

The Role Change of College English Teachers Based on VR Technology in the Post-epidemic Era

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Abstract: *Due to the sudden arrival of the epidemic, the issue of teaching has attracted more attention and attention from the society. With the continuous development of modern society and the progress of science and technology, the application of virtual reality technology in the field of education is the development trend of modern education. The emergence virtual reality technology of has changed people's traditional visual experience, virtual reality technology will change the role of teachers and teaching methods and tools, which will affect the meaning of people's education. This article mainly studies the impact of VR technology on the role change of college English teachers in the post-epidemic era. It mainly uses four forms of literature review, questionnaire survey, classroom observation and interview methods. Questionnaire surveys were conducted on students and teachers respectively. Among them, 80.61% of teachers support the use of VR technology in teaching, 70.55% of students felt that VR technology has a great influence on the role change of teachers in the classroom, and only 10.50% of students think teachers In the classroom, it has always been only for teaching purposes. The results show that in this rapid change, the role of English teachers has undergone tremendous changes. In the past, English teaching was taught word by word in the classroom, but now teachers have gradually changed from leaders to instructors to guide Students think about themselves. English teachers have gradually changed from being a transmitter to a student's assistant and guide.*

Keywords: *Epidemic Era, the use of VR Technology, College English Teachers, the Change of Teacher Roles*

1. Introduction

Virtual reality technology (VR technology for short) plays an increasingly important role in our lives, which makes our lives more convenient, fast and efficient, especially during the epidemic period, which shows the necessity and convenience of VR technology. Sex. With the introduction of virtual reality technology, the role of English teachers has changed from a leader to a guide. During the epidemic, teachers and students cannot teach face-to-face. This makes teaching no longer a class and always a teacher speaking on a podium, we are on the stage after listening silently, this phenomenon will become less and less, and it will not even occur again. We will make more use of the teaching network to create a good communication environment for students, train students to learn effective methods, and recommend independent learning. We become friends and partners of students. Virtual reality technology plays an important role in college education. Especially in the integration of virtual reality technology and subject teaching, a new teaching method has been created. This new teaching method has brought new demands and challenges. In traditional teaching concepts and courses, especially the role of teachers in traditional classroom teaching. In this new teaching method, teachers must strive to meet the new requirements of the integration of information technology and teaching, and change their roles to better To adapt to the different requirements of this new teaching method, however, the role of teachers is not always active and active: if the role of the teacher does not change, it will inevitably affect its teaching effect.

In theory, this research will explore a new field of teacher professional development that integrates virtual reality technology and English teaching under the guidance of subjectivity theory, constructivist learning theory and human learning theory. By studying the integration of VR technology and English subjects, this article discovers the internal and external reasons for the changes in the role of teachers, explores the theoretical basis of these changes, and discusses the elements of the changes in the role of teachers. From a practical point of view, this research can lay a foundation for research and analysis to

clarify the correct relationship between virtual reality technology and teacher role transformation, and help teachers better understand VR technology. Help English teachers effectively realize the transformation of teachers' roles under the background of virtual reality technology, and adapt to new teaching methods, guide and strengthen teachers' attitudes towards the acceptance and recognition of VR technology. In order for VR technology to effectively realize the in-depth integration of information technology and English teaching, we must have a good foundation, theoretical guidance and practice.

Berg LP, through extensive investigations of the industry, he concluded that virtual reality has finally arrived, and it is "bright and beautiful." His report covers various industries that use these technologies to support industry-level innovation. Advances in technology enable designers and engineers to explore and interact with data in more and more natural ways. Sixteen years have passed since he conducted the original survey, so the research he did lack timeliness[1]. Song, Chang used social communication theory and social constructivist emotional theory to investigate the relationship between supervisors' paternal leadership and the teaching effectiveness of Chinese college English teachers, and the role of emotional creativity and professional identity in this relationship[2]. Lan Yongkang believes that with the continuous development and progress of 3D virtual reality technology, various virtual reality technology equipment is constantly updated, and there are more and more consumer-level virtual reality technology equipment, so that consumers can also enjoy the convenience and speed brought by high-tech technology. He analyzed the domestic advantages and disadvantages and discussed the application prospects and application value of virtual reality technology at this stage. He gave a detailed explanation of how virtual reality technology will better serve English training and teaching in the future, but he did not set up reference objects. Make the conclusion convincing [3].

The innovation of this article is to use practical methods to obtain data on the impact of VR technology on teacher role transformation in English teaching. The information obtained is the most direct and effective, allowing teachers and students to speak on this research topic from different perspectives. It is persuasive and makes the research results more real. In the English experimental teaching supported by VR, teachers can also truly feel the role played in traditional teaching and the current changes.

2. Research Methods of VR's Role Transformation in English Teaching

2.1 The Application Method of VR Technology in English Teaching

(1) System frame design

The B/S mode is used for architecture design. The interactive script is developed by Virusts software to realize the basic rotation, translation and focusing functions of all models. It can be seen that with the support of the 3DlifePlayer browser, when a legal user logs in, 3DlifePlayer The related virtual scene will be automatically loaded [4]. In fact, the user is presented with a copy of the scene created on the server. The server retains all application resource data required by the experimental system, stores all the basic data required by the experimental environment in the database, and then uploads the data automatically after user operations deal with.

(2) System operation design

Theoretical learning is the foundation of oral English courses. This article is presented in the form of e-books and animated videos. Due to the B/S mode of the framework design, students can view locally without downloading e-books or video materials, but can ask questions and learn through the browser. On the one hand, it simplifies the operation process, on the other hand, it can ensure that the copyright of the book is not infringed; the learner can control the opening, closing, rotation, focus and full-screen video of the page, which can be achieved by clicking the relevant function button with the mouse Adjustment of volume, image quality and resolution [5].

2.2 Methods of Investigating the Impact of Teacher Roles

(1) Document law

It is an ancient, widely used but full of vitality scientific method. Its method is to collect and classify the documents related to the research topic, and then form a scientific understanding method through the internalization of the research [6]. This method can summarize the previous conclusions

and current status of the research and receive the results indirectly. It can be said that educational scientific research cannot be separated from literature review. "One of the first tasks of the research process is that once the subject is determined in the consultation, understanding the relevant information will help familiarize with the research status and make the research process more effective." Therefore, after determining the research problem, the author began to understand the relevant book research problems at home and abroad, understand the previous research results and make analysis and conclusions. Since June 2020, in the literature review in the past two months, the author has Found more than 70 articles. Articles and papers on the role of teachers, more than 20 articles on the role of English teachers, and 7 articles on the role of college English teachers. All these will bring effective reference to this research.

(2) Questionnaire survey method

The questionnaire survey method is a research method through which researchers can design questions to be studied in the form of written questionnaires. These questions can be mailed, answered on the spot or tracked, because it is simple, convenient and fast. On June 1, 2020, the author released a questionnaire for teachers and students. In order to improve the effectiveness of the questionnaire, it took 2 minutes to explain the precautions and filling requirements to the students. If the time is too short and not fully considered, it will lead to research Lack of authenticity; if the time is too long, students may miss the questionnaire, so the author takes it back [7]. "Questionnaire and teacher" questionnaire for students after class. Effective questionnaire control, data entry, statistics, summary and analysis have been completed within one month.

(3) Classroom observation method

The so-called classroom observation refers to a research method of educational science. According to this research method, researchers or observers directly or indirectly (mainly directly) based on their own feelings (such as eyes, ears, etc.) and related auxiliary tools (observation boards), Recording equipment and videos, etc.), and conducting similar data-driven research is not only cumbersome and takes a long time, and it is also time-consuming to observe, but it actually reflects the interaction between teachers and students, and teachers' attention to students. From June 1 to 2, 2020, the author listened to Lesson 1: Rules round us and Lesson 2 Numbers: Everyone's language and shot a video. It took nearly two weeks to record the video content [8]. Mainly from the aspects of whether the teacher is dealing with all students, the time arrangement of teaching content, the allocation of teaching time, and the planning of problems

(4) Interview method

The interview method is a method of verbally collecting objective and fair factual materials based on the respondents' answers. The purpose is to accurately explain the population representing the sample. In this research, the author interviewed many students from time to time. Knowledge about how to deal with temporary problems in the classroom, scheduling tasks, and other issues in order to understand first-hand information about the role transition of teachers in the classroom [9].

3. VR Supports the Next English Teaching Experiment

3.1 Contrastive Experiments of English Teachers' Classroom Role Conversion

Randomly select a university as the experimental object, select 400 students to participate in this experiment, through the same teacher in two different teaching methods. Experience what the role of the teacher is. Through a questionnaire survey to understand the impact of VR.

(1) Role playing in English classroom supported by VR (corresponding to traditional classroom)

The role playing takes classic literary works (such as "Hamlet") as an example. When the story happens, the VR background is set to the Kingdom of Denmark, and the scene is completed according to the background at the time to shape the cultural atmosphere. Create a character in the background, give line text, and let students choose the character they are interested in. After the students choose, they are randomly grouped, and each piece of work is completed in English. Compared with traditional theater performances, the model constructed by VR reduces the difficulty of performance. In the real world, theater performances have higher requirements for actors, and some students have difficulty participating in the performance due to lack of trust [10]. Virtual reality creates a cultural atmosphere consistent with classic literary works, making it more likely for students to feel the character's character

at this moment and put forward ideas of reaction, which is beneficial to him. We understand the classics and stimulate interest. Through body language and specific classical language systems, students can obtain correct expressions in English, assume roles through explanations, understand the characteristics of classical works and avoid incorrect transmission of teacher information. The performance time of each scene is relatively fixed. Because the students participate in the performance by themselves, all the senses are mobilized, which can attract the attention of the students and avoid the situation where the teacher is in a hurry due to time. Adjust the curriculum to reduce the possibility of learning. Currently, teachers act as assistants to help students complete their studies.

(2) Task-based mode supported by VR (corresponding to traditional discussion classroom)

A complete story line is given through VR, such as the origin of Thanksgiving. In the process of narrating the story line, various tasks have been set up to find the necessary elements through dialogue with the NPC, thereby making the final narrative possible [11]. Divide into several groups and quantify the number of students: they can avoid being persecuted by the British government (it can be set to avoid being persecuted by the British government, and if they are found, they will leave), carry the "Mayflower" in Abroad (can be defined as wind and waves on the sea, all parts of the ship must be operated in the given order, whether to work overtime according to regulations), talk to other countries and learn skills such as fishing, such as fish and planting (can be adjusted according to other languages, Did not teach any skills). If other students are in the field, you can open the end and define the stage of information search in the process of completing the task. For example, students must enter a password when boarding a ship, and the password is the letter left by the senior. Currently, literature retrieval methods are being introduced to help students obtain correct information. Starting with the ultimate goal, participating in games will help stimulate students' curiosity; members of each group are necessary and must cooperate with each other so that students can To realize one's own value and enhance self-confidence, it promotes the initiative of students before the common goal [12].

Teachers participate in these two ways as tutors, which can help students and improve the connection with students. By reading English texts, understanding English texts and interpreting English texts, we can understand English institutions, current English cognitive abilities and classic literature, and Distribute educational resources reasonably;) Promote personalized teaching, determine the ecological status of students in the classroom ecosystem, and assist students in achieving "common progress" results.

3.2 Design and Implementation of the Questionnaire

The main purpose of the questionnaire survey is to change the role of college English teachers as virtual reality technology enters the classroom, and a questionnaire is designed based on the research theme. After the students have finished two classes, fill out this questionnaire about their actual feelings. It is implemented by giving out a copy before class and taking it back after class [13]. In the questionnaire, A is "disagree" and B is "disagree". Choosing A is the worst for teacher role conversion, and choosing C is the best for teacher role conversion.

3.3 Data Collection and Arrangement

This time, on May 10, 2020, 100 students from the four grades of the school were selected to attend the class, and finally 392 valid papers were recovered, with an effective recovery rate of 98.2% [14]. In the survey, students' learning level is divided into four levels according to the total score (100 points system): poor, below 60 points; average, 60-75 points; good, 75-90; excellent, above 90. Freshman, sophomore, third and fourth grades were each investigated with 100 people, 152 boys and 248 girls.

4. Analysis of the Impact of English Teacher Conversion Based on VR Technology

4.1 Analysis of the Role Change of English Teachers in Traditional and VR Classrooms

(1) Concept of role transformation

Classroom education is a special social activity between teachers and students, between students and students in small areas and small groups. From a horizontal perspective, student groups, educational themes, and environmental conditions are intertwined and drawn into different relationships, and teachers play different roles among them. From a vertical perspective, in different

eras from the past to the present, due to the development of politics, economy, and culture, special activities such as education have been severely affected. Of course, the role of teachers will also change accordingly. Regardless of whether it is from the policy background of the times or from the perspective of teacher role expectations, it requires the transformation of teacher roles [15].

(2) The change of teachers as "controllers"

Before VR technology entered the English teaching classroom, 90% of people believed that the teacher was in the classroom as a "full controller". 96.1% of the classmates thought that most of the teachers were able to complete the scheduled teaching tasks in an orderly manner. This result was gratifying; 60.6% of the classmates felt that the English class was often in a relaxed and happy atmosphere, but nearly 40% of the classmates. Combining the two surveys, it can be seen that when VR enters the classroom, the teacher "controller" plays a better role, and it is gradually realizing that the new classroom control method replaces the previous classroom controller. In the past, the controller method was more traditional and modular. The teacher told the students and listened. As long as the teacher was correct, there was no communication between teachers and students, and the teacher-student relationship lacked democracy. The "controller" role of the teacher under the new curriculum requires that the teacher's leading role and the student's main role be fully exerted, and the students should be properly managed, so that students can actively accept and learn effectively in a relaxed, harmonious and orderly classroom learning atmosphere. At the same time, teachers are strategizing about the classroom situation, effectively controlling classroom discipline, and rationally allocating the time and rhythm of learning activities [16]. When the students were asked whether their teachers could complete the teaching tasks in an orderly manner under the predetermined plan during the entire class, only 3.4% of the students thought that they could not (choose A), 47% of the students thought that they were basically able (choose B), and 49.1% Students think it can (choose C). In this view, most teachers can complete the scheduled teaching tasks for the entire class in an orderly manner. Is this kind of completion still like traditional teaching, which is completely the 'one-word lesson' taught by the teacher? Question 2 students gave the answer to their evaluation of the English classroom atmosphere. 5% of students think they are generally dull, and 34.4% of students think "most dull and less active". It shows that the majority of the classroom atmosphere is active during class, and there are still a considerable number of dull English teachers [17]. The investigation situation is shown in Table 1.

Table 1: Teachers as controllers

Topic	Options	Reference sample (%)	Research sample(%)
Complete teaching tasks	A	3	3.4
	B	57	47
	C	40	49.1
Classroom atmosphere	A	15	5
	B	69	34.4
	C	19	60.6

(3) The change of teachers as "organizers"

As shown in Figure 1, up to 84.7% of the students recognized their teachers, and in most cases they were able to "highlight the key points, break through the difficulties, and concise and concise". Secondly, in terms of whether to teach in English, 73.1% of the students chose C, believing that their teachers can basically teach students in English. In the distribution of lectures and activities in the classroom, 65% of students choose their teacher to "interact with teachers and students", and 18.3% of students say that their teachers are "mainly student participation" in a class. However, 16.6% of the students think that their teachers spend most of the time "explaining content" [18]. It shows that teachers have realized the importance of student participation in the classroom, but the interaction between teachers and students needs to be strengthened. In terms of "scenario creation", 30.4% and 62.4% of the students chose B and C, respectively, believing that their teachers can "actively create scenarios and stimulate students to speak English" in general or in most cases. In terms of class organization, 38.7% of the students chose B and 56.5% of the students chose C, thinking that their teachers were quite organized in class. But in the "warm-up activity" before class, 31% of the students' teachers might be afraid of wasting time, so they don't do any warm-up activities before class; as many as 35.2% of the students' teachers only do one or two forms of monotony. In the warm-up activities, only 33.8% of students' teachers are able to change many different activities to carry out warm-up activities [19].

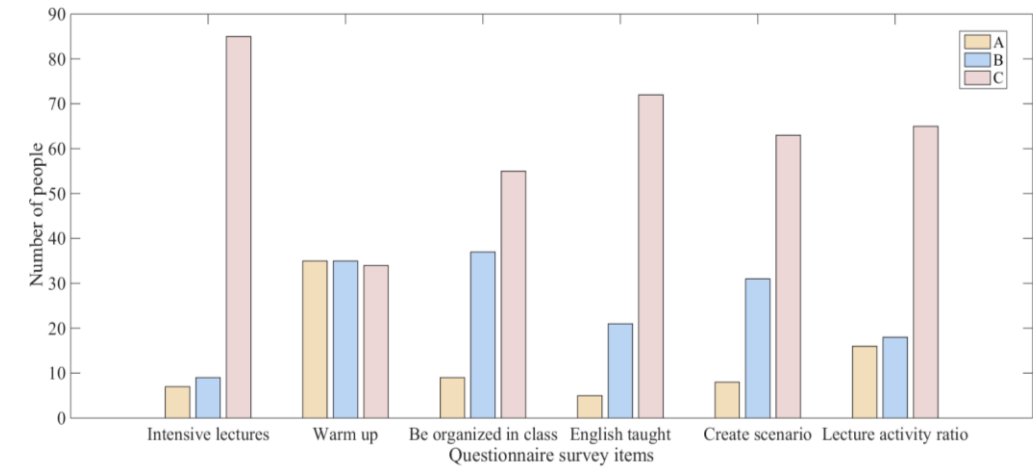


Figure 1: Teachers as organizers

The above statistical chart shows that English teachers in colleges and universities have done the best in class teaching as "organizers" in "precise lectures and concise", followed by "teaching in English". Other existing problems cannot be ignored. With the support of VR, teachers should not only organize students to discover, find, collect and use learning resources, but also create spaces for students to be independent, explore, and cooperate, so that the relationship between teachers and students is more harmonious and comfortable. In addition, it should help students form a positive learning atmosphere and ensure a stable and peaceful mind in the learning process. Teachers must prepare textbooks and prepare for students. The activities and content of the preparation should conform to the age and psychological characteristics of the students, and stimulate the inner motivation of the students to learn [20]. In VR teaching, before the activity starts, the teacher can't do things with his head, think about where to do it; prepare it first, tell students the content and requirements of the activity, the tasks to be completed and the goal achieved; the teacher should give students a demonstration when needed, so that students avoid detours, so as to ensure the effectiveness of activities. If you don't know the specific requirements of the activity, students will be aimless and very loose like herding sheep, with little effect. The teaching knowledge is very profound. Teachers must learn to mobilize students' different senses, exchange tensions, or participate in learning at the same time through the direct physical stimulation method, combined practice method, audio and video broadcasting method, learning situation rendering method, etc., otherwise it will be easy Cause students to work for a certain sense for a long time and lead to excessive fatigue.

(4) The change of teachers as "participants"

Figure 2 reflects the situation of teachers' organization and participation in classroom activities. 52.1% of the students chose C, but 12.8% and 35.1% of the students mentioned that their teachers basically did not organize or occasionally organize activities; in the survey of the role of teachers during the activities, the survey results showed that 64% of the students When it comes to teachers often participating in student activities, 7.6% of students believe that their teacher takes the lead role in the activity, and 29.4% of students feel that their teacher participates in the activity and plays a supporting role [21]. 17.6% of students "dislike" English teachers participating in their activities, because "teachers feel weird to participate", "want to do it by myself", "stressed", "no reason, just don't like it". 82.4% of students "like" teachers participating in classroom activities because "the teacher will remind us", "activities will be completed more smoothly", "can promote teacher-student relationship", "teacher inspires us and encourages us to do better", "The teacher is very responsible", "Can learn spoken English better", "You can make fewer mistakes", "The teacher is very friendly", "The teacher will be very fun to attend", etc. The above survey results show that teachers can participate in their learning activities with the support of VR Among them, to provide them with help and encouragement in language learning. At the same time, the teacher-student relationship is harmonious and the atmosphere is warm, so that students will change from liking attractive teachers to English as a subject [22].

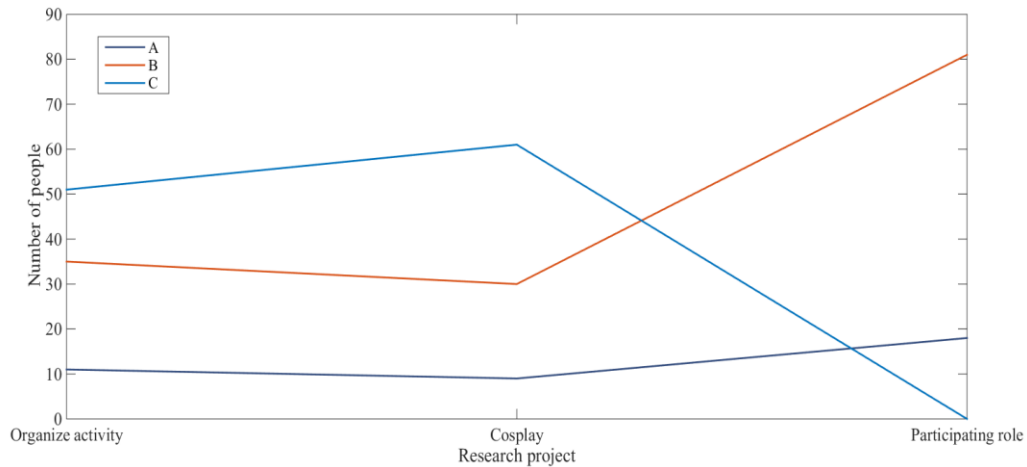


Figure 2: Teachers as participants

(5) The change of teachers as "reminders"

When students were asked how they could not answer the teacher's question or answered incorrectly in class, 4% and 6.7% of the students mentioned that their teacher would criticize them, or the teacher gave the answer directly. ; 18% and 12.6% of the students think that their English teachers do not wait for them to think, so they ask others to answer or ask others to correct them; 78 % and 80.7% of the students said that their teachers will follow the instructions and guide them to make Correct answers or guide them to correct the mistakes they made. 66% of students said that teachers often encourage themselves to speak more English, 26.7% of students think that teachers sometimes encourage themselves to speak English in class, and 7.3% of students mentioned that teachers hardly encourage them to speak English in class, As shown in Figure 3 [23] . Statistics show that when students have difficulty learning in the classroom, the role of the teacher as a "reminder" should be better, and improvements should be made in the VR classroom so that students can use the virtual world to relax and answer questions.

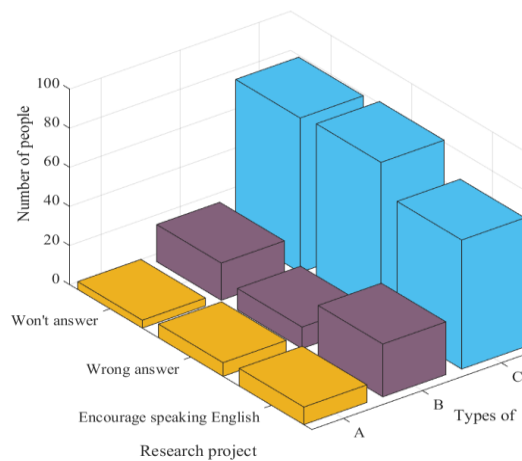


Figure 3: Teacher as prompter

4.2 Teachers' Acceptance and Implementation of the New Curriculum Concept

As shown in Figure 4, 72.2% of teachers believe that the main task of English class is to improve students' emotional attitudes, learning strategies, and cultural awareness while learning language knowledge and skills; in question 3, 47.4% of teachers chose B (agree but rarely implement comprehensive evaluation), 52.6% of teachers choose C (agree and implement in teaching), which means that all teachers agree with comprehensive evaluation of students. In questions 4 and 5, "the role of the teacher should be changed from being mainly the instructor of knowledge to the instructor and facilitator of student development" and "the teacher in the English classroom should be transformed

from a condescending person to an equal chief.” , And all teachers are in favor, but in the English classroom teaching practice, 11.1% of teachers choose “agree but not (too much) implement” As shown in Table 2[24]. From the above analysis, it can be seen that most teachers have accepted the concept of English teaching supported by virtual reality technology theoretically or ideologically, and can implement them in specific teaching. A very small number of teachers still only accept theoretically and behaviorally. In the wait-and-see phase, behavior changes are slow and need to be kept up as quickly as possible.

Table 2: Acceptance of curriculum concepts

Survey question	1	2	3	4	5
not support	19	18	1	2	1
uncertain	8	10	49	11	11
stand by	64	71	51	89	89

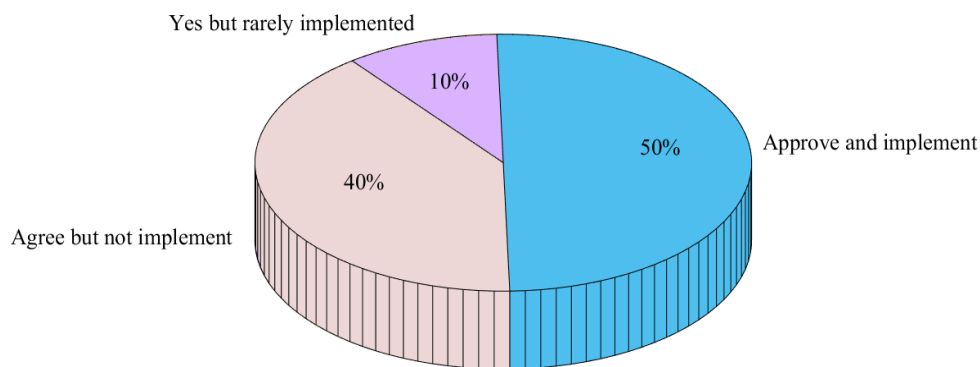


Figure 4: Distribution of teachers' support for curriculum changes

From the comparison of the student survey questionnaire data of colleges and universities, the four role transitions of teachers under the support of research VR have been significantly improved, especially when the teacher is the controller, the completion of teaching tasks is improved, not through complete control in the classroom, High-pressure students, the valuable thing is that the classroom atmosphere is more active, and the teaching tasks can be effectively completed under the conditions of fully mobilizing students' enthusiasm. The teacher's transformation as a reminder changes the most. When a student fails to answer or makes a mistake in his answer, most teachers neither blame nor ignore the student, but guide the student to get the correct answer. From the perspective of teachers as organizers, compared with the two schools, although the latter has made some progress, there is still much room for improvement in the research sample schools, especially in the warm-up activities before class. Only 33.8% of the students think their teachers Often organize various forms of warm-up activities. However, compared with the reference sample, the only thing that does not rise but falls is the teacher as a consultant to provide students with background knowledge. This may be because many teachers believe that: First, the class time is limited, and the classmates are not provided or provided with the background knowledge. ; The second is that teachers feel that science and technology are advanced, and students have more opportunities to use computers to check information on the Internet when they go home, so teachers can save or save in class. As everyone knows: Sharpening a knife does not accidentally chop wood. Moreover, students do not have time to go home to search. If students are allowed to search by themselves, teachers should also guide students how to search and tell them the content and requirements of search.

5. Conclusions

As part of the traditional English teaching process, teachers cannot always pay attention to whether students are really listening to what you are explaining, nor can they motivate and encourage students. All teachers usually or always can guide their learning methods. For students, it is necessary to develop and cultivate the habit of independent examination consciousness, and teachers generally pay more attention to the guidance of learning methods and learning strategies, which is inconsistent with

students' choices. There may be a lack of communication between teachers and students. They have not adopted methods suitable for students, and students cannot understand and accept it. Even though some teachers are aware of the knowledge they impart, students can really understand and accept it. However, they did not create positive conditions for students to acquire knowledge in actual teaching. They still teach in strict accordance with textbooks, do not want to use their brains or lack abilities, and do not pay attention to the integration of interdisciplinary resources.

Nowadays, the introduction of VR technology into English teaching can better help teachers' teaching tutorials, drive students' interest in learning, and improve teaching quality. At the same time, it also changes the role of teachers in English teaching. Traditional teaching concepts believe that The process of English learning is the process of knowledge transfer, that is, the abstract and de-contextualized knowledge in the book is transferred from one person to another. The English teacher has always been a transmitter of knowledge in the classroom. The process did not arouse students' interest [25]. With the support of VR technology, the teacher's role in the English classroom is changed from a transmitter to a controller, organizer, participant and prompter.

With the application of VR technology in English teaching, the entire teaching environment has undergone a qualitative change. This is a huge challenge to change teachers' concepts. According to the research results, many teachers can accept their new reformed concepts. To cope with this challenge, teachers need to actively participate in curriculum reform, break traditional teaching concepts and teaching methods, and actively change their role in the teaching classroom, realize multiple role conversions in English teaching, and learn English better for students.

References

- [1]Berg L P , Vance J M . *Industry use of virtual reality in product design and manufacturing: a survey*[J]. *Virtual Reality*, 2017, 21(1):1-17.
- [2]Song, Chang. *Supervisors' paternalistic leadership influences college English teachers' teaching efficacy in China*[J]. *Social Behavior & Personality An International Journal*, 2016, 44(8):1315-1328.
- [3]Lan Yongkang. *Application of 3D Virtual Reality Technology in Business English Practical Teaching in Higher Vocational Colleges*[J]. *Journal of Hubei Correspondence University*, 2018, 031(003):157-158.
- [4]Daum A , Rivera H C , Nykiel S . *Shared Medical Appointments Role in the Opioid Epidemic Era; A Tool for Integration of Care*[J]. *Journal of Addiction Research & Therapy*, 2017, 08(03).
- [5]Meziat-Filho N , Ferreira, Arthur Sá Nogueira L A C , et al. "Text-neck": an epidemic of the modern era of cell phones?[J]. *Spine Journal*, 2018, 18(4):714-715.
- [6]Viswanathan V , Ranjan S . *Diabetes - An ancient disease, epidemic & an economic burden for the present era*[J]. *Indian Journal of Medical Research*, 2016, 143(4):389.
- [7]Abrams J B , Huber-Stearns H R , Christopher B , et al. *Adaptation to a landscape-scale mountain pine beetle epidemic in the era of networked governance: the enduring importance of bureaucratic institutions*[J]. *Ecology & Society*, 2017, 22(4):art22-.
- [8]Ong J J , Wi T , Hughes G , et al. *Gonorrhoea: tackling the global epidemic in the era of rising antimicrobial resistance*[J]. *Sexual Health*, 2019, 16(5):397.
- [9]Vreak M , Olesen M H , Ren é Gislum, et al. *The Use of Image-Spectroscopy Technology as a Diagnostic Method for Seed Health Testing and Variety Identification*[J]. *Plos One*, 2016, 11(3):e0152011.
- [10]Maples-Keller J L , Bunnell B E , Kim S J , et al. *The Use of Virtual Reality Technology in the Treatment of Anxiety and Other Psychiatric Disorders*[J]. *Harvard Review of Psychiatry*, 2017, 25(3):103-113.
- [11]Newbutt N , Sung C , Kuo H J , et al. *Brief Report: A Pilot Study of the Use of a Virtual Reality Headset in Autism Populations*[J]. *Journal of Autism & Developmental Disorders*, 2016, 46(9):3166-3176.
- [12]Ross S , Downs D , Sucandy I , et al. *The Use of 3D, Multi-Modal Virtual Reality Technology in Planning and Undertaking of A Pancreatic Resection: A Case Report*[J]. *Gastroenterology*, 2017, 152(5):S1294.
- [13]Clus D , Larsen M E , Lemey C , et al. *The Use of Virtual Reality in Patients with Eating Disorders: Systematic Review*[J]. *Journal of Medical Internet Research*, 2018, 20(4):e157.
- [14]Knight K , Singh B , Mcclenaghan C . *G449(P) The use of virtual reality headsets as a distraction technique in a paediatric emergency department*[J]. *Archives of Disease in Childhood*, 2019, 104(Suppl 2):A182-.

- [15]Keller M S , Park H J , Cunningham M E , et al. *Public Perceptions Regarding Use of Virtual Reality in Health Care: A Social Media Content Analysis Using Facebook*[J]. *Journal of Medical Internet Research*, 2017, 19(12):e419.
- [16]Johnson S , Coxon M . *Sound can enhance the analgesic effect of virtual reality*[J]. *Royal Society Open Science*, 2016, 3(3):150567.
- [17]Guan L . *Research on Job Burnout of Chinese College English Teachers in Sichuan Province Based on Field Rules Theory*[J]. *Theory and Practice in Language Studies*, 2020, 10(3):313.
- [18]Scharfenberg F , Bogner F X . *A New Role Change Approach in Pre-service Teacher Education for Developing Pedagogical Content Knowledge in the Context of a Student Outreach Lab*[J]. *Research in Science Education*, 2016, 46(5):743-766.
- [19]Thomas Salmon, Yusuf Sayed. *Teacher governance reforms and social cohesion in South Africa: from intention to reality*[J]. *Education As Change*, 2016, 20(3):38–56.
- [20]Rock M L , Spooner F , Nagro S , et al. *21st Century Change Drivers: Considerations for Constructing Transformative Models of Special Education Teacher Development*[J]. *Teacher Education and Special Education The Journal of the Teacher Education Division of the Council for Exceptional Children*, 2016, 39(2):98-120.
- [21]Bolghari M S , Hajimaghsoodi A . *Action Research as a Bottom-up Approach to Foster Teacher Involvement in Language Curriculum Change*[J]. *Journal of Language Teaching and Research*, 2017, 8(2):362.
- [22]Liu, Weishu. *The changing role of non-English papers in scholarly communication: Evidence from Web of Science's three journal citation indexes*[J]. *Learned Publishing*, 2017, 30(2):115-123.
- [23]Bryant D A . *Revisiting native speaking teachers of English in Hong Kong: An interpretivist policy study of change over time*[J]. *International Journal of Comparative Education & Development*, 2016, 18(1):53-68.
- [24]Chavan M , Agrawal R . *The changing role of ethnic entrepreneurs in Australia*[J]. *International Journal of Entrepreneurship & Innovation*, 2018, 3(3):175-182.
- [25]Robinson-Cimpian J P , Thompson K D . *The Effects of Changing Test-Based Policies for Reclassifying English Learners*[J]. *Journal of Policy Analysis & Management*, 2016, 35(2):279-305.