The Research of Computer Aided English Teaching Based on Constructivism

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Abstract — Objective: Through the study of the computer aided English teaching, it can better serve the modern English teaching, improve the teaching quality and efficiency, and promote the teaching fun. Methods: The use of computer aided foreign language teaching is a technology for the application of computer multimedia in foreign language teaching. It is not only a new foreign language teaching mode, but also the application of multimedia technology in teaching and learning. Process: The theory of constructivism is that students are the main body of learning, and it is the active construction of knowledge meaning. The process of learning is a process of meaning construction, which is the process of interaction, is the process of self-diagnosis and reflection. The construction of computer aided English teaching will bring different results. Conclusion: The teaching mode of computer English based on constructivism learning theory has the characteristics of situational, interactive, personalized and self-diagnosis. It can satisfy the requirements of the constructivist learning theory to English learning and learning environment.

Keywords - Constructivism; Computer assisted instruction; Multi-Media

I. INTRODUCTION

The traditional English teaching course is often confined to the simple reading and listening to the recording, the lack of practice. Modern educational media intervention, which greatly enriched the way and structure of classroom teaching, so that the modern classroom teaching with traditional teaching incomparable advantages, especially the involvement of multimedia and network technology, greatly optimize the English classroom teaching. The multimedia technology has the ability to integrate the information such as text, graphics, still images, sound animation, and video, which can provide a full range of interactive environment for learning English. Because of its resource sharing, information is comprehensive, large quantity, and fast, so it has fully supplemented the English teaching resources, especially listening, reading and writing [1]. Modern educational technology, which is unique in its scientific nature, image and use, shows its unique charm, and promotes the teaching style.

Multimedia courseware through the combination of visual and audio-visual, safe movement forms, vivid, vividly display the teaching content, expand their horizons, effectively promote the capacity of classroom teaching, more information and efficiency, to develop the intelligence of students, cultivating the ability and improving the quality, classroom teaching into a new realm. Students can not only read the text, listen to the tape, see pictures and animation, do exercises, but also to read the answer questions, to join the dialogue to improve the oral expression ability [2-4].

The current English material is based on a wide range of genres, and is close to life and social reality. It is beneficial to expand the student's vision and make the learning content more modernized and practical. But because of the students' age and experience, it may be a barrier to understand. With the function of multimedia collection, drawing and writing, it can be suggested to guide students to discuss and understand the cultural knowledge and social background involved in the text, and to carry out the application and inspection of the knowledge. Such as playing a set of Olympic highlights, the wonderful picture depicting the thrilling immediately aroused strong interest of students; In order to consolidate the results of the study, let the students use the knowledge of the course and the current competition to hold the Olympic Games; In order to make the discussion carried out smoothly, the teacher played the theme song of the Olympic Games, let the students feel the music content to perceive the Olympic spirit, feel the essence of the Olympic Games - peace, upward, unity, faster, higher, stronger[5-7]. In order to make the discussion carried out smoothly, the teacher played the theme song of the Olympic Games, let the students feel the music content to perceive the Olympic spirit, feel the essence of the Olympic Games - peace, upward, unity, faster, higher, stronger. The atmosphere is warm and the students have improved their English speaking ability in the heated discussion. Students have mastered the content of this lesson in the discussion.

Constructivism Learning Theory: “learning is the process of constructing the internal psychological representation. Learners. Learning is not to move knowledge from the outside to the memory, but to build a new understanding based on the existing experience.” Learning environment should include four elements: “scene, collaboration, conversation, meaning construction.” Multimedia optimization combination constitutes the system environment, which is the ideal condition for the realization of the constructivist learning. In the process of learning, it constitutes an effective external stimulus, which contributes to the internal psychological process of the cognitive subject and the interaction between them [8].

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II. RELATED TO COMPUTER AIDED ENGLISH TEACHING CLASS

The use of information technology means to actively change the classroom teaching mode and students learning style, to construct the theory and related theory to guide, improve the teaching and learning of teaching, to strengthen the guidance of teaching and experiential learning, inquiry learning.

A. The Basic Content of Constructivism Learning Theory

Constructivist learning theory is a theory of educational psychology, which is a good way to reveal the cognitive law of human learning process, and to clarify the main factors which include the study of how to learn, how to construct, how to form, and the ideal learning environment.

First, the constructivist learning theory holds that the individual's cognitive development is closely related to the learning process. The learners are not passively receiving and storing the information of the outside world, but in the original cognitive structure based on the assimilation, adaptation and construction of the new knowledge, students are learning the subject, is the subject of cognitive and information processing, is the active construction of knowledge. How much students acquire knowledge depends on the ability of learners to construct the knowledge according to their own experience. Secondly, constructivism learning theory emphasizes the importance of learning situation. It is believed that students' learning is connected with the real situation or similar to the real situation, and it is the experience of a real situation. Only in the real social and cultural background, with the help of social interaction, the use of the necessary learning resources to actively and effectively build knowledge. Third, constructivism learning theory emphasizes the particularity of the construction. It is believed that each learner's learning is based on their own experience, in particular situations. Construction in a special way[9-11]. It emphasizes the interaction between students, teachers and students, and the interaction between students and teaching content and teaching media. At the same time, constructivism is a kind of learning philosophy, a way of understanding the world, and has different factions. From the point of view of instructional design, we are generally referring to the learning theory of constructivism.

B. Inquiry Learning Concept

In the view of cognitive theory, teaching is not the transfer of knowledge, but the positive initiative of students. The students are active information processors, they actively choose, pay attention to the reaction; actively organize the information they already know to realize the information study, the learners' previous knowledge has greatly determined their learning and memory and forgetting; They actively seek information to solve the problem. Teachers should create a good learning environment for students, to stimulate students' learning motivation, to provide a reasonable learning strategy, so as to promote students' learning[12,13].

From the perspective of communication, foreign language learning is a kind of cross-cultural learning and cross-cultural communication activity. Learning language is a way of learning culture. Information technology has brought about a revolution in intercultural communication. It is a very small, and this is a rare resource in foreign language teaching in the context of information technology.

III. CHARACTERISTICS OF MULTIMEDIA AIDED ENGLISH TEACHING MODE

A. Situational

Constructivist learning theory has changed the traditional English teaching mode from the actual situation. It is necessary to establish the situation as an important part of the teaching design, and to promote the situation teaching. Multimedia aided English teaching can meet the requirements of the construction of the learning environment design, provide and construct the real language environment and virtual reality, realize the situation teaching. In teaching, in addition to using a variety of educational software, also
can using physical projector scene design, or the use of film, audio, video and online resources such as the English original film, foreign language news, background knowledge, biographies, geographical features, such as providing authentic language learning environment, stimulate students interest in learning, to cultivate students' comprehensive language ability of "listening, speaking, reading, writing and translating. In this regard, there are a lot of successful cases of Multimedia Assisted English teaching. Enough to show that the multimedia technology is the most effective technology platform to provide the constructivist teaching situation[14,15].

B. Reciprocity

Under the environment of multimedia teaching, the learners can through discussion, communication and collaboration, modified, supplemented, and discuss the different point of view, deepen students' understanding of the problem, and through exchanges and cooperation to promote higher cognitive ability (such as to solve difficult problems or for the complex problem of analysis, synthesis and evaluation) development to cultivate the spirit of cooperation; Teachers are not only teaching activities of the organizers, counseling, and students to learn cooperation, each other can interact on each other, teaching benefits teachers as well as students; between students and teaching content and teaching media can also be a illustrated, rich and colorful interactive activities. The interactive performance of multimedia aided English teaching can stimulate the learning interest of the learner, and exert the function of cognitive subject. This is the idea of “students are the main body of cognition”, which is advocated by the constructivism.

C. Individual character

Individualized teaching is a characteristic of constructivism, its essence is “student-centered”, “individualized”. As is well known, there are individual differences in learners' personality and learning methods, which is especially prominent in foreign language learning. For example, some students are more outgoing, more opportunities for language practice; in contrast, for those who are more introverted, the opportunity to exercise less. For example, some students initiative, and others rely on the environment. In addition, some people like to learn through visual memory, some people prefer the use of auditory learning. As a result, different people have different choices in the process of foreign language learning. Multimedia aided English teaching can meet the needs of personalized teaching. In the design of multimedia teaching system, developers take full account of learner differences, set the text explanation, query words and idioms, language and cultural background knowledge to explain, discourse structure, stylistic analysis and Chinese translation, "consolidate and improve" and "beta" content, can satisfy the needs of different learners. In addition to these excellent teaching software, students can use the students on the table, headphones, or personal computer terminals, such as individual learning media, according to their own situation, under the guidance of teachers, the use of rich network resources to learn independently. Therefore, multimedia English teaching can meet the requirements of personalized teaching.

IV. COMPUTER AIDED ENGLISH TEACHING

A. Common Statistical Parameters

1) Tokens and types

The number of so-called - shaped characters generally refers to the total number of words in a corpus or in a particular part of a corpus. The total number of words in a particular part of a corpus or corpus. These two concepts easily confused, for example, to study the specific text, student this word appeared in a total of 30 times, so it is the number of characters in the contribution is 30, while the contribution of the class is only a number of 1.

2) Class character and standard class character ratio

The ratio of the number of symbols and the number of the characters in the category of the characters to the special attribute. In general, the number of classes in the corpus is far less than the number of characters, so the type of character is less than 1. It is generally believed that the change of the word's use of the corpus, and the change of the character of the type of character is better than that of the corpus. The corpus of the language of English as the language of the corpus of the type of character is more than the average in English as a foreign language, the author, from the higher level of English as a foreign language of the language of the type of character in the language of the language than the general to be higher than the corpus of the language of the class.

B. Word Frequency

In the use of word frequency statistics of corpus indexing software tend to merge lexical processing, also called tail cutting processing. The so-called cut end refers to a word of all possible forms are subsumed under the word, this word frequency statistics for the frequency of a word includes the word all the possible form of frequency. For example, do, did, done, doing, does can be included in the do frequency; Child, children can be included in the children frequency. Can be seen after the cut end of treatment, the frequency is more reference value, because although the different forms of a word, but is the embodiment of the usage of the word.

Most corpus indexing software of the corpus of word frequency statistics can provide two frequency list, an arranged in alphabetical order. Another according to the size of the frequency arrangement. As shown in Table 1 is a terminology database indexing software concordance 3.2 statistical arranged in two ways of College English Intensive Reading Textbooks 1-6 copies the text word frequency table (in part):

<table>
<thead>
<tr>
<th>ABE</th>
<th>1</th>
<th>THE</th>
<th>1566</th>
</tr>
</thead>
<tbody>
<tr>
<td>ABANDON</td>
<td>1</td>
<td>TO</td>
<td>1905</td>
</tr>
<tr>
<td>ABDONED</td>
<td>2</td>
<td>OF</td>
<td>1754</td>
</tr>
<tr>
<td>ABDOMEN</td>
<td>1</td>
<td>AND</td>
<td>1754</td>
</tr>
<tr>
<td>THE</td>
<td>1566</td>
<td>A</td>
<td>1</td>
</tr>
</tbody>
</table>

Table 1: The frequency table

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| ABILITIES  | 5  | I  | 1217 |
| ABILITY    | 16 | IN | 1047 |
| ABLE       | 42 | THAT | 882 |
| ABOUNDED   | 1  | IT | 718  |
| ABOUT      | 183 | HE | 693  |
| ABOVE      | 9  | IS | 686  |
| ABRAHAM    | 4  | WAS | 669 |
| ABRIDGED   | 1  | FOR | 551 |
| ABSENCE    | 2  | YOU | 534 |
| ABSENT     | 1  | AS | 455  |
| ANXIOUSLY   | 1  | BE | 429  |
| ANSENTLY   | 1  | HIS | 396 |
| ABSOLUTE   | 4  | BUT | 388 |
| ...        | ... | ... | ... |

C. Collocation Word and Collocation Force

Determination of certain words collocation and collocation in English teaching is very important, in the learner after in the elementary stage of English learning, to master the basic grammar and a considerable amount of vocabulary, after entering the senior phase measure an important indicator of the level of a student's English level is to see the students in Applied English language collocation is not accurate and idiomatic. Improving the accuracy of the English language of the students is a key factor to overcome the phenomenon of “dumb English” and “Chinese English”.

Collocation power is generally expressed as Z value. Table 2 indicates that a common context of the research on the W of a corpus is obtained. Each cell represents a word, a total of the number of T, span s. Span (span) is to study a word w collocations, determined by people around to be statistical analysis of a number, span is generally not determined too big, to 3-5 advisable, because is the study of word and from the far words between typical collocation of the possibility of very small.

<table>
<thead>
<tr>
<th>Table II The context of co-occurrence W</th>
</tr>
</thead>
<tbody>
<tr>
<td>L1s ... L12 L11 W ... R11 R12 ... R1s</td>
</tr>
<tr>
<td>L2s ... L22 L21 W ... R21 R22 ... R2s</td>
</tr>
<tr>
<td>... ... ... ... W ... ... ... ... ... ...</td>
</tr>
<tr>
<td>Lts ... Lts Lts W ... Rts Rts ... Rts</td>
</tr>
</tbody>
</table>

This is a small text block, which is formed by the study of the word W and defined by the people around 2S. The size of the text block is t (2s+1). Set the size of the corpus of the study, that is, the total number of characters is n. If we want to study the word \( W \) and W, the total number of \( L_W \) in the entire corpus is n, then the \( L_W \) in the entire corpus of \( q=v/n \), the L in the small text block is expected to appear in the number of e=v t (2s+1) \( n \). Standard deviation in small text:

\[
SD = \left[ q \left( 1 - q \right) t \left( 2s + 1 \right) \right]^{1/2}
\]

In general, the Z value reached or exceeded 2 of the collocation word and the study of the word between the w has a significant collocation force.

D. Keywords and Key

In general, the reference corpus should have a larger scale, at least relative to the size of the corpus of the corpus should be significantly larger, so that it can play an effective reference role. If a word is not high in the reference corpus, it is relatively high in the corpus.

For example, the word “reptile” is a 1/100, and the frequency in the reference corpus is only 1/100000. In the same word, there are significant differences in the frequency of the study corpus and the reference corpus, so it is very likely to be studied in the corpus, and it can be preliminarily identified as the key words of the reptile language.

The key words can be characterized by x value. Assumming that the frequency of a word in the corpus is f, the length of the corpus is m, and the frequency of the word in the reference corpus is C, and the length of the reference corpus is n, then:

\[
x^2 = \left( f - cn \right) - \left( f + c + m + n \right) / 2
\]

It is generally considered that if a word's x value is greater than 3.8, it is a significant key to the study of the corpus, which means that it is more obvious. Key words and key words of the research corpus are identified and the potential applications in the field of corpus based computer aided English teaching are very large. This technique can be used to automatically extract the key words of an article, which can help to build a corpus for the construction of the students, and the students use the subject classification of the corpus to help.

E. General Introduction of Corpus Indexing Software

1) KWIC index

The most basic analysis of the corpus is the full text search and word index. Most of the index terms in the corpus are “indexed by KWIC”. Different corpus indexing software is not the same as the key words, and the key words in Concordance 3.2 are called Headword. Below is the concordance of 32, College English Intensive Reading Textbooks 1-6 copies of the text for full-text retrieval of KWIC index (by make full concordance function). Figure 2 is arranged in alphabetical order according to the key words, and the order of 3 is arranged according to the order of the key words.
2) Corpus basic parameter statistics

Concordance 3.2 contains a number of statistical functions of the basic parameters of the corpus. This includes several parameters, such as the number of symbols, the number of characters, the number of symbols, and the average sentence length. Length distribution word function can be used to statistical corpus of the word length distribution, this parameter is important for judging the difficulty and language style of the text. Figure 5 is the use of the word length distribution function of statistics of intensive reading of College English textbooks 1-6 copies the text corpus of word length distribution.

3) VC++ source code used in computer aided English Teaching

Class member function definition:
```cpp
class CMovieCaptionMachineDlg : public CDialog
{// Construction
public: CMovieCaptionMachineDlg(CWnd* pParent = NULL); // standard constructor
public: void OpenFileToWrite(); void SelectMultiFile();
CString GetFileNameFromPath(CString path); void SelectReadType(); void SelectReadTypeA();
public: CString m_filepathname; 
CString m_writefilepathname; 
 CStringList m_selectfnameandpath; 
CStringList m_savenameandpath; int m_savetype;
};
```

Class member program function implementation part:
```cpp
void CMovieCaptionMachineDlg::OnOK()
{ SelectMultiFile();} 
void CMovieCaptionMachineDlg::SelectMultiFile()
{ CFileDialog mFileDlg(TRUE, NULL,NULL,
OFN_HIDEREADONLY|OFN_OVERWRITEPROMPT|OFN_ALLOWMULT
```

V. CONCLUSION

The application of English teaching and computer multimedia English Teaching in middle school English Teaching in middle school is described. The theory of constructivism is an important guide to the classroom teaching of English, and it also puts forward the advantages of Multimedia English Teaching under the guidance of constructivism, and the necessity of the combination of the two. The combination of the two is favorable for the teachers, students and teaching three. The rapid development of multimedia computer technology to the teaching of English provides new teaching means and the infinite possibility, based on constructivism learning theory of Multimedia English teaching will be the inevitable trend of education development in the future, which indicates that the English teaching from the teaching material, teaching method and teaching means to the whole teaching process will have great changes. Therefore, foreign language educators should update the concept of teaching, further develop the theory and practice of research, explore and improve the teaching design principle of Multimedia English based on constructivism theory, and better use of modern multimedia auxiliary means to effectively improve the quality of teaching.

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REFERENCE