

# Virtual reality in today's society



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Virtual reality is a computer-generated simulation of the real world. This simulation is not static, instead it responds to the user's input, whether vocal or tactile, in real time. In order to achieve this interactivity, the computer must constantly monitor the user's movements or verbal commands and react instantaneously in order to change the synthetic world experienced by the user and in response to him or her. <sup>[1]</sup> By making use of all of a human's sensory experience in this way, virtual reality takes the quality of interactivity achieved, say in a computer game, one stage further. Users of virtual reality can see and move objects, they can also touch and feel them.

<sup>[2]</sup> This essay explores the evolution of virtual realities and the many uses of virtual reality in society today, as well as considering its ethical implications.

Burdea, and Coiffet comment that the history of virtual reality dates back more than forty years. The Sensorama Simulator virtual reality video arcade game was invented by Martin Heilig in 1962. This game had the capability to simulate a motorcycle ride through a city, using 3-D effects, seat vibrations, appropriate smells, sounds and wind effects using fans. <sup>[3]</sup> Head-mounted displays were introduced in 1966 by Ivan Sutherland, but were heavy and uncomfortable. In 1985, Michael McGreevey of NASA developed a cheaper and lighter version of the helmet, fitted with mini display screens and sensors to track movement. The sensory glove had been designed in the early 1980s, but it was in 1986 that Jaron Lanier designed a new glove to fit in with the helmet to create a full virtual reality. <sup>[4]</sup> Advancements continued to be made in graphics and then in 1993 virtual reality became the theme for a major conference of the Institute of Electrical and Electronics Engineers

(IEEE) in Seattle, making it clear that virtual reality had entered the main stream scientific community. [5]

Since the end of the 1980s, new interfaces communicate three-dimensional images using the head-mounted display (HMD), using video cameras to track the image of the user in a virtual world where he can manipulate objects. More recently there has been a development called CAVE (Cave Automatic Virtual Environment), where the user is enclosed in a six sided environment surrounded by projection screens which they view wearing light stereoglasses, giving the impression of 3-D. [6] The suggestive impression is one of one of immersing oneself in the image space, moving and interacting there in "real time", and intervening creatively'. [7] However, Burdea and Coiffet point out that with the swift advancements in technology, 'virtual reality today is done mostly without head-mounted displays, by using large projection screens or desk top PCs', and sensing gloves are now regularly replaced with joysticks. [8]

The world of computer games has become a major area of importance for virtual reality, where the sense of immersion is important for gaming excitement. This creation of interactive virtual worlds has used grand, sweeping cinematic sequences and other techniques used in traditional cinema, such as 'the expressive use of camera angles and depth of field, and dramatic lighting of 3-D computer generated sets to create mood and atmosphere'. [9] Actors could be used, superimposed over 3-D backgrounds, or as the games became more advanced, synthetic characters were created moving in real time. [10] This means that the space in which the characters

move can now change over time, rendering the same space different when visited at a later time during the game. These changes enabled computer designers to integrate the player more deeply into the gaming world cinematically and to create a sense of visual reality.

The immersion experienced when playing a computer game is made a much more total and intense experience when the player becomes a part of the game, that is, physically enters a virtual world. Virtual reality ' provides the subject with the illusion of being present in a simulated world.' <sup>[11]</sup> This virtual world, unlike the purely visual engagement of a computer game, allows for bodily engagement with the synthetic world. Virtual reality also allows the user to change elements of this simulated world: it gives an added feeling of control. Virtual reality allows people to experience elements of life without any physical commitments, possible dangers or general inconveniences of a real experience.

Lev Manovich comments that virtual worlds are sometimes put forward as the logical successors of cinema, that they are ' the key cultural form of the twenty-first century just as cinema was the key cultural form of the twentieth century'. <sup>[12]</sup> Indeed, Grau and Custance compare virtual reality with film, saying: ' virtual reality now makes it possible to represent space as dependent on the direction of the observer's gaze: the viewpoint is no longer static or dynamically linear, as in the film, but theoretically includes an infinite number of possible perspectives.' <sup>[13]</sup>

Technically, virtual reality ' utilises the same framing' as a cinema rectangular frame. This kind of frame only allows a partial view of a wider

space. The virtual camera, as with a cinema screen, moves around in relation to the viewer in order to reveal different parts of the shot. <sup>[14]</sup> This framing device is vital to the virtual reality world in that it gives a small shot of a larger world, thereby providing a wholly subjective and totally personal viewing experience.

While Manovich looks to cinema as a basis for virtual technology, Grau and Custance look to art. They argue that the idea of virtual reality 'rests firmly on historical art traditions, which belong to a discontinuous movement of seeking illusionary image spaces'. <sup>[15]</sup> Taking into account the lack of technology further back in history, Grau and Custance believe that 'the idea stretches back at least as far as classical antiquity and is alive again today in the immersive visualization strategies of virtual reality art.' <sup>[16]</sup> Indeed, for Grau and Custance, this basic idea of finding these 'immersive spaces of illusion' is threaded through the history of art.

Grau and Custance also point out the lack of natural involvement with the world through the technological illusion of power and control. They say, ironically that 'the adherents of virtual reality ... have often reiterated their claim that immersion in virtual reality intensifies their relationship with nature'. <sup>[17]</sup> Indeed, an experience so totally reliant on technology and devoid of anything natural can bring about this feeling of connection to nature due to its resemblance of the real world.

Manovich too comments on the illusive quality of any 'natural' involvement or control. He says that the user is only altering things that are already inside the computer, the data and memory of the virtual world. <sup>[18]</sup> The <https://assignbuster.com/virtual-reality-in-todays-society/>

realm of virtual reality is driven by the desire to find a perfect recreation of the real world, a perfect illusion. The ideal interface seems to be one in which the interface or computer itself is entirely invisible, it seeks to block out the very means of creation of the virtual world, making the existence of the user in the virtual world seem totally 'natural'. [19]

The experience means that the user is totally isolated from the actual world whilst at the same time given this feeling of total 'natural' immersion in a new world as well as a sense of omnipotence. The user in effect becomes a kind of fictional character that they have themselves created, doing whatever they like, whenever they like, always with a sense of immortality. There are ethical problems relating to the potential decrease in real physical interaction and normal human relationships as people may potentially come to prefer their virtual world to their real life. Indeed, in virtual reality, the physical world no longer exists at all, as all 'real' action takes place in virtual space. [20] There is another ethical concern, that of the possibility of children accessing unsuitable experiences in a virtual world, as censorship would be difficult. This is similar to the problem of violence and adult themes in films and on the internet being available to children today. Virtual reality is an area of even greater concern, however, as children will have the opportunity to take part in the action themselves. Another concern is that criminals could practice their crimes in a virtual world before acting in reality.

There are many positive uses for virtual reality today in areas such as: medicine, education, entertainment and psychology. For example, virtual reality can provide flight and driving simulation, operation simulation, it can

help with architectural design or treatment of phobias. These things can be practised realistically without the fear of anything going wrong with flying training, driving experience or surgery. Virtual reality can also potentially be used in medicine to evaluate a patient and diagnose problems as well as possibly aid in operations. Disabled people have the opportunity to join in activities not usually available to them. An architect can use the method to plan out a building before starting work constructing it: using virtual reality avoids the need to build several different prototypes. Someone afraid of spiders can meet one in a virtual world under careful programming to reduce sensitivity over a period of time, indeed, any phobia could be treated using this kind of virtual reality exposure therapy. The field of education is a huge potential area of use for virtual reality; it can even be used to practice sport.

There is another important use for virtual reality that is not related to entertainment or education. Telepresence is an ever-increasing part of the digital and virtual world. Telepresence combines three kinds of technology: robotics, telecommunications and virtual reality. With telepresence, ' the user of a virtual environment, for example, can intervene in the environment via telecommunication and a remote robot and, in the opposite direction, to receive sensory feedback, a sensory experience of a remote event .' [21]

Manovich calls telepresence a ' much more radical technology than virtual reality, or computer simulations in general'. [22] Indeed, Manovich explains that with virtual reality, the user controls a simulated world, that is, the computer data. In contrast, ' telepresence allows the subject to control not just the simulation but reality itself' because it allows the user to '

manipulate remotely physical reality in real time through its image', [23] that is, the user's action affect what happens right then in separate place, useful for tasks such as, Manovich suggests, 'repairing a space station'; [24] the technique can also be used successfully in battle to direct missiles. [25]

So, virtual reality operates on two very opposing grounds. On the one hand it allows great freedom for the user, as he feels he can move anywhere through space with the camera, but at the same time, virtual reality totally confines the body in its simulated world. Manovich recognises that the physical world is subordinated in this way as he says virtual reality renders 'physical space ... totally disregarded', [26] However, with telepresence, the physical world is very much regarded. Indeed, Mark Hansen thinks Manovich's comment on the lack of physicality overlooks the experience of space in the potential of virtual reality, even if the body is actually confined. [27] Hansen uses the example of telepresence to explain how simulation and space can coincide to be effective. Indeed, with telepresence, the physical actions, although limited in the space where the user resides, do have an effect at another location. In this way space has been found and used, if not in the same location as the user, their movements have still had a physical effect somewhere else. [28]

It seems that virtual reality has many uses in society today, from entertainment to medicine; from psychology to architecture. Telepresence is now a powerful and extremely useful part of the virtual and digital world. With the continuing advancement of technology and the many great uses virtual reality can surely have in society, it is important to bear in mind the <https://assignbuster.com/virtual-reality-in-todays-society/>



negative consequences if virtual reality techniques are not closely monitored, especially as they become more widely available. The ethical implications of a society plugged always into their private, virtual worlds would not be a positive development for human relationships; children also need to be protected from an environment where anything and everything can appear real and personal to the user. However, as long as we are aware of the potential negative implications, the development of advanced virtual reality has great potential benefits for society.

## Sources Used

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### **Footnotes**

[1] Burdea, G. C. and Coiffet, P. (2003). *Virtual Reality Technology* .

Chichester: Wiley-IEEE, p. 2

[2] *ibid.* p. 3

[3] *ibid.*

[4] <http://library.thinkquest.org/26890/virtualrealityt.htm>

[5] Burdea and Coiffet, *op. cit.* p. 8

[6] Grau, O. and Custance, G. (2004). *Virtual Art: From Illusion to Immersion* .

Cambridge: MIT Press, p. 18

[7] *ibid.* p. 3

[8] Burdea and Coiffet, *op. cit.* p. 1

[9] Manovich, L. (2002). *The Language of New Media* . Cambridge: MIT Press,

p. 83

[10] *ibid.*

[11] *ibid.* p. 166

[12] Manovich, *op. cit.* p. 82

[13] Grau and Custance, *op. cit.* p. 16

[14] Manovich, op. cit. p. 81

[15] Grau and Custance, op. cit. p. 339

[16] *ibid.*

[17] *ibid.* p. 201

[18] Manovich op. cit. p. 166

[19] *ibid.* p. 178

[20] *ibid.* p. 114

[21] Grau and Custance, op. cit. p. 278-279

[22] Manovich, op. cit. p. 166

[23] *ibid.*

[24] *ibid.* p. 167

[25] *ibid.*

[26] Manovich, op. cit. p. 114

[27] Hansen, M. B. N. (2004). *New Philosophy for New Media: A New Philosophy for a New Media*. Cambridge: MIT Press, p. 40

[28] *ibid.*