Dream Makers

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Figure 1: Dream Makers, a co-operative Virtual Reality game

ABSTRACT

Dream Makers (Figure 1) is a Virtual Reality (VR) cooperative puzzle game for two players taking place in the universe of dreams. The two players have to keep the communication alive to combine the right ingredients and reach the desired dream using a Head Mounted Display (HMD) and a tablet. The game demands physical movement, creativity, decision-making, puzzle solving and is surrounded by sound effects, lighting elements and vibration as feedback for all of the players' actions, whether right or wrong. Our goal was to make the social factor a key element in a VR experience, which is non-existent most of the times.

CCS CONCEPTS

Information systems → Multimedia content creation; • Computing methodologies → Virtual reality; • Hardware → Soundbased input / output;

KEYWORDS

Virtual reality, immersive co-operative game, puzzle-solving

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1 THE STORY

Morpheus, the God of dreams in Greek mythology had all the wisdom and power to instruct his millions of assistants to help him with his tasks. The relationship between the two parts was the key to a successful production of dreams meant for the mortals.

In the game, Morpheus's laboratory is the control center of the dream-creation network. In an analogy to the myth, Morpheus (tablet player) has a directing role in the game as he has a visual overview of both his and his helper's environments. That makes him responsible for puzzle solving and decision-making in the game, whereas his co-player focuses on collecting and assembling.

Morpheus operates a tablet where he can find all the items needed for creating dreams (Figure 2). On the left side of the screen there is the Dream Book, a collection of all the correct dream recipes. The items and the book are always at reach, but at times clouds appear on the screen, gradually growing in size and covering everything. In order to keep playing, Morpheus has to keep swiping them away.

Morpheus's assistant (VR player) first sees the VR lab (Figure 3) emerging underneath him and then he can proceed with the dream making. After that he receives a virtual envelope with an illustration of the desired dream. At this point, a countdown begins, giving both players 120 seconds to complete the task. The tablet player

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Figure 2: The tablet interface



Figure 3: Screenshot of the VR Dream Lab experience

tries to find out the secret recipe and then supply the assistant with the right ingredients. This is done by dragging and dropping the ingredients in the VR frame on the tablet. The VR player should then look for them in the laboratory and bring them together to mix them. If they put together the wrong ingredients, a slimy nightmare monster will appear.

2 ANITRAILER/ANIPLAY

The Dream Makers game was created as part of the AniTrailer/AniPlay project of Animationsinstitut [1] during the 2016/2017 winter semester. Each team worked to create an Intellectual Property (IP), which was the concept behind an animated short film and a game. The short film, which our team created, and accompanies the game is called Dream Lab, and was officially selected to be the trailer of the Stuttgart International Trickfilm Festival 2018 [3].

3 TECHNOLOGY

Technically, Dream Makers shows how to playfully combine a tablet, a VR device and the real world. For this project, we specifically used an HTC VIVE and a Google pixel tablet. The tablet player and the VR player use two separate applications, which communicate through a network system. When the tablet player drags & drops a new item into the playground, it appears on both devices at the corresponding position.

Depending on the players' roles in the story, each one has a different point of view: while the tablet player (Morpheus) incorporates a god and has a 2D top view, the assistant has a first person 3D

experience of the same objects, using HTC Vive VR goggles. The Vive's room scale tracking system allows the assistant to explore the astonishing environment by walking around.

3.1 Network

The items' positions are synchronized over network. Both players can modify the items positions by dragging the items on the tablet or by grabbing them using the Vive's controllers at that position.

3.2 Merging mechanics & Physical feedback

All devices are integrated into one media installation. The VR player has to grab two items, hold them together and combine them. The visual simulations in the game are accompanied by light effects all over the playground, which react to the players' actions. Those are combined with a vibrating motor on the floor, which rumbles when the players make a wrong combination, making a monster appear in the VR display. At the same time, scaring flashlights are triggered contributing to an incredibly multisensory experience: You see it, you hear it, and you feel it. A big display shows what the VR player is currently seeing. This entertains the audience while making it feel part of the immersive game.

4 EVALUATION

The game was previously displayed at the FMX 2017 Conference [2], where we could evaluate the reaction of the audience. In general, the feedback was positive with the players being pleased with the look and feel and the fun factor present in the game. The role of communication was, as intended, very strong through the whole process. The VR player's isolation from reality made him immediately dependent on the tablet player for guidance and orientation. That creates a strong bond between them and promotes the desired team spirit, even between strangers.

The clouds appearing on the screen added the multitasking factor in the game making it more interesting and fun. The lighting configuration in the installation gave a strong feedback both to the tablet user and to the viewers of what the important actions are. Furthermore, the vibrating device on the floor startled the tablet player, amusing him and the audience.

The game in combination with the installation creates a complete whole for both players. Each one has his defined role and responsibility in this dream-making ecosystem while at the same time having fun. Viewers enjoyed watching the reactions of both sides and were amused by the interesting form of communication they had to develop.

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