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Research Article

Analysis and Design of Psychological Consultation Online Service System

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Abstract

The pace of modern society is very fast, and people of different age groups will experience certain psychological problems. Psychological problems are different from physiological diseases and are a series of problems caused by internal psychological factors, which can indirectly change a person's personality, worldview, and emotions. Due to Chinese people's resistance to face-to-face psychological communication, online psychological communication is more easily accepted. Therefore, this paper combines the psychological assessment and psychological consultation process in the process of psychological consultation with the Internet, uses the web page development technology of the Internet, excavates the actual business process logic and other needs in the actual offline psychological consultation process, and develops the online psychological consultation service system. This system mainly includes four major modules: user permission management module, psychological problem resource management module, psychological problem detection module, and psychological diagnosis and treatment room module. The system has achieved online sharing of psychological problem resources, online psychological assessment, and online psychological counseling; Users can use their scattered time to browse and conduct psychological assessments that typically require psychological resources. he developed system can provide users with online psychological services, enhance the convenience of psychological counseling and other related businesses, thereby reducing the cost consumption of traditional psychological communication for inquiries and counselors, shortening the communication distance between the two, and enabling psychological counseling to be carried out anytime and anywhere.

Keywords

Psychological Counseling, Knowledge Management, Online Service

1. Introduction

The pace of modern society is very fast, and people of different age groups will experience certain psychological problems [1, 2]. Psychological problems are different from physiological diseases and are a series of problems caused by internal psychological factors, which can indirectly change a person's personality, worldview, and emotions [3, 4].

Due to Chinese people's resistance to face-to-face psycho-logical communication, online psychological communication is more easily accepted. Therefore, this topic has significant development value in promoting communication on psychological issues among Chinese people [5]. How to implement such an online consulting service system and enable users to effectively detect, consult, and explore psychological problems is highly worthy of research [6].

At present, with the great material richness of society, the construction of spiritual civilization is gradually being pursued by more and more people. While people are constantly paying attention to their physical health, their mental health is also gradually receiving attention [7, 8]. Due to the fierce competition in today's society and the generally high level of life pressure, people of all ages have generally developed some mental health problems [9]. According to the classification of levels, mental health problems can be divided into four levels: healthy state, unhealthy state, psychological disorders, and mental illness. According to the severity, it can be divided into general psychological problems, serious psychological problems, and psychological disorders [10]. People can have a preliminary understanding of their potential psychological problems through various means, such as conducting self assessments of mental health and providing psychological counseling [11].

Due to the increasingly fast pace of modern work and life, people rarely allocate long and complete time for offline and face-to-face psychological counseling [12]. Online psychological counseling has gradually become an alternative way. China is relatively traditional, and psychological counseling through online communication is more easily accepted. However, due to the inability of face-to-face interaction through online communication, some mental health therapies cannot be applied. Therefore, the psychological counseling on this platform is only aimed at identifying psychological problems and providing general counseling, and cannot replace traditional psychological therapy for more serious psychological problems and mental illnesses [13, 14].

Searching on CNKI, since 2016, 56 journals or theses have been recorded on CNKI. Among them, 15 are applied research, 6 are technology development, and 4 are technology research. Although there are online platforms with psychological consultation or psychological assessment services on the Internet, most of them are simple and have a single function [15, 16]. Therefore, implementing a multi role online system with psychological counseling and assessment, while providing some psychological resource sharing, is worth researching.

2. Related Theories and Technical Support

This chapter mainly introduces the relevant theoretical foundations, technical points, and development framework used in the development of online psychological counseling service systems. Relying on web development technology, combined with the two mature application frameworks of front-end Vue and back-end Django, this project can achieve all related technologies such as permissions and operations in the online psychological counseling service system.

2.1. Online Psychological Counseling Services

Psychological counseling is the process in which a counselor applies psychological methods to provide psychological assistance to the counselor for any psychological problems they encounter. Traditional face-to-face psychological counseling mainly involves counselors telling, inquiring, and discussing their potential psychological discomfort or obstacles face-to-face with the counselor. Afterwards, the counselor and the counselor discuss together to identify the cause and crux of the problem, and further seek solutions to overcome the counselor's current predicament.

Online psychological consultation is a psychological consultation service based on the Internet. Users and counselors can provide psychological counseling services online. Compared to online counseling methods, this chapter mainly introduces the relevant theoretical foundations, technical points, and development framework used in the development of online psychological counseling service systems. Relying on web development technology, combined with the two mature application frameworks of front-end Vue and back-end Django, this project can achieve all related technologies such as permissions and operations in the online psychological counseling service system.

The traditional offline consultation method shortens the time and space distance of communication, while also concealing some information from both parties.

The entire online consultation process should include establishing a consultation relationship, collecting relevant information from the consultant, guiding the consultant to find the cause and crux of the problem, discussing together how to solve the problem and overcome difficulties, and finally liberating the consultation relationship.

2.2. Online Psychological Testing

Psychological testing is based on certain rules and psychological principles, using certain testing methods to quantify a person's cognitive, behavioral, and emotional psychological activities. Psychological testing is a tool for psychological measurement that can help people understand their psychological state, including emotions, behavioral patterns, personality traits, and so on.

The process of psychological testing can be divided into two categories: standardized testing and non-standard testing. Due to the relatively fixed form of online testing services and the ease of standardized quantification processes, online testing methods mainly adopt standardized processes. Simultaneously using standardized psychological tests developed by psychology professionals can increase the scientificity and value of the tests.

2.3. Django Backend Framework

Django was originally built by an experienced developer team and is an advanced Python web framework. Program-

mers can easily and quickly create easy to maintain, database driven applications. In addition, there are many powerful third-party plugins in the Django framework, which makes it highly scalable.

2.4. Vue Front-End Framework

Vue is a framework that allows for building web applications in component based architectures. No components in this architecture should be interdependent, making large-scale application maintenance more convenient.

If developers are already familiar with HTML and JavaScript, learning to use Vue will also be relatively simple and easy to practice. Developers only need to understand some basic concepts of Vue to write web applications that meet most common use cases.

At the same time, Vue has excellent scalability and performance. This framework can be used to create a small interactive component or for a fully functional large web application. Vue can handle other code better than other mainstream frameworks and has lower content overhead. In this way, Vue is very suitable for building web applications with certain performance requirements or replacing libraries that focus on DOM operations.

2.5. MySQL Database

MySQL is a relational database management system supported by Oracle. MySQL has the characteristics of "open source", "easy management", "high scalability and flexibility". By using a management system like MySQL, it is convenient to store various types of data information and access databases and manage data through SQL language.

2.6. Python Programming Language

Python is an interpretive language that provides efficient high-level data structures and supports object-oriented programming. Nowadays, Python language has been widely used for processing system management tasks and web programming. At the same time, Python language has a powerful standard library that includes multiple functions such as text processing, network communication, and network protocols. The naming interface of the standard library is clear, the documentation is good, and it is easy to learn and use.

2.7. Anxiety Self Rating Scale

The Self Rating Anxiety Scale (Self Rating Anxiety Scale) was developed by Professor Zung from Duke University School of Medicine in 1971. It is one of the main tools widely used for screening and diagnosing anxiety states in mental health surveys and psychological counseling practices. This scale is a self-evaluation scale, filled out by the evaluator themselves, mainly measuring the level of symptoms within the past week, without taking into account factors such as age,

gender, and economic status.

The Self Rating Anxiety Scale is a self-evaluation scale with 20 items, divided equally among drivers, mainly used to evaluate the subjective feelings of participants. This article will use the test content of this anxiety self-assessment scale as data in the subsequent system implementation section, in order to ensure the professionalism of the evaluation content itself and make the evaluation conclusions have certain reference value.

3. Requirement Analysis of Online Psychological Counseling Service System

Based on the research and analysis of existing psychological needs, the functional requirements of this system are summarized from the independent or interactive behaviors that ordinary people and psychological counselors may mainly engage in when communicating about psychological problems offline. The corresponding permissions of various users in this system and the processes of various operations in online services are also summarized.

3.1. User Permission Settings

According to the different roles played by users as ordinary people and psychological counselors when using this system, four roles are divided in the system: visitor, user, user who has obtained psychological counselor certification, and administrator.

Visitors can log in as users by registering an account.

Users can browse psychological resources on the website, conduct psychological tests, receive psychological diagnosis and treatment as counselors, and also submit relevant certification materials for psychological counselors.

After the certification materials of the psychological counselor are approved by the administrator, users can publish resources related to psychological problems and provide corresponding services to the counselor as a psychological counselor.

Administrators can log in directly through the entered account to publish psychological tests, review and view resources related to psychological issues, and also be responsible for reviewing user submitted certification materials related to psychological counselors.

3.2. Resource Management of Psychological Problems

The psychological problem resource management function mainly includes users browsing and querying related psychological problem resource posts, and can also choose to publish resource posts. At the same time, it supports users to delete their own published resource posts. Users who have been certified as psychological counselors can also enjoy this

permission. At the same time, administrators have the function of browsing, querying, and deleting resource posts. The specific function points are introduced as follows:

Logged in users can add their own personal resource posts in the resource post section, and can edit text, upload files, and other content in the posts. At the same time, users can also modify and delete the content of their published resource posts. At the same time, users can also enter keywords in the search box of this section to search for relevant resource posts.

Administrators can search for resource posts, browse resource posts, and delete resource posts already published by other users.

3.3. Psychological Problem Detection

The psychological problem detection module mainly meets the needs of users for self detection of psychological problems. Users can preliminarily investigate whether they have obvious psychological problems by participating in questionnaire tests. The questionnaire will be edited and published by the administrator based on the psychological measurement scale, and users can take the test and view their own test results.

Administrators can upload new questionnaires based on the psychological scales developed by professional psychologists and add specific content, scoring standards, and result descriptions to the questionnaire. At the same time, it is possible to modify or delete the description or content of existing questionnaires.

Any logged in user can query all published questionnaires on the questionnaire list interface and select the questionnaire for self testing.

Administrators can browse the list of published and created but unpublished questionnaires, and based on this, they can edit, modify, and publish the questionnaires. On the basis of the above query function, logged in users can select the target information they are interested in in in the information list interface and view it online. The system will display a summary description of the information and a preview of the specific file content.

3.4. Psychological Diagnosis and Treatment Room

The psychological consultation room module aims to provide online psychological counseling services for counselors and counselors, supporting text and image chat interaction. The knowledge authentication exam provides users with transparent data support for unified evaluation standards and norms. This function includes the exam management function for administrators and the exam participation function for ordinary users. After logging in, users can experience complete functional operations on the exam page of the system.

If users want to enter the diagnosis and treatment room for psychological counseling, they need to first apply for psychological counseling. After the application is issued, the administrator will assign an online psychological counselor to the user. After being assigned by the administrator, a diagnosis and treatment room will be automatically established for online psychological counseling.

After the establishment of the diagnosis and treatment room, psychological counselors and counselors can carry out psychological counseling. The diagnosis and treatment room supports uploading text messages and files. After the psychological counseling is completed, the counselor can request the dissolution of the diagnosis and treatment room, and then the diagnosis and treatment room will be dissolved.

Administrators can view a list of received psychological counseling requests and assign psychological counselors to each counseling request in the list.

4. Design of Functional Modules for Online Psychological Counseling Service System

Based on the previous analysis of the online psychological counseling service system, this system will be divided into four major modules: user permission setting module, psychological problem resource management module, psychological problem detection module, and psychological diagnosis and treatment room module, as well as four roles: unregistered visitors, users, authenticated psychological counseling users, and administrators. According to the different permissions of each role in the system, each module has different restrictions on the operation content of various role permissions.

4.1. User Permission Setting Module Design

The user permission setting module is mainly responsible for the overall management function of permission changes for users and website administrators. In this module, visitors, users, users who have passed the psychological consultation certification, and administrators will be involved in the operations related to the change of system user permissions. This module mainly involves the interaction with user information permission data in the database. When the user makes an operation that satisfies the permission change, the system will use the listening class to notify the backend system and execute the corresponding modification operation. This module involves the "login registration submodule" and the "psychological counseling authentication submodule". Only the most complex psychological counseling authentication submodule will be displayed here.

The psychological counseling authentication submodule involves the participation of both user and administrator roles. If a user initiates a psychological counseling authentication application and the application is not reviewed by the administrator, the user cannot initiate another authentication application and needs to wait for the administrator's review

result. After the user's authentication application is approved by the administrator, the user's permission will become a user who has already passed psychological counseling authentication and cannot initiate authentication applications again; If the application is not approved, the system will prompt authentication failure, and then refresh the authentication application page. The user can then initiate a new psychological counseling authentication application.

4.2. Design of Psychological Problem Resource Management Module

The psychological problem resource management module system is mainly used to provide relevant functions of the resource post section in the overall requirements. This module provides the function of browsing, editing, and publishing psychological resources to users who have not been certified for psychological counseling and those who have been certified for psychological counseling. This module provides a basic list of psychological resource posts and detailed viewing pages for various roles in the system to browse and share psychological resources. At the same time, this module also provides administrators with the function of browsing and deleting published psychological resources to manage the resource section.

This module mainly includes two parts: resource post editing and resource post management, involving operations such as resource post editing, file upload and download, text editing, and permission detection. This only shows the resource post editing function with user permissions.

Users who have passed psychological counseling certification, users who have not passed psychological counseling certification, and administrators can access the resource post page. After entering the resource post page, you can enter all resource post pages to browse all published resource posts, or you can enter your own resource post management page.

When browsing resource posts, if the deletion operation is performed, it will verify whether the user has published and whether they have the identity of an administrator. If one of the user's publishing and administrator identities is met, the deletion will be prompted as successful. At this time, the system will receive the deletion operation and modify the database related data; If all results are negative, the operation will be rejected.

You can create, edit, and delete your own resource posts on your own resource post management page. Users can decide whether to directly publish this resource post after editing it by selecting the publish option on the editing details page.

4.3. Design of Psychological Problem Detection Module

The psychological problem detection module provides system users with self detection and identification functions for psychological problems through standardized psychological testing and questionnaire evaluation. In this module, administrators can create, edit, publish, and delete questionnaires. Both administrators and users can browse the list of psychological tests, but users cannot delete psychological tests and can only participate in them.

At the same time, privacy factors were taken into consideration when designing the logic for participating in psychological testing, so users in this module will not save their current answering progress when interrupting the answering page. In addition, after completing a psychological test, the user will immediately display the test conclusion of this test, and the system will not save the answer situation and test conclusion of this test.

4.4. Module Design of Psychological Diagnosis and Treatment Room

The psychological consultation room module is mainly used to provide users with online psychological counseling services. Users who have not undergone psychological counseling certification can apply for psychological counseling. Administrators can view unaccepted psychological counseling requests and assign idle users who have been certified for psychological counseling. After the administrator completes this step, the system will generate corresponding diagnosis and treatment room data, and then users can start providing psychological counseling in the diagnosis and treatment room. After completing psychological counseling, users can proceed with the dissolution of the diagnosis and treatment room. This module mainly involves functions such as user chat, permission determination, and database modification.

All characters can enter the psychological diagnosis and treatment room page, and the system will then judge the user's permissions.

If you are an administrator, you can browse the list of unaccepted psychological counseling applications, view the details of the application information, and assign users who have passed psychological counseling authentication to the application. The system will generate basic information of the diagnosis and treatment room based on the results assigned by the administrator. Subsequently, users who initiate the application and those who have passed psychological counseling certification can enter the diagnosis and treatment room for psychological counseling. If the user is not an administrator, proceed to the next level of judgment.

If the user has passed psychological counseling authentication, they can enter the designated diagnosis and treatment room page to provide psychological counseling services to visitors. At this time, the system provides chat services for the diagnosis and treatment room. If the user has not passed psychological counseling authentication, proceed to the next level of judgment.

If the user is in the diagnosis and treatment room, they

cannot apply for psychological counseling anymore, but they can directly enter the diagnosis and treatment room page to consult with the system's assigned users who have passed psychological counseling certification. If the user wants to end the psychological counseling, they can dissolve the clinic, and the identity of the operator of the dissolution clinic will be determined. If it is not the consultant, the operation rejection prompt will be triggered; If it is a consultant, it will prompt to complete the dissolution operation, and the database will then modify the corresponding user status and consultation room information. If the user is not idle in the diagnosis and treatment room, proceed to the next level of judgment.

If the user has an unaccepted psychological counseling application, return a prompt waiting for the administrator to accept it; If the user does not have any psychological counseling applications that have not been accepted, the user can proceed with the psychological counseling application process.

This multi-layer logical design can provide psychological counseling services for users while ensuring the privacy and security of user information.

5. Conclusion

This paper combines the psychological evaluation and psychological consultation process in the process of psychological consultation with the Internet, uses the web page development technology of the Internet, excavates the process logic of the actual business in the actual offline psychological consultation process, and develops the online service system of psychological consultation. This system mainly includes four major modules: user permission management module, psychological problem resource management module, psychological problem detection module, and psychological diagnosis and treatment room module. The system has achieved online sharing of psychological problem resources, online psychological assessment, and online psychological counseling; Users can use their scattered time to browse and conduct psychological assessments that typically require psychological resources.

The developed system can provide users with online psychological services, enhance the convenience of psychological counseling and other related businesses, thereby reducing the cost consumption of traditional psychological communication for inquiries and counselors, shortening the communication distance between the two, and enabling psychological counseling to be carried out anytime and anywhere.

Abbreviations

HTML: HyperText Markup Language

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Conflicts of Interest

There is no conflict of interest.

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