize resource sharing and information exchange. For example, the Mental Health Education Center is responsible for professional psychological counseling and intervention, the Student Affairs Office assists in the organization and promotion of mental health activities, the Academic Affairs Office incorporates mental health courses into the teaching system, and each college pays attention to the daily psychological dynamics of its students, and promptly discovers and feedbacks problems. Off-campus, actively establish cooperative relationships with professional psychological counseling institutions and medical institutions, invite experts to the school to conduct training and lectures, and provide referral services for students. In addition, social welfare resources can also be integrated, such as volunteer service teams, to participate in the school's mental health publicity and assistance work. By improving the resource integration mechanism, a comprehensive and multi-level mental health service resource network can be built.

### **5.3. Improving the digital literacy of mental health education teachers**

Teachers are the key drivers of the transformation of mental health services, and it is crucial to improve their digital literacy. Colleges and universities should regularly organize mental health education teachers to participate in digital technology training, including the use of digital mental health service platforms, data analysis skills, online teaching methods, etc. Teachers are encouraged to carry out research and practical exploration of mental health education and teaching based on digital technology, such as developing online mental health courses and using digital tools to innovate teaching methods. At the same time, professional talents with interdisciplinary backgrounds in psychology and information technology should be introduced to enrich the teaching staff and inject new vitality into the transformation of mental health services. By improving the digital literacy of the teaching staff, it is ensured that teachers can skillfully use digital means to carry out mental health education and service work, and improve the quality and effectiveness of services.

### **5.4. Strengthening student participation and feedback mechanisms**

Students are the direct beneficiaries of mental health services. Strengthening student participation and feedback mechanisms will help promote the continuous optimization of service changes. Colleges and universities can encourage students to participate in the formulation of mental health service policies, the planning and implementation of activities by establishing student mental health committees and other organizational forms. For example, when designing mental health education activities, students' opinions should be widely solicited to understand their interests and needs, so that the activities are closer to students' reality. At the same time, a variety of feedback channels should be established, such as online questionnaires, suggestion boxes, student forums, etc., to collect students' opinions and suggestions on mental health services in a timely manner. Problems reported by students should be analyzed and processed in a timely manner, and improvement measures should be fed back to students to form a virtuous interactive cycle and continuously improve the satisfaction and effectiveness of mental health services.

## **6. Summary**

Based on the perspective of ecological learning, this study deeply explores the direction of change and development path of college mental health services in the digital era. The study found that under the guidance of ecological learning, college mental health services can achieve changes in multiple dimensions such as model innovation, subject collaboration, curriculum integration, and evaluation optimization. By integrating online and offline resources, building a diversified service platform, integrating mental health education into all-disciplinary courses,

and establishing a diversified dynamic evaluation system, it is possible to effectively activate the synergy of various elements in the mental health service ecosystem, meet the diverse psychological needs of students, and improve the quality and effectiveness of mental health services.

In terms of development path, it is proposed to promote reform from the aspects of policy guidance, technology research and development, resource integration, and teacher training. Strengthen policy and institutional guarantees to provide direction guidance and normative constraints for reform; deepen the application of technological innovation to provide technical support for the upgrading of service models; integrate multi-party resources to build a service network for coordinated development; strengthen the construction of the teaching staff to ensure the smooth implementation of the reform. These reform directions and development paths are interrelated and mutually reinforcing, and together constitute a complete system of college mental health service reform in the digital age.

However, this study still has certain limitations. In practice, the implementation effects of some reform directions and paths need to be further verified and optimized; in theory, the deep integration mechanism of ecological learning concept and college mental health services needs to be further explored. Future research can focus on the follow-up evaluation of reform practices, collect more empirical data, summarize successful experiences and improvement directions; at the same time, deeply explore the theoretical connotation of ecological learning concept, expand its application boundaries in the field of college mental health services, and provide more valuable theoretical and practical references for promoting the high-quality development of college mental health services.

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