

# Virtual reality and augmented reality teaching human-computer interaction technology application

Kejie Wang

HeXi University

wkejie@163.com

## Abstract

*Virtual reality, as the basic content of interpersonal interaction application research and practical exploration, has been widely concerned in the field of education, which can not only create a new learning interaction mode for students, but also understand and analyze theoretical skills in the immersive. Therefore, after understanding the basic concepts of virtual reality and augmented reality, this paper mainly studies the application ways of teaching interpersonal interaction technology according to the reform needs of the current education field.*

## Keywords

*virtual reality; Augmented reality; Interpersonal interaction; Teaching theory; Classroom practice.*

## Introduction

In the rapid development of social economy and science and technology, information technology has brought opportunities and challenges to the reform and innovation of all walks of life. As a new intelligent technology theory, virtual reality technology can not only realize the basic function of human-computer interaction, but also further enhance the user's participation experience. By creating three-dimensional spatial simulation effects, sharing information resources from multiple perspectives, gradually accelerating the pace of upgrading and transformation of system functions, and ultimately bringing rich in-depth experience activities to system users. Therefore, at present, when learning the theory of interpersonal interaction technology, some scholars have proposed to integrate virtual reality and augmented reality to create a high-quality teaching system. This paper mainly studies the application direction of teaching human-computer interaction technology in virtual reality and augmented reality.

## 1. Conceptual analysis

### 1.1. Virtual reality

Virtual reality (VR), as a new practical technology theory developed in the 20th century, takes computer technology as the basis, synthesizes the research results of multimedia technology,

three-dimensional image technology, simulation technology and other high-tech technologies to create a virtual world that mobilizes multiple senses, so that users can have the feeling of being in the scene. Virtual reality technology has made great progress and has now developed into a new scientific and technological research field [1].

## 1.2. Augmented reality

Augmented reality (AR) refers to the clever integration of the real world and virtual information together, the comprehensive use of sensors, intelligent interaction, real-time tracking, three-dimensional modeling, multimedia and other technical means, the computer generated virtual information simulation simulation applied to the real world. In this process, the two kinds of information, virtual and real, will complement each other and gradually surpass the sensory experience of reality [2].

## 1.3. Human-computer interaction

As a new subject to study the interactive relationship between system and user, interpersonal interaction refers to the process of information exchange between human and computer using some kind of dialogue language to communicate with each other and finally complete accurate tasks. With the rapid development of computer technology, the system has more and more operation commands and stronger requirements for practical functions. Therefore, the research content and exploration direction of interpersonal interaction have changed to some extent, as shown in the following table:

Table1 Analysis of the development stage of human-computer interaction

stage of development	primary coverage
Early manual work stage	This stage will use manual operation and binary machine code to quickly adapt to the initial computer system
Job control language and interactive command language stage	This stage will use the batch processing job language or interactive command language to clarify the computer execution, or scientifically debug computer programs
The graphical UI phase	This stage has the characteristics of direct operation and desktop metaphor, which can be convenient for more ordinary users to skillfully use, and continuously expand the system user group
Network user interface stage	In this stage, the hypertext markup language HTML and the hypertext transmission protocol HTTP are regarded as the basis, which are characterized by fast development and many technologies
Intelligent human-computer interaction stage	In this stage, multiple sensory human channels and action channels will be used to choose non-precise ways to interact with the computer environment, so as to improve the efficiency and nature of

## 2. Application analysis of virtual reality and augmented reality in teaching human-computer interaction technology

As for the technology theory of virtual reality and augmented reality, the comprehensive application of interpersonal interaction technology in teaching classroom can scientifically solve the problems faced by traditional teaching management by building a special teaching environment similar to the real society, and truly meet the needs of teachers and students for situational teaching guidance. On the one hand, teaching theory. In the classroom teaching theory system of interpersonal interaction technology, virtual reality and augmented reality technology will simulate and analyze objective objects and create a learning environment similar to the real situation [3]. If virtual reality and augmented reality technology can be fully integrated into classroom teaching, the gap between educational work and social needs will continue to narrow, which will have a profound impact on the future curriculum reform; On the other hand, classroom practice. In order to enable students to master the theoretical technology of human-computer interaction, practical operation and independent research are more convincing than abstract theoretical teaching. Virtual reality and augmented reality can create a good learning environment for students, enhance the interest and diversity of practical teaching, gradually break through the limitations of time and space, and encourage and support students to participate in effective simulation training. Under the guidance of virtual reality and augmented reality technology, the difficulty and risk of practical teaching will continue to decrease, and more and more understanding and analysis of human-computer interaction technology can guide students to consolidate and deepen what they have learned in an interactive and immersive teaching environment. It can be seen that virtual reality and augmented reality have broad application prospects in the whole curriculum education field.

## 3. Conclusion

To sum up, in the context of the rapid development of science and technology, facing the new requirements put forward by China's education reform, how to give full play to the technological advantages of virtual reality and augmented reality during the period of teaching human-computer interaction technology and actively create a high-quality teaching environment for students is the main issue of comprehensive exploration in the field of education at present. Whether it is virtual reality or augmented reality, the focus on the students' sensory system during the education guidance will fully integrate the real situation and virtual technology together, so that students can feel the special experience beyond reality in the learning operation process, which can not only solve the problems existing in traditional education, but also improve the level of practical education guidance.

## References

- [1] Jijun Wang, Lili Wang, Panpan Yin . Research on the design and Practice of Foreign Language Virtual Simulation Experiment teaching Project -- Taking Japanese Intercultural Communication Virtual Simulation Project as an example [J]. Foreign Language audio-visual Teaching,2021(3).
- [2] Yofan Hu, Huixin Liu , Qian Zhang , et al. Application research of virtual simulation experiment Platform in zoology experiment course [J]. Biology Teaching Research in Universities (Electronic Edition),2020,10(4):55-59.
- [3] Rao Hui Feng, Han Shen , Fengbin Gao, et al. Taking diffraction experiment as an example to discuss the experimental teaching model combining virtuality and reality [J]. Physics and Engineering, 2019,30(4):102-107. (in Chinese)