Advantages of Using Computer Multimedia to Assist Public English Teaching in Higher Vocational Colleges

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Abstract. Under the influence of the rapid development of modern educational technology and the deepening of applied linguistics research, computers and networks have begun to enter the field of education (edu) on a large scale, and the traditional classroom teaching concept with teachers as the main body has changed greatly. The research shows that there are 1908 colleges and universities in China, of which 1168 are higher vocational colleges (hvc), which indicates that higher vocational education (hve) occupies half of higher edu.

Keywords: Computer, Multimedia Teaching, Higher Vocational, Public English

1. Introduction
Hve has become an important part of higher edu in China. Its vigorous development will continue to promote the healthy development of higher edu in China in the direction of popularization. For the social and economic development of a large number of high-quality senior technical personnel play a very important role.

The advantage of using computer multimedia teaching to assist public English teaching in higher vocational colleges (hvc) has attracted the interest of many experts and has been studied by many teams. For example, some teams find that in the long run, if any new teaching model cannot find problems in its practical application and find practical ways to solve the problem, even if it has excellent short-term effects, it will soon stagnate. Therefore, in accordance with the requirements of teaching reform, in order to better improve the quality of teaching, promote teachers to renew their educational ideas, improve educational technology, enhance the scientific nature of teaching resources, and realize a wider range of educational resources sharing, multimedia technology has been widely used in teaching after more than ten years of development and reform, especially in English teaching classes in primary and secondary schools [1]. Some teams found that in 2009, the first example of the use of microteaching was the Mexican Family College, which developed short courses in the form of video recordings in response to occupational safety course requirements for online degree courses, each consisting of content profiles, learning priorities and after-school summaries. At present, Salman and other TED education lectures are widely known on the micro-class website, which also makes micro-class become a form of informal learning, at the same time, hve are trying to introduce micro-class teaching into the formal curriculum system [2]. Yang Xiuping believes that multimedia assisted English teaching will become the mainstream development trend of English teaching in hvc in China.
and is a new teaching mode to overcome the shortcomings of traditional teaching. At the same time, she believes that the way to solve the common English learning problems of Chinese students is to use multimedia to assist English teaching. Yuan Dongxiang believes that multimedia assisted college English teaching also has the advantages of flexible preparation and rich teaching content [3]. Some teams found that Ma Haiming proposed to use multimedia to assist English teaching, enrich teachers’ lesson preparation resources, improve teachers’ lesson preparation rate to a certain extent, and make teaching activities change in diversity, richness and times. Multimedia teaching is the perfect expression of computer sound and photoelectricity, which breaks through the limitation of traditional teaching mode and draws closer the relationship between students and computers, students and teachers and students. In addition, there are scholars concerned about the role of multimedia-assisted teaching, the application of multimedia can change the existing teaching model [4]. Some teams found that some scholars believe that multimedia assisted teaching is also the demand for talents in colleges and universities. Wu Wenliang analyzes the situation of students’ active learning in the network environment, and points out that the requirement of learning in the network environment is the requirement of the development of English teaching in hvc and the goal of English teaching in hvc. In the fundamental sense, it is also to train qualified talents [5]. Chen Manping and Liu Yufeng believe that the popularization of multimedia assisted teaching in the whole society paves the way for the realization of constructivist learning environment. Its advantages are: through space-time constraints, three-dimensional space teaching and learning activities, a large number of available learning materials, the integration of text, image and sound multimedia information, real context communication environment, etc., to stimulate students' interest in English learning in vision and hearing, to enable students to learn creatively and actively, to train students' interpersonal skills, and thus to strengthen their comprehensive language use ability [6]. Although their research results are very rich, but there are still some shortcomings.

In recent years, with the rapid development of information technology and digital video technology, multimedia and network have been widely used in various fields, especially in the field of education, and have become the mainstream of educational technology development. Under the guidance of relevant teaching theories, Internet multimedia technology has shown great advantages and infinite vitality in promoting the development of foreign language teaching.

2. Method

2.1. Neuron

The basic component of the BP neural network structure is the neuron. The S type function is the activation function used in the neuron as the object that can be designed at any time. For the neuron, the internet input formula is (1), where x1, x2, xn represents the neuron input, w1, w2, wn the corresponding connection weight, the initial input value must be controlled as much as possible to control the range at a fast convergence rate [7].

\[ net = x_1 w_1 + x_2 w_2 + \cdots + x_n w_n \]  

(1)

Fundamentally, the correlation between the number of hidden layer neurons and other factors is very obvious. The key is that there is a direct correlation with the output, the number of input layer neurons and the difficulty of problem solving. The number of hidden layer neurons directly affects the performance of the system itself. At this stage, the display formula of hidden layer number is (2). The m represents the number of output layer elements, nH the number of hidden layers, n the number of input layer elements.

\[ n_{hi} = \sqrt{0.43nm + 2.54m + 0.12n + 0.35 + 0.77n + 0.51} \]  

(2)

2.2. Momentum Item
When the momentum term is added to the weight adjustment, a layer of weight matrix is represented by the W, and X the input vector is represented, the formula of the momentum term weight adjustment vector is

\[ \Delta W(t) = \eta eX + \alpha \Delta W(t-1) \]

(3)

2.3. BP Neural Network Algorithm

One, after initializing the network, the error function is set effectively E, the accuracy is calculated, the assignment is (-1,1); two, the K input sample and the expected output are selected, the formulas are (4) and (5); three, the output and input of the hidden layer are defined; four, the actual output and the expected output of the network are selected, and the partial derivative of the error function in the output layer neuron is calculated; five, the partial derivative of the hidden layer to the output layer is selected, the weight value and the hidden layer are connected, the calculation error function is output and the hidden layer partial derivative is calculated; the selection of output layer neurons eh (k) and hidden layer neurons output to the connection weight, and correct who (k) to calculate the global error; eighth, check the network error recombination requirements [5].

\[ x(k) = (x_1(k), x_2(k) \ldots x_n(k)) \]

(4)

\[ Do(k) = (d_1(k), d_2(k) \ldots d_q(k)) \]

(5)

3. Experiment

3.1. Source of Experimental Data

In this article, Sichuan vocational and technical college has 50 English teachers, 15,000 students, involving more than 10 different professional classes; English class is 2 hours a week. In this case, I randomly selected 20 English teachers and 500 students, to investigate the application of multimedia technology in English teaching, in addition, I also went to the school infrastructure department to investigate some information and data about multimedia equipment construction. In order to understand the application of multimedia technology in higher vocational English teaching, I wrote two questionnaires: teacher's and student's, to ensure the validity of the questionnaire, before writing the questionnaire, refer to the questionnaire used in multimedia assisted English teaching literature. 20 teacher questionnaires, 100% recovery, 500 student questionnaires, 98% recovery, the questionnaire was used effectively. For different analytical purposes, Excel is used to organize the questionnaire.

3.2. Experimental Design

Through the analysis of the last questionnaire, 9 students with excellent, good and poor academic performance were selected in the second grade. In addition, four English teachers with different styles of teaching representatives were interviewed. Through face-to-face interviews with the 13 representative teachers and students, the conclusion was drawn.

4. Result

4.1. Personal Information Analysis of Questionnaire Survey Subjects

The detailed information analysis of this part of the questionnaire is shown in Table 1. Except for gender, average value, minimum value and maximum value, it is included in the following table. The application of computer and network to classroom teaching is advocated, so the data in the table are
consistent with the facts. Due to the limitation of objective conditions, the average time for students to use computers is 13.37 hours per week, and the time for using computers to learn English is 2.72 hours per week, that is, less than one fifth of the time for using computers to learn. With the passage of time, computers are becoming more and more popular, but the autonomous learning time of students using computers has been kept at a constant level. Although there are many websites and software about English learning, students do not use or even do not know. From the above analysis, we can see that the time for students to contact multimedia is very limited.

Table 1. Personal information statistics

| Issues value                  | Quantity | Least value | Maximal value | Average value |
|-------------------------------|----------|-------------|---------------|---------------|
| Age                           | 427      | 18          | 23            | 20.51         |
| Computer time (years)         | 427      | 1           | 16            | 7.19          |
| Multimedia learning time (year)| 427     | 1           | 14            | 4.68          |
| Weekly computer hours (hours) | 427      | 0           | 80.0          | 13.371        |
| Weekly computer hours (hours) | 427      | 0           | 24.0          | 2.719         |
| Number of effective           | 427      |             |               |               |

4.2. Teacher's Personal Profile

According to the figure 1 below, the English teachers of Sichuan vocational and technical college have 65% intermediate titles, 90% young and middle-aged teachers, 30% undergraduate degree and 70% graduate degree. It can be seen that the English teachers of Sichuan vocational and technical college have highly educated and young. At present, the first-line teaching teachers are mainly young and middle-aged teachers, and the young teachers have obtained graduate edu. The edu background structure and age structure show that the edu background and age ratio of English teachers in Sichuan vocational and technical college are within the basic requirements of the country.

Figure 1. Personal basic situation of English teachers in Sichuan vocational and technical college
4.3. Job Market
Vocational college students are more and more favored by employers because of their professional counterpart, strong hands-on ability, low cost and more. In Shanghai, the employment rate of higher vocational graduates is slightly higher than that of college graduates. In 2005, there were 168700 students in HVE, and the employment rate of graduates was 96.18, which is higher than 96% of colleges and universities. In recent years, the hot spots of higher vocational employment are not unique to media reports. The goal of cultivating talents in HVE is clear. Higher vocational graduates can also better reduce their attitudes, actively understand the market and adapt to market changes. So the overall employment situation has been "bullish", as shown in Figure 2.

![Figure 2](image)

**Figure 2.** Comparison of employment rates between higher vocational school graduates and university graduates

4.4. Challenges in the Development of HVE
According to the 2005 Ministry of Finance statistics, the budget for general higher education is 104.637 billion yuan, of which the budget allocation for ordinary undergraduate is 93.605 billion yuan, 89.46%, and the higher vocational school budget allocation is 11.032 billion yuan, only 10.5% of the proportion. Although 100 state-level model HVE have been set up by the central government, but more than 90% of HVE do not enjoy this preferential policy. This means that HVE is responsible for developing skills, Configuration of hardware and software facilities for highly skilled personnel, Not through government funding. It is difficult to optimize the allocation of teaching resources and improve the conditions of running schools, As shown in figure 3 below.
5. Conclusion
Under the influence of the rapid development of computer technology, the influence of computer on teaching is increasing, especially in English teaching. Actively cooperate with the development and construction of the central region, is in full swing to integrate information technology and curriculum, deepen teaching reform. Teachers should clearly realize that multimedia assisted English teaching has brought great changes to our English teaching. In addition, we should soberly realize that no matter how advanced multimedia technology is, how helpful it is to English teaching. It is only a teaching aid. In order to achieve real success in English classroom teaching, we must give full play to the leading role of teachers and the subjectivity of students. Multimedia assisted English teaching will promote the steady development of higher vocational English teaching in a better and higher direction.

References
[1] Xie Z. Symmetry for Multimedia-Aided Art Teaching Based on the Form of Animation Teaching Organization and Social Network. Symmetry, 2020, 12(4):671-734.
[2] Wang T H, Kao C H, Daì Y L. Developing a web-based multimedia assessment system for facilitating science laboratory instruction. Journal of Computer Assisted Learning, 2019, 35(4):529-539.
[3] Syofiani S. The Teaching Material of Drama Appreciation based on Project-based Learning by Interactive Multimedia-assisted. International Journal of Psychosocial Rehabilitation, 2020, 24(2):439-444.
[4] Chang Y. Teacher Reflection on Emergency Remote Teaching (ERT) during the Coronavirus Pandemic in a Multicultural EAP Classroom in South Korea. Multimedia-Assisted Language Learning, 2020, 23(3):235-257.
[5] Lan C, Cui Z, Su T. Numerical analysis of catalytic efficiency of diesel exhaust purification based on multimedia aided regression model. Multimedia Tools & Applications, 2019, 78(4):4437-4461.
[6] Guo F, Wu X R. The Application of Multimedia Technology in College English Reading Teaching—A Survey Based on Language Learning Strategies. International Journal of English Language Teaching, 2019, 6(2):27-28.
[7] Ahmed M K. Multimedia Aided Language Teaching: An Ideal Pedagogy in the English Language Teaching of Bangladesh. American International Journal of Social Science
[8] Noreen K, Batool Z, Fatima T, et al. Prevalence of Computer Vision Syndrome and Its Associated Risk Factors among Under Graduate Medical Students. Pakistan Journal of Ophthalmology, 2020, 32(3):140-146.

[9] Sato T, Burden T. The Impact of Information Processing Styles in Mobile-Assisted Language Learning: Are Multimedia Materials Effective for Every Learner?. Electronic Journal of Foreign Language Teaching, 2020, 17(Supplement 1):154-167.