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Immersive experience combining VR technology and escape room

Quanyue Tan[1],

Ruixi Zhang[2, *]

[1]School of David game college, London, The United Kingdom
[2]Winland Academy Ltd, Beijing, China

*Corresponding author: kuzhiu@ldy.edu.rs

Abstract:

In order to enhance the immersion of players in the escape room and improve the game experience, this paper studies the application of VR technology in the escape room game by combining VR technology with the escape room, explores the methods and explanations for social terrorist organizations to better integrate into VR games, and discusses the development prospect of VR technology.

Keywords: Immersive experience; social terrorist groups; VR technology; interactivity.

1. Introduction

First, deepen the immersion
Highly realistic virtual environments: VR technology creates a clear and detailed visual experience for the players with high-performance VR headsets, making them feel very much in the real environment of a secret room. The usage of the spatial positioning system and motion capture technology makes sure that the players' movement matches in real time with some kinds of geometry lying before them which makes them fast and interested.
Multi-sensorial interaction:
Besides the visual experience, it also integrates auditory, tactile, and sensory experiences, such as sound effects in the simulated environment, vibration feedback, etc., allowing players to feel a more real escape atmosphere. Secondly, rich scene design and puzzle setups
Diverse scenes:
VR Technology breaks the barriers of physical space to design different virtual scenes to meet the needs of different players. The scene design can include complex organs, hidden clues, or various other props to make the game more interesting and challenging.
Innovative puzzle setup:
After the characteristic specificities of VR, many more complex and interesting puzzles are possible to be designed, for example, unique puzzles can provide simulation experiences through the environmental factors such as gravity and temperature change.

1.1.1 Features escape Room:

It is a popular game among young people. It is set in a special environment, and players must find the way out in a limited time through observation, reasoning, and good teamwork.

1.1.2 Features of VR technology:

Virtual reality (VR) is defined as a computer-generated simulation, such as a set of images and sounds that represents a real place or situation, that can be interacted with, in a seemingly real or physical way by a person using special electronic equipment. It can transmit visual, auditory, and various sensations

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to users through a headset to make them feel as if they are in a virtual or imagined environment [1].

Current VR technology can handle high-precision modeling, real-time rendering, interactive experiences, and immersive environments. High-precision modeling makes the game scene rich in details and a strong sense of reality. Real-time rendering technology ensures the smoothness and color fullness of the game screen. Interactive experiences allow players to interact with characters in the game, making the game more fun and challenging. The immersive environment gives the player the feeling of being immersive through the VR device, making the player feel like being in the game world.

The combination of escape room and VR technology can further improve the secret room escape. In the escape room virtual world, players do not need to handle a lot of items and props in reality, just a simple gaming space, a table, a chair, and a pair of glasses worn on the eyes; they can explore and decrypt in the simulated scene. The plyer can experience it like a real escape room. The simulated scenes are constructed by VR technology, which not only saves a lot of costs for arranging different scenes but also breaks the physical limitations of playing in reality, greatly increasing players' experience.

2. Organization of the Text

The combination of Escape Room and VR can offer the player a new experience, being fully immersed in the game; players can roam around and interact with things in the virtual world with their free hands, giving a much more realistic and interesting feeling of the game.

With the high-level head-mounted display combined with the precise spatial-positioning system, players search for clues and solve puzzles to carry out virtual immersive experiences. In addition, virtual space allows players to experience different game scenes than traditional escape rooms, such as entering a virtual underwater world, a vampire's home, or an Amazon jungle adventure. The integration of VR and escape rooms allows the game to break through the limitations of traditional games and provide richer game scenes and immersion, as well as interactive experiences. It thus allows users to behave in a more natural and intuitive way with the virtual environment objects as one reaches out to touch virtual objects in a virtual world, moving them around and even conducting elaborate actions with them. This interaction is not confined to visual and auditory interactions but encompasses a wide range of sensory experiences pertaining to the sense of touch and motion. It also reduces social anxiety among social phobic players during game playing. By adding VR technology, it enhances interaction between the players in games and reduces the stress that arises from much pressure between the players for communication and getting along, thus improving the immersion of the game.

3. Literature References

3.1.1 Social terrorism research

Social anxiety disorder: Social anxiety disorder (SAD) refers to a mental illness in which an individual has persistent and significant fear and worry in front of others or in social situations, resulting in varying degrees of anxiety reactions [2]. "Social anxiety disorder" has become popular, behind which there must be times and social causes. Compared with the Nordic type of "Social anxiety disorder "that attaches great importance to personal space and the Japanese type of "Social anxiety disorder" that is forced by heavy social pressure, the "Social anxiety disorder" prevalent in China has comprehensive characteristics. On the one hand, the awareness of individual independence is enhanced, and on the other hand, the complexity of the social environment leads to the decline of intimacy between people. In today's accelerated era, where everyone feels real tension and anxiety, more young people prefer to remain isolated.

The subjects were mainly college students randomly selected from the Internet. A total of 220 questionnaires were distributed on WeChat, QQ, Weibo and other platforms, and 206 questionnaires were effectively recovered, with a recovery rate of about 93.64% [3].

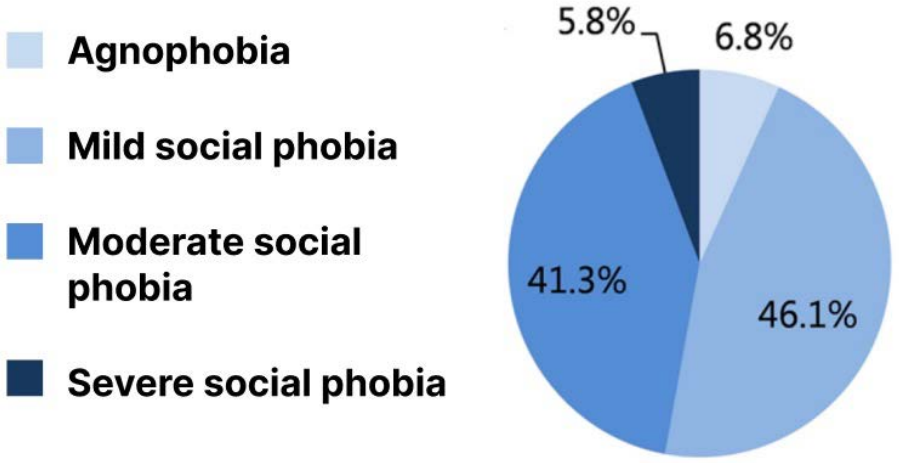

Fig. 1 Prevalence rate of social phobia at different levels

3.1.2 The significance of VR technology

VR technology creates a virtually stress-free social experience through which social phobia can execute everyday social interactions, hence warding off their social fears.

Dull real-world social stress: In this virtual world, escape room: social phobia do not have to put up with embarrassment and anxiety of real-world social situations.

Increased sense of participation and immersion: Through highly realistic visual and auditory effect, VR technology makes social terrorists readily devoted to the escape room game and merrily involved in the fun of puzzle-solving.

Flexibility and privacy: social terrorists choose at will when and with whom to play the game; they may also play it solo.

Promoting teamwork: Some in-game collaboration mechanisms create a space for a player to work with others to achieve tasks, hence boosting their social skills and teamwork.

3.1.3 The combination of virtual reality technology and escape room

Virtual Reality (VR) technology, in conjunction with an escape room, can enhance players in the virtual fantasy scenes. The concept of VR was introduced in the 1950s, and the maturity of VR for entertainment is now evident. Currently, more than 230 companies are producing various products related to VR and performing research and development, including global companies such as Samsung Electronics, Apple, Facebook, Amazon, and Microsoft. VR systems consist of VR headsets, a computer, and video. Recently, chairs, gloves, and sensors have been added. VR headsets refer to head-mounted goggles. They are equipped with a speaker or headphones. VR systems that include the transmission of vibrations and other sensations to the user through a game controller, gloves or chairs are known as haptic feedback systems [4]. 3D VR dynamic environment modeling technology is one of the significant parts of virtual reality technologies whose main aim is to obtain the 3D information about the real world and develop a corresponding virtual model that suits the requirements of any application. In essence, it is all about making an environment that is a copy of the existing world through which users can immerse themselves, feeling as though they are in an actual physical scene. In order to ensure that the virtual environment is as real as possible, dynamic environment modeling technology should incorporate huge volumes of 3D data into it. Dynamic environment modeling technology in VR systems can simulate various intricate sceneries, including buildings, landscapes, and cities, among others; thus, these scenes usually appear very real to the user, with changes taking effect during the interaction process. Sensor technology is at the heart of VR. It consists of many things, such as scene modeling technology, natural interaction technology, etc. Sensor technology enables VR users to behave naturally within the virtual environment by responding to their movements, voice, eyesight, and other actions in virtual reality. In other words, the combination of motion capture, eye tracking, voice interaction, and haptic feedback techniques allow for a more intuitive interface that allows users to interact with their imaginary world as though it were real. Through sensor technology, VR has become more engaging and lifelike to use, having a feel like being present in those places.

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3.1.4 Game experience

Gameplay is the sum of interactivity, system, operation, AI, etc., the goal is to have fun.

This enjoyment is the primary reason one plays a game: pleasure gained in the game.

In such a case, for instance, the game scene and the on-screen speeds will make the racing game player feel excited and stimulated. In a fighting game, when he is beating down his opponent, he will feel happy and cheerful, achieved by the combination of visual and sensory feedback.

Some play management simulation video games and some play parkour games. The player goes through the process from anxiousness to release. When the player finishes all his tasks to arrive at the end, he will feel satisfied and have a sense of achievement.

Certain situations also involve a time-travel component; through those, the player will immerse himself in the protagonist of the game and then advance into unknown areas to complete the specified tasks along the course of the game. The player acquires the first impression through the story, scene, and CG animation, but as time goes by and with the character's experiences, the player will integrate himself into the surroundings in this game.

4. Research process

Some of the problems found in the current escape room:

(1) According to the survey results, the age distribution of players aged 19-35 accounts for 70% of the total, and the number of people in this age group accounts for the highest proportion in the country, so the scope of such games is very small

(2) Slow renovation of the theme requires a lot of time and cost. Therefore, the escape room theme scene on the market is relatively simple, which makes it easy for players to lose interest quickly.

(3) Lack of innovation in gameplay. Although the core gameplay of the escape room game is to solve puzzles and escape, the lack of innovation in the gameplay leads to a repeated and boring game process, and it is difficult to attract players to repeat the experience.

(4) Secret room games usually require players to get together, and for social anxiety disorder groups, this will bring certain social pressure on some players. Analyze the social situation of young people. Participating in scripted killing games may increase their unease and confusion, further exacerbating their social estrangement from others.

(5) Scenes and props are important elements to create a game atmosphere. Part of the script kill scene layout is simple; props texture is rough, and it is difficult to stimulate the player's sense of substitution and imagination. Not only does this affect the visual effects of the game, but it can also reduce the player's immersion in the story.

(6) The scenery and special effects of some scenes are limited. The game levels in "escape room" venues are usually composed of 3 to 5 small spaces, with an area of 5 to 50 square meters. During the game, flammable props such as candles, burning incense and "cold fireworks" are used. Players are required to crawl, drill holes or climb to complete certain tasks. Fires can occur if they are not handled properly. If they are not handled in a timely manner, it will endanger the lives of players and staff in the venue [5].

5. Influence

1. Enhance attractiveness and engagement

Novelty: Incorporating cultural elements into a scripted kill or escape room makes an already fun game more novel and unique and can quickly attract the player's attention.

Deep involvement: Players need to understand and apply relevant cultural knowledge to the game, and this kind of active participation can stimulate interest and enthusiasm more than a passive reception of information.

2. Improve the game experience

Rich content: Adding cultural elements makes the game content richer and more diverse and can meet the interests and needs of different players.

Enhanced sense of engagement: Using cultural stories as the background of a game helps to enhance the player's sense of engagement and immersion, making the game experience more authentic and profound.

3. It effectively relieves the pressure of social terrorists when they play multi-party gatherings. The intervention of virtual images reduces the sense of inferiority, panic, and oppression of social terrorists in social networking, improves their attention to interpersonal communication and emotional establishment, and simulates communication in the real world in virtual scenes, further training and improving their communication skills in the real world. Social phobia players who like to play decryption-type games better experience the game, and there will be more social phobia players to try to play the game in the future.

6. Conclusion

This study mainly discusses the advantages and purposes of the combination of secret room escape and VR technology. For players to enjoy the sense of experience and immersion, in-depth exploration of innovative VR technology to better apply it in secret room escape games, in

addition, the design of game play is proposed. In addition, the investigation and exploration of social terrorism groups into virtual games and ways to better integrate them into the future development are proposed. However, due to the immaturity of some skills at present, they cannot be used in the virtual chamber escape in a timely manner, which requires time and continuous improvement of new VR technology for improvement and development

Authors Contribution

All the authors contributed equally and their names were listed in alphabetical order.

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