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The Design of Educational Guide System Based on Children's Psychology

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Abstract: The guide system is an educational model. In today's society, children's mental health problems are becoming more and more serious. People begin to realize the importance of scientific and effective guidance and guidance for children. This paper mainly analyzes the relevant theoretical knowledge about children's psychological education at home and abroad. From the perspective of psychology, this paper discusses the beneficial effects and significance of combining it with the current reality of this country, and then puts forward its own unique opinions and attempts to improve it in the process of practice in view of the shortcomings of the current domestic research on this kind of subject. After that, the framework diagram of the education guide system was designed and the performance of the system was tested. The test results showed that the education guide system based on children's psychology ran very quickly and its operation efficiency was more than 80%, which met the needs of users and could better promote the healthy development of children's body and mind and comprehensively improve the national quality level.

1. Introduction

With the development of science and technology, people have higher and deeper requirements for education [1-2]. In the past, when the tradition was backward and imperfect, and the teaching guidance was not comprehensive and in-depth enough, the authors have begun to reflect on the existing problems, such as a series of problems such as single teaching method and dull content, and many topics related to children's mental health were introduced in textbooks and even not answered, These phenomena all show that our country is still not doing enough to cultivate children's physical and mental development [3-4].

The research on children's psychological education in foreign countries started early. Since the 1990s, European and American countries have made preliminary exploration. Since the 1990s, all countries have published books and magazines on children. However, it was only after 2000 that our country was really exposed to the combination of theoretical knowledge and practice about psychology, pedagogy and so on that it formally embarked on this path of specialization [5-6]. Some scholars have made an in-depth analysis of the characteristics and characteristics of children's psychological development at the early stage from the perspective of psychology. Other scholars put forward corresponding solutions to the obvious differences between learning interests and abilities in childhood and the problems at different levels. Some scholars have analyzed and studied the bad habits and cognitive abilities formed by teenagers in the family environment according to the current psychological situation of teenagers in our country, and formulated corresponding strategies according to these current situations [7-8]. Other scholars believe that China has not yet formed a systematic and complete guidance strategy system. Therefore, this paper needs to conduct in-depth analysis and formulate corresponding countermeasures to deal with many challenges under the current situation: first, it is lack of professionalism, high pertinence and difficult to operate; The second is the lack of relevant theoretical knowledge reserves and the lack of personnel and institutions specialized in research guidance; Third, there is also a lack of experience summary in guide education [9-10]. Therefore, based on children's psychology, this paper studies the design of educational guide system.

The guide system is an essential tool in children's learning. It can help children to carry out self-text supervision and self-text management. At the same time, it can also learn knowledge unconsciously. However, there are still many problems about educational websites in this field in China. Firstly, this paper elaborates the purpose and significance of the research, the current situation at home and abroad, and the development trend of the project; The second is to introduce the relevant concepts of mental health education and analyze their advantages and disadvantages on the basis of theory, and finally put forward corresponding solutions and countermeasures according to the current social situation, laying a solid and good foundation and theoretical basis for the future design of the system.

2. Discussion on the Design of Educational Guide System Based on Children's Psychology

2.1. Child Psychology

Child psychology refers to all external stimuli that children encounter in the process of growth, including material and spiritual aspects, the most important of which is physical health [11-12]. Psychological research shows that people's psychological activities can be roughly divided into three stages: perceptual movement, perceptual movement and thinking ability[13]. The so-called sensory development refers to the formation of a series of complex and diverse shapes or different sizes and colors of functional organs (such as eyes, ears, etc.) on the human body surface, while the thinking ability refers to the brain's analysis and judgment of new things when processing information to make corresponding reactions and thinking, and finally achieve the goal of understanding the world[14]. Childhood is the initial stage of life, which is often referred to as "human". In this period, they will be full of curiosity, thirst for knowledge and desire to learn new things. These are the topics and answers that children have to face and solve well. In this stage, communication between parents and children is very necessary and crucial. Children's development is a dynamic process. With the continuous accumulation of knowledge, experience and skills, they will gradually form their own unique and distinctive personality[15]. So when people enter the learning stage, various problems will arise. Mental health education plays an important role in improving students' self-regulation ability, including observation, analysis, interpretation and

experience. Childhood is one of the most important periods of individual physical and mental development. At this stage, its main task is to further improve the ability of learning knowledge and skills; this important period also means that the process of processing and sorting out external information and forming correct opinions is very difficult, slow, long and complex, and needs long-term persistence to achieve. Psychological research shows that good mood and anxiety can promote individuals to better adapt to the rhythm of life; On the contrary, it will hinder their physical and mental development and other bad behaviors and habits, and even lead to the occurrence of psychological abnormalities or further harm to the rules that need to be followed in social, political and economic activities. Children are a relative concept. In the pre-school stage, they are in a critical period of physical, psychological and social development. Therefore, the contents of the guidance system for children's education must be targeted. Figure 1 shows children's psychological cognitive needs.

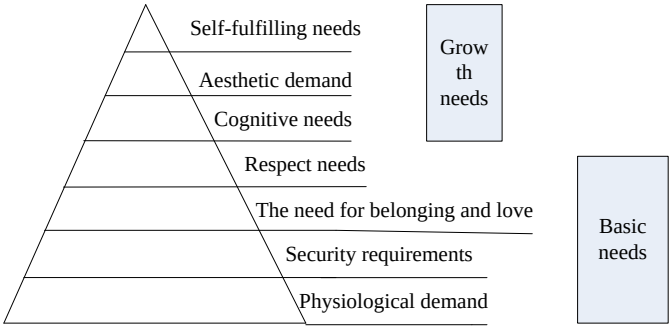

Figure 1. A hierarchy diagram of children's needs

What is formed in the preschool stage is a series of complex and subtle changes in all aspects in the process of the relationship and connection between things and the interaction between things and the surrounding environment. Due to the characteristics of limited cognitive ability and weak awareness of self-protection, infants will show a low level or serious lack of psychological development. In childhood, with the growth of age, their physical development will gradually mature and improve. In this period, children have developed their own ability to live independently, and begin to understand the surrounding environment and make corresponding responses according to the actual situation. For example, they need to do a simple and interesting game that is full of children's interest for outdoor learning, and then children gradually enter the age of adulthood. At this time, they will have a variety of different forms of expression and interests.

2.2. Principles of Educational Guidance

(1) Guiding principle. In the guidance system of children's mental health education, this paper should focus on encouraging and guiding, so that children can solve their problems such as confusion or puzzlement when they encounter difficulties in learning through the knowledge they have learned. At the same time, it should also pay attention to helping students to adjust and control themselves, cultivate their ability to solve problems independently, and develop good habits. Therefore, teachers should have very clear and clear directions and guidance methods in the guidance of children's mental health education.

(2) The guiding principle of taking children as the main body. The education guide is the most direct and effective way for a person to communicate with the outside world. So when designing the guide, we should start with what problems children encounter in the learning process and what knowledge they need to master. The educational guide system must have a clear theme with distinctive characteristics and characteristics of the times, so as to make people feel fresh and

refreshing in the process of keeping pace with the times and stimulate children's thirst for knowledge and curiosity. Therefore, it is very necessary and important to design a set of instructional activities aimed at the characteristics and laws of children's mental health development at different ages

(3) Principle of practicality. The educational guide system must have rich experience to support it, and educational lectures should not be too fancy. When selecting educational books, we should take into account the unique needs of the audience for the content of the books and their knowledge learning ability, reading interest and other aspects, and also pay attention to the psychological development level of students and the cognitive level of children of different ages involved in the textbooks. If we simply pursue the written information in books and ignore its intrinsic value, we will lose its original educational significance.

(4) Purpose principle. The main role of the guide is to let children know what they want to learn and how to do it in the learning process, so as to improve their interest in things and learn to use knowledge to solve problems in daily life. Therefore, educational guides should be targeted and targeted. For example, there needs to be a correct and clear direction to help children understand the relationship between the research content and reality and the interaction between them, which has produced a profound impression and aroused strong emotional resonance.

2.3. Principal Component Analysis Algorithm

Principal component analysis (PCA) is a dimensionality reduction method, which has great advantages in data processing. It can transform multiple variables into several unrelated and incomplete independent indicators. Convert multiple original information into a new set of signals. This method can not only reduce the workload, reduce the computational complexity and improve the accuracy, but also solve many problems very well. But at the same time, there is a disadvantage that the required matrix often contains a lot of useless or repetitive data, which makes the data processing process cumbersome and time-consuming. The idea of principal component analysis is to decompose the original variables into multiple new phases, these new phases are no longer repeated in the original data, but they do not change the values of the correlation matrix of all variables on the original sample. Therefore, it can be described with fewer numbers. The original indicator vector makes a vector for each element. Figure 2 is the educational behavior framework of children's cognitive component analysis.

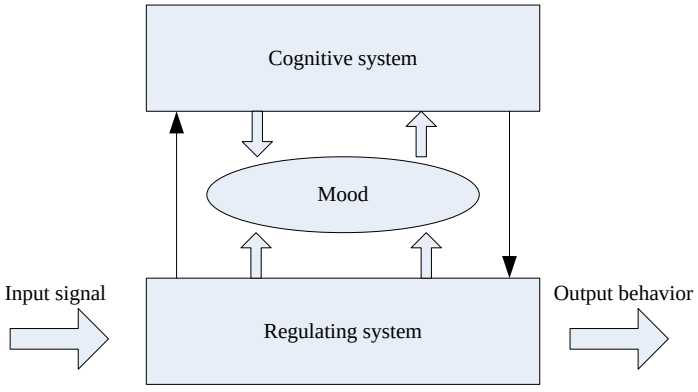

Figure 2. Child cognitive component analysis of educational behavior framework

This method is also called orthogonal transformation method or dimension pole algorithm. It is applicable to the analysis, research and calculation of multi-attribute decision making problems, data mining and other fields. It is an exogenous factor, and the corresponding orthogonal unit feature vectors are e, e2, Ei The ith principal component of X can be written as:

$$Y_i = e_i^T X = e_{i1}X_1 + e_{i2}X_2 + e_{i3}X_3 + ... + e_{in}X_n \quad (1)$$

Where e=(e1, e2,..., en). At this time, you can get:

$$\begin{cases} Var(Y_i) = e_i^T \sum e_i, i = 1,2..., p \\ Cov(Y_i, Y_k) = e_i^T \sum e_k, i \neq k \end{cases} \quad (2)$$

Generally, if P=(e1, e2,..., ep), then P is an orthogonal matrix. Let L=(L1, L2,..., Ln), (i=1, 2,..., p) be p constant vectors. Order:

$$z_1 = (z_{11}, z_{12}, ..., z_{lp})^T = P^T l \quad (3)$$

Principal component analysis is based on the reduction of correlation, dimension and order of data, by combining several uncorrelated variables into a new group of independent variables without correlation, incomplete orthogonality and causality (i.e. random matrix). The algorithm mainly uses the original information to quantify multiple indicators. To extract a certain degree or linear combination between each factor, calculate the score value of each sub-element and principal component to obtain the weight of all data items contained in each factor. There is a large amount of information in the original data of extraction and evaluation. The obtained results are used as training sets, that is, establish a matrix and calculate the weight value of each indicator. Then, the weight function of each index is obtained according to the formula of weight vector self-top algorithm, so as to obtain the score function of the comprehensive variable.

3. Experimental Process of the Design of Educational Guide System Based on Children's Psychology

3.1. Software Architecture of Education Guide System Based on Children's Psychology

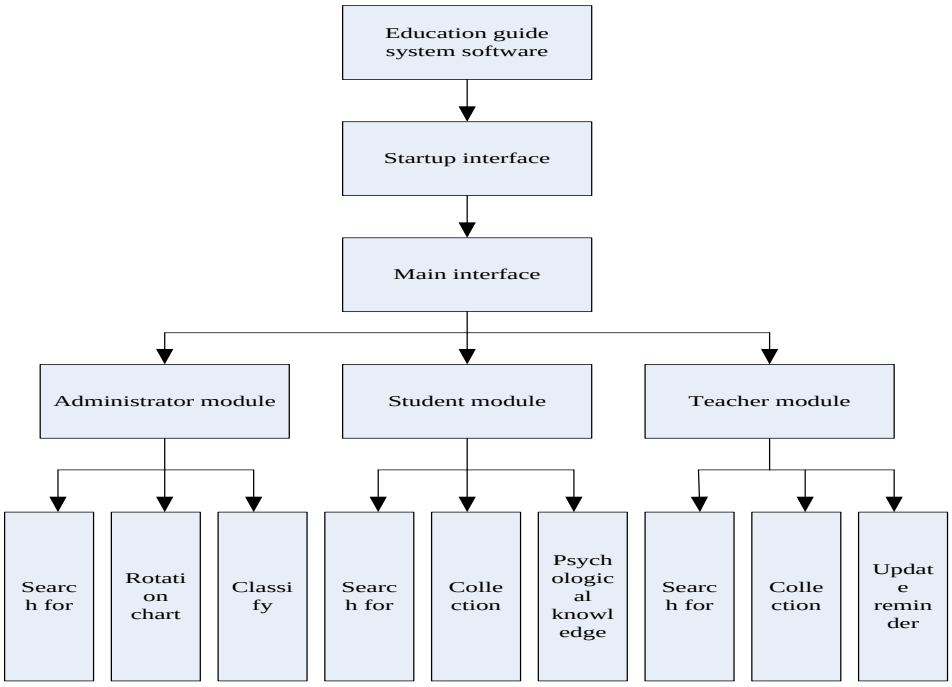

Figure 3. Software architecture of educational guide system based on child psychology

The software architecture of the system (as shown in Figure 3) adopts the modular design idea and divides each sub-module in detail. In the process of writing, the characteristics of actual application scenarios and usage habits are taken into account. At the same time, in order to improve the efficiency of software development and achieve ease of operation, each part is treated separately. According to the needs of different user groups, the corresponding interface is designed, first is the login function, second is the navigation function and display content section, and then is the student module, the teacher module, and the administrator module. This function can enable users to grasp the current learners' knowledge and skill process as a whole, so as to help them better master relevant knowledge and skills. At the same time, it can also adjust their work direction and objectives according to the actual situation of users, and finally achieve user satisfaction and improve the performance level of the guide system itself. In this platform, each child can be classified, recorded and queried. When problems occur, they can be solved in a timely manner by uploading their favorite content. When they are found to have some bad behaviors or habits, they will also automatically update the reminder bar or directly delete the relevant records and give corresponding treatment suggestions and save them in the system for further education, so as to achieve the educational purpose.

3.2. Software Function Test of Education Guide System Based on Children's Psychology

The function test of software is the most important part of the whole system, and it is also the most complex and difficult, and needs long-term persistence to complete. In the design process of the system, we need to test the software according to the specific content of the guide and relevant theoretical knowledge. Through a detailed introduction of the topics, principles and methods involved in this topic. This module mainly completes the following functions, realizes the required operation process under the control of the single-chip microcomputer, and can detect whether the value of the environment variable in the current environment is a learning factor or other factors in real time. After setting the parameters, it can use the data to calculate the current learning amount, and configure it reasonably according to this. According to the demand survey results, compile the program flow chart and select the appropriate language environment to realize its basic function module to realize its specific operation. Make test reports and performance comparison tables for each part to verify the effectiveness and accuracy of the system, so as to ensure that the whole software development process will not have serious problems.

4. Experimental Analysis of the Design of Educational Guide System Based on Children's Psychology

Table 1. Functional test data of the educational guide system

Test times	System run time(s)	System delay time(s)	System operation efficiency (%)
A	2	0	87
B	4	2	84
C	3	1	88
D	3	1	80
E	5	2	89

Table 1 is the functional test data of the education guide system. In the design process, according to the positioning of this topic and the characteristics of the guide system itself, this paper has carried out a functional test and analysis on it. Through the study of the overall structure of the software, the relationship between each module and their interaction, etc. Teachers guide and help students by understanding their learning content, learning situation and other aspects, and adjust

their curriculum and textbook preparation according to the different characteristics of the classes they teach. Some knowledge points with strong pertinence can be divided into several segments by structural design, and then the key modules in each part can be processed separately, so as to achieve twice the result with half the effort.

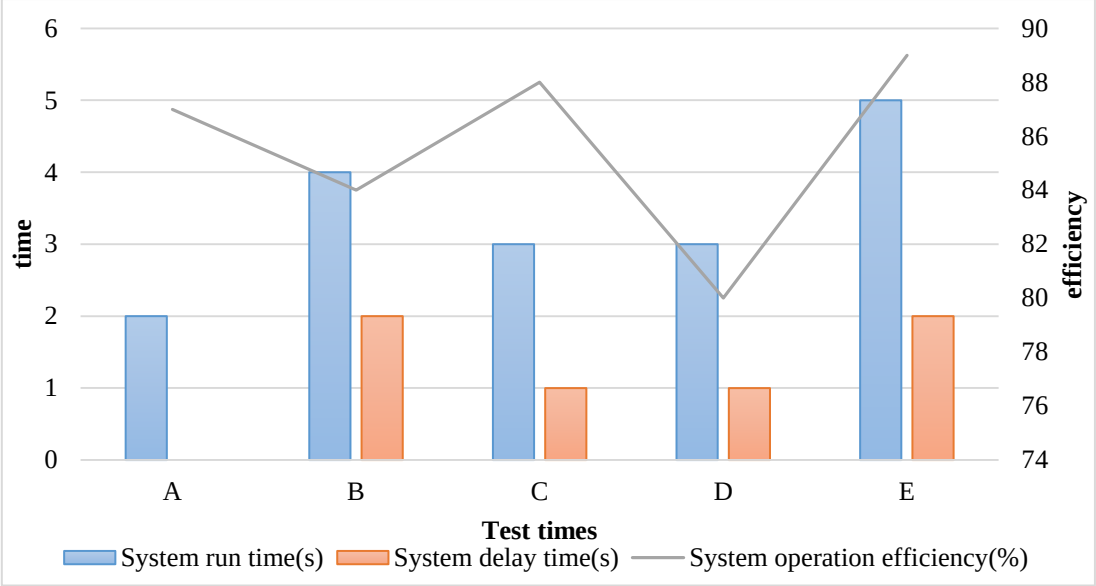

Figure 4. Test analysis

In the guide system, you can see the functions of each module, and the contents of each module are different. Some other elements have been added to the guide system. For example, game books will add relevant knowledge about children's mental health education, and popular science books will also include content about children's psychology and pedagogy, and role-playing activities will also set corresponding questions to guide parents to communicate with their children or help students to correctly evaluate them, so that children can grow into an excellent and healthy personality in a relaxed and pleasant atmosphere A lively and outgoing person. When children enter the learning environment, they will have different requirements for the guide. Therefore, in the design process, we will take into account the children's psychological development level, knowledge background and other factors to write this educational book or course to meet their needs for information and the balance between knowledge, so that they can better serve the society and the school's teaching work. It can be seen from Figure 4 that the educational guide system based on children's psychology runs very fast and its efficiency is more than 80%, which meets the needs of users.

5. Conclusion

The education guide system is a child-centered system to help children form good habits in educational institutions. This paper first summarizes a lot of relevant information about children's mental health in the current market through the investigation and analysis of the pre-school counseling market and traditional media in this paper, and then draws conclusions based on the combination of these theories and practical experience of infant and child knowledge and puts forward some operable solutions to solve the current social problems, Finally, according to the results obtained, a guidance system based on children's psychological education is designed, which has great advantages in helping children establish good learning habits and develop correct and effective language expression ability.

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Data Availability

Data sharing is not applicable to this article as no new data were created or analysed in this study.

Conflict of Interest

The author states that this article has no conflict of interest.

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