

Design and Application of Virtual Reality Technology in School Sex Education Course

Liao Suqun

Education College of Shaoguan University, Shaoguan, Guangdong, China

Keywords: Virtual reality technology, Sex education course, Scenario simulation, Interactive exercises

Abstract: Virtual reality technology is becoming more and more widely used in education. Virtual reality technology breaks the limitations of time and spaces to construct real life or work scenario. It is common to Introducing virtual technology into curriculum teaching and experience-based teaching. The school sex education curriculum is obviously insufficient and disconnection with social reality at present. Applying of virtual reality technology will provide a new teaching way for school sex education curriculum. This paper mainly describes the design and application of virtual reality technology in sex education curriculum.

1. Introduction

Virtual Reality (VR) or Vision Technology is a comprehensive technology developing at the end of the 20th century. VR technology provides an immersive interactive environment based on computer, which is a combination of computer technology and modern high-tech equipment. It forms a virtual environment with vivid visual, auditory and tactile effects which simulate the real situation in a range. In VR environment, the user might interact with various other objects in the virtual environment in a natural way by means of the necessary auxiliary devices, which makes use have an immersive experience.

VR technology has developed rapidly with the tremendous improvement of computer computing power. It is used not only in the fields of science, technology and military, but also in the fields of architectural design roaming, product design, education, training, industry, medical treatment and entertainment, which demonstrate the advantages and characteristics of VR technology in object constructability, real world simulation, system operability, communication and entertainment [1].

2. Current Situation and Opportunities of Sex Education Courses

Sex education is an important life education for adolescents. Preventing sexually transmitted diseases, sexual assaults and sexual crimes has become a worldwide public health problem. Compared with other courses, sex education courses have not been universal attention in the whole society.

According to social ecology theory and social learning theory[2-6], the individual cognition, attitude and habit behavior are developed in a series of environmental systems such as family, peer, community and society, which are interact with each other[6]. International Technical Guidelines for Sex Education (Revised Edition) published by UNESCO puts forward that comprehensive sexuality education (CSE) is a based curriculum to exploratory cognitive, emotional, physical and social[7]. Comprehensive sexual education provides students with accurate sexual knowledge, which emphasizes values such as tolerance, respect, equality, empathy, responsibility and reciprocity and helps students to communicate, listen, negotiate, reject, make decisions, seek help, develop interpersonal relationships, think critically, develop empathy, acquire life skills such as reliable information or services to cope with different realities in the process of growth, and being able to understand and protect their rights and interests and ensure healthy development of their bodies and minds throughout their lives[9-10].

The sex education courses in the world is not optimistic. Children's sex education in school is inadequate, which families are not involved, the student's life skills have not been adequately trained either. Without effective training, it is difficult for children to truly master the life skills.

VR technology has characteristics such as multi-perception, immersion, interactivity and conception. An ideal virtual reality system consists of a virtual environment, a high-performance computer-based virtual environment processor, a vision system centered on a helmet display, and a speech recognition, sound synthesis and sound localization-based auditory system with azimuth tracking[2], which help to construct kinds of scenes and provide students with a variety of experience of real-life situations and train students' various lives through human-computer interaction design. VR technology provides new forms and development opportunities for sex education courses[10].

3. Design Idea of Vr Technology in Adolescent Sex Education Courses

VR technology provides users with a three-dimensional virtual space including visual, auditory and even tactile so that users have an immersive experience. VR technology is applied in displaying the knowledge, experiencing kinds of situation and skill exercises through computers, which brings opportunities for more elements such as society, family and community to involve in the sex education curriculum. For example, using the somatosensory device to experience the interaction of interpersonal relationships in the scene, to carry out knowledge education through virtual scenes and to offer students to participate in scene recognition and interaction through the form of games.

In order to realize the project, the model and image data are firstly obtained through collecting information. Secondly, the model library should be create according to the data classification. Thirdly, various virtual scenes are constructed and the VR development engine is used for virtual display and interaction design. Finally, the project optimization and improvement will be presented to the students after the expert guidance and user experience. The overall design idea is shown in Figure 1.

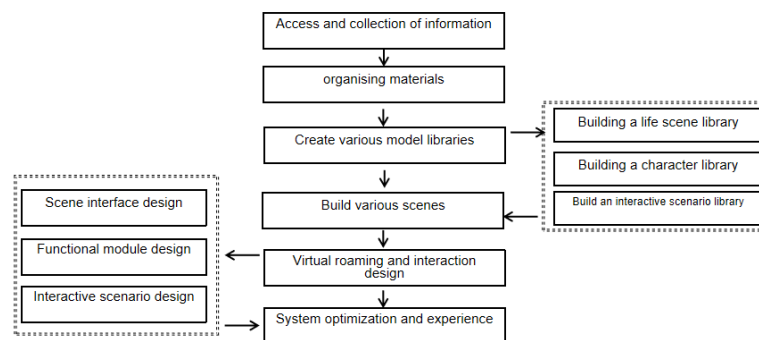


Fig.1 Design Idea Diagram

4. Design and Application Examples in Sex Education Curriculum

Here, the sex education content of the fourth grade of the “Zhen Ai Life” (published by Beijing Normal University Press) is taken as an example to illustrate the application of VR technology in the sex education curriculum[11].

Family and friends theme. The participation of family and friends is an important part of sex education, which helps students to understand the roles and responsibilities of family members, the impact of family members' illness and injury on the family. The life skill training in this part helps students how to establish harmony, equality and friendly interpersonal relationships with all kinds of people. VR technology may build different life scenarios of family, such as different tasks in the family, community life scenarios, caring for sick families, etc. VR technology can also construct various characters such as the following: (1) the elderly and younger, men and women, acquaintances and strangers; (2) drivers, salesmen, policemen, doctors and security guards; (3) Parents, brothers, sisters, grandparents, aunts and uncles. Virtual 3D scenes can be built using virtual interactive technology with helmet displays and somatosensory controls to enrich children's life experience.

when interacting with kinds of people to train students the life skill such as how to demand on others and communicate with strangers.

Listening, expressing and understanding skill theme. Effective listening is the basis for effective communication and establishing harmonious interpersonal relationships. VR technology uses digital media with interactive, immediacy and sharing features to present various communication scenarios. The game of interpersonal communication are fun for students, in which the students might experience the different roles. Students participate in different life scenarios with different people to exercise how to express, how to make a request and how to solve problems repeatedly.

Skill of Seeking help. When facing with all kinds of doubts, difficulties or dangers, students might have many ways to get help to overcome difficulties and to stay away from danger. Learning how to solve problems by themselves is the most foundation for students to protect their health and personal safety during their growth. VR technology presents a variety of potentially dangerous scenarios by multidimensional construction, such as unsafe areas of different buildings, nighttime travel, going home alone. The VR technology also presents some special situation such as followed by strangers, suffering from school bullying, quarreling or fighting with people, which students have the opportunity to experience these special scenes vividly and learn where and how to they seek for help. The virtual training develops students' help-seeking ability in a certain extent and help themselves what if they encounter these situations.

At present, the innovation and industrialization of emerging frontier fields such as virtual reality is vigorously promoting in China. VR technology is achieving multi-field integration development. Using virtual reality technology to construct sex education classrooms in their unique and vivid ways can effectively introduce social factors, family factors, schools and peers into sexual education courses, which will greatly compensate for the various shortcomings of current child sex education. It is a new teaching way in the comprehensive construction of children's sex education curriculum.

5. Conclusion

The development of network technology raises the feasibility of the application of virtual technology in school sex education curriculum.

The application of virtual technology will make up for the defects of current school education course, which ensure the effectiveness and sociality of school education course.

Acknowledgement

In this paper, the research is supported by the subject of “Study on Campus Intervention to Prevent Sexual Violation”(2015GXJK130) in Guangdong province.

References

- [1] Yu Xiaohe. Fundamentals of Virtual Reality Technology [M]. Tsinghua University Press, 2015,29-40
- [2] DeGue S, Simon TR, Basile KC, Yee SL, Lang K, & Spivak H. Moving forward by looking back: reflecting on a decade of CDC's work in sexual violence prevention, 2000–2010. *Journal of Women's Health*, 2012, 21(12), 1211–1218.
- [3] Casey EA, & Lindhorst TP. Toward a multi-level, ecological approach to the primary prevention of sexual assault[J]. *Trauma, Violence, & Abuse*, 2009,10(2), 91–114.
- [4] Vogel N., RAM N., Conroy DE. How the social ecology and social situation shape individuals' affect valence and arousal[J], *Emotion*. 2017, 17(3):509-527.
- [5] Bronfenbrenner U. Toward an experimental ecology of human development[J]. *American Psychologist*. 1977;7:513–531.
- [6] Bogenschneider K., WU MY., RAFFACLLI M. Parent influences on adolescent peer orientation

and substance use: the interface of parenting practices and values[J]. *Child Dev.* 1998, 69(6):1672-88
Bronfenbrenner U. Toward an experimental ecology of human development [J]. *American Psychologist.* 1977; 7:513–531.

[7] UNESCO. International technical guidance on sexuality education[M]. Paris: UNESCO, 2009.

[8] Future of Sex Education Initiative .Building a foundation for sexual health is a K–12 endeavor: Evidence underpinning the National Sexuality Education Standards. 2016. Retrieved from <http://futureofsexed.org/documents/Building-a-foundation-for-Sexual-Health.pdf>

[9] Future of Sex Education Initiative .National Sexuality Education Standards: Core content and skills, K-12 [a special publication of the *Journal of School Health*]. 2012. Retrieved from <http://www.futureofsexeducation.org/documents/josh-fose-standards-web.pdf>

[10] Huang Jianhua. The Dilemma and Reconstruction of College Students' Sex Education in the Age of Mobile Social Media[J]. *Social Sciences in Nanjing*, 2019(3):147-156.

[11] Liu Wenli. *Zhen Ai Life*[M], Beijing Normal University press, 2017.