

Retraction

Retracted: Design of Network-Assisted Teaching of Ideological and Political Courses for College Students Based on Android System

Wireless Communications and Mobile Computing

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This article has been retracted by Hindawi following an investigation undertaken by the publisher [1]. This investigation has uncovered evidence of one or more of the following indicators of systematic manipulation of the publication process:

- (1) Discrepancies in scope
- (2) Discrepancies in the description of the research reported
- (3) Discrepancies between the availability of data and the research described
- (4) Inappropriate citations
- (5) Incoherent, meaningless and/or irrelevant content included in the article
- (6) Peer-review manipulation

The presence of these indicators undermines our confidence in the integrity of the article's content and we cannot, therefore, vouch for its reliability. Please note that this notice is intended solely to alert readers that the content of this article is unreliable. We have not investigated whether authors were aware of or involved in the systematic manipulation of the publication process.

Wiley and Hindawi regrets that the usual quality checks did not identify these issues before publication and have since put additional measures in place to safeguard research integrity.

We wish to credit our own Research Integrity and Research Publishing teams and anonymous and named external researchers and research integrity experts for contributing to this investigation.

The corresponding author, as the representative of all authors, has been given the opportunity to register their

agreement or disagreement to this retraction. We have kept a record of any response received.

References

- [1] S. YiFei, "Design of Network-Assisted Teaching of Ideological and Political Courses for College Students Based on Android System," *Wireless Communications and Mobile Computing*, vol. 2022, Article ID 8701947, 10 pages, 2022.

Research Article

Design of Network-Assisted Teaching of Ideological and Political Courses for College Students Based on Android System

Sun YiFei 

School of Marxism, Anyang Institute of Technology, Anyang, China 455000

Correspondence should be addressed to Sun YiFei; 20180022@ayit.edu.cn

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In order to be able to provide learning resources for learners anytime and anywhere and improve the quality of online teaching, a network-assisted teaching system for college students' ideological and political courses based on the Android system is designed. The characteristics of the Android system platform and its hierarchical structure are analyzed, and the overall structure of the network-assisted teaching system was designed based on it and through the construction of the system user login module, learning resources module, operation management module, unit test module, and teaching interface display module, so as to achieve the effect of network assisted ideological and political course teaching. The preferences of students were fully considered, the needs of students with different resource spaces were matched, and the genetic algorithm is used to share the information of network teaching resources to meet the needs of ideological and political teaching. According to the experimental results, the system designed in this paper has high accuracy in the recommended content of ideological and political education resources and the coverage of resource recommendation is relatively high, indicating that the application effect of the system is better.

1. Introduction

With the development of modern science and technology, information and network have become the main trend of education development [1]. At the same time, with the development of higher education from elite education to popular education, colleges gradually expand enrollment and expand and carry out multicampus school running, which makes ideological and political teachers form a "mobile teaching" mode in teaching practice [2], ideological and political teachers and students have less and less time to contact outside class, and students' consolidation and review of knowledge completely depend on their own efforts [3]. Such a teaching method is more likely to cause students' lack of in-depth understanding of the ideological and political course, and students' learning has a strong utilitarian mentality, resulting in students' learning for examination in the ideological and political course [4]. Therefore, it is of great significance to improve the ideological and political education level of college students. In the teaching process, teachers can improve students' ideological and political con-

sciousness through reasonable arrangement of students' extracurricular time, which can effectively cultivate the thinking logic and value level of college students [5]. With the rapid development of the Internet, online teaching has gradually penetrated into the ideological and political curriculum system of universities. Innovation of teaching methods can effectively improve teaching ability [6]. Based on the idea of curriculum networking, relevant scholars have built a network platform for curriculum learning and communication [7].

Reference [8] designed an interactive electronic technology CAI system based on .Net platform. The connection between teachers and students can be improved by constructing user module, course selection module, and data resource storage module. When logging in to the system, users need to authenticate their identity in the user module before logging in to the system, so as to ensure the security of resource data. The corresponding program was clicked according to their own application needs, the business selection layer transmits the user selection instructions to the data management layer, and the data management layer

selects the corresponding resources according to the user needs and feeds back to the user. Online teaching can effectively improve the interactive ability between students and teachers. Through the transmission of ideological and political teaching information, it can promote students' interest in learning and improve teachers' teaching ability. After testing, the system has strong pressure resistance and can respond to the application instructions of a large number of users in real time, and the interactive teaching effect is good, which improves the students' sense of self-efficacy. Reference [9] designs intelligent teaching system according to the efficient interaction of network. The online personalized learning recommendation system can improve students' learning enthusiasm, the offline class can increase students' after-class learning awareness, and the online teaching courses can be improved according to the two-way quality evaluation method of the curriculum system. Offline performance prediction, learning law analysis, and personalized learning recommendation are realized. At the same time, the evaluation and feedback of college teaching quality and students' learning behavior are realized through the offline classroom information data. The experimental results show that the system not only has a convenient and fast channel to obtain information but also can reduce a lot of time cost, meet the new learning and teaching method of combining online and offline, and can effectively improve teachers' teaching efficiency and students' learning efficiency. Reference [10] designs a teaching system based on Spring MVC architecture. According to the actual teaching management needs of colleges, a specific Spring MVC three-tier structure is given. The E-R diagram of system database management is designed, and the designed system is implemented by J2EE language in Eclipse development environment. The system test results show that the system can effectively improve the teaching efficiency, and the system security is higher.

According to the research of relevant scholars, it can be found that the online teaching system can effectively improve students' learning ability and initiative consciousness, but due to the lack of relevant technical support, the accuracy of the recommended content of educational resources is low. Therefore, in order to improve the effect of ideological and political network teaching, it is necessary to further study the network-assisted teaching. It is the most effective method to quickly establish the ideological and political course network-assisted teaching system as a supplement to the network course by using the completed and perfect network course. It is also the best scheme to meet learners' fragment learning and mobile learning. Therefore, this paper proposes a network-assisted teaching system for college students' Ideological and political course based on Android system.

2. Design of Network-Assisted Instruction System

The overall framework of the network-assisted instruction system is divided into three parts: the platform design of the network-assisted instruction system, the overall architecture and functional module design of the network-assisted

instruction system, and the database design. The system is simple to operate and can provide teachers and students with support for real-time teaching and complete real-time teaching tasks in time. It can give full play to the advantages of the Internet, show the teaching thought of taking students as the main body and teachers as the leading, provide students with a good autonomous and cooperative learning environment, fully mobilize students' learning enthusiasm, and better provide help for teaching. The details are as follows.

2.1. Platform Selection of Network-Assisted Instruction System

2.1.1. Analysis of Android System Platform Features. At present, the mainstream mobile development platforms are mainly three camps, Google Android, Apple IOS, and Microsoft Window Phone. In terms of market share, it is the best choice to give priority to the development of network-assisted instruction system based on Android system among the three platforms. Android system platform has the following characteristics:

- (1) Support a variety of mobile devices: the portability of mobile devices is unmatched by PCs. Clients can run on mobile phones, tablets, and other portable devices configured with Android system [11], and even smart TVs. Using the conversion tool provided by Microsoft, it can even convert Android applications to Windows Phone 7 or 8 applications
- (2) The learning resources are updated quickly. Learning resources can be updated through the client program. Online updates and PC downloads can be copied to SD card to update, which is obviously more convenient than Apple iOS

2.1.2. Android System Hierarchy. The Android system platform consists of five parts, from top to bottom: application, application framework, system library, Android runtime, and optimized Linux kernel [12], as shown in Figure 1:

(1) Application

The Android system platform comes with some core applications, including SMS, contacts, map, calendar, browser, e-mail, and other applications. These applications are written in Java program language [13], and developers can replace them through their own applications.

(2) Application framework

The basic framework of Android application can adjust the application system effectively in time [14], including course content manager, page window display, system image recognition mechanism, location manager, and notification manager.

(3) System library

The lower layer of the application framework is a set of C/C++ function libraries, whose function is to provide

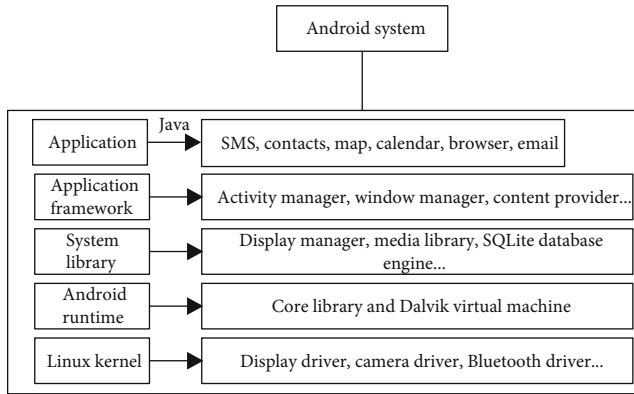


FIGURE 1: Android system hierarchy.

relevant information to developers through various application components, including display manager, media library, SQLite database engine [15], 3D graphics library, fonts engine, WebKit browser engine, 2D graphics library, Internet secure SSL, and standard C function library have 9 parts.

(4) Android runtime

The system mainly operates through Java programs and improves the application effect of the system through the internal data core resource library and Dalvik virtual machine.

(5) Linux kernel

The Android system platform is the connection layer between hardware and software [16], including display driver, camera driver, Bluetooth driver, flash memory driver, USB driver, inter-process communication, keyboard driver, WiFi driver, sound driver, and power management [17].

2.2. The Overall Architecture and Functional Module Design of the Network-Assisted Teaching System

2.2.1. The Overall Architecture of the Network-Assisted Teaching System. With the support of the Android system, the overall architecture of the network-assisted teaching system is designed. In this system, it is mainly aimed at the learning of ideological and political courses between college students and teachers. Therefore, the Android system is used as the basis and the B/S mode is adopted for system construction. The advantage of using this model is that students only need to use a web browser to access the website. In the traditional C/S mode, the client needs to be installed on the student side to access the ideological and political course auxiliary platform. After the update, the client must also be updated, thus increasing the difficulty of accessing it.

The network-assisted teaching system is constructed by the user interface layer, logic layer, and data layer. The coordination among the layers can effectively improve the overall operation effect of the system. Among them, users can realize basic operations such as system login through the user interface layer. By using a web server to implement the specific content of ideological and political course teaching

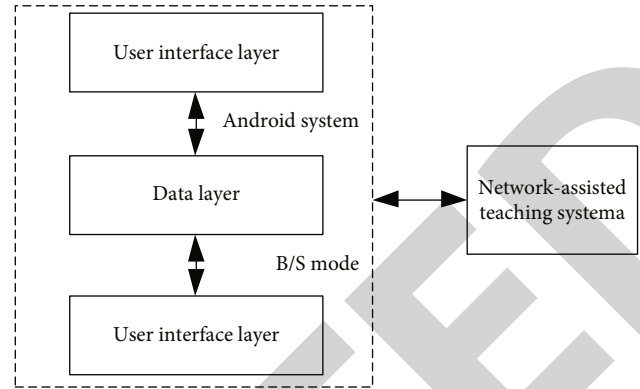


FIGURE 2: The overall architecture of the network-assisted teaching system.

plan, so as to meet the students' knowledge seeking level and teachers' teaching effect, the information storage space of the data layer is used to store all the content information related to ideological and political courses, and the corresponding logical structure is formed by retrieving and managing data to meet users' data requests. The specific architecture design is shown in Figure 2.

2.2.2. Analysis of Functional Modules of the Network-Assisted Teaching System. With the support of the user interface layer, the logic layer, and the data layer in the network-assisted teaching system architecture of ideological and political courses for college students, the functional modules of each level are analyzed in detail. In the system design, the auxiliary teaching system is divided into 5 modules, namely, user login module, learning resource module, homework management module, unit test module, and teaching interface display module. Figure 3 is a diagram of the functional modules of the network-assisted teaching system for college students' ideological and political courses.

(1) User login module

Users need to enter their personal information to log in to the system. If the input information is incorrect, it will be redirected to the prompt page. If there is no error prompt and the page jumps to the operation page normally, the login is successful. After successful login, you can enter the corresponding management page to add, delete, modify, query, and save. If you need to exit the program, there is a "logout" button on the system page. Click it to exit, or close the browser directly and reopen it to complete the logout step.

(2) Learning resource module

Students and teachers can choose and download course resources according to their own needs. On the front page of learning resources, students or visitors can download the teaching resources and courseware uploaded by administrators or teachers. The jsmartupload component is required to realize this function. The file upload and download are realized through the jsmartupload component. Due to the limitation of the jmarkupload component, the name of the

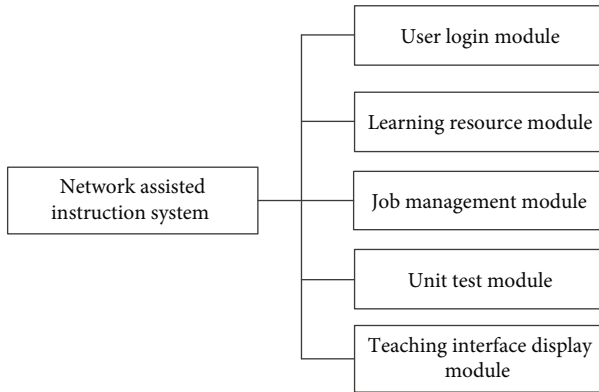


FIGURE 3: The functional module composition diagram of the network-assisted teaching system for college students' ideological and political courses.

uploaded file can only be English, not Chinese characters. Therefore, this module also provides an FTP server solution, so that students can upload their homework and download resources, and teachers can upload any resources to the FTP server.

(3) Job management module

The homework management module mainly includes the functions of teachers assigning homework and students completing homework. The teacher's assignment process is shown in Figure 4. The teacher arranges the homework of the course according to the selected course. The assignment includes filling in the overall information of the homework and the detailed information of the homework. The overall information of the assignment includes assignment attribution, course ID, assignment name, submission time, and deadline. The detailed information of the homework is the title design of the homework. There are four types of homework questions: single-choice questions, multiple-choice questions, short-answer questions, and application questions. Question scores and standard answers, short answer questions, and application questions should include the content of the question, reference answers, and question scores.

Students' operations on homework information include selecting courses, viewing homework, completing homework, submitting homework, and viewing correction. In the answer page, students need to complete the four types of questions, respectively. Among them, only one single item can be selected for single-choice questions. Multiple-choice questions need to choose at least two items. Application questions can view the files uploaded by teachers or upload files for teachers' reference. Correcting homework belongs to the function of teacher users. Teachers select a student to correct according to the completion of homework. Among them, single-choice questions and multiple-choice questions have been automatically corrected by the system. The task for teachers is to correct short answer questions and application questions. Teachers can score according to the reference answers. Teachers' scores are generally lower

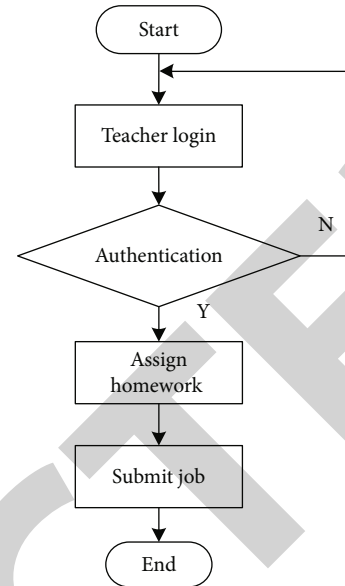


FIGURE 4: Teacher assignment process.

than the score of the questions. For application questions, teachers can download the files uploaded by students for detailed evaluation.

(4) Unit test module

After students complete the course, in order to timely understand the students' mastery of the knowledge, they can focus on the weak links of students in the future teaching links. Teachers can set unit exercises according to the knowledge content of the course for students to answer. Students can conduct online test through the course network assisted instruction system. After students complete the test and successfully submit the test paper, the test paper will be saved in the list of test papers to be evaluated. After teachers log in to the course-assisted instruction system, they can view and correct the test paper submitted by students. After correction, students can see the correction results of teachers. Through this online test, students can timely understand their mastery of knowledge and carry out targeted consolidation and review, so as to deepen students' understanding of knowledge and improve students' learning efficiency.

(5) Teaching interface display module

In the design of teaching interface display module, the teaching system is developed using the popular Servlet and JSP technology, and the page design is based on the course characteristics and students' psychological characteristics. In order to reduce unnecessary interference information to students, the image, text, background color, segmentation line, and title involved in the whole network-assisted teaching system are unified in style to achieve visual balance. The color in the page fully takes into account the overall harmonious effect, so that the link color of the text, the tone of the picture and the background color of the page are consistent.

The text on the page uses general fonts. The selection of fonts will not only affect the system page style but also directly affect the browser's reading and information expression. Therefore, the use of general fonts such as Song typeface, bold typeface, and regular script not only meets the application requirements of the network-assisted teaching system but also reflects the fresh and natural style.

2.3. Database Design. Database design is a key link in the design of CAI system. Building an efficient database model is the main way to improve the efficiency of the system. When designing the database, it should first start from the requirements and clarify which entities the system needs to design. On this basis, clarifying the attributes contained in the entity to store complete data information is needed, and then, clarifying the storage type and storage size of each field is needed. Through the above links, the database design of the auxiliary teaching system can be completed [18, 19].

This article mainly creates a database in SQL Server 2000. It includes three main tables. The table names are mtb_User, mtb_Information, and mtb_classify. Among them, mtb_User stores the user authentication number, name, gender, class, contact number, and login user name, password, authority, and other information. The mtb_Information table stores information such as resource titles, resource classifications, and resource paths; the mtb_classify table stores classification information, including teaching courseware, examples, test questions, test papers, and engineering practice resources [20]. In addition to the creation of the main table, there are more auxiliary tables, relationships, views, stored procedures, and custom functions.

The net-assisted teaching system of college students' ideological and political courses has strong practicability and innovation. After saving all ideological and political teaching contents through data storage space, it can provide users with specific course teaching and learning services in a timely and effective manner. At the same time, the system has security and confidentiality, which can effectively manage and protect the stored content. Reducing data redundancy, avoiding data inconsistency, and realizing data sharing, it can promote the integrity and independence of course content [21].

It can be seen from the above analysis that on the basis of Android system, through the design of the overall architecture, functional modules, and database of college students' ideological and political course network-assisted teaching system, it not only realizes the use functions of teachers, students, and administrators but also effectively improves the management level of teaching resource data, and it provides a solid foundation for improving the teaching effect of ideological and political course. Since a large amount of data will be generated in Ideological and political teaching, including learning materials, user information, and assessment results. By optimizing network teaching resources, teachers' teaching level and ability can be effectively improved and a modern network teaching system can be realized.

3. Ideological and Political Course Network Teaching Resource Management

3.1. Teaching Resource Recommendation Algorithm. The main object of the network-assisted teaching system for college students' ideological and political courses is students. Because students need a lot of learning materials in their studies, it is of practical significance to design a teaching resource recommendation algorithm that can meet the needs of students. Assuming that there is an available resource for item d , its basic recommendation status is as follows:

$$y(d) = \frac{z}{\sqrt{a^2 + b^2}} \times \sum_{i=1}^n e_i. \quad (1)$$

In the formula, a represents the resource to be recommended, b represents the student's preference for the resource [22], z represents the serial number of the online teaching resource, and e_i represents the weight of the available resource.

The preferences of students are fully considered, the needs of students with different resource spaces are matched, and the set of available resources for item d was denoted as $D = \{d_1, d_2, \dots, d_n\}$, where n represents the number of resource types. In set D , the matching weight of resources and student needs is

$$\mu_{ij}(D) = \frac{1}{M} \times \sum_{i,j=1}^n E_{ij} + x_{ij}. \quad (2)$$

In the formula, M represents the number of recommended categories, E_{ij} represents the possibility that resource i enters the recommendation list j , and x_{ij} represents the possibility that resource i does not belong to the recommendation list j . The subgraph algorithm [23] is used to describe the weight of resource distribution in the entire space [24], which can be expressed by

$$P(D) = \sum_{i=1}^N \left((y_i + y_j)^2 \times r^2 \right)^2. \quad (3)$$

In the formula, y_i represents the nonlinearity of resource distribution, y_j represents the nonstatic nature of resource distribution, and r^2 represents mission criticality.

When finding the position with the highest matching degree in the entire resource map space according to requirements, there are

$$Q_i = \sum_{i=1}^N (x_i^2 + y_i^2 + ax_i + by_i). \quad (4)$$

In the formula, Q_i represents the degree of matching, x_i^2 represents the semantic location of the resource, and y_i^2 represents the map unit.

At this time, combining formula (3) and formula (4), the recommended resource subgraph of the demand [25] can be obtained, as shown in

$$Q_i(D) = \frac{\sqrt{(y_i + y_j)^2}}{Q_i}. \quad (5)$$

However, there are too many subgraphs at this time, which will cause the recommendation effect and time consumption to increase sharply. Therefore, it needs to be further improved. The specific approach is as follows.

Taking $h_1(D)$ as the initial recommendation list (the initial recommended resource sub-graph), the recommended item c in it is first filtered based on demand. Among them, the recommended index item parameter $\{g_1, g_2, \dots, g_n\}$ corresponds to $\{c_1, c_2, \dots, c_m\}$, and the resource recommendation optimization formula can be obtained as

$$G_{is} = \sum_{i=1}^N \sum_{s=1}^N \frac{P_{is}}{\omega_i} (s \times t). \quad (6)$$

In the formula, s represents the recommendable resources in $h_1(D)$, P_{is} represents the similarity of resources, ω_i represents the hierarchical space of the graph, and t represents the recommended frequency.

Further refreshing the recommendable resource s to filter invalid resources [26], the specific expression is

$$F_N = \frac{r_{ij}}{|r_{ij}|} + \eta v_{ij}. \quad (7)$$

In the formula, r_{ij} represents the availability of resources, η represents the filtering rate [27], and v_{ij} represents the sparsity of resource data.

The weight corresponding to the u th resource is transformed based on formula (7); the formula is

$$u_k = \frac{u_k^n + u_k^{n+1}}{2} \times \Delta t. \quad (8)$$

In the formula, Δt represents the recommended frequency that changes according to the needs of students and u_k^n and u_k^{n+1} both represent the solution set. According to these two solution sets, an optimal solution set is obtained. The expression is

$$V_k^n = \sqrt{(u_k^n)^2 + (u_k^{n+1})^2}. \quad (9)$$

The optimal solution set obtained by formula (9) is the optimal recommendation list, which completes the effective recommendation of teaching resources.

3.2. Network Teaching Resource Sharing Based on Genetic Algorithm. In addition to the recommendation of teaching resources, the application of network teaching resources also involves a large number of teaching resources, such as teach-

ing materials uploaded by teachers, teaching resources downloaded by students, and real-time updated resources in the system. The genetic algorithm can effectively optimize the selection of ideological and political teaching contents in the network [28]. The key lies in the determination of population size, chromosome representation, optimization parameters, fitness function, and optimization objectives [29]. The population size is determined by the number of optimized network teaching resources. Considering the habit of resource sharing between teachers and students, providing too much information will lead to the waste of network teaching resources. Therefore, before optimization, the resource information searched by the search engine and the local resource information database shall be filtered and merged, and a certain number of network teaching resource information ranked at the top shall be extracted and renumbered. The representation of the chromosome should be determined in combination with the optimization goal. For teachers and students, they want to share teaching resources with low cost, high bandwidth, and stable work. Therefore, different arrangements of network teaching resources as chromosome representation were different, and some arrangement of network teaching resources to minimize the total sharing cost as the optimization goal was searched, that is, the total sharing cost is the minimum [30].

Considering the influence of the above factors on the sharing of network teaching resources, the sharing cost function of individual resources in the process of information optimization of network teaching resources based on genetic algorithm is defined as

$$R_i = \frac{\partial \rho_i^x(t)}{x'} + \frac{\partial \rho_i^y(t)}{y'} + \frac{\partial \rho_i^z(t)}{z'}. \quad (10)$$

In the formula, x' represents the serial number of a network teaching resource after renumbering and y' represents the resource sharing fee, which is determined by whether the user is willing to pay and whether the resource is charged. The value of free resources or users are willing to pay for sharing is 0, and the value of charged resources when users are unwilling to pay is 2; z' represents the predicted value of the current working state of the resource, which is a decimal between 0 and 1. Generally, normal resources are greater than 0.6; $\rho_i^x(t)$ represents the resource sharing bandwidth condition, which is expressed as an integer between 1 and 5. If a stable bandwidth connection can be provided, the smaller the value is; $\rho_i^y(t)$ represents the network environment where the resource is located, and 0 and 1 represent the same network environment and heterogeneous network environment, respectively.

According to the representation of chromosome, the fitness function of evaluation chromosome is expressed by the total sharing cost of each resource in the chromosome [31]:

$$\text{Fitness} = \sum_{i=1}^N E_i. \quad (11)$$

Considering that the genetic algorithm is a maximum optimization search algorithm, and a negative sign is introduced into the fitness function to transform the minimum problem into the maximum problem [32], the goal of network teaching resource information optimization is to maximize the total sharing cost of all resources after taking a negative value:

$$\text{Cost} = \max \sum_{i=1}^N E_i. \quad (12)$$

The process of using the genetic algorithm to optimize network teaching resource information includes chromosome representation, initial population generation, evaluation of individual (chromosome) fitness, selection of high-quality individuals, cross-generation of next-generation individuals, individual variation, and other iterative processes. Through continuous reproduction, it stops when the preset objective function value or the upper limit of reproduction algebra is reached [33]. The overall optimization process is as follows:

- (1) Firstly, the initial population with a certain number of chromosomes is randomly generated, such as the initial population with 30 chromosomes
- (2) The fitness of individuals in the population was evaluated and normalized
- (3) Individuals are selected by means of roulette to produce the next-generation population, and high-quality individuals with high fitness are more likely to be selected [34]
- (4) Select individuals in the new-generation population to cross and produce new individuals
- (5) Mutate the newly generated chromosomes with a certain probability to maintain the diversity of the population [35]
- (6) If the termination conditions are met, exit the iterative cycle, otherwise repeat the second step to start a new evolutionary process [36]
- (7) Output the optimized network resource information list

The optimized network teaching resource information is provided to teachers and students in the form of pagination list. Its order is the arrangement order of network teaching resources in the optimal individual. It comprehensively considers many factors such as the content, charging, network transmission bandwidth, and working state of network teaching resources. On the whole, it reflects the influence of various network teaching resource parameters on the optimal ranking, which is convenient for teachers and students to quickly select network teaching resources. Due to the complexity of various parameters of network teaching resources, the above optimization parameter settings alone are not enough to accurately distinguish the sharing

expenses of network teaching resources. However, in terms of usage habits, whether the high-quality resource information is displayed on the first page is paid more attention, and there is no obvious difference in the sharing effect of local front and back relationships, Therefore, the optimized network teaching resource list can be easily used for sharing in the teaching process.

To sum up, with the help of Android system platform, the overall architecture of the network-assisted instruction system is designed, and the system function is designed through user login module, learning resource module, homework management module, unit test module, and teaching interface display module. On this basis, the teaching resource recommendation and sharing algorithm is designed to optimize the processing of network teaching resources, so as to complete the software and hardware design of college students' ideological and political course network-assisted teaching system based on the Android system.

4. Experimental Analysis

In order to verify the effectiveness of the proposed network-assisted teaching system for college students' ideological and political courses based on the Android system, the processing effect of network teaching resources is verified as a measurement index. The specific indicators can be divided into the recommendation accuracy and coverage of network teaching resources. At the same time, in order to improve the comprehensiveness of the experimental results, the system software is tested, verifies whether it can achieve the expected effect, and investigates the user satisfaction to verify its application value. In the experimental test, the interactive electronic technology CAI system based on .Net platform and the intelligent teaching system based on deep learning are used as comparative methods to analyze the application effects of different methods.

4.1. Background Analysis of System Software Testing. MyEclipse8.0 was used to publish the entire system to the Tomcat6.0 server, the server and IE browser were run, and the system's finishing and running effects were tested. The server was run to perform module unit testing, and the browser was used to record the test results. The obtained test results are compared with the expected results to judge the application effect of the system. The testing equipment required for the experiment is shown in Figure 5:

The user login module, learning resource module, after class review module, ideological and political content test mode, course preview, and review module were tested. Due to space and time constraints, the experimental part failed to verify all the five modules, and only two models were selected for analysis. After testing, it can be known that the designed system has complete software functions, good user interface, and correct error handling and can correctly indicate the type of error. However, some deficiencies and defects of the software were also found in the test. For example, when users log in to the system for the first time, they must log in to the system with a preset administrator



FIGURE 5: Test equipment.

account to add new users. Some defects need to be corrected when the software is further modified and maintained. Generally speaking, the software can be used normally after passing the test.

4.2. System Application Performance Test and Analysis

(1) Recommendation accuracy of educational resources

Firstly, taking the recommendation accuracy of educational resources as the experimental index, the application effects of different systems are compared, and the results are shown in Figure 6.

Figure 6 shows the comparison results of recommendation accuracy of different systems (the proportion of actually accepted recommendation resources in the overall recommendation resources). Through analysis of Figure 5, it can be seen that the recommendation accuracy of educational resources of different systems shows a continuous increasing trend with the increase of iteration times. When the number of iterations is 5, the resource recommendation accuracy of interactive electronic technology CAI system based on .Net platform is 22%, the resource recommendation accuracy of intelligent teaching system based on deep learning is 14%, and the resource recommendation accuracy of the system designed in this paper is 32%; When the number of iterations is 10, the resource recommendation accuracy of interactive electronic technology CAI system based on .Net platform is 62%, the resource recommendation accuracy of intelligent teaching system based on deep learning is 37%, and the resource recommendation accuracy of the system designed in this paper is 78%. This shows that the content recommendation of ideological and political courses designed in this paper has high matching and accuracy.

(2) Recommended resource coverage

Figure 7 shows the recommended coverage of educational resources in different systems (the proportion of actually accepted recommended resources in actually used resources).

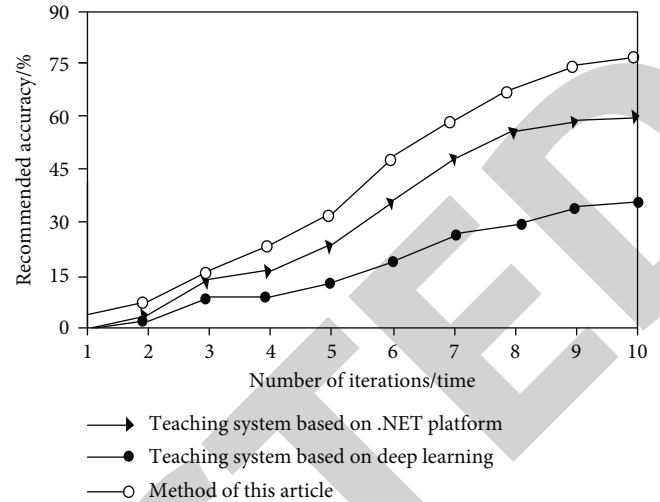


FIGURE 6: Recommendation accuracy of educational resources.

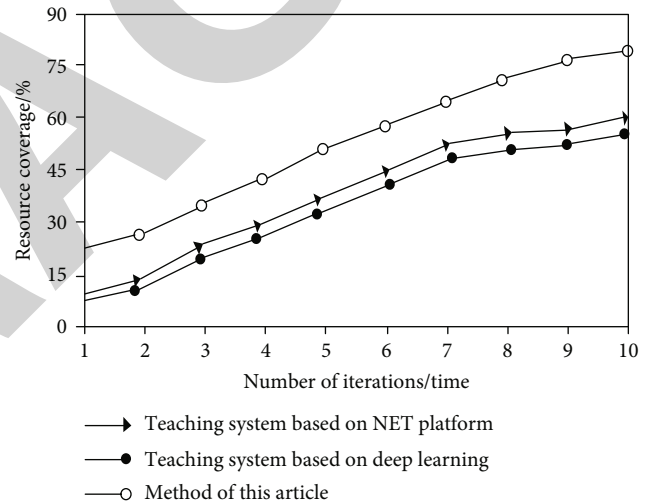


FIGURE 7: Recommended coverage of educational resources.

It can be seen from the analysis of Figure 7 that the recommended coverage of educational resources of the system designed in this paper shows a linear growth trend, and the maximum recommended coverage of resources has reached more than 80%. The recommended coverage of resources of interactive electronic technology CAI system based on .Net platform and intelligent teaching system based on deep learning are relatively close and lower than the system designed in this paper. According to the above experimental data, the recommendation coverage of the system designed in this paper is high, which reflects the high recommendation efficiency.

(3) User satisfaction

Taking user satisfaction as an important index to evaluate the application effect of the system, 100 testers, including students, teachers, and other system users, are selected to score the system. The results are shown in Table 1.

TABLE 1: Scoring results of user satisfaction.

Number of users/piece	This paper designs the system	Teaching system based on .Net platform	Teaching system based on deep learning
10	89.5	78.1	80.1
20	89.7	79.3	80.7
30	90.1	79.9	81.5
40	90.3	81.2	82.3
50	90.5	82.5	83.4
60	91.3	83.4	84.6
70	93.7	84.1	86.6
80	94.5	85.6	88.2
90	95.0	86.0	89.0
100	96.1	87.2	89.3

According to the scoring results in Table 1, users are highly satisfied with the system designed in this paper, with the highest score of 96.1, while the scores of the two traditional systems are lower than those of the system designed in this paper. It shows that the system designed in this paper can meet the needs of users, achieve the expected objectives of users, provide users with effective educational resources, and help to improve the effect of e-learning.

5. Conclusion

In order to enhance students' interest in learning ideological and political courses and improve teachers' teaching level, this paper designs a network-assisted teaching system of college students' ideological and political course based on Android system. After analyzing the characteristics of the Android system, the network auxiliary guidance system design is established. The hardware and software of the system are built to meet the current demand of ideological and political course teaching content resources, and the internal structure and function of the system are carefully designed according to the characteristics of users. Programming language and genetic algorithm are used to develop the system software to meet the needs of students and teachers. The following experimental results are obtained:

- (1) When the number of iterations is 5, the resource recommendation accuracy of the system designed in this paper is 32%. When the number of iterations is 10, the resource recommendation accuracy of the system designed in this paper is 78%, which is higher than that of the traditional system
- (2) The Educational Resource Recommendation coverage of the network-assisted teaching system of ideological and political courses for college students designed by the Android system in this paper shows a straight-line growth trend. The highest value of Resource Recommendation reaches more than 80%, and the recommendation coverage is high, which reflects the high recommendation efficiency
- (3) The user's satisfaction with the system designed in this paper is high, and the highest score is 96.1.

The designed system makes up for the shortcomings of the current teaching system, plays a good teaching effect in practical use, and can effectively alleviate the pressure of teachers and improve the teaching quality

Data Availability

The raw data supporting the conclusions of this article will be made available by the authors, without undue reservation.

Conflicts of Interest

The authors declared that they have no conflicts of interest regarding this work.

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