Research on Development of Internet Ideological and Political Education Platform for University Students Based on ASP.NET

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Abstract

At present, the domestic society is in an important trend towards the development of informatization. Almost all industries have gradually completed the task of integrating with modern information technology. In recent years, the education sector has also gradually changed the direction of development of its education model toward the Internet platform in accordance with the goals of the new curriculum reform. All of a sudden, multi-education organizations have carried out continuous development of the school's education platform. According to feedback from campus information that has been developed and put into use, the school-based education platform indeed plays a significant role in driving students to learn independently and improving the weaknesses of traditional classroom education. Therefore, many colleges and universities have also chosen to maintain the traditional teaching mode under the premise of offering online education and network-based education platform. Ideological and political education, as an important thought subject that integrates college students with the correct concept into the society and exerts correct political values, cannot be ignored in college curriculum. Therefore, a special online education platform set up by the ideological and political education for college students has rich application value. In order to achieve the full integration of university ideological and political education with the network platform technology, the author uses his own work experience as the main reference point, seeing improving the ideological and political education of college students as the primary task of the status quo, through the ASP, .NET, Access, Oracle and other online platform for the application of information technology, built an internet ideological and political education platform study specially dedicated to college students. The platform mainly used the common automatic test paper composition algorithm, set up a number of educational activities related sections, helping to reach the practical goal of political education.

Keywords: College Students' Internet, Ideological and Political Education Platform, Platform Development and Research

1. RESEARCH BACKGROUND

1.1 Literature review

The Internet itself has a certain information guiding function for contemporary college students. At present, the content of information conveyed by the Internet has certain double-sided attributes both in terms of life level, social news and political highlights. Once the network is filled with too much negative political news, the online environment will more or less stigmatize college students' political and social impressions. (Huang and Chen, 2010) From the observation of the teaching effects of the current ideological and political courses in university curriculums, the ideological and political courses are generally classified as mixed classes. Therefore, due to the confusing characteristics and excessive students, the effect of ideological communication actually reached by ideological and political education in practice has always been in a downturn. Therefore, from talking about the confusion of the environment from the regular network politics or enhancing the teaching effect of ideological and political education in school, it is extremely necessary for universities to set up a special education platform for the ideological and political education of college students. (Song, 2010) In the network of ideological and political education for college students platform, not only the latest political update plate can be set up, but the course learning and online assessment and so on shall be contained. On the one hand, online learning can increase the degree of freedom and choice of students to participate in ideological and political learning activities, at which point students can maximize the effectiveness of their academic and political studies through personalized timetables. The establishment of an online assessment plate can also save the examination room resources in most universities. In addition, the examination mode based on the Internet is more convenient for teachers to interpret the results directly and greatly reduce the actual workload of marking teachers. Therefore, from the basic role of
the Internet platform for ideological and political education, we can easily see that in the contemporary university environment, developing an online platform for ideological and political education absolutely possesses the practical effect of enhancing teaching effectiveness.

1.2 Research purposes

From the perspective of undergraduates’ network ideological and political education platform, this platform aims to enhance the teaching effect of ideological and political education for college students by reducing the pressure of ideological and political education indirectly and liberalizing the teaching and basic assessment forms. The technical ideas followed by this paper are mainly ASP technology and .NET technology. Based on the continuation of the basic theoretical framework of college students’ ideological and political education, the goal of development is to rebuild the network of their teaching resources, educational environment and learning activities; at the same time the user's setting is divided into two sections of administrators and students, and the design of the part is to increase the freedom of students to participate in thinking and learning, but administrators can directly transfer exam resources from the education platform in the assessment session, saving a lot of unnecessary adjustment time. At the same time students’ checking their progress and assessment results will become more rapid and clear based on the network. Therefore, based on the above content, ideological and political education platform for the development of research purpose is to innovate the existing pattern of ideological and political education in colleges and universities to enhance the efficiency of education and teaching related to ideological and political work.

2. OVERVIEW OF CORE TECHNOLOGY OFIDEOLOGICAL AND POLITICAL EDUCATION NETWORK PLATFORM

2.1 Introduction to Microsoft.NET

.NET development platform is the first complete upgrade product of Microsoft, however, in the actual function of the windows32 API, its predecessor, although it can play a certain degree of technological upgrading, it does not give the exact ascending features in the standard technology and tools of the actual upgrade Windows32 API. (Wang, 2010). However, the .NET platform has a full upgrade of the comprehensive features of its tools in its application development skills. Therefore, using the .NET platform to build web applications is the direct option of top priority and the easiest to use among the currently available alternatives. Web applications have the characteristics of multiparty adaptation, which can be used in web servers as well as in large-scale Internet information server, so the web technology provide a wide range of technical support for the smooth and safe operation of desktop programs. (Han and Cao, 2010) From a structural point of view, the .NET platform is divided into two structural layers, architecture and developer tools respectively. Figure 1 shows the .NET development platform structure.

![Figure 1. .NET Development Platform Structure Diagram](image-url)
2.1.2 ASP.NET technology

ASP.NET technology is a programming framework built on a common language runtime that can play a key role in the Microsoft .NET architecture. (Li, 2016) ASP.NET also generates web applications on the server, and it is also a highly plastic development platform with broad support for service content, so general enterprise or other activity community with basic data will prioritize the use of this technology as the preferred content for program development. However, the addition of ASP.NET technology to the syntax is relatively free, so ASP.NET provides a programming framework in addition to being able to add technical capabilities to other development platforms to build more secure and scalable applications for platform. (Liu, 2012) ASP.NET has the advantage of an ascending form compared to other programming framework technologies: (1) ASP.NET can extend the functionality of compiled code content into the contents of outer-box buffering and native optimization, so in terms of functions, ASP.NET can enhance the performance of the server; (2) ASP.NET framework contains almost all the world's known toolbox and designer, making the application process without special difficulty; (3) Based on the common language runtime framework, it has more flexible and strong execution; (4) The basic operation of ASP.NET is centred around a simple form submission process, and the process only need to verify the identity and then enter the site for the operation and distribution; (5) ASP.NET's system is based on a hierarchical structure of text, so only the developer needs to copy the text directly to the server during the administration process; (6) ASP.NET's design is scalable, so in a clustered environment, ASP.NET itself can effectively adjust the process of processor dissonance; (7) ASP.NET also has the ability to insert code at random, so its components' expansion and operation can be operated under the "user-defined" environment; (8) ASP.NET has built-in authentication system, so the staff except for the developer and administrator cannot operate or alter the built-in process.

2.1.3 NET framework native language C #

C # is a kind of programming language specialized in Microsoft whose predecessor is C and C ++, and it is the derivative aggregation of the above two. (Ran, 2011) At the same time, it has the basic features of simplicity and security that combine the stability of the C ++ language with the efficient features of a VB system. But unlike other computer languages, the directional designation of the programming language represented by C # is actually more biased toward component programming with the various properties (execution properties, design properties, event properties, etc.) required to program the component. At the same time, it also has the inheritance, encapsulation and other linguistic features that the programming language shall have. Therefore, in the C # language application process, the object specified in the programming does not have too many obstacles and conflicts. Meanwhile, in the naming process, C # Readable code can also avoid other conflicts to the largest extent. (Zhang, 2014) In addition to the basic fusion properties, C # can also share such database with the .NET Framework. So from the advantages of the C # language described above, we know that currently in .NET application arrangement, C # is the most suitable optional programming language for the moment.

2.2 Database technology

2.2.1 Access database technology

Access database is a series of special software commonly used in office software to manage the database. It belongs to the type of easy operation in the range of data storage capacity. Generally, program design can be done through the confirmation of administrator information in the windows operation page. (Lin, 2012) Access database is less difficult, and most nonprofessional programmers are also able to complete the production of large databases in the create operation. At the same time Access database also supports user sharing, and can be used in different platforms, while its limitation of user-level is also more relaxed.

2.2.2 Oracle database technology

Oracle Database features a wide range of functions, and in addition to its role as database, it can also be used as a development tool. At the same time, compared with other technology categories, Oracle Database has a built-in database with a large breadth, so it has some advantages in terms of extended functions, data stabilization functions and security maintenance functions. (Liang and Zhu, 2013) However, the selection of specific application and tool functions is still based on the structure of the server. Figure 2 shows the server's three-layer architecture.
2.3 Automatic test paper composition algorithm

2.3.1 Commonly used paper composition algorithm

2.3.1.1 Random selection for paper composition

The algorithm takes direct user demand as the criterion, and uses the computer to extract the random function to construct the fixed-type state type. Taking the question database extraction as an example, when the computer is in the random selection state, a completely random set of questions will be added to the optional team until the candidate question category is filled.

2.3.1.2 Backtracking test method

Backtracking test method is upgraded from the random selection in terms of function, when the selected function content by random selection is repeated in the same stage, then the algorithm will be based on the backtracking process to change the lottery rules and make the trial of usability until the papers can be generated. (Zhang, 2016)

2.3.1.3 Genetic Algorithm

Genetic algorithm is often completed with binary code, and upgrades the content by string operation and simulation of genetic operators to form a series of digital population. Compared with other functions, the genetic algorithm is more adaptive to degree function, and the content value of the actual solution can be directly judged as available or not through the determination of the fitness of the function. At present, the operator contained in the genetic algorithm can have three forms of crossover, mutation and selection. (He, 2017) However, during the process of generating papers through algorithm, the operator and the scheduled party need to make some research on the encoding method and operator selection ahead of time, and then determine the specific parameters of the configuration used.

2.3.2 Basic operation of genetic algorithm

The process of selection is to locate available individuals within a group and then use the individual as the sole reference point for direct copying, a practice known as "breeding the next generation." However, the calculation of the specific quality of the next generation to be propagated can be performed by the state of the measurement of the fitness function value. There are only two kinds of results in the deduction: superior / inferior. Algorithm formula is as follows:

$$f \frac{f_i}{\sum f_i} \cdot n$$

Among which $f_i$ represents the fitness of the first chromosome in the population; $\sum f_i$ represents the sum of the fitness of the population; and $n$ represents the population quantity.
3. OVERALL DESIGN OF IDEOLOGICAL AND POLITICAL EDUCATION NETWORK PLATFORM

3.1 Network platform workflow

From a practical point of view, the first step in platform work shall be to log in and to verify identity. When the platform confirms the administrator or student identity, different resource pages shall be presented to different users. (Sun, 2017) For teachers who are administrators, the pages shall be configured with the right to mobilize teaching resources, fill out teaching resource, view student information, and document databases. The page for students is divided into two interfaces, one is the learning page, and the second is the test page. Online learning module includes a large number of video resources for students’ self-study and reference; the specific content can be viewed in the general examination partition of the test page after the students finish answering the questions. At the same time, the grading results will be directly written into the teaching management module of the corresponding ideological and political teachers. Figure 3 is the network platform workflow.

![Figure 3. Work Flow Chart of Network Platform](image)

3.2 System function module

3.2.1 System management module

System management module needs can be divided into four categories: First, user management. This level of development needs to be focused on the identification of user rights. It is needed to set the ideological and political teachers and school managing staff as administrators and set the students as general users. Second, the literature information database management. The plate needs to classify all the contents of the ideological and political education according to different class periods and sources of literature, and then include the keyword search function in different categories. Third, video information database management. The plate not only needs classification management, but also shall pay attention to the video quality maintenance for the platform. Fourth, exam database management. The plate shall include two partitions of examination and paper review, and the examination contains the function of automatic paper constitution and the distribution, and the paper review means to score directly the questions during the period when the students answer the questions.

3.2.2 Online learning module

Online learning shall include data search and video viewing, and video and data selection can be carried out based on the partition. At the same time the content of the information shall support the download, and video content shall be based on the school teaching video. At the same time, the theme of the video shall be centred on the ideological and political education platform, and the content of electronic materials can be enriched on the basis of politics.
3.2.3 Online exam module

The actual resource content of the plate shall be based on the arrangement of the school's political and ideological teachers, and the formation and maintenance of the test module shall be based on the database and the Internet remote on-line technical methods. (Yu, 2016) This plate provides students with the content of the test paper that meets the criteria of course content, and the quality requirement of the client's examination system shall be minimized. In our test paper module, the test paper considers only the objective question types, namely only the multiple-choice questions and the blank-fill questions, and the scores of the two types of questions respectively account for 60% and 40% of the total scores. The point of each question is determined by the difficulty of the question. The process of test paper composition can be regarded as a constraint solving problem. The constraints to be satisfied are:

The total score of test paper:

\[ \sum_{i=1}^{n} XUAN_i + \sum_{j=1}^{m} TIAN_j = 100 \]  \hspace{1cm} (2)

\[ 30 \leq n + m \leq 60 \] \hspace{1cm} (3)

Among them, \( n \) and \( m \) are respectively the number of multiple choices and fill-in-the-blank-tests.

\[ \sum_{i=1}^{n} XUAN_i = 60 \] \hspace{1cm} (4)

In parameter setting, the population size is 30, the crossover probability is 0.9, the mutation probability is 0.1, and the maximum generation number is 100.

4. CONCLUSION

In the continuous evolution of computer technology, there are already many colleges and universities which have chosen to expand to the new teaching model of Internet courses, and this course teaching based on virtual world view shall no doubt lead the students' thinking to other directions because of its innovative teaching values and class presentation. Therefore, in order to seize the leading role of Internet, effective ideological and political education requires the construction of ideological and political education platform to improve students' consistent view of ideological and political education. Through the discussion of the platform technology and module, the paper hopes that the platform development and research ideas described in the paper can provide some theoretical assistance for related research and development personnel.

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