

# Virtual reality teaching material - virtual reality game with education

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**Abstract.** This study aims to explore the combination of virtual reality and school education, Recent years, Virtual Reality (VR) is a popular issue. The basic concept of virtual reality is to use an immersive device to isolate. Isolate the user from the real world. compare the situation of virtual reality education and traditional education to students' learning, and explore whether virtual reality is suitable for use and promotion in schools. Can people generally accept digital technology to replace traditional education, use the convenience brought by virtual reality education and the growth of students.

## 1. Introduction

### 1.1. Research background and motivation

Traditional education of the past, Teaching is generally by teachers in the class, and then followed by films or animations to support after class, but seldom students with weak comprehension and memory can't understand in the classroom at one time. They can only read books at home. This is the previous way of learning for the past. With the advancement of technology, Electronic products are popular until virtual reality be created nowadays. They change the usual boring education and more colorful for education. In the practice drill, they can feel more profound experiences and find them interested in learning. They can also learn more. Let everyone know the convenience and impact of technology for education. [1]. It can be known from the above literature that combining appropriate virtual teaching materials in the course can enhance the learner's enthusiasm for learning and the rate of the meal, and the student's learning effect will also have more room for improvement.

### 1.2. Research purposes

Making virtual reality textbooks of school education. Let students find interesting for themselves in learning in the virtual. For example, use history makes virtual textbooks. It can incarnate into an ancient



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role, learning about ancient war and culture. After experiencing that for virtual, it let students more understanding of the history and background of history. In the process, not only can help to remember, but also learn more information and knowledge. The motivation for learning is also greater. You can also study outside for book.

The purpose of this study is the following two points:

- 1) Exploring the differences between traditional education and virtual education
- 2) Textbooks combined with virtual reality
- 3) Textbooks combined with virtual reality

### 1.3. Research purposes

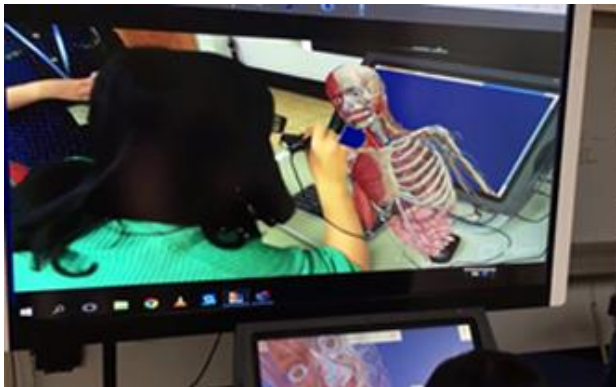


**Figure 1.** Traditional education in school



**Figure 2.** Virtual Reality education in house

These two pictures are about the difference between traditional education and digital education. After listening to the teacher's explanation, you can go home and use digital materials to learn at home. The bullets can add to the impression of learning. Inspire children's upward momentum in learning.



**Figure 3.** Medical use on VR



**Figure 4.** Actual use of VR class

Digital education, there is more virtual reality education. Not only can you use digital technology to attend classes, but you can also experience the content of the course. The virtual reality education is the most widely used in medical education. The most important thing for medicine is practical experience. The textbook is second, combined with virtual reality and learning, you can get more practical experience.

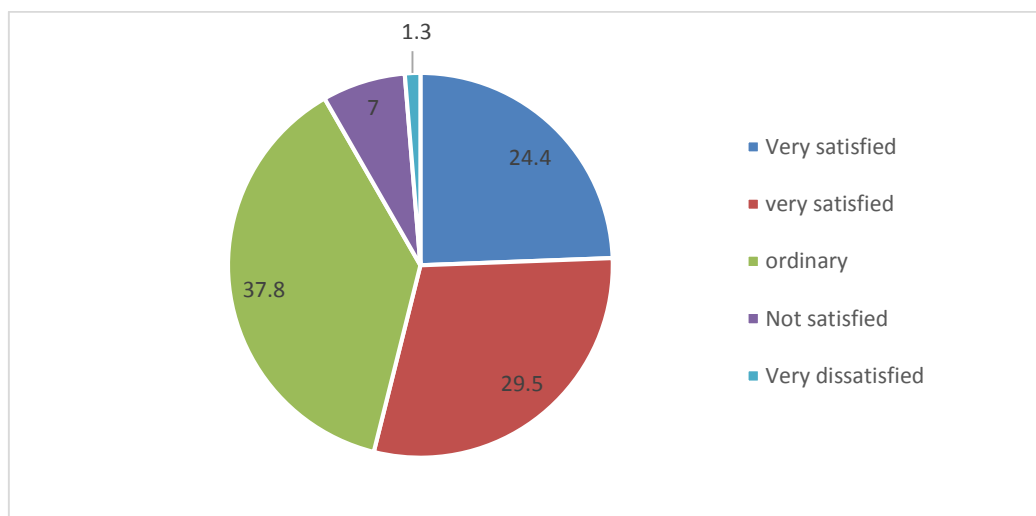
## 2. Literature review

### 2.1. Learning Motivation

**From 1.** Textbooks combined with virtual reality and Application of the actual situation

Entertainment	Mobile games, game consoles, online games
Medicine	Simulated anatomy, virtual anatomy, simulated surgery
Work	Virtual studio, simulation goods
Traffic	Satellite navigation (GPS), simulated driving conditions
Life	Shopping, ordering, socializing, parts repair, practice conversation

The above is to collect a lot of references, and to ask others verbally, to develop an educational method that can be used in the virtual reality in the future, and find that many of the living materials can be used in the life, not only in education, work, education. , life, entertainmen.



**Figure 5.** People's view of VR

Now that technology is developed, people's satisfaction survey on VR virtual reality ambition technology, it is obvious that the general public knows the virtual reality, but there are still a few ethnic groups who voted very unsatisfied from the chart. Still some people cannot understand and affirm him.

## 2.2. Problem-based learning

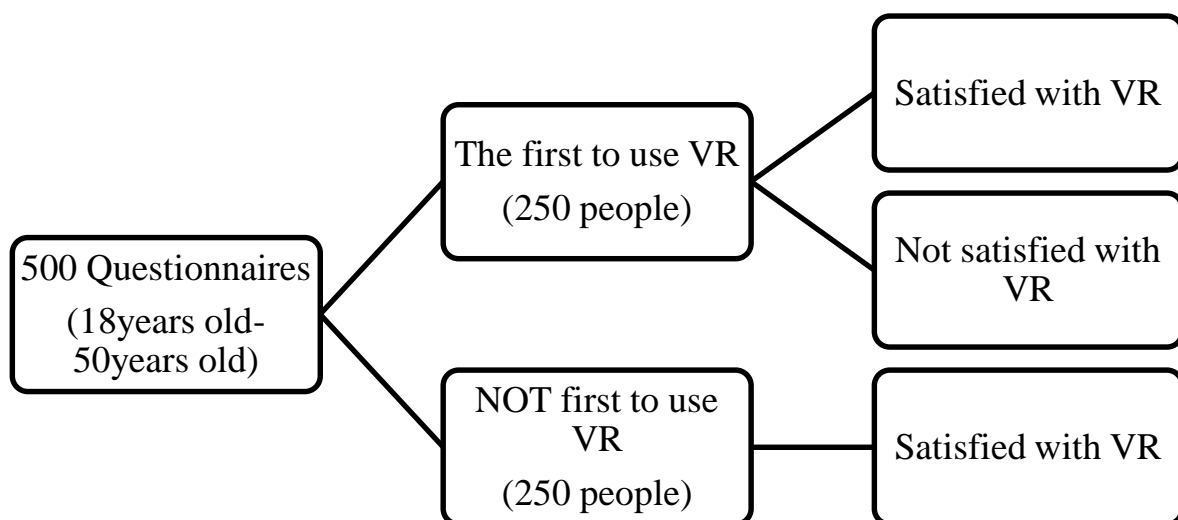
Under the traditional education regulations, we will use the extra time to add some interest courses on the students, such as: science, art, music, etc..., but often lack systematic and coherent, and teachers are more impromptu. Gradually, students lose their interest in learning, and finally become a learning burden. And VR education can make teaching simpler, happy, and efficient, especially some courses that ordinary teaching technology can't resonate with students, such as macroscopic topics in the universe, microscopic topics in molecular categories, historical cultural sites, dinosaurs, teaching, using VR to achieve a sense of substitution, can better lead students to think and explore. Therefore, more and more attention has been received. According to Google Academy, humans can remember 20% of what they hear, 30% of what they see, and 90% of the scenes they have experienced. Traditional education is a boring idea or a principle. Even if you learn it at the time, it will be easy to forget how long it will take. As a high-dimensional medium, VR is more conducive to the absorption, understanding and acceptance of children. In the future, the teacher will become a career to create a situation, rather than a boring transfer of knowledge. Teachers create and select scenes, let the students explore on their own, and each

student will explore different things. It is worth mentioning that virtual reality education is not a complete replacement for traditional education methods, it is a supplement to traditional education methods.

### 3. Research methodology

#### 3.1. Research structure

The purpose of this study is to conducted with 500 questionnaires on the road to give everyone experience the VR questionnaire. The population from 18 years old to 50 years old filled out the questionnaires for the mentally mature. Among these questionnaires, the general public's opinion on VR is According to these questionnaires, some people may have never touched it, and some people have used it. Minority groups are not satisfied with VR. It is also worth exploring why some people are still obsessed with traditional education for scientific and technological progress. Is there room for improvement in the VR education section.



**Figure 6.** Conceptual framework

#### 3.2. Research process

The experiment lasted for three weeks. In the questionnaire for the person who used VR, according to the person who has not used VR and the person who has used VR, fill in the questionnaire immediately after the same use of VR, immediately write down the satisfaction degree with VR, and in the future in combination education. the opinion of the questionnaire.

#### 3.3. Research tools

##### 3.3.1. Satisfaction survey for VR Questionnaire

The Satisfaction survey for VR Questionnaire is used to measure the satisfaction of the VR. This questionnaire is a self-made by Wang Hao.Cai Xiangyu. Lai Yingbin [2]. They did a questionnaire to explore the satisfaction of people with VR on the spot, and the views of people who would popularize VR education in the future.

### 3.3.2 Improvement and progress for VR

Among these questionnaires, there are also questions and answers. Those who fill in the questionnaires can freely write their own views on VR so that the questionnaires can better understand the most authentic views of VR.

## 4. Result and discussion

### 4.1 Questionnaire result of the research show

Approximately 500 respondents were satisfied with VR satisfaction. For one-fifth of the people who were disappointed, the older ones were the first ones. People who are exposed to VR have a deeper concept of traditional education, and their impressions are more serious. Accordingly, they are less able to accept advances in technology and are less likely to use high-tech products.

### 4.2 The company minorurei of using virtual reality

4.2.1. Crime scene - Reconstruction of experts at the University of Zurich in Switzerland, said virtual reality Oculus Rift headsets can be reproduced in crime scenes in criminal cases and as ancillary instructions at trial. In recent years, crime scenes have begun to deploy high-tech equipment to more accurately record information on crime scenes. Use the information to assemble a 3D simulated crime scene. 3D simulation techniques are more accurate and provide more clues than simulations on a flat surface.

4.2.2. Pain Relief - DreamStream VR, a startup based in San Diego, USA, uses the recently launched Oculus Rift headsets to provide users with pain relief services. According to the official website of DreamStream VR, many surveys and clinical studies over the past decade have shown that virtual reality can effectively relieve pain and relieve stress. And said that the mitigation of virtual reality is a safer method than the traditional. Because virtual reality is used to relieve pain, there are no side effects such as addiction and dependence.

4.2.3. Virtual Reality News - The California-based Emblematic Group uses virtual reality to let users see and experience events happening in the real world in a virtual world. For example: seeing human rights violations in Guantanamo Bay, Cuba, the war in Syria, and the current situation of Americans. This way of presentation allows readers to experience and feel more, rather than just knowing their news from the newspaper.

4.2.4. Virtual Studio - BreakRoom, a startup in Reykjavik, Iceland, hopes that users can work in their favorite environment, so use virtual reality technology to create a virtual desk that allows users to choose their own Work background, music, reduce the pressure on users at work.

4.2.5. Manufacturing – Virtualis company in UK, uses virtual reality to allow manufacturers to see what they are going to produce, or to look at the building, such as a submarine or a new apartment building. Many companies today, such as Leyland Trucks and Rolls Royce, use virtual reality systems to increase the quality of manufactured items and reduce errors.

## 5. Conclusion

This study hopes to have a deeper understanding of VR. In general society, people generally understand and think about VR. It is found that people who use VR for the first time may be unsuitable because of

the first use. Some people can't accept it, but some people can't accept it. Most people are very supportive of VR technology.

In addition, for the future application of VR in education, there can be an improvement, and more people can accept VR education and accept him. VR technology can bring more enlightenment and imagination to children in education. It also allows more students to have more enthusiasm and progress in their studies so that each child can receive more teaching resources.

Finally, VR textbooks have been introduced in many countries and schools, but many people are unacceptable, but this study also makes VR convenient by using some people who have not used VR. 4.2 is also a company that introduces many countries today. They have also begun to use VR as their research and development tool, which is also very common in the industry. I hope that more people will see this research in the future and know that VR can bring convenience to education, and accept VR, which is more recognized for VR.

## 6. References

- [1] Sun Yiming .*How VR provides innovative value for education and learning*. Retrieved from <http://flippedu.parenting.com.tw/article/4642/> (May 18, 2018)
- [2] Wang ,Hao & Cai Xiangyu & Lai,Yingbin. (2018). The effect of groups and individuals on national decisionmaking: *The new revolution that VR has set off in education* (CIERA Report 2-11).