The Construction of the Paperless English Test Answering System in University Based on Computer Technology

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Abstract. In recent years, due to the diversification of College English education learning mode and the complexity of students, the organization and management of English education examination is very heavy. The traditional paper-based English test not only has a long cycle and complex process, but also is difficult to prevent cheating. Therefore, the construction of the paperless examination and answering system for the college English test is particularly urgent. This paper clarifies the process of the paperless examination of college English and analyses the functional requirements of the paperless English examination answer system. On this basis, this paper constructs the College paperless English examination and answering system based on computer technology, which provides a solid technical support for strengthening the reform of the College English teaching system.

Keywords: College English, Paperless, Examination and Answering System, Computer Technology

1. Introduction

With the reform of College English teaching mode in China towards the direction of complexity and refinement, the disadvantages of the traditional college English examination mode in terms of examination cost and examination effect are becoming more and more obvious. Therefore, the computer-aided paperless examination model of college English examinations has become an inevitable direction for the reform of the current college English curriculum evaluation and assessment system. This new paperless College English test mode not only has incomparable advantages in terms of innovation and operability, but also is an inevitable trend for the development of College English teaching and management in China.

2. The characteristics and the necessity of paperless English examination in college
2.1. The characteristics of the paperless English test in college

(1) The paperless examination is more operable and versatile

The paperless examination completes the relevant examination work in the local area network, and its main sub-module contains the uploading and classification of the examination question bank\(^{(1)}\). Before the test starts, candidates need to log in to the client module. After the login is completed, the system will extract the test questions in the test question bank for the test. The emergence of the paperless examination system will greatly improve the efficiency and credibility of the examination\(^{(2)}\). At the same time, the paperless examination system has a very high versatility and is very simple to operate.

(2) The cost of paperless exams is lower

The operation of the paperless test is completed on the computer, even if the registration and examination of the test are also put online\(^{(3)}\). The advantage of this method is that it removes errors caused by human factors and guarantees the accuracy and reliability of the exam. In a large-scale exam, it can greatly save the cost of exam preparation and organization.

(3) Paperless examination is fair and just

The artificial factors of paperless examination can be avoided, and there will be no human-induced errors. All the examination process is completed by computer, with fast speed and high accuracy.

2.2. The necessity of paperless examination in college English

(1) Paperless exams have higher operating costs and higher exam efficiency

By adopting a paperless examination system, the operating cost can be greatly reduced. Teachers only need to submit test questions to the server of the examination center to organize and arrange related examinations\(^{(4)}\). At the same time, using the shared module of the paperless examination system, teachers can learn from each other, which not only saves teachers' time, but also improves test questions.

(2) Paperless examination is conducive to guarantee the reliability and validity of the examination

The design of test questions needs to consider two aspects\(^{(5)}\). First of all, the exam needs to truly test the student's ability, and at the same time the candidate's scores should show a normal distribution, that is, to be able to truly distinguish students. In the traditional examinations, there is often a case of losing sight of each other, and students cannot be comprehensively evaluated\(^{(6)}\). The paperless test computer will allocate the test questions according to the difficulty level of the test questions, and calculate the reliability and validity, so that the test is more comprehensive.

3. Demand analysis of paperless examination and answer system of college English

3.1. The basic process of paperless examination and answering of college English

(1) Candidate exam management

The main task of this stage is to organize student examinations. The basic process includes: organizing candidates to enter the examination room in an orderly manner; invigilator teachers start examination; examinees log in to the system to verify that their personal information is correct and enter the examination interface to answer questions; the system randomly generates candidates' examination
papers according to the test paper strategy; Candidates submit the papers after answering the questions, if the answer time is over, they will be forced to submit the papers; the invigilator will end the exam.

(2) Examination review management

The main task of this stage is to complete the grading of candidates' test papers. According to the type of test questions, the test questions can be divided into objective questions (including the word filling, vocabulary selection, reading comprehension, cloze, listening test) and subjective questions (including translation, essay writing). The objective questions are automatically judged and scored by the system, and the subjective questions are checked and scored by the teacher logging in the examination system.

(3) Score management and query

After the system is completed, scores will be combined with the usual grades given by the teacher to form the comprehensive score of the exam, and various reports (such as basic transcripts, test score distribution charts, test question score statistics, etc.) will be generated. At the same time, the exam system will communicate with the existing educational administration system to automatically transfer test scores to the educational administration system. After the results are reviewed, candidates can log in to the paperless examination system and query their test scores.

3.2. Function analysis of the paperless College English test and answering system

According to the analysis of the College English paperless examination system, in order to achieve the goal of paperless examination, the basic functional modules of the system include: item bank and teaching auxiliary resource management, examination client, score and score management, teaching the auxiliary system and system maintenance. The function composition diagram is shown in Figure 1.

![Function composition diagram of the paperless test and answering system](image)

**Figure 1.** The function composition diagram of the paperless test and answering system

(1) Question bank and resource management

According to the current teaching materials, teachers should compile knowledge points, such as chapters, the contents, etc. In addition, teachers need to establish the exercise database in the system, and set the knowledge points, difficulty coefficient and type of exercises. Finally, teachers need to file video course, slide courseware and reference materials to different knowledge points.

(2) The examination management system

The system needs to arrange the examination room, specify the scope and difficulty of the examination, and arrange the invigilator and examinees. During the examination, the examination will
be started to monitor the examinee's situation in real time, and the statistics of late and absent candidates will be made. After the examination, the system needs to file the papers and count the scores.

(3) Scoring and performance management

After the examinee hand in the paper, the system will file the examinee's test paper and answer, and automatically score the objective questions of the test paper. After that, teachers can log in to the system to manually mark and grade the objective questions. After scoring, the system synthesizes and analyses the results, and generates various statistical reports. After the results are confirmed by the educational administration department, candidates can log in to the system for inquiry.

4. Construction of paperless College English test and answering system

4.1. Construction of network examination and answering system based on computer technology
Firstly, the test system module of the language subject platform of campus network is installed in the server of College English Network Learning Center, and then the network examination is arranged for students through the computer and other computer rooms of the computer network digital language laboratory. Secondly, by using the intelligent test paper system, teachers can input "difficulty coefficient, subject matter, object of use, form of test questions, source of test questions" and other conditions to automatically generate test papers. The examination paper management system is convenient for teachers to manage the spare papers of previous examinations. Through the test question management system, teachers can set their own specialized question bank, and classify them according to the item attribute. The network examination system adopts two-level server architecture, and has load balancing technology and network fault self-test function, which can ensure the security and stability of the examination, so as to avoid the end of the test.

4.2. Construction of the network database for examination and answer system
College English paperless examination needs a set of systematic question bank, which should meet the teaching objectives and requirements of College English, and be consistent with the learning plan in content. The difficulty of test questions should not only meet the actual learning situation of school students, but also pay attention to its difficulty, discrimination and reliability. Teachers should design and perfect the question bank scientifically. First of all, they should combine the scope of the test and the difficulty degree to produce several sets of different test papers, and if necessary, they should input the test questions in advance. Teachers should do a good job in adding, modifying, inserting, storing and so on. At the same time, they need to combine the specific teaching practice, design and teaching activities synchronous test content and type, in order to further improve the database.

4.3. Construction of the management module of paperless examination and answering system
In order to discuss the system design, this paper uses the functional module structure diagram to draw the functional modules of the system. The designed English online examination system is divided into the front desk and the back desk. In the functional design, the back desk is mainly designed into four major functional blocks, respectively: The system user management energy block, candidate achievement management energy block, English exam management energy block, English test bank management energy block. The functional module structure of the paperless English test and answer system designed is shown in Figure 2. In design, the English examination and answering system adopts the standard software engineering design mode, and uses the standardized software engineering design
theory to design the functional architecture of the system. The modular design can be used for functional design, and the system is gradually divided into modules with independent functions to enhance the scalability of the English examination system.

![Architecture of paperless examination and answer system](image)

**Figure 2.** Architecture of paperless examination and answer system

5. Conclusion

The paperless test and answering mode can effectively avoid some of the disadvantages of the traditional college English paper test, and it is a new test form that conforms to modern development. The deep integration of college English examination and computer technology not only promotes the reform of college English examination informatization, but also can effectively feedback the teaching effect. For the college English paperless examination and answer system based on computer technology constructed in this article, it is not only a beneficial innovation in college English teaching reform, but also provides valuable experience for the deepening reform of other disciplines.

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