

If VR has changed then have its human factors?

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Abstract

It is only ten years since substantial human factors research into virtual environments and VR technology got underway. During this time the nature of VR technology and of virtual environment experiences have changed markedly, both in terms of improvements in terms of performance and being fit for human use and also in terms of the varied configurations most commonly employed by users and user companies. As technology and the nature of participation has changed, have the relevant most important human factors issues also changed? This review paper draws largely upon a series of European Commission funded projects (particularly VIEW of the Future, IRMA and KidStory) to describe major human factors issues or problems and their relevance.

Introduction

Any discussion, paper or publication looking fundamentally at virtual environments and virtual reality is prone to asking itself and its audience some philosophical and soul searching questions. What is VR? What are the limits to what we call VR and virtual environments? What indeed is “virtual”? In fact debates in the early 1990s on these very issues became heated as this or that authority suggested that a particular system couldn't possibly be VR “because it is not immersive” –which leaves open the question of what on earth we mean by immersive– or that, later in the decade, only systems powered by a Silicon Graphics computer, and certainly not those using PCs, could possibly be “true” VR. I hope that it is widely recognised now that these were fairly specious arguments, perhaps promoted by those with a vested interest, and that, as we shall see later, the nature of VR and virtual environments can embrace a whole family of technologies used in various circumstances as appropriate.

We understand virtual reality (VR) to refer to a technical system set-up, hardware and software. The virtual environment (VE) is then what is experienced by a participant by and through an interface which engages one or more of our senses but almost always including the visual sense. This VR/VE experience can have some or all of the following attributes:

- Computer generated

In D. de Waard, K.A. Brookhuis, S.M. Sommer, and W.B. Verwey (2003), *Human Factors in the Age of Virtual Reality* (pp. 11 - 32). Maastricht, the Netherlands: Shaker Publishing.