

RELAXATION ISLAND: A VIRTUAL TROPICAL PARADISE

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ABSTRACT

We present Relaxation Island, one of several Mood Devices we have developed with our partners as part of the EMMA (Engaging Media for Mental Health Applications) project. Mood Devices are interactive digital media and environments designed to alter the inter-actor's psychological state. Relaxation Island was designed to support established relaxation techniques, as part of interventions to assist individuals cope with specific anxieties such as examination stress, and also simply as a virtual place where anyone can go to relax. Attendees of this interactive experience will have the opportunity to relax on the island, navigating around the virtual space using a novel wireless "seashell" device

Keywords

Mood devices, mental health, presence, relaxation.

1. INTRODUCTION

The main goal of the EMMA (Engaging Media for Mental Health) project, a European Community funded research project (IST-2001-39192), is to study the relationships between presence and emotions. In particular, after analyzing the possible emotional impact of highly compelling synthetic experiences characterized by a high level of presence, the EMMA project is developing "mood devices" designed to induce different forms of mood change and

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enhancement. The partners in the project are Universidad Politécnica de Valencia (Spain), Universitat Jaume I (Spain), Istituto Auxologico Italiano (Italy), Goldsmiths College of the University of London (United Kingdom), Università di Padova (Italy), and the Interactive Institute Tools for Creativity Studio in Umeå, Northern Sweden.

In the developed world, many people suffer from what are sometimes known as "mood disorders", especially anxiety, panic attacks and depression. These are often debilitating and long lasting problems for those affected, including the sufferers themselves and their families. They often result in recurrent or long-term absence from work, which in turn impacts negatively on individuals, employers, and society as a whole. These conditions may go untreated, or are often alleviated with medication on which individuals may become dependent, which may have undesirable side-effects, and which in themselves impose a financial burden on individuals and/or society.

Our project has the overall aim of investigating the relationship between presence and emotion in the context of mental health applications of information technology. We are designing, developing and testing what we call "mood devices": technological implementations, on a range of platforms from high end virtual reality to portable devices such as PDAs and mobile phones, which can play a significant part in dealing with common mood disorders such as depression and anxiety.

A body of earlier work had shown that immersive virtual reality can be effective in dealing with a range of psychological problems, from body image disorders, to various phobias and sexual dysfunctions [2]. An important aspect of these environments, and apparently the key factor in their effectiveness in addressing psychological maladaptions, is their ability to arouse controllable emotional responses in combination with a strong

sense of presence, where presence refers to the feeling of actually being located in the world portrayed by the virtual environment, so that the world can be directly perceived, not merely imagined [4]. Using information technology to address psychological problems has several advantages, including a increased sense of empowerment and autonomy of those directly affected, and reduced financial and other demands on employers and society in general

2. RELAXATION ISLAND

Relaxation Island is designed as a tropical island where the visitor can relax and get rid of his or her worries. The aim of the island is to provide a virtual realisation of the kind of imagined spatial location used in standard relaxation techniques such as progressive muscular relaxation and breathing techniques [1].

Normally, how effectively relaxation is achieved probably depends on an individual's ability to imagine relaxing scenarios. With Relaxation Island, we hope to achieve equal or even greater levels of relaxation without relying on imaginative skill. Initial trials suggest that individuals find the Island relaxing, and a more thoroughgoing study is planned with our partners at Goldsmiths College London. This will directly compare relaxation with the island with that obtained through normal imaginal procedures.



Figure 1 – Arriving on the Island

2.1 Arriving on the Island

Visitors arrive by virtual boat onto an Island shore (Figure 1). On the beach is a hut that contains a screen where the new visitor can watch a short film about how to use the simple navigation tool and about the island in general. The visitor sits in a chair in front of a large projection screen (Figure 2). It is important that the screen is large and covers most of the visual

field in order to achieve a relatively strong sense of immersion.

The island is an archetypal tropical paradise, with lush vegetation, a waterfall and a long beach, all surrounded by mountains. It is possible for the visitor to explore the island freely at his or her convenience, or to initiate specific relaxation exercises.



Figure 2 – Set-up of Relaxation Island

2.2 Interaction and Navigation

The visitor navigates around the island with a tool designed as a seashell that has a “pearl” inside (Figure 3). The pearl works as a mini-joystick and when pressed down the visitor sees a menu to select the different exercises, leave the island or to get the introduction sequence. The visitor navigates around the island by pushing the pearl up, down, left or right.



Figure 3 The Seashell.

2.3 The Relaxation Zones

On the island the visitor can choose among four different zones to learn different relaxation techniques, beach zone 1, beach zone 2, the waterfall

and the cloud zone (Figures 4, 5, 6, and 7). There is heard a calm voice that leads the visitor through the different exercises at each zone.



Figure 4 – Beach Zone-1

The two beach zones are aimed at teaching the visitor relaxed breathing. In the waterfall zone the visitor is asked to enter words describing problems that worry her (the typing is done by the “host”, who may be a therapist). After offering worry words, the visitor navigates to the waterfall and sits down on a rock looking down on a little creek that runs past the rock. Leaves float downstream on the water surface, and on some of the leaves there appear the worry words that have been entered. The visitor is encouraged to let her worries float away with the leaves, all the way downstream and out to sea.



Figure 5 – Beach Zone 2

To reach the cloud zone the visitor navigates across the sand dunes of the island and “lies down” on a towel in order to look at the clouds in the sky. The idea behind the exercises in this zone is to teach the visitor progressive muscle relaxation. The clouds form

into a human figure and the different parts of the body that are in focus for the relaxation exercise are highlighted.



Figure 6 – The Waterfall



Figure 7 – The Cloud Zone with beach towel

2.4 The Portable Island

The main environment set up described above teaches the visitor the basics of the different relaxation techniques. After a few sessions in this environment the visitor may be given a PDA and/or a website address that can also be accessed via a mobile phone. These are used to get reminders of the immersive relaxation experience in a smaller, portable format.

The reminders are intended to be used according to need, for example in emotional situations in real life, to support relaxation anytime and anywhere. For example, if one has a panic attack in a crowded place one could use the PDA or mobile phone, combined with an earpiece, to recapture the memory and mood of the calming environment and one of the exercises

in the Relaxation Island. The idea is to bring back the feelings that the visitor experienced in the 3D environment in order to handle the emotional situation at hand.

The mobile application uses a combination of pictures, sound effects, recorded voice, and small movies to achieve these goals. The pictures consist of screen shots from the 3D environment, and the sound effects are selected pieces from the VR application, as well as the relaxation exercises. The user is able to choose audio-only presentation, and in this way can recapture the relaxing experience in an unobtrusive way while looking at other things (while walking around town, for example). At such times, the user will simply appear to others as if listening to music on a Walkman.

2.5 Initial Trials and Future Plans

A pilot study of the Relaxation Island shows that the environment is perceived as convincing, clearly induces relaxation, and that visitors consider it agreeable to do the exercises in the island environment. The pilot study also shows that the environment triggers daydreaming of similar personal relaxed experiences. According to our view of presence [4], this would lead us to expect that experienced presence on the island is at times high (when arriving and navigating, for example) but at other times low (when relaxing and daydreaming). A thoroughgoing comparison of the island as compared to standard imaginal relaxation techniques is planned by our partners at Goldsmiths College London.

We have already designed a biofeedback capability for the Island environment, but have not yet fully implemented it or tried it out. For this, the visitor will wear a wireless waistcoat fitted with sensors which measure chest expansion and contraction. We use this data as the basis for altering the action of the sea dynamically. With correct, calm breathing the sea becomes peaceful, but with irregular, shallow or otherwise incorrect breathing the face of the sea becomes stormy. We are also considering other aspects of the environment that could change to provide biofeedback, such as the wind in the palm trees, the river, and the weather.

3. CONCLUSIONS

New information technologies, such as virtual and augmented reality, bring with them numerous characteristics that can affect and evoke emotions and mood states, partially through the evocation of a sense of presence in another place. Sometimes it seems to be possible to feel a higher degree of presence in a virtual than in the real world [3].

One reason for this is that in a virtual world, set up in an appropriate way and (physical) place, the visitor can feel safe and secluded and not have to worry about the physical and social dangers present in the outside world. In a virtual world it is possible to shut out information that is not relevant to the situation. These characteristics, combined with the design of new interaction and navigation tools, make such technology very useful in treating different kinds of mental health problem.

Today's hectic lifestyle, with everybody being available "anytime and anywhere" through the use of portable information technology, sometimes puts a lot of pressure on people. This may be one of the causes of today's more common psychological problems, which are costly both for society and the individual concerned. Society has to pay in the form of rehabilitation and lost labour, while the individual has to pay in the form of lost salary, bad health and decreased quality of life. Technology can be used to improve mood, however, and the same "anytime, anywhere" availability can have positive effects, when used to remind people of positive states and strategies of mind.

4. ACKNOWLEDGMENTS

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