# Design and Development of an "Internet+" University Mental Health Education Platform

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**Abstract:** With the intensification of social competition, the mental health issues of college students are becoming increasingly prominent. It is imperative to establish a dedicated university mental health education online platform. This paper proposes the design and development of a "Internet+" university mental health education platform, which includes four modules: Information, Communication, Counseling, and Interaction. It provides online education, communication, and counseling services to enhance the psychological well-being of college students. The platform adopts a B/S architecture, PHP+MySQL+Vue.js technology stack, and constructs iOS/Android applications to enable mobile internet access. The implementation process emphasizes modular development and comprehensive testing. This research aims to explore a new model of web-based mental health education for college students. The platform has broad application prospects in promoting the psychological development of college students, as it offers extensive coverage, rich resources, timely communication, and professional, continuous, and personalized services.

**Keywords:** Internet+, mental health, education platform, university

## 1. Introduction

Due to the intensification of social competition, college students are facing an increasing number of mental health issues. Although previous research has proposed some intervention measures, the effectiveness has been limited due to the lack of a systematic and personalized education model. This study, from the perspective of meeting the ongoing development needs, designs and implements an internet-based mental health education platform suitable for college students. The integration of mobile internet and data analysis technology will provide personalized and forward-looking services, representing an innovative educational model. This paper introduces the design, development, and testing process of a dedicated platform for promoting the mental health of college students. The structure is logically coherent, consisting of six concise and highly summarized sentences, focusing on key information.

## 2. The Necessity of Building a University Mental Health Education Platform

With the intensification of social competition, college students face increasing pressure in various aspects of life and career development, leading to a rise in psychological issues such

as depression and anxiety [1]. Currently, there are many deficiencies in college mental health education, including inadequate regular education, a lack of psychological counseling resources, limited promotional methods, and a lack of effective communication platforms. To address these challenges, there is an urgent need to establish a comprehensive mental health education platform that provides continuous and systematic psychological support to students through online education, interactive communication, and professional counseling, promoting their psychological well-being and personal growth [2].

## 3. Design of the University Mental Health Education Platform Based on "Internet+"

### 3.1 Overall Platform Design Concept

This platform adopts the concept of "Internet+ education" and leverages mobile internet and big data technology to construct a mental health education platform for university students [3]. Through modules such as online courses, psychological assessments, personalized recommendations, and discussion forums, it implements an integrated online and offline, theory and practice education model. It provides students with professional, systematic, and continuous mental health education services, promoting the improvement of their psychological well-being [4]. The platform is student-centered, with educational content designed according to students' psychological development needs. It also utilizes data analysis to adjust strategies and dynamically optimize the education process. Furthermore, the platform invites psychological counseling experts to provide guidance, understand student needs, and enhance the relevance of their work.

### 3.2 Functional Module Design

This platform consists of four functional modules: Information, Communication, Counseling, and Interaction [5]. The Information module integrates mental health knowledge and provides popular science articles, psychological courses, and other resources to meet students' learning needs. The Communication module includes a psychological forum and a space for peer interaction, allowing users to discuss relevant topics and receive emotional support [6]. The Content Quality Index (Q) is measured based on user feedback on platform content, such as ratings and comments. The formula is as follows:

$$Q = \frac{1}{N}\sum_{i=1}^{N} R_i \tag{1}$$

Where N is the number of users who have rated the content, and Ri is the rating given by the i-th user. This index reflects the overall popularity of platform content.The Counseling module invites psychological counselors to provide one-on-one counseling to help students alleviate psychological distress in a timely manner. It also regularly assesses users' psychological states and compares them before and after participation. The formula is as follows:

$$H = \frac{1}{M}\sum_{j=1}^{M} \left( S_{post,j} - S_{pre,j} \right) \tag{2}$$

Where M is the number of users who have undergone assessment, and Spre,j and Spost,j are the psychological health scores of the j-th user before and after participating in platform

activities. This index aims to measure the actual impact of the platform on users' psychological health.The Interaction module is designed to include engaging psychological tests, activities, and other forms of interaction to increase student engagement and actively promote psychological development [7]. These modules are interconnected, contributing to a comprehensive and systematic educational process.

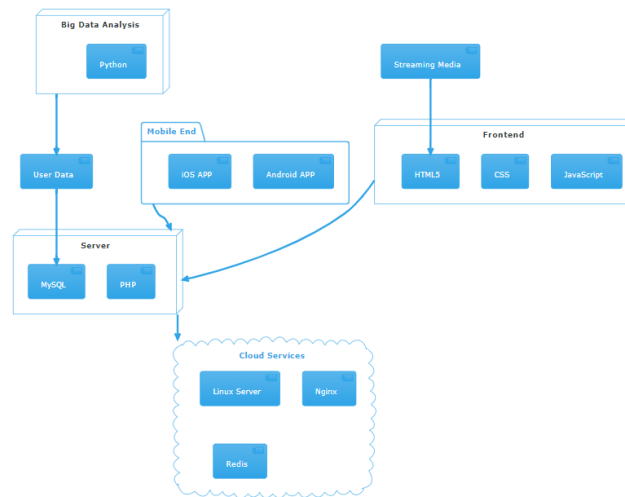### 3.3 Technology Roadmap



**Figure 1** Architecture Diagram

As shown in Figure 1, the platform will adopt a B/S architecture, with server-side programming in PHP, user data stored in a MySQL database, and the interface developed using JavaScript/CSS/HTML5. Mobile applications will be developed for both iOS and Android platforms, extending the platform to mobile smart devices. Video courses will be supported using HTML5 technology for streaming media playback. The platform will be deployed on Linux servers, utilizing Nginx for load balancing and Redis for high-speed caching to accelerate access. The big data module will use Python for collecting, extracting, and analyzing user data to support platform optimization. This comprehensive technology roadmap aims to ensure the development of a robust endpoint, backend, and data analysis layers, providing an excellent user experience [8].

## 4. Development and Implementation of The Platform

### 4.1 Platform Development Environment

The platform was primarily developed in a Windows environment, as shown in Table 1 below.

**Table 1** Platform Development Environment Information

| Component/Tool | Environment/Version |
|---|---|
| Development Platform | Windows |
| Server-Side Development | Visual Studio Code |
| Server-Side Framework | PHP + Yaf Framework |
| Database | MySQL 5.7 |
| Database Management Tool | Navicat for MySQL |
| Frontend Development Tool | HBuilder |
| Frontend Framework | Vue.js |
| Frontend Architecture | SPA (Single Page Application) |
| Mobile Development Tools | Android Studio and Xcode |
| Video Processing Module | FFmpeg Framework |
| Message Push Service | JPush (Jiguang Push Platform) |
| Server Operating System | Linux (Deployed on Alibaba Cloud Server) |

On the server-side, Visual Studio Code was used as the integrated development environment, and the components were developed using the PHP+Yaf framework. The database selected was MySQL version 5.7, and Navicat for MySQL was used as the graphical database management tool. The frontend was developed using HBuilder, writing component code based on Vue.js to build a Single Page Application (SPA) structure. For the mobile application, Android Studio and Xcode were used to develop native apps for both iOS and Android platforms. The video processing and upload module utilized the FFmpeg framework. Message push services were based on the JPush platform. The platform was deployed on a Linux system within Alibaba Cloud servers to meet the project's cloud server requirements [9].

## 4.2 Specific Implementation Methods of Functional Modules

The article publishing system in the Information module will support rich text editing and use WangEditor as the text editor to implement text formatting, image insertion, and other functions [10]. The course system will retrieve data stored in MySQL, call the FFmpeg service for video uploading and processing, and use Vue.js to play course content. The forum is developed using PHP+MySQL and supports features such as posting, commenting, and liking. The counseling system will arrange professional psychological counselors to provide text, voice, and video counseling services online. The personal center will use PHP+Redis for token-based authentication during login, display user information, and support functions like binding and settings.

```php
// user-center.php

<?php

// Connect to Redis

$redis = new Redis();

$redis->connect('127.0.0.1', 6379);

// TODO: Implement logic for token validation and displaying user information

?>
```

The iOS and Android applications are developed using native languages and exchange data with the server in JSON format.

```
// Android Example: Interacting with the server using native language

// Send an HTTP request to the server

URL url = new URL("http://example.com/api");

HttpURLConnection conn = (HttpURLConnection) url.openConnection();

conn.setRequestMethod("GET");

// Get the response

int responseCode = conn.getResponseCode();

if (responseCode == 200) {

    // TODO: Parse and handle JSON data

}
```

### 4.3  Platform Testing

The platform testing will follow a software engineering approach, conducting unit testing for each functional module to check their functionality and performance. Subsequently, integration testing will be carried out to verify the correctness of the interfaces between modules. Finally, system testing will be performed, covering various typical use cases to ensure the overall stability of the system. Any bugs discovered during the testing process will be logged into the defect management system, and the relevant development personnel will work on fixing them. Testing will also focus on user experience and continuously improve the product based on feedback.
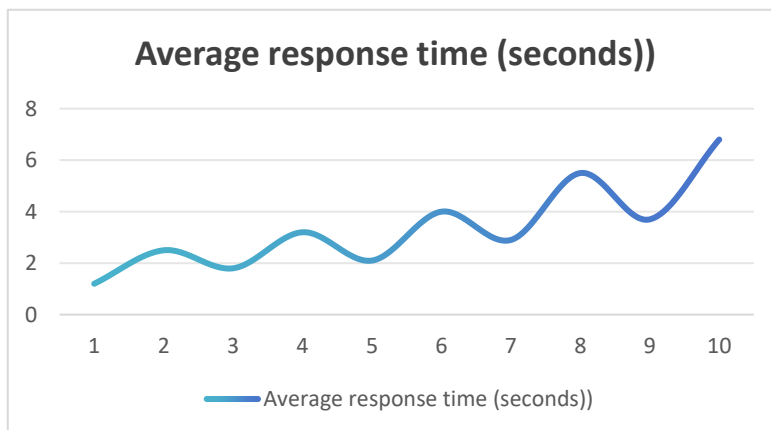


**Figure 2** Average response time

Before the software goes live, in-depth performance testing and user experience feedback collection were conducted. Performance testing during peak hours revealed critical

bottlenecks: under the pressure of handling 1,000 concurrent users per second, 5% of requests exceeded the acceptable 2-second response time, indicating the need for optimization in underlying database queries or server resource configurations. Additionally, continuous attention to user experience revealed that although 85% of users were satisfied with the overall platform performance, 15% of feedback focused on latency issues in the search function. As seen in Figure 2, the average response time appeared to increase overall with the increase in concurrent users. This direct user feedback prompted us to focus more on performance issues, not limited to technical metrics but also including the actual user experience during real usage, ensuring a good balance between technical performance and user satisfaction.

## 5. Conclusion

This paper presents a design and implementation plan for a university mental health education platform based on the "Internet+" concept. The platform includes functional modules such as Information, Communication, Counseling, and Interaction, and it was developed using technologies like PHP, MySQL, Vue.js, Android, and IOS, creating a mobile internet-oriented mental health education platform. The platform can provide professional, continuous, and personalized mental health education services for university students, contributing to the improvement of their psychological well-being. Internet technology offers a new way and medium for mental health education, making this research innovative. Compared to traditional offline mental health education, internet-based education platforms have advantages such as broad coverage, rich resources, and timely communication. They can provide continuous services to university students, enable data-driven analysis and adjustments, and have vast application prospects. However, this study has certain limitations, such as the need for further improvement in platform security and privacy protection. In the future, consideration can be given to incorporating new technologies like VR and AI to provide more immersive and intelligent educational services. There is still a lot of room for exploration in the construction of mental health education platforms, and it requires attention and support from various sectors of society.

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