Research on Computer-Aided English Language Evaluation System

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Abstract. With the rapid development of science and technology, computer-aided language teaching and testing has become an inevitable trend in the development of English language teaching and research. With the continuous popularization of online courses, all kinds of examinations have adopted computer-aided examinations, and CET-4 has also begun to implement computer tests. Computer aided teaching refers to the use of computers as a tutor, presenting information, providing students with opportunities for practice, evaluating students' grades and providing additional teaching. With the development of multimedia technology and communication network technology, all individualized teaching technologies with computer as the core are called the application of information technology in education. It is dedicated to the establishment of a three-dimensional foreign language learning environment supported by modern educational technology, and aims to improve the quality of foreign language teaching in a more scientific and effective way. According to statistics, there are still few computer-based college English language testing systems. The existing systems are mainly designed and developed around the CET-4 examination, and the functions are monotonous, only serving the examination. It can not help and promote students' learning. Testing and evaluation is a unity with different functions in teaching. Only test without evaluation, examination can not play a positive role in teaching. The test only determines the learning level of language learners, and the test results themselves can not fully reflect the specific problems, because if there is no information to explain the results, the examination can not be given for analysis and feedback. It is difficult to guide teachers' teaching and students' learning. In view of the above disadvantages, this study intends to establish a computer-aided English language evaluation system from the perspective of the combination of language testing and evaluation. The system has many similarities with the existing CET-4 examination system, and has more complete functions, can meet the needs of the development trend of foreign language teaching, and has great attraction to students and teachers. It can not only provide students with simulated examinations, but also help students analyze test results and check problems. The computer-aided language assessment system is fast, efficient, timely and objective.

Keywords: Computer-Aided, English Language Assessment System, Flexible Forms of Testing
1. Research content of English language evaluation system
Based on the theory of computational linguistics, a system of language skills testing and evaluation is established, and English grammar, vocabulary, listening, reading, writing, translation and other skills are effectively tested and evaluated by computer. As shown in Table 1, the system has the following functions and functions:

(1) Diagnostic language level. It is mainly from the test to understand the students' existing language level, to find and diagnose the problems in language learning. Teachers can revise or adjust the teaching plan according to the test results and feedback information, or divide classes according to the students' different levels.

(2) Check the progress of study. It is mainly to check and evaluate the students' mastery of what they have learned in a certain stage of study. According to the students' test results, teachers can find out the existing problems, formulate corresponding remedial measures, and then improve the teaching.

(3) Measuring English. It is mainly to measure the students' English language knowledge and the overall level of comprehensive use of English in order to distinguish the different degrees of students.

(4) Encourage students to learn. The language test and evaluation system can provide teachers and students with timely evaluation and feedback information, clearly point out the problems and shortcomings of students, can provide students with autonomous learning, and make up for the possibility of deficiencies. Encourage students to learn independently and change passive learning into active learning. As shown in Figure 1.

![Figure 1. The function and function of English language evaluation system.](image)

2. The structure of English language evaluation system
I assume that the system consists of four subsystems: question bank system, examination system, marking system and evaluation system. As shown in Figure 2.
2.1. The construction of question bank in English language evaluation system

The first step of computer aided English language test is the construction of question bank. In the construction of the English language test question bank, we should first analyze and understand the grade, purpose and basic requirements of the English proficiency test, then select the method, form, order, question type and difficulty of the test questions according to the requirements of the syllabus, and then complete the establishment and editing of the English test database through editing, formatting and interspersed skills. In order to realize the automation of the establishment of English test question bank and the process of writing questions, two key problems must be solved: first, to realize the coding of English test questions, so that the computer can understand the technical requirements of establishing question bank. And let the computer know all kinds of English test questions. Second, it is necessary to systematize, theorize and code the English teacher's experience and skills. The English teacher's experience, ability and knowledge can be stored regularly, and can be called at any time through the code when needed, so that everyone can share the test question bank, and divide the test questions into various types according to the requirements of the test type and grade.

If certain sets of English test questions have the same grades and similar patterns, the common method of writing questions can be used to edit each set of similar questions. This common method of writing questions appears in the standard model, such as CET-4 and CET-6, which is formulated by collecting the collective wisdom and experience of English experts, teachers and examiners and then stored in computers. When making a set of test questions for an English exam, according to the object and requirements of the examination, the standard model sample questions are retrieved from the computer, and a set of test questions is regenerated. On this basis, a new set of test questions can be obtained by appropriate editing and modification. This method is simple and convenient, and has good secrecy performance. In addition, according to the update of teaching content, the test questions in the computer question bank can be continuously supplemented and deleted to ensure the scientific and reasonable of the test questions. At the same time, teachers can learn from some other classical question bank to share the resources of question bank [1].

2.2. Build network test system

The traditional English language test is only a written test and an oral test, while the computer operation test is only the patent of computer majors. But with the development of computer-aided instruction and computer software and hardware technology, computer is gradually applied to the examination of other subjects. The use of computer technology for testing is a complementary means.
of traditional language testing. It can make up for the defects of the traditional mode to a certain extent, improve work efficiency and realize paperless examination. In terms of the implementation of the examination syllabus, the selection of test questions and the conditions (reliability and validity) that the test questions should meet, there is not much difference between the two. The key difference is the way the exam is conducted. This includes examination time, place, marking, scoring, statistics of examination results and methods of notifying candidates, etc. In contrast, the traditional mode is fixed and centralized, while the computer-aided mode is flexible and loose. If handled properly, not only the quality of the examination can be guaranteed, but also the workload will be greatly reduced. At present, there are mainly two kinds of computer-aided examination: online examination and stand-alone software examination, which are introduced respectively.

2.2.1. Online testing
The use of online examination needs to establish a computer network, and equipped with a high-performance server, testers will produce good problems into a database, into a data server. At the beginning of the test, candidates first input their personal data and then answer questions. As soon as the appointed time arrives, the examination will end automatically. Some objective questions, you can immediately display the results of candidates, and print reports and relevant certificates as needed. It is reported that the US TOEFL and Shanghai general foreign language examination will soon adopt this form of online examination. At present, due to the limited conditions, candidates can only participate in the examination in the prescribed online classroom. In the future, candidates can use dial-up Internet access in the form of their own home computer to participate in the examination. If the database is large enough, it is difficult to deal with the test questions. Every time the examinee starts the test, the computer can automatically generate a set of test questions. In this way, the examination can start all year round, and candidates can flexibly arrange the examination time according to their own situation. In addition, due to the use of high-performance server to store the test database, the amount of information will not be limited. Taking some technical measures, the paper interface can be full of multimedia interactive features. Equipped with headphones, you can test online audio-visual, writing, reading and other skills. It should be said that online examination has a broad development prospect.

At present, there are still some problems in online examination. For example, examiners should learn basic computer operation to avoid mistakes in operation that may affect the authenticity of test results. Therefore, it is necessary to train examiners in basic computer operation before the examination. But with the popularization of computer technology, it will not become an obstacle to the development of online examination. In addition, because the server where the database is stored can be accessed through dial-up Internet, the security of the huge database is very important. Strict network security measures should be taken, multiple protection layers should be set up, all possible illegal intrusion should be blocked, and the data should be backed up frequently, so as to make sure that everything is safe. At the same time, the cost of online examination is very high, so it is only suitable for large-scale examination that can bear high cost [2].

2.2.2. Single machine test
The test questions are made by the teacher on special software, and only a disk is given to the students. Students can take exams in a computer classroom or on their own computers. After that, the students returned the disk to the teacher, who read the paper through the software of making the test questions. The actual marking work is completed by the computer, which greatly reduces the workload of teachers. At the same time, because students can easily test on their own computers, students' interest in participating in the examination is increased. Do not allow students to do the same set of questions repeatedly, can save some invigilators. In addition, the single-machine test eliminates the cost of printing papers, which is very practical for all levels of teaching units. As shown in Table 1, a stand-alone English testing system has been used for testing.
Table 1. Single machine English Language Testing System

| Product name | English Assessment System |
|--------------|---------------------------|
| Product number | EAS502 |
| Product weight | 60KG |
| Sales direction | Junior high school and above to carry out English teaching schools |
| Applicable direction | The system can be used in all kinds of English tests |

However, the security of stand-alone tests is relatively weak and is not very suitable for large or important examinations, usually only for classroom tests, stage tests, or examination of the nature of homework. If you must carry out important examinations, you can concentrate candidates in a unified computer classroom. This can basically achieve the effect of online testing, hardware costs than online testing savings, but the flexibility of single-machine testing is also lost. In addition, due to the limitation of single machine test disk capacity, it is impossible to have a rich interactive interface of question type and multimedia like traditional test and online test. At the same time, because the medium of the test is disk, in the process of distribution and use, there is the possibility of being cracked in theory, so it is necessary for the producers to take certain technical measures to avoid this phenomenon. However, the flexibility, ease of use and the resulting efficiency of single-machine testing are obvious, and it is worth studying as a means to assist English language testing [3].

Whether it is online examination or stand-alone software examination, computer-aided testing cannot completely replace the traditional mode of examination for a long time in the future due to its basic principles and technical limitations. The computer can't recognize and judge subjective test questions such as writing or conversation. The computer can only help people to complete repetitive mechanical work and do some regular work, so as to help people improve work efficiency.

2.3. Establish marking system
After the examination, the examinee information and test paper are transferred to the system. After entering the standard answer and scoring standard, the examination paper can be read immediately and the results can be given. At the same time, you can give the right and wrong percentage of each part, each type of test item, or show the proportion in pie chart as needed. The system can also be bundled with the test system, when the test is finished and the test paper is submitted, the test results can be displayed immediately. At present, the existing network marking system aims at the automatic evaluation of objective questions, while the subjective questions are manually evaluated by many teachers in the marking system by using image segmentation technology. However, how to ensure the teachers’ grasp of the scoring standard? How to ensure the teachers’ stability and sense of responsibility in the process of scoring? Although in recent years, they have been trying to explore the automatic scoring of subjective questions, due to the complexity of Chinese, candidates have great room to play the language. Therefore, once the algorithm does not include the relevant key semantics, the imperfect network marking system will directly lead to misjudgment when marking.

At this time, the most important branch of computer technology is the understanding and processing of natural language, namely language intelligence. Through the analysis of words, sentences and chapters, we can understand the people, time and place in the content, and then on this basis, we can support a series of core technologies. Supported by cloud computing, big data and
machine learning technology, natural language technology has achieved good research results. Therefore, the design and development of computer-aided English language assessment system will not only solve the technical barrier of network assessment system, but also provide computer-based management services.

2.4. Establishment of an evaluation system
The current examination system based on computer question bank does not have this function. This is also the focus, difficulty and core of the system construction. In order to evaluate and feedback effectively, it is necessary to mark each type of test question in the question bank, and set up observation points and evaluation indexes for the test items respectively. In the evaluation of each skill, we should first make clear the purpose of the test, make the observation point accordingly, explain the index of each observation point, and point out what the reason is, what the problem is, and put forward some suggestions. In this way, when the test is finished, the students get not only the results, but also the explanation of the results, the analysis of the reasons and other feedback information. For example, the observation points and labels of vocabulary testing and evaluation include lexical grade, lexical type, lexical nature and lexical usage; grammar part mainly involves grammatical type, grammatical difficulty, grammatical application, etc. The reading comprehension part mainly establishes evaluation indexes for article genre, length, question type, problem purpose, etc. The system is of great benefit to students' self-assessment. In the process of pursuing learning goals and completing learning tasks, if students can get feedback in time, that is, let them know their learning situation and results in time, which can obviously stimulate learning motivation and arouse the enthusiasm of learning. In the process of English learning, students can participate in evaluation, make them understand their learning situation in time, point out their shortcomings and direction of efforts, promote the formation of students' management and evaluation strategies, and improve students' learning motivation. Improve their learning behavior and results, thereby improving learning efficiency. For teachers, we can understand the situation of students' learning, especially the problems existing in teaching, and then improve the teaching [4].

3. The advantages of computer-aided English language testing system

3.1. The method of testing is more scientific
The use of computer-aided foreign language testing and evaluation to further expand the thinking of English teaching research is that foreign language teaching actively obtains valuable theories and ideas from more interdisciplinary research. So that the study of foreign language teaching in China more idealized, scientific. When testing with a microcomputer, every question answered by each student can be displayed on the screen. In order for teachers to carry out performance analysis, at any time to adjust the progress of teaching. At the end of the examination, the main console summarizes the answers of the whole class and carries out various statistical analysis, and displays the results of the analysis and the results on the screen. It can also print out the results or store them on floppy disk if necessary, without the teacher's examination paper. Thus reducing the burden on teachers. The timely feedback of information is helpful for teachers to improve their teaching, to understand their academic achievements in time, and to strengthen their weak links.

3.2. More flexible forms of testing
Because of the test on the computer, the test is more personalized at the same time, the examinee can choose the time and place of the test according to the specific situation. Distance learning can also use E-mail to transmit test questions to students or store them in their mailbox. The form of testing is more flexible and diverse. Students can also choose their own learning path, learning content and so on [5].

3.3. More equitable implementation of tests
The computer test allows candidates to change the test schedule and place within the specified time. At
the same time, the implementation of the "waiting for examination" system, allowing candidates to fill the vacancy left by the candidates. These systems protect the interests of candidates and make full use of examination resources. In addition, multiple factors are taken into account in the formulation of scoring criteria, and the tendency to equalize scores is eliminated. In order to respect the mental work of the examinee, the computer even determines the score of the unanswered part according to the correct rate of the answered part of the question [6].

3.4. More secure data
Another aspect of data security is the accuracy and integrity of data. Mainly reflected in the following two aspects: network data protection. The data transmission on the Internet includes the data transmission in the local area network. The data protection method adopted is the verification mechanism. A series of security verification mechanisms are set up to send and receive the data. The second is the protection of stored data. The encryption algorithm is used to encrypt the process data. For each file to be encrypted, there is a pair of public key and private key.

3.5. Safer process
Anti fraud measures are adopted in the examination process. All shortcut keys and right mouse button operations are prohibited in the client examination interface to prevent cheating and leakage of examination questions. In the process of examination, it is necessary to prevent the leakage of test questions. On the one hand, it is necessary to prevent candidates from transmitting test questions outside the examination room through the network; on the other hand, it is necessary to prevent the leakage of test questions. To prevent the examinee from saving the test questions and bringing them back to ensure the security of the test system, the data encryption method is used to export the test results at the end of the test. Only through the original encrypted key can the examiner's information and test results be obtained, so as to achieve statistical scoring.

4. Conclusion
In recent years, with the development of computer technology, computer has entered our daily life. The research of computer-aided production and auxiliary teaching is deepening day by day, many colleges and universities are equipped with more than one set of multimedia language laboratory, people have done a lot of research work on computer-aided English teaching, and have made some remarkable achievements. In contrast, people do little in computer-aided English language testing. The role of computer in English language testing is great, and we have little research in this field. This requires that our English teachers constantly improve their computer professional level, master the basic skills of computer-aided English teaching and testing as soon as possible, improve our education and teaching level, and create favorable conditions for our higher education to connect with the world's higher education.

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