

## Summary 1:

### VRanimate — Non-verbal guidance and learning in virtual reality

There is an increasing need of first responders to keep patients alive until the ambulance arrives, however many obstacles stand in the way of making first aid skills accessible to the general population in Germany. To increase the accessibility of such training to a wider audience, VRanimate was developed using a non-verbal approaches to present users with knowledge of first aid through example and practice in a controlled VR environment. A ghost headset and controller (users' reference point) is used to demonstrate the actions users should take before restoring control to the user. Pictographs are used to ask user questions. Controller's vibrations are used to simulate the patient's heartbeat. Starting with a mannequin to familiarize the user, user is taken through several more practice scenarios to learn the concepts, before taken to three 50-second stress scenarios in realistic settings where they have to apply the knowledge they learned to keep the patient alive. Following each scene a sound is played to indicate success or failure before transitioning to the next scene. User feedback suggests that non-verbal learning simulations have great potential in conveying meaningful information and the VR environment could provide a realistic experience. Although 75% had no trouble, pictographs may not be universally understandable due to the reliance on context and prior knowledge.

#### BibTeX:

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@INPROCEEDINGS{8055807,  
author={T. Blome and A. Diefenbach and S. Rudolph and K. Bucher and S. von  
Mammen},  
booktitle={2017 9th International Conference on Virtual Worlds and Games for  
Serious Applications (VS-Games)},  
title={VRanimate #x2014; Non-verbal guidance and learning in virtual reality},  
year={2017},  
volume={},  
number={},  
pages={23-30},  
abstract={First aid saves lives and reanimation is an important part of it. We  
developed a virtual reality (VR) application, VRanimate, that teaches about this  
aspect of first aid in a controlled digital environment. In this paper we present its  
non-verbal approach to guiding as many people as possible through the VR  
experience. In the first part of this paper, we describe the conceptual and  
implementational details of this approach that is based on showing ghost controllers  
and headsets to convey the necessary interfacing information in the virtual  
environment. These projected controllers and headsets were augmented with  
pictographic user feedback to direct and reinforce the users' learnings. In the second  
part of this paper, we elaborate on our evaluation of the non-verbal approach to  
teaching first aid implemented by VRanimate. Conducting a qualitative study, we  
found that the non-verbal approach was able to impart knowledge to all testers.  
None of the participants had problems with the developed concepts and most of
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them understood the pictographic language without difficulties. Finally, the paper discusses the potential positive impact of the developed application VReanimate in real world first aid scenarios.},

keywords={biomedical education;computer aided instruction;first aid;medical computing;teaching;virtual reality;VReanimate;controlled digital environment;first aid teaching;ghost controllers;headsets;nonverbal approach;pictographic user feedback;projected controllers;user learning;virtual reality application;Headphones;Heart beat;Stress;Training;Tutorials;Visualization},

doi={10.1109/VS-GAMES.2017.8055807},

ISSN={},

month={Sept},}