THE DREAM ISLAND

An Integrated system for Relaxation

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The Dream Island

"The Dream Island" is an implementation of the Emma project's Relaxation Island developed by by Goldsmiths College -University of London and Interactive Institute, Sweden- in the EMMA Project. Dream Island was developed by ATNP- Lab, a team of clinical, psychological and technical experts at Istituto Auxologico Italiano (Milan, Italy). It is a Virtual Reality experience designed to combat stress and anxiety

➡ It's the first one in the world exploiting the clinical potential of advanced UMTS phones, in the provision of mobile VR experiences for relaxation

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BACKGROUND

Any inclusive definition of relaxation has been already done.

Relaxation has been described as a *"state of relative freedom from both anxiety and skeletal muscle tension"* (McCaffery & Beebe, 1989)

"bringing the mind of the participant to a state of balance and peace" (Ryman, 1995)

and as *"a state of decreased psychophysiological arousal: a calming state"* (Benson, 1975)

THREE MODERN RELAXATION METHODS

- **Analytical methods** ➡ physiological starting point (Progressive Muscular Relaxation of Jacobson)

- **Global method** ➡ psychotherapeutic starting point (Authogenic Training of Schultz)

- **Physiotherapeutic methods** ➡ They relate relaxation and physical exercises

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VIRTUAL REALITY FOR RELAXATION

SOME STRENGTH POINTS OF USING VR

1. **"Safe base"**

2. Increment of **personal efficacy**

3. The **generalization of self-efficacy**

4. **control of the situation**

5. VR **visually enhances key images**

6. The **interactive role** of the subjects

MOBILE FOR RELAXATION

1. The mobiles of new generation bring many functionalities

➡ *Multimedia contents*

2. Hardware-accelerated mobile devices joined by a suite of emerging 3D software standards

➡ *Interactive contents*

3. Mobility, portability

➡ *Contents available ANYTIME and EVERYWHERE*

OBJECTIVE AND CONTEXT of THE DREAM ISLAND

It's a Virtual Reality experience, designed to combat stress and anxiety in clinical and non-clinical populations.

It is based on an integrated protocol including TWO PHASES

1. An immersive VR experience pc to practice relaxation with the therapist;

2. A mobile VR experience to consolidates the results in the user's real life context.
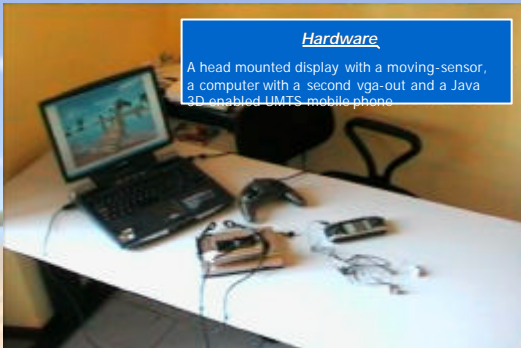
Why the integration

FIRST PHASE

- Quality of the experience in VR: multimedia experiences in controlled setting; increase the imaginative ability; help in remembering the exercises)

SECOND PHASE

- Multimedia experiences linked to VR one
- Work similar, like an anchor to the VR experience
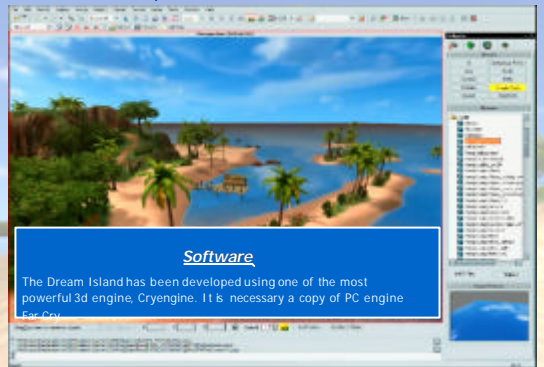- Experience in everyday life

HARDWARE

Hardware
A head mounted display with a moving-sensor, a computer with a second vga-out and a Java 3D enabled UMTS mobile phone
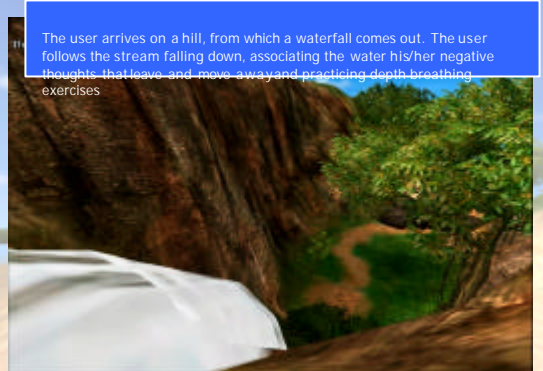
SOFTWARE

Software
The Dream Island has been developed using one of the most powerful 3d engine, Cryengine. It is necessary a copy of PC engine Far Cry

THE FIRST ZONE: THE PILE

The user is guided to get on the pile situated near the beach, watching the sea and doing progessive muscolar relaxation exercises

THE SECOND ZONE: THE WATERFALL

The user arrives on a hill, from which a waterfall comes out. The user follows the stream falling down, associating the water his/her negative thoughts that leave and move away and practicing depth breathing exercises

THE THIRD ZONE: THE ATOLL

On a little atoll connected to the island by bridge is located a beach chair. From this point the user is able to watch the sea and the panorama all around doing progressive muscular relaxation exercises

THE FOURTH ZONE: THE TENT

Surrounded by trees there is a tent positioned on a promontory which overhangs the island. The user is invited to sit in the tent, in front of the sea and watch the waves movements doing depht breathing and progressive muscular relaxation exercises.

NARRATIVE

Each experience is supported by a Narrative.

What is the role of The Narrative?

- Give meaning at the experience: What is happen?

- Conduct the user in interacting with the environment: user in action in the virtual environment/active role

- Activate emotionally/Empaty with the actors

- Increase the feeling of presence in the virtual environment   (Riva, 2005)

NARRATIVE IN THE DREAM ISLAND

- Guide the user in the exploration of the Island, giving information about the environment
  (e.g the sea is calm/ the seagulls are in the sky/ a little breeze caress you...)

- Give suggestions of relaxation feeling
  (e.g All around you is quite, all is in armony with the nature)

- Guide in relaxation exercises that involve superior and inferior limbs based on the integration of traditional techniques

  - Authogenic Training (Schultz,1977)
  - Progressive Muscular Relaxation (Jacobson, 1938)

DEMOSTRATION IN ACTION

1. *VR PC based application*

The user explores and interacts with the virtual environment living multisensorial relaxation experiences in immersive condition

DEMOSTRATION IN ACTION

2. *Mobile application*

The user can live experiences using mobile phones, showing images presented in the clinical setting

TRIAL

- **TRIAL I** ➡ *The role of VR in inducing relaxation*

- **TRIAL II** ➡ *the role of multimedia experiences applied on mobile phones in inducing relaxation*

THE FIRST TRIAL

Comparison among VR and other media in increasing relaxation in non- clinical population

Partecipants
60 students, 20 for each group, with age ranging from 21 to 28

Conditions compared
1. VR: this is the immersive condition, with head mounted display, head tracker and joystick
2. DVD: this is only audio-video condition, without immersion
3. Control: without treatment

Instruments
- self reports about measuring emotional state, anxiety and sense of presence in virtual environment.
- physiological parameters, such as heart rate, respiration rate and amplitude, electromyography and skin conductance.
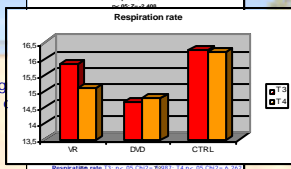
Procedure
Two sessions conducted in two different days within the same week

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MAIN RESULTS OF THE FIRST TRIAL
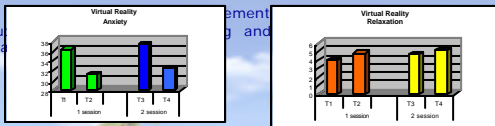
- There is a significant anxiety ement reduc... ... ng and sepa...

Virtual Reality session 1: p < .05 Z = -2,135 ; session 2 p < .05 Z=1,643 (**State Anxiety Questionnaire** , Spielberger, Gorsuch, Lushene, Vagg and Jacobs, 1983)

Virtual Reality session 1: p < .05 Z = -2,434; session 2 p < .05 Z = 2,693 (**Visual Analogue Scale** (VAS -Gross e Levenson, 1995)

- There is a sig... ...ent from the beginning to the end o... ...oups

Respiration rate T3: p < .05 Chi2= 5987; T4 p < .05 Chi2= 6,262

THE SECOND TRIAL

Comparison among Mobile Dream Island and other tool for increasing relaxation in non- clinical population

Partecipants
90 commuting students, aged between 20 and 24

Conditions compared:
1. Mobile DI: group which experienced the mobile Dream Island during their daily train trip;
2. DVD: group which experienced a relaxing new age DVD during their train trip;
3. Control: group which experienced the train trip only.

Instruments:
- self reports about measuring emotional state, anxiety and sense of presence in virtual environment.

Procedure:
Two sessions conducted in two consecutive days within the same week

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MAIN RESULTS OF THE SECOND TRIAL

- The... ...ificant anxiety reduc... ...relaxation increase between th... ...g and the end of the th... ...n... of Mobile Dream Island cond...

ANXIETY LEVEL- Mobile D.I p<001 F1,29= 54,344 (**State Anxiety Questionnaire** Spielberger, Gorsuch, Lushene, Vagg and Jacobs, 1983)

RELAXATION LEVEL- Mobile D.I p<001 F1,29= 28,525 (**Visual Analogue Scale** (VAS -Gross e Levenson, 1995)

- The... ...a significant ... difference ... anxiety reduction and rel... ...tion increase from the begi... ...to the end of the w... ...treatment among the 3 groups

ANXIETY LEVEL-Mobile D.I p<001 F2,87= 6,518 (**State Anxiety Questionnaire** Spielberger, Gorsuch, Lushene, Vagg and Jacobs, 1983)

RELAXATION LEVEL- Mobile D.I p<001 F2,87= 18,993 (**Visual Analogue Scale** (VAS -Gross e Levenson, 1995)

- ... condition Mobile Dream Island ...wn ...more sense of presen... ...riced as compared with tradition... ...ol relaxation

SENSE of PRESENCE 12 *How much do you feel inside the environment?* -Mobile D.I

p<001 F1,58= 6,518 (**UCL Presence questionnaire**, Slater et al, 1994)

SENSE of PRESENCE t4 -Mobile D.I p<001 F1,58= 43,808 (**UCL Presence questionnaire**, Slater et al, 1994)

KEY VALUES

- The visual power of VR elicits bodily sensations to facilitate relaxation and acceptance

- Mobile VR experiences for relaxation

- The integration of mobile VR supports a complete protocol that does not stop when the user leaves the therapist's office

- The system overcomes the limitations of traditional relaxation techniques

FUTURE PERSPECTIVE

- To test the efficacy of this integrated system, defining a protocol including VR pc based experiences and Mobile based experiences

- To test the role of interactive contents on mobile phones

- To test the system with both normal and clinical population

- Development from 4 to 6 relaxation zones

Thank you for the attention

To visit:

http://www.thedreamisland.com

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