

Retraction

Retracted: VR Technology in English Teaching from the Perspective of Knowledge Visualization

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VR Technology in English Teaching from the Perspective of Knowledge Visualization

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ABSTRACT VR technology is virtual reality. Most people think that speaking English is the most important language skill, but at the same time speaking English is considered to be the most difficult learning skill. Virtual reality technology, namely VR technology, is a comprehensive information technology, which provides new ideas for English teaching. The purpose of this article is to study the application of VR technology in English teaching. Using the teaching simulation method, we discussed the feasibility of using VR technology to solve the problems of poor oral English, poor English expression ability, and lack of English thinking ability. The analysis technology performs a series of data analysis on the results of the survey data analysis. The analysis of the research results shows that the application of VR video in the educational teaching process not only enriches the teaching form, but also provides a new way of thinking for the teaching and experience of the course. The application of VR technology in actual English teaching not only improve the learner's learning effect by 45%, and also enhance the modernity and modernization of English teaching activities, effectively achieve the cultivation of students' comprehensive English quality.

INDEX TERMS VR Technology, Teaching Program, Experimental Investigation, VR Application

I. INTRODUCTION

VR simulation refers to a computer that uses computer automatic simulation technology to generate a virtual environment similar to three-dimensional space, providing each user with various simulations of visual senses such as computer vision, hearing, touch, so that each user can be like a body. Immersive completely immersed in the three-dimensional virtual reality world simulated by the computer structure, and they can intuitively, timely, and freely observe anything in the three-dimensional virtual space without time limit, and interact with the virtual reality world environment. Other objects automatically interact, and after informing the user that they need to make some interactive actions, the computer immediately performs complex mathematical operations to return the images in the accurate 3D virtual world to the sense of presence when the simulation is generated. The "reality" in the virtual augmented reality technology generally refers to anything or any

environment that already exists in the real world in a certain physical chemical sense or a functional physical sense. It refers to what can actually be achieved automatically. It can also be difficult or impossible to achieve in real life. Following personal computers and smart phones, VR technology has attracted extensive attention from the international community. Using this VR simulation technology, teachers can even freely create and develop multi-dimensional interactive audio-visual and operation that integrates multiple dimensions. Teachers can even freely create and develop multi-dimensional interactive audio-visual and operation hands-on interactive simulation learning games that use VR simulation. In the teaching environment, users can be the protagonists of the game and exist in various simulated teaching environments at the same time, possessing the perception and control abilities in the normal world.

VR technology is mainly an important technology virtualization and reality synthesis technology that gradually evolves along with the continuous development

of computer virtualization technology. In the process of the continuous development of VR technology, comprehensive technology applications include computer graphics, system virtual simulation and mathematics. Sensing and measurement, digital image processing, to create a virtual reality environment with advanced simulation that can be perceived by the user [1]. The application of VR technology in classroom teaching activities is mainly to create a learning-friendly learning environment, thereby improving the learning experience of learners [2]. In English teaching practice, the application of VR technology can realize the organic connection between the cognitive world, the perception world and the construction of the knowledge system. Then, by creating learning situations, learners can participate in experiential learning according to their own wishes and needs, and activities can maximize learners' autonomy and effectively improve learning effects [3].

This article aims to solve some problems in English teaching and discuss the impact of VR technology on the analysis of the effect of English teaching. Among them, Jayalakshmi introduced VR technology, pointed out some precautions of VR technology, and combed its concept [4]. In his article, Khenissi analyzed the impact of VR technology on applied teaching, pointed out the important role of VR technology, and emphasized the research significance and current status of VR technology in English teaching [5]. In the article, Xiaojun elaborated the role of VR technology in detail, and analyzed and discussed related issues, which has important guiding significance [6]. Zeng pointed out that VR technology enhances students' interest in learning, and put forward his own unique insights into the current research, elaborating on the importance and positive significance of VR technology [7]. Jianqiu emphasizes the usefulness of building quality online courses, and through relevant teaching courses, improves the skills and interest in learning English, and has a better help in modern education [8].

In the study of the application of VR technology in English teaching from the perspective of knowledge visualization, this article summarizes and analyzes the research experience and achievements of a large number of predecessors. In addition, this article has made some innovations in the research content and research methods. The specific innovations are as follows: First, this article first extracts traditional teaching as a comparative reference for experiments, and compares the performance of traditional teaching and VR technology in learning English. Second, this article proposes to use VR technology to train experimental students in a suitable experimental school environment to better draw the results of relevant conclusions. Third, this article takes the lead in teaching VR technology in English. After survey data observation, VR technology. It provides a new way of thinking for the teaching and experience of the course, and improves the learning effect of the learners.

II. VR TECHNOLOGY CONCEPT AND APPLICATION CLASSROOM

A. ACTIVELY CREATE DIVERSIFIED VR ENGLISH LEARNING SITUATIONS

Creating various VR English learning scenarios is the core of applying VR to English teaching activities. Only by studying various VR English learning scenarios combined with specific situations can we truly show the value of VR technology that supports English teaching guidance [9]. First of all, it is necessary to combine the application of VR technology to create a language learning environment. English courses are very practical. If teachers want to improve the quality of language teaching, they must closely integrate with the actual situation of students, so that students can get a good language skill learning experience under specific circumstances and improve the educational effect [10]. With the support of VR technology, college English teachers can use vivid sounds, images and videos in a virtual reality environment to present different situations in English culture and design corresponding language tasks for students. In a virtual reality environment, students and teachers are roles in communication scenarios. In a virtual reality environment, teachers teach students to help them solve problems and solve problems according to their actual language environment [11]. Second, the widespread adoption of VR technology has created a new environment for multi-language and cross-cultural distance learning. Language and cultural education are more important elements in school English education, and teachers teach students to learn and understand language and cultural background knowledge, which will help strengthen students' cross-cultural communication skills [12]. Therefore, based on the application of virtual reality technology, explore ways to create language and cultural learning conditions, and promote the effective improvement of students' cross-cultural communication ability by feeling the cultural differences in real cultural scenes [13].

Through the effective use of VR technology to establish the sharing of textbooks in English teaching activities, sharing English textbooks is an important means to improve the effectiveness of education and can improve the quality of English teaching [14]. Therefore, in order to cope with the shortage of excellent English teachers in universities, in the process of using VR technology to create learning scenes, the teaching scenes of well-known English teachers in Japan and overseas were selected as virtual reality scenes, and the on-site teaching was synchronously processed by using students optimize the use of English teaching resources and promote the overall improvement of English teaching and educational activities of the best English teachers at home and abroad in virtual scenarios [15]. In the teaching process, applying VR video to the process of foreign language teaching in colleges and universities can further meet the needs of learners for multi-sensory linkage, interaction and

multi-dimensional cognition. From the comparison of VR video and traditional teaching methods, we can learn VR video is conducive to improving the teaching effect. Survey data shows that, compared with traditional teaching methods, VR video is more intuitive and more visually attractive [16].

B. STATISTICS OF SURVEY DATA

In order to ensure that every survey participant participates in the survey and fills in the complete survey information, the investigator should carefully check whether each survey questionnaire is missing or deviates from the actual survey item before leaving the survey site. It is necessary to find the corresponding survey object, determine the project object, re-investigate and determine the project after the project survey, until each student successfully completes all the re-determination survey and determine the project [17]. This questionnaire analysis survey has received a total of 100 questionnaires and a total of survey results. The survey results include the questionnaire comprehensive result recovery rate and the questionnaire survey result pass rate are lower than the evaluation standard 100%. Adopt the database established by epidata3.1, input data, all data are corrected by computer or manually. Excel2003 and SAS9.13 are used for data management and calculation. The following formulas are used to estimate as shown in formulas 1 and 2.

$$P = \frac{x^{(n+1)}(\omega \mu a)}{(c+1)!} (c-c_0)^{n+1} \quad (1)$$

$$S = \sum_{z=1}^v \frac{b_f}{r} * \log 2\left(\frac{M_f}{D}\right) + y^v \quad (2)$$

Where P is the statistical sum of squares; S is the statistical pass rate.

C. CONCEPT AND APPLICATION OF VR TECHNOLOGY

The traditional classroom environment will be limited by the cost of materials, time and space, and may not be able to support some of the more demanding teaching and experiments. However, VR technology can break through these limitations by virtue of its own characteristics. For example, general electric's VR laboratory can allow users to enter the seabed to observe the seabed oil and gas exploitation in all directions [18]. In the past, in the traditional classroom environment, in the face of some more complicated devices or experiments, learners can only use auxiliary pictures or videos to assist learning, but these contents cannot fully display internal details due to their own limitations. VR technology can fill this shortcoming. VR technology can intuitively restore complex devices or experimental facilities, as well as the details of device work or experiments. Learners can use VR models to observe devices in various states to find out reasons for success or failure [19]. It is such an intuitive

and three-dimensional model restoration that the simulation teaching experiment can restore the formal situation as much as possible, so as to achieve both "fish and bear paw", which can not only ensure safety and fun, but also achieve the teaching goals. English teaching in China is still there are problems such as dull repeated textbook content, outdated teaching methods, and insufficient quality of multimedia courseware [20]. From these problems, it can be seen that the virtual augmented reality innovation technology, which can also be correctly called "immersive multimedia" or "computer simulation reality", is an innovative technology that broadly combines a cross-specialized field of specialized disciplines. The development of virtual reality has begun to gradually enter the homes of ordinary people. With a variety of new hardware and software devices, users can use multi-dimensional senses to comprehensively perceive the virtual environment, while in the field of education. Taking visualization technology and data processing technology as the core, combined with various teaching design theories, can enable learners to get a completely different experience from the traditional teaching method in the learning process [21].

With the continuous development of network hardware and the gradually popularized cost-effective hardware, some universities have also developed virtual reality distance learning systems. Teachers can break through the traditional geographical restrictions and organize decentralized teaching through the internet [22]. Learners can also adjust their time online to watch instructional videos and various instructional materials, or visit the teacher's designated learning website to complete coursework and homework. The continuous maturity of virtual reality technology, coupled with the popularization of high-performance hardware, the time to integrate virtual reality technology into college teaching is maturing [23]. Using this technology to change the traditional one-way acceptance and memory that has been criticized by learners for a long time, if the learner lacks interest in learning and just memorizes the learning content for utilitarian purposes, then the duration of these memories often does not for a long time. I believe that many learners have a similar experience [24]. But if it is converted into an intuitive experience, it is like letting the learner take a happy trip, then the learner will be impressed with the whole process, and the corresponding memory will be more profound. In addition, because VR can stimulate the learner. The idea of applying VR video to the daily teaching process may produce an unpredictable "chemical reaction" [25].

III. INVESTIGATION AND EXPERIMENT OF VR TECHNOLOGY APPLICATION

A. SELECTION OF OBJECTS AND EXPERIMENTAL METHODS

One is the experimental class and the other is the control class. In the course of the experiment, the

experimental class uses the reading text genre of the English textbook as a starting point, and applies the VR mind map to the high school English reading classroom teaching. For the control class, use traditional reading teaching methods, that is, word phrases, and then translate the text sentence by sentence. This study collects theoretical knowledge about mind mapping and reading teaching through a large number of reading books, periodicals and magazines at home and abroad, and understands relevant research results, research trends and methods at home and abroad, paving the way for further research. Conduct questionnaire surveys in the early and final stages of this study, scientifically design questionnaires according to the research needs, do a good job of questionnaire tracking and recovery, survey and analyze students' different views on current English digital reading teaching and students' mathematical thinking. The mapping method has different views on the actual effect of English reading teaching, collects application data, and analyzes the application data. The teaching research project selects the companion students of any college as the main experimental research object, and conducts the experimental research together. Therefore, before the experiment, the English reading comprehension test was implemented for the two classes, and the differences were discussed through data analysis. Then one experimental class is used as a reading experimental teaching class, and the mathematical thinking mode mapping method is used for traditional English and Chinese reading teaching, and the other experimental class is used as a time control teaching class, using traditional Chinese reading teaching principles for English reading teaching. The duration of the experimental class is generally 1 week. After the experiment, the reading comprehension test is conducted again for the two classes, and the data obtained from the discussion is analyzed implement different teaching methods to obtain useful data for this study.

B. THE DATA OF THE EXPERIMENTAL SAMPLE

The test of the independence of the pre-test data of the experimental category and the control category the experimental objects selected in this study are two completely independent wholes, and these two categories are tested separately. It can be seen that the results of the two types of test results are independent, which fully meets the independent test requirements of the Chinese independent test sample standard test. The normal test of the test data before and after the experimental class and the clinical control class can be a dynamic test. In order to test whether the test data before the experimental class and the control class show a normal distribution, the frequency analysis method is used for testing. When comparing the test data before the shift, it is necessary to strictly check the method of its quality test class: before the student experimental class and the student control class, first check the normal results of the two tests. In order to test whether the test data of the experimental class and the control class

are significantly different, this study uses an independent sample T test to obtain whether the reading teaching method of the experimental class is significantly better than the reading teaching method of the control class, the classroom, to improve students' English reading ability, compared with the control group, the post-test test of the experimental class improved by 2.377 points. Therefore, the experiment achieved good positive results. The application in high school English reading teaching has achieved good results, indicating that this reading teaching method has a certain effect on improving students' English reading ability, as shown in Table 1.

TABLE I
POSTTEST DATA SET STATISTICS OF EXPERIMENTAL
CLASS AND CONTROL CLASS

Class group	N	Mean value	Standard deviation	The standard error of the mean
Experimental class	50	27.457	3.985	5.456
That in comparative	50	25.548	4.134	5.534

C. MAKE ENGLISH TEACHING COURSEWARE WITH VR TECHNOLOGY

In the practice and exploration of using VR technology to reform and innovate English teaching activities, teachers should start with optimization and innovative teaching courseware design activities, analyze them through the rational use of open graphical program interfaces and VR virtual reality modeling language, and combine the content to complete the university. The production of English teaching courseware has effectively improved the scientific and innovative nature of English teaching activities. At the same time, in the process of applying virtual reality technology to English teaching practice, in order to promote the effective production of teaching courseware, we must also pay attention to the interactivity and immersion of teaching, create virtual speech environment for students, and establish communication and interactive. Atmosphere, swap with virtual characters. The platform further enhances the attractiveness of English courseware and English teaching activities, highlights the effects of improving English teaching activities, and comprehensively improves the theoretical scientific and work efficiency of English teaching staff in organizing English activities. In the process of making English teaching courseware, teachers can try the virtual reality immersive online education platform to obtain the corresponding courseware information, enrich the content of college English teaching, and select the corresponding information and virtual scene students according to the specific learning needs. In teaching, provide students with more effective teaching guidance, and gradually promote the cultivation of students' comprehensive English quality. The application of VR technology in college English teaching can greatly improve the effectiveness of English teaching and create a

good environment for the comprehensive reform and innovation of English teaching. Therefore, in the practical exploration activities of reforming and innovating college English teaching and organizing activities, the application of VR technology can be used to create corresponding educational and learning situations, and use the learning situations to stimulate students' learning motivation. Study emotions, enhance students' English learning experience, ensure that students' comprehensive English quality and cross-cultural communication skills are well cultivated, make students become high-quality English talents, and ensure that the talents cultivated by colleges and universities can adapt to the current economic global. The need for chemical construction and development.

D. USING MIND MAP TO IMPROVE THE FEASIBILITY OF ENGLISH READING TEACHING

The thinking process map is not only an effective thinking cognition analysis tool and a thinking expression technology, it helps readers to correctly guide and reasonably diversify various thinking processes in the process of reading papers, but also because it can be effective. Help the paper reader to record his thinking process into a clear knowledge visualization thinking graph or information network, which is not only conducive to helping the reader to independently construct a self-knowledge sharing network, but also to help the reader and the author of the paper. We will communicate with each other and exchange information and knowledge with the authors. Let's take a closer look at whether this kind of information exchange between readers and the authors of the paper will make some cognitive impact on their knowledge through what comes back. Therefore, under the joint action of the two thinking mode maps, the reading learning process has become a learning process in which the Chinese author and reader interact with each other, promote each other, and promote each other.

IV. RESEARCH ON VR ONLINE CLASSROOM AND MIND-ORIENTED APPLICATION

A. APPLICATION ANALYSIS OF VR ONLINE CLASSROOM

50 participants were invited, of which 40% were males and 50% were females. They have all just experienced three years of English education. In this experiment, the integrity of the English questionnaire and the authenticity of the questionnaire were strictly checked and the questionnaire responses were excluded. English questionnaire with obvious tendency of wrong physiological response during incomplete and questionnaire response. In the final result, 0 invalid questionnaires were eliminated, and 50 valid questionnaires were retained. This method experiment mainly uses analysis software to analyze the comprehensive statistical data of the relevant experimental data results. First, the reliability and validity of the questionnaire should be analyzed to prove that the

experimental results can be used for further saliency analysis. Questionnaire reliability analysis refers to repeated testing of the same content part of the questionnaire, and the degree of stability of the test results. In this study, the more commonly used Cronbach a reliability coefficient analysis method is used for analysis, and the analysis results are integrated. On the whole, the Cronbach reliability coefficient is 0.978, the overall Cronbach reliability coefficient is 0.965, and the overall Cronbach reliability coefficient is 0.931, which shows that the three questionnaires believe in this experiment. The degree is quite high and can be used for further analysis, as shown in Table 2.

TABLE II
A TABLE OF THE RELIABILITY OF EACH QUESTIONNAIRE

Name of the questionnaire	Cronbach reliability coefficient	Number of terms
Experience factor Scale	0.94	10
1	0.96	32
2	0.93	21

It can be seen from Table 2 that there is a significant correlation between the test variables. And the factor load of each questionnaire is greater than 0.5, proving the validity of this questionnaire.

In the sample of 300 students participating in the survey, 120 students participated in online open courses, accounting for 65.77% of the total, which indicates that most college students participated in online VR open courses, while the remaining 34.23% did not participate in online VR open courses. Among the participating students, 51.3% have heard or understood the online public courses, and 64% have a strong interest in this; meanwhile, the teacher questionnaire survey shows that 31% and 35% of teachers are in school. A large-scale online course construction was carried out. The attitude of construction is "complete agreement" and "basic agreement", which further illustrates the importance of strengthening online construction. Regarding the reasons and motives for participating in the course, only 19.7% of students chose "voluntary learning to improve academic performance", while 73.6% of students participated in or completed online learning training courses based on the school curriculum. At the same time, in the interview. I learned that online teaching of some university teachers is involuntary. The purpose is to complete teaching tasks and course identification. This is related to the questionnaire survey of teachers on "what negative impact does the school have on online curriculum construction"? In one question, 68% of teachers chose "increasing teachers' teaching pressure". The relevant data is shown in Figure 1.

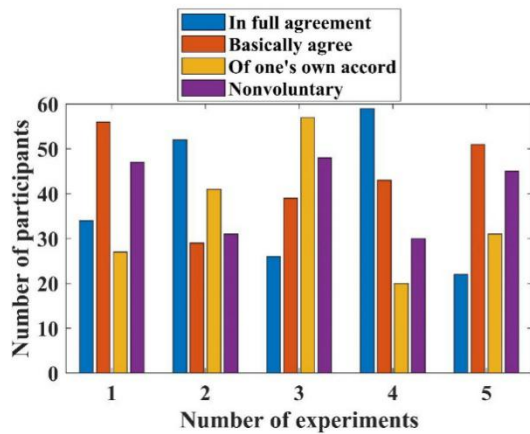


FIGURE 2. The motivation analysis diagram of students participating in VR open course

As can be seen from the data in Figure 1, for the hidden features such as richer content and higher learning efficiency presented by online courses, more than 70% of students also believe that online classrooms are more conducive to the communication between teachers and students, which improves learning efficiency 65%.

The implementation status of online public courses is the basis and premise for understanding the status of policy implementation, but the teaching methods of online courses still present a unique trend. Only traditional classrooms are directly transferred to the internet, and there is no two-way interaction between teachers and students. 46% of students' online public courses are "traditional course records", 32% of students choose "teacher online explanations", while only 9.7% of students discuss and build knowledge through online learning through interaction with teachers. Due to the flexibility of online courses, teachers must guide students' learning within the control. Teaching methods such as "recording traditional courses" have not achieved good teaching results, but online courses have shown lower appeal. The survey results show that 32% and 22% of students think their courses are "not very attractive" or "completely unattractive", and they are not interested in learning online courses, which further affects the teaching effect, as shown in Figure 2.

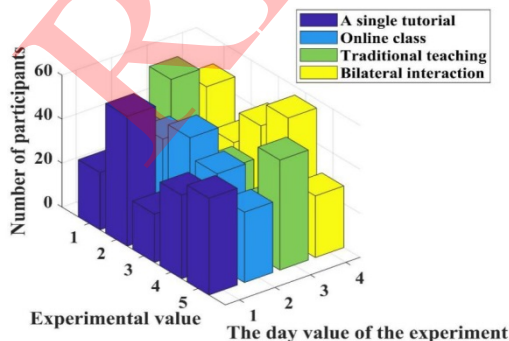


FIGURE 2. Chart of statistical analysis of the teaching methods of online open courses

From the data in Figure 2, it can be seen that in the survey of the online course learning gains and effects, the two proportions of "improving their own knowledge reserve" and "rich learning methods" are the highest, at 46% and 31%, respectively. The analysis of learning results shows that 67% of the students achieve the expected results.

B. APPLICATION ANALYSIS OF VR THINKING GUIDE

Students believe that the biggest difficulty comes from vocabulary. Vocabulary problems make the meaning of the text difficult to understand and lead to reading difficulties. In response to this problem, it is also necessary to use mind maps to expand students' vocabulary. Most students' reading difficulties come from vocabulary explanations. Students tend to translate the text word by word, without scientific and effective reading strategies. 40% of students follow the traditional reading method by translating word by word, and 33.3% can carry. Questions to read, 22.2% of students will read articles by looking for keywords. The analysis and judgment of students on the general idea and subject sentence of the article are not good enough. The lack and lack of students' reading strategies lead to poor reading results. Based on this, the cultivation of students' reading strategies is crucial to the improvement of students independent reading ability. It is interesting and effective to use the visual characteristics of the mind map to sort out the text. It can also train students to read strategies to improve students' autonomous reading ability. The results of this study are shown in Figure 3.

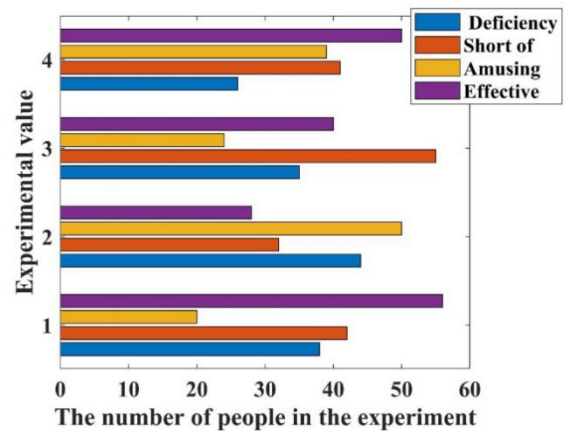


FIGURE 3. A survey of attitudes towards the use of mind mapping in reading classes

As can be seen from the data in Figure 3, teachers in the classroom still use traditional teaching methods to explain and analyze vocabulary grammar and sentence patterns. For senior students, the word-for-word understanding and translation of the text is still the main line of the classroom, resulting in students Satisfaction with the current English classroom is only 40%. Therefore,

it is very necessary to change the original reading teaching model.

Through the use of VR mind maps, 74.4% of the students can basically find the idea of the article, 72.2% of the students think that the application of mind maps can help students improve reading speed and understanding of the article, 50% of the students think that using thinking. The map can improve the ability of reading and retelling. 36.3% of the students think that the ability to retell the text after using the mind map has been improved, indicating that the mind map not only constructs a network of knowledge points for students but also improves the students' comprehensive language output ability. 85.5% of the students think that the mind map helps to sort out the text and clarify the key knowledge points of the text, and 91% of the students think that using the mind map can effectively find the answers to the questions. The specific data is shown in Figure 4.

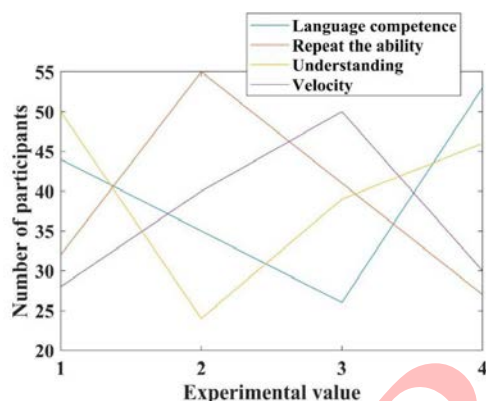


FIGURE 4. A mind map applied to classroom effectiveness survey map

As can be seen from Figure 4, the use of VR mind maps in the English reading class changed the original reading mode. The students mastered the reading strategies with the help of the teacher. The students really improved their ability to actively participate in Chinese reading activities and truly felt. He saw the joy of students' active participation in Chinese reading, which can help students truly cultivate good habits of students' independent participation in reading, and improve the students' ability to participate in Chinese reading and their comprehensive learning activities and reading quality by 55%.

V. CONCLUSIONS

(1) Use VR technology to realize these learning experiences, and seek the design combination method of "VR + English". Through practical teaching experiments, this study verifies the good experience that VR English teaching brings to students, and analyzes the advantages and possible disadvantages of VR technology in English teaching. VR English teaching is effective in improving oral anxiety, and locates the reason for the decline in anxiety in qualitative analysis. These analyses have reference value for the design of future teaching systems.

(2) Analyze the application of VR technology in English teaching from the perspective of knowledge visualization in this thesis, put forward the corresponding working principles and theoretical guidance, explain the superiority of VR technology, and the learning experience of VR English system has been more students praise. VR scenes can aid knowledge memory and enhance students' ability to understand and apply knowledge. The VR learning environment is more relaxing and the learning rhythm can be controlled. VR learning can bring students a sense of fun and achievement.

(3) VR technology plays a very important auxiliary role and improves students' interest in learning through analysis and research on the impact of VR technology and other related factors. The research results show that the application of VR video in the education and teaching process not only enriches the teaching form of the course, but also provides a new teaching idea for the teaching of the course knowledge and the cultivation of the student's learning experience, and enhances the learner's learning. The effect is 45%. Strengthen the times and modernization of English teaching activities, and effectively achieve the cultivation of students' comprehensive English quality.

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