Information Feedback Analysis of Public English Teaching in Art Academies Combining the Branch Vector Determinant Algorithm

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Abstract. In this paper, in-depth analysis is first performed on the current situation of teaching informatization of public English teachers in art academies. The necessity of improving the teaching informatization of public English teachers based on BVDA (hereinafter abbreviated as BVDA) is explored. From the four dimensions (correct cognition of teaching informatization, active involvement in professional training, comprehensive innovation of teaching mode, proper reflection after class), effective measures for improving the teaching informatization of public English teachers in higher vocational education are proposed with the purpose to drive the personal career development of public English teachers and contribute to the

Keywords: Information Background, Public English Teachers, Teaching Informatization, Current Situation, Improvement Strategies

1. Introduction
Information education has become the inevitable trend of current education and teaching. Public English teachers in art academies [1-2] should also actively comply with this development situation, constantly explore and make full use of network information technology in teaching, improve teaching effect and quality [3], and promote the steady improvement of our teaching information. It is of great significance for the development of teachers' career and the growth of their teaching level to analyze the current situation of teaching informatization of Higher Vocational Public English teachers under BVDA [4-5], and summarize all kinds of problems, which can provide a correct and targeted entry point for the further improvement of teaching informatization [6].

Under BVDA, the personal teaching informatization of teachers will determine the actual teaching effect and quality, while teachers' network technology application ability is an integral part of teaching
informatization. Teachers' teaching level will affect the learning efficiency and overall development of students. Meanwhile, it can reflect the comprehensive quality of teachers. The role of network information technology in the field of education is becoming more and more important, which promotes the transformation and innovation of teaching ideas and teaching methods.

2. Current situation of teaching informatization of public English teachers in art academies based on bvda

With the continuous development and progress of information technology, there are still many art college public English teachers with more serious traditional ideas. They think that the teaching informatization in the information environment refers to the transformation from the past form of handwritten or printed teaching programs to the use of multi-media technology to make dynamic teaching courseware. Hence, we can fully demonstrate that we have fully possessed the informatization of teaching, and implemented the integration of information technology and teaching. But in fact, their behavior can only be regarded as the rigid superposition of modern technology on teaching and can only simply prove that information technology is used in teaching, but it is not really used, and does not really achieve the goal of education reform. For a long time, public English teachers in art academies have been tired of their jobs. In their long working life, almost all teachers have formed fixed thinking, so they will habitually use the same teaching methods and models. Although many teachers are also aware of the changes in education in the information age and need to carry out educational reform, However, it is difficult to change their roles. Some teachers do not want to change and are afraid of change. They are continually avoiding problems. They are even more satisfied with their achievements in teaching. They are complacent with the status quo and lack of confidence and motivation to further improve themselves with network technology. Thus, many public English teachers still use the traditional teaching mode, ignoring the changes in the current education situation and the actual needs of students.

In the feature layer, the input vector \( f(t) \) is the context-dependent vector of the word, which includes more multimedia English writing and is a supplement to the input vector \( w(t) \), making the calculation of the word probability more accurate. The random gradient descent is used to train English teachers for teaching Informatization, at this time, the output vector \( y(t) \) represents the probability distribution of the word to be predicted under the given current word \( w(t) \), context \( s(t-1) \) and feature vector \( f(t) \). The improved AIRS word calculation equation is as follows:

\[
s(t) = f \left( Uw(t) + Ws(t-1) + Ff(t) \right)^
\]

\[
y(t) = g \left( Ps(t) + Gf(t) \right).
\]

Where \( f(z) \) represents the sigmoid activation function:

\[
f(z) = \frac{1}{1 + e^{-z}}
\]

Where \( f(z) \) represents the SoftMax activation function,
\[ g(z_m) = \frac{e^{z_m}}{\sum_i e^{z_i}} \] (3)

3. Necessity of improving the teaching informatization of public English teachers in art academies based on BVDA

There is an inextricable connection between teaching and learning. Learning is the basic point and final destination of education. Teaching is the method and realization path of learning. Teaching and learning affect and restrict each other. The change of learning driven by modern network information technology must lead to the change and innovation of teaching. First of all, contemporary information technology brings more colorful information resources for teaching and learning. Students can easily get the network resources in the form of video, pictures, and words anytime and anywhere by using computers, smartphones, etc., which fully exceeds the content of the past text-based subject textbooks, and also far exceeds the knowledge provided by teachers' own knowledge system. Meanwhile, network information technology has completely changed the previous learning methods, online communication, personalized independent learning has been implemented, and the limitations of time and space in traditional teaching have been broken, which are all the conveniences provided by the information age for teaching and learning.

However, due to the fragmentation and fragmentation of network information, there are many negative information, and there are some systematic defects in knowledge, which cannot reflect the scientific and reasonable and have a certain degree of impact on students' values. Although the massive resources of the network platform are relatively convenient to obtain, the students themselves do not have high information discrimination ability, especially for the knowledge with high content of gold, they encounter difficulties in screening. In addition, in the use of modern new media technology, students cannot be strict with themselves, restrict their own behavior, usually cannot concentrate. In this regard, no matter from the aspects of the advantages brought by the modern network information technology for learning or from the perspective of the negative effects brought by the network information technology for learning, the position and importance of teachers at the teaching level is self-evident. It requires that teachers should actively use information technology, enlarge the advantages and effectively avoid the disadvantages, and become modern teachers skilled in using network information technology. More efforts should be made to facilitate the close integration between information technology and education and teaching.

4. Analysis of teaching informatization of public English teachers in art academies based on BVDA

Five data sets in UCI database are selected as numerical examples. We will test the modified branch vector determinant algorithm and its performance. The advantages and disadvantages of the model are evaluated by the classification effects of various methods, including time series data analysis method, large interval nearest neighbor classification (LMNN), Laplace regularization data analysis learning method (LRML), information theory (ITML) and branch vector determinant algorithm. In the algorithm, we compare the iteration speed of BVDA and the implicit steepest descent algorithm. The classification test is carried out in the standard UCI database, and all experiments are completed by
MATLAB 2015a software. Table 1 lists the details of the data.

**Table 1.** Data set information

| Data set   | sample size | Characteristic number | Class number | L | U | \(|L|/(|L|+|U|)/\% |
|------------|-------------|-----------------------|--------------|---|---|-------------------------------|
| Balance    | 625         | 4                     | 3            | 15 | 610 | 2.40                          |
| Dermatology| 358         | 34                    | 3            | 30 | 328 | 8.38                          |
| Iris       | 150         | 4                     | 3            | 15 | 135 | 10.00                         |
| Wine       | 178         | 13                    | 3            | 15 | 1630| 8.43                          |
| Zoo        | 101         | 16                    | 7            | 30 | 71  | 29.70                         |

Based on the different number of hidden layers, we observe the influence of word vector on the performance of the model. The dimension of word vector is 50, and the window length is 30. The hidden layer size of training selection is 30, 100, 200 and 300, respectively. The puzzle degree of Public English teachers' Teaching information in different circulation art academies is shown in Figure 1.

**Figure 1.** Confusion of AIRSEW on the effective data in different hidden layers

Figure 1 shows that the introduction of two model word vectors can significantly reduce the confusion of airsew, and the performance of the hierarchical model is slightly better than that of the RNN model. When the hidden layer is small, this method can significantly reduce the confusion of the model, while with the increase of the number of Multimedia English writing, the increase of model performance is reduced by adding feature vectors. This shows that when the hidden layer is small, The addition of eigenvectors has a relatively great effect on the teaching informatization of public English teachers in art academies, which can better improve the performance of the model. As the teaching informatization of Public English teachers in art academies is more fully trained, the impact begins to weaken.

The wide application of network information technology in various fields has a great influence on Teachers' traditional ideas. Therefore, it is necessary for public English teachers in art academies to actively study and master more modern teaching knowledge, understand the use methods and skills of information technology, recognize the current information development situation, and have basic information technology application ability, The development of information education can be facilitated by making teaching courseware and related teaching videos through network technology.
Art academies and universities should regularly invite well-known network technology experts and professors to guide and organize relevant training, and then make a perfect teaching courseware to provide better services for professional learning, which can not only stimulate the enthusiasm and initiative of students, but also give students more personalized learning opportunities. Finally, promote the continuous improvement of their own teaching information.

5. Conclusions
The teaching informatization of public English teachers in art academies is a vital reference to assess their teaching quality and effect based on BVDA, which is also a fundamental demand for their career development as a teacher. The establishment of the information teaching training mechanism for public English teachers in higher vocational colleges is conducive to helping public English teachers rebuild their English curriculum, reforming their teaching methods, and updating traditional teaching concepts, to meet the actual needs of students, and further cultivate high-quality technical application talents for the society.

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