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## Human Perception in context with Virtual Reality

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### Abstract

Virtual reality technologies have increased the integration between devices and the human senses. Despite the increased interest in embodied technologies in various fields, there has been little research into the effectiveness of virtual reality, particularly in the hospitality sector. The aim of the present work is to analyze the impact of technological embodiment on potential guests' emotional reactions and perception when indulged in various fields of virtual reality experience. Results from a laboratory experiment showed that, compared to desktop, computers and mobile phones, virtual reality devices evoke more positive emotional reactions and higher levels of psychological and behavioral engagement. In addition, emotions and psychological engagement mediate the impact of embodied virtual reality devices on behavioral engagement. The results underline the importance of technological embodiment in providing positive results where use

of VR succeeded in doing something which wasn't much effective by common means.

**Keywords:** Virtual Reality, Artificial Intelligence

### Introduction

Virtual Reality is the use of computer technology to create a simulated environment. Instead of viewing a screen in front of them, users are immersed and able to interact with 3D worlds.

The initial intention of VR technology creators was to illuminate the border between a human and a computer. VR transfers the consciousness of the user into a completely different world i.e., the virtual space giving them a completely new environment to explore and adapt to. This is one of the reasons why most studies in foreign psychology are so focused on exploring the virtual environment and its inhabitants the "pedagogical agents", the

virtual characters whose aim is to increase the effectiveness of training based on VR.

## Literature

Virtual Reality technologies have increased the integration between devices and the human senses. Despite the increased interest in embodied technologies in gaming, entertainment, education etc. there has been little research into the effectiveness of virtual reality, particularly in the hospitality sector. VR gives us a world of our own, an environment where we can do as we please and this is what benefits us in developing various simulations where we can improve our perception and perform efficiently in real life.

Virtual reality technology is rapidly developing as simulations which are aimed at decreasing the quantity and the quality of mistakes during training in some risk industries such as surgery, nuclear physics, engineering, and many others. The experiment proved that the virtual environment has contributed to improving their specific and common knowledge in science. The researchers described above demonstrate that virtual reality is a perfect solution for enhancing the motivation of users. They've discovered that involvement in VR relates to the real emotional affection of users to virtual characters. VR has numerous applications, but its major potential lies in providing training in various fields which can improve human perception.

## Methodology

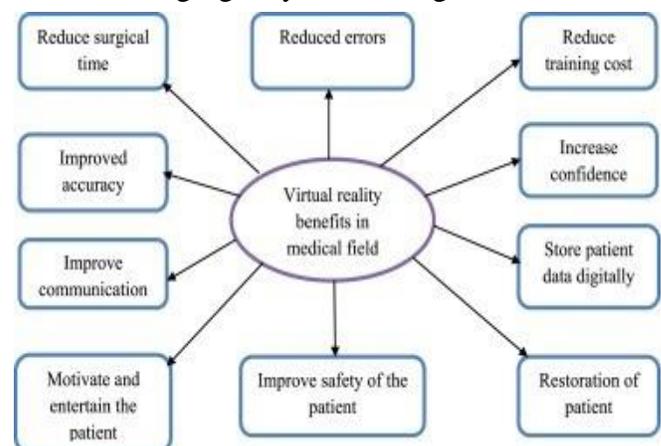
VR is extensively used in treatment or rehab purposes. It has been used to treat phobias (such as a fear of heights, flying and spiders) and post-traumatic stress disorder (PTSD). This type of therapy has been shown to be effective in the academic setting, and several commercial entities now offer it to patients. Although it was found that using standardized patients for such training was more realistic, the computer-based simulations afforded several advantages over the live training. Their objective was to increase exposure to life-like emergency situations to improve decision-making and performance and reduce psychological distress

in a real health emergency. But this is not all, it has even more need and opportunity in the medical sector.

The use of VR in medical training provides an important edge to medical science without replacing the traditional training. It can present sophisticated concepts through visualization and interaction and provide a valuable view of real-world experiences. This practice makes the training more interactive and creates a higher level of interest so that the trainee can grasp it easily and in more convenient manner.

Here in the medical field where accurate results are expected with less errors, VR can help increase the efficiency of the training. For instance, consider the example of medical students - As their training is done on a real corpse, there are times when students may harm it accidentally while learning and might make it non-usable thus having the other students at loss. Such cases are bound to occur as it's human nature to make mistakes. However, if the VR technology is used during medical training, such cases can be minimized or can even be eliminated.

If we provide every individual with a VR device, everyone will have his/her own model to practice on. The same traditional training given to students can be easily replicated in VR and moreover they would have more flexibility in practicing as they can practice any no. of times at their own disposal without having to worry about damaging any real thing, this will lead



them to make more trial and errors and thus help in gaining much better understanding. This mode of VR training is also useful for surgeons and nurses too as they need to be prepared for various practical and ethical dilemmas in their profession.

VR can be used for the training of most medical emergency scenarios like complex surgery and other cases encountered in a hospital. Once a trainee has gained enough confidence while practicing in VR mode, he/she can do final practice in traditional way from this accuracy of the experiment increases.

As it is a technology, it has some pros and cons too. Some of the pros and cons that VR has in the medical field are as follows:

### **Pros:**

- Decrease in the frequency of training and the ease of training using VR.
- Decrease in time of surgery in the real environment.
- Increase in accuracy and reduction of class.
- Better learning of anatomical positions.
- Increase in the safety of the physician and patient.
- Overall performance improvement.

### **Cons:**

- The high cost of the simulator.
- It can never replace the real environment.
- Additional training using VR without supervision can cause extra stitching, and lead to damages to issues, and more.
- Some ideas have also pointed to the increase in training time.

### **Conclusion**

Though VR gained its fame from gaming sector or the entertainment industry, VR finds most of their applications in surgery and particularly in laparoscopic surgery training. Fidelity and realism are extremely important factors in these fields, not only for the comfort of the user but also for guaranteeing that no improper handling will be learnt and that the actual stressful conditions will be recreated.

VR simulators have the capability of creating such environment and demonstrate certain advantages when using them, such as the minimal cost per use, the absence of ethical issues, and the safety compared to training on actual patients. Moreover, greater diversity and complexity in the procedures can be achieved. However, the cost of purchasing and maintaining is high, and also despite the rapid advances in VR/AR technologies, the realism still fails in representing the operating room settings with high fidelity. But it's still usable for certain situations and considering its future potential, there's so much more to develop, and once developed, the VR tech is capable enough to storm a change in the medical sector. The aim of this paper was to discuss how the advent of VR can increase human perception and to which field it can this be applied and mostly benefited from i.e., the medical field. VR has numerous usages given its potential and this is one of it, we just must explore them and think of ways in which it can contribute to the development of society or the individual development of human.

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