Advanced Materials Research
ISSN: 1662-8985, Vols. 989-994, pp 5486-5490
doi:10.4028/www.scientific.net/AMR.989-994.5486

Submitted: 2014-05-25
Accepted: 2014-05-30
Online: 2014-07-16

Study on the Construction of Linguistics Examination Database based on Computer Network Technology

Yuan Zhang

School of Foreign Languages, Jiangsu University of Science and Technology, Zhenjiang, 212003, China

Keywords: VB software; English linguistics; Network examination database; Feedback system; Distortion; Network teaching

Abstract. In this paper we use the VB software to programming the group program of tests, combined with neural network residual training principle, establish optimization design model of network examination database. We improve the English linguistics question bank based on computer network technology by using the program and the model, and set up the feedback system of students' suggestion and Corporate Data Stores system of examination paper, and establish optimization model of network examination database. In order to verify effectiveness and reliability of network test optimization system, we optimize the network examination database of English Linguistics for three times, obtain the optimal distortion curve of test, and analyze optimized test scale. It provides technical support for the research of network English teaching.

Introduction

In recent years, with the extension of network application, the computer is getting close with educational fields. Paperless electronic paper is a new method to deepen the reform of education and promote innovation teaching. The computer network examination database greatly improves the efficiency of examination, saving a lot of teaching resources, but the construction of network examination database is still at primary stage, many problems still remain to be perfect [1, 2]. Combined with the neural network residual training method, we use the VB software technology to design the optimization system of computer network technology English examination database, and use three optimizations to optimize the network examination database. It provides a new method for application of computer in English teaching and network education.

Application of Computer Network Technology in the Construction of English Examination database

With the development of Internet and information technology, network examination database is widely used in English teaching. The question bank not only can save a lot of resources, but also make the teachers and students to make full use of network source, improving efficiency of teaching and learning, enhance the students' self-study ability [3, 4]. In this paper, we use the VB software to optimize the design of English network examination database, and apply the computer in the English linguistics examination. The design process of examination database is as shown in Figure 1.

Figure 1 shows the network examination database optimization flow chart of English linguistics. From it we can see, by VB software it can realize several optimizations of English network examination database, and the optimization is t tree distribution [5]. After one optimization we can get $ST1, ST2, \cdots, STn$; after two optimizations we can get $ST11, ST12, \cdots, ST1n$; after n optimizations we can get the optimal model of examination database, the convergence residual of examination database is the lowest, distortion of test is lowest, and the effect of network test is the best.

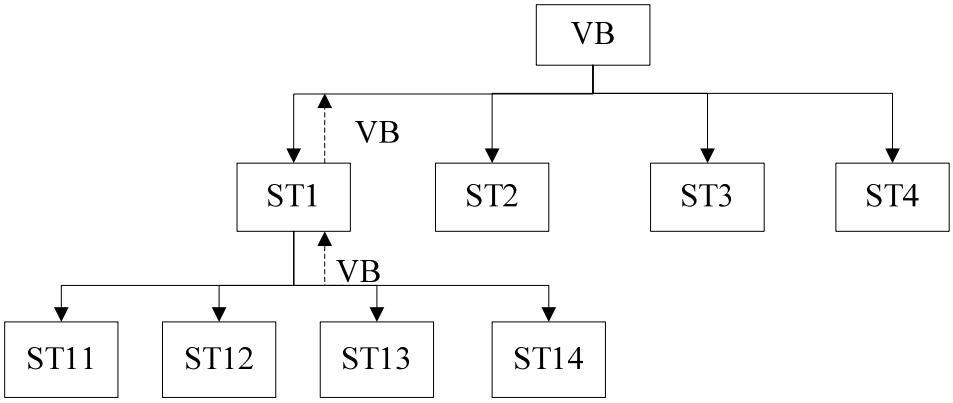

Fig. 1 Network examination database optimization process

The Mathematical Model and Algorithm Design of English Linguistics Examination database

In order to optimize the English linguistics examination database and accelerate the convergence speed, we improve the calculation model using the first order difference quotient. First defining the parameters of initialization examination database x_0, after modifying parameter of examination database is x_1 [6, 7]. So, one order difference quotient can be written as shown in formula (1).

$$P(x_0, x_1) = \frac{P(x_1) - P(x_0)}{x_1 - x_0}. \tag{1}$$

The two order training difference quotient is defined as:

$$P(x_0, x_1, x_2) = \frac{P(x_0, x_2) - P(x_0, x_1)}{x_2 - x_1}. \tag{2}$$

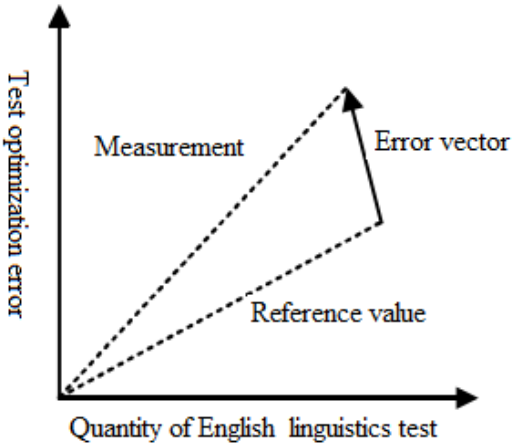

Fig. 2 Optimization model of English linguistics test

As shown in Figure 2 it represents optimization model of English linguistics test. According to the reference quantity and test quantity, we can do two order difference quotients training on English linguistics examination database [8]. The deviation table in computer is as shown in formula (3).

$$\begin{cases} F_{i0} \Leftarrow P(x_i) \quad , \qquad i = 0,1,...,n \\ F_{ij} \Leftarrow (F_{ij-1} - F_{i-1\,j-1})/(x_i - x_{i-j}), \quad j = 1,2,...,n. \quad i = j, j+1,...,n \end{cases}. \tag{3}$$

According to the definition of difference quotient, data x can be seen the point between $[a,b]$ in English linguistics examination database, so we can get:

$$P(x_0,x) = P(x_0,x_1) + P(x_0,x_1,x)(x-x_1),$$
$$\cdots$$
$$P(x) = P(x_0) + P(x_0,x\ )(x-x_0) \quad . \tag{4}$$
$$P(x_0,\ldots x_{n-1},x) = P(x_0,x_1,\ldots,x_n) + P(x_0,\ldots,x_n,x)(x-x_n)$$

Based on the neural network model of English linguistics examination database, we use the VB software to design the examination database. The main program of VB is as shown follows:

```
#include <stdio.h>
void main()
{void average(float *p,int n);
    void search(float (*p)[4],int n);
    float score[3][4]={{65,67,70,60},{80,87,90,81},{90,99,100,98}};
    average(*score,12);
    search(score,2);}
void average(float *p,int n)
{float *p_end;
    float sum=0,aver;
    p_end=p+n-1;
    for (;p<=p_end;p++)
        sum=sum+(*p);
    aver=sum/n;
    printf("average=%5.2f\n",aver);}
oid search(float (*p)[4],int n)
{int i;
    printf("the score of NO.%d are:\n",n);
    for (i=0;i<4;i++)
        printf("%5.2f",*(*(p+n)+i));}
```

Research on Examination Database Design of English Linguistics based on Computer Network

In order to verify the effectiveness and reliability of the English linguistics network examination database optimization model and VB program, we use the design of network linguistics examination database as an example to analyze the optimization effect of network examination database [9]. Before the examination database optimization we need to set the variable environment of ActiveX control, as shown in Figure 3.

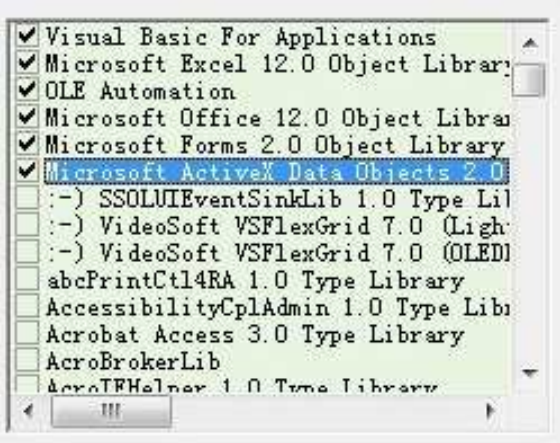

Fig. 3 Variable settings of ActiveX control

As shown in Figure 3 it represents variable setting of ActiveX control. Using Microsoft ActiveX Data Objects2.0, we design the space variable environment, and connect it with Web Server, and establish the optimization platform of English linguistics examination database as shown in Figure 4.

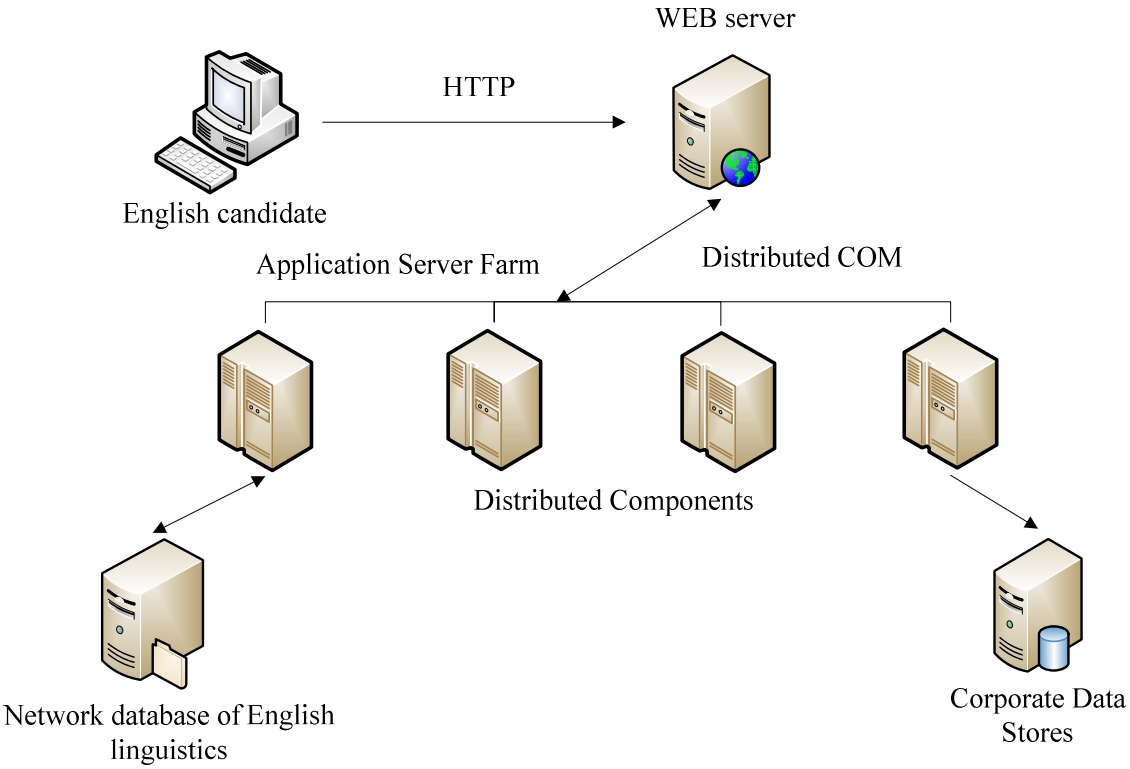

Fig. 4 Network examination database optimization platform of English linguistics

Figure 4 shows the Network examination database optimization platform of English linguistics designed in this paper. Students can use the platform to select questions and finish the test paper. Test paper distribution uses distributed allocations of Web Server and Disrtibuted COM, and uses different Disrtibuted Components to optimize the test papers [10]. Students can also feedback the examination information timely, and use Corporate Data Stores to collect data, finally forming network examination database of English linguistics.

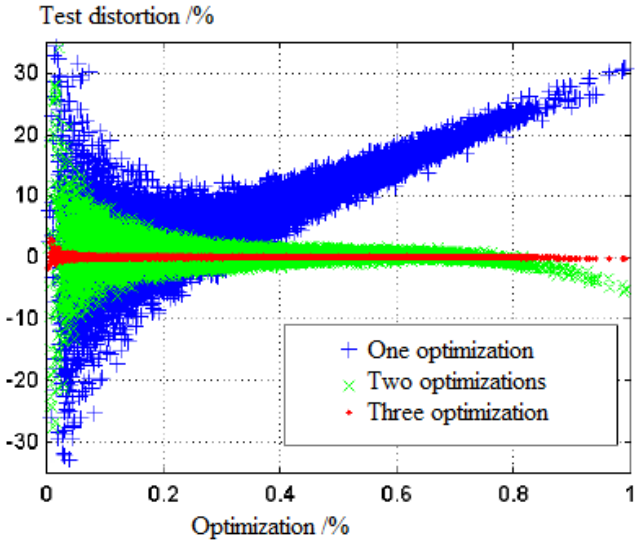

Fig. 5 Three optimizations of English network examination database

Figure 5 shows the three optimizations of English network examination database using VB program. The abscissa represents the optimal percentage, the ordinate represents distortion rate of test. From the figure we can see, distortion rate of one optimization and two optimizations is significantly larger than three optimizations. After three optimizations the distortion rate is close to *0*, which achieves the optimization effect of network examination database. We list the test quantity of three optimizations as shown in Table 1.

Table 1. Three optimizations results of English network examination database

Project	One optimization	Two optimizations	Three optimizations
Listening	201213	198651	185672
Speaking	101325	98256	88926
Reading	8592	7986	6931
Writing	7983	6526	5308

Table 1 shows the three optimizations results of English network examination database using VB [11]. In order to verify the effectiveness of the system, we use the method of three optimizations to optimize the listening, speaking, reading and writing in English examination database, and finally get the quantity of the optimized test.

Summary

In this paper we use the principle of neural network two order difference quotients training to establish optimization mathematic model of network examination database, and use VB software to program the algorithm to obtain the paper packet program. We use VB software and Microsoft ActiveX Data Objects2.0 to design optimization platform of network examination database, and introduce the paper feedback system and the Corporate Data Stores system on the platform, and perfect the optimization function of network examination database. In order to verify effectiveness and reliability of network test optimization system, we optimize the network examination database of English Linguistics for three times, obtain the optimal distortion curve of test and the quantity of optimization examination database. It provides technical support for the research of network English teaching

References

[1] Li Na. Overview of data mining software products [J]. The popular science, 2010(1): 22-24.

[2] Deng Qianni, Chen Quan. Cloud computing and its key technology [J]. Application and development of high performance computing, 2012, 26(1): 2-6.

[3] Zhu Qiandong, Pang Hongshen. Review of personalization search of search Engine [J]. Journal of library, 2011(6): 14-17.

[4] Li Yanling. Application of artificial neural network in remote sensing image analysis and processing [J]. Heilongjiang science and technology information, 2011(23): 23-26.

[5] Wang Huajin. Review of visualization technology in data mining [J]. Science Plaza, 2011(1): 235-237.

[6] Zhang Yanhong. Study on writing strategy for non English majors [J]. Social science, 2011, 24(8): 172-173.

[7] Zhang Yanhong. Dynamic evaluation system construction of university English writing teaching [J]. Journal of PLA Foreign Languages Institute, 2010, 33(1): 46-52.

[8] Zou Shen. Writing test validity based on corpus - using "English writing teaching corpus" as an example [J]. Foreign language electricity teaching, 2012(1): 16-21.

[9] Cai Chun. Dynamic assessment of teachers' professional development [J]. Education and teaching research, 2010, 24(8): 27-28.

[10] Chen Dezhi. Dynamic assessment study on the pattern reasoning ability of primary school children based on cognitive diagnosis [D]. Jiangxi Normal University, 2011: 2-16.

[11] Han Baocheng. Application of dynamic evaluation theory, mode in foreign language education [J]. Foreign language teaching and research, 2012, 41(6): 452-458.