Virtual reality

----- the negative side and the measures

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Thanks to its worldwide spread and popularity, the internet has penetrated all aspects of life. However, while it has considerable positive impact on our lives, it inevitably also has some serious negative effects on human lives, viewpoints, values and morals. By now, the negative influence of internet culture has grown into a major concern in our society. The present analysis of virtual reality (VR) will demonstrate some major social, ethical and legal issues associated with it, and also discuss potential solutions.

VR is a computer-generated scenario that simulates experience through perception, i.e., through our senses. The immersive environment can be similar to the real world or it can be fantastical, creating an experience not possible in ordinary physical reality.

The history of VR runs as follows:

Morton Heilig wrote in the 1950s of an "Experience Theatre" that could encompass all the senses in an effective manner, thus drawing the viewer into the onscreen activity. He produced a prototype of his vision dubbed the Sensorama in 1962, along with five short films to be displayed in it while engaging multiple senses (sight, sound, smell, and touch). [1]

By the 1980s the term "virtual reality" was popularized by Jaron Lanier, one of the modern pioneers of the field. Lanier founded the company VPL Research in 1985. VPL Research has developed several VR devices like the Data Glove, the Eye Phone, and the Audio Sphere. Over the following twenty years, VR became prominent in the field of electronic games.

In 2010, Palmer Luckey designed the first prototype of the Oculus Rift. This prototype, built on the shell of another VR headset, was only capable of rotational tracking. However, it boasted a 90-degree field of vision that had not been seen in the consumer market prior to that time. This initial design would subsequently serve as the

basis for later designs. [2]

By 2016 there were at least 230 companies developing VR-related products, including Facebook with some 400 employees, and Google, Apple, Amazon, Microsoft, Sony and Samsung with dedicated AR (augmented reality) and VR groups.

In recent years, optimistic opinions regarding the prospects of VR are common. Goldman Sachs even predicted that VR is going to become mainstream five to ten years down the track.

However, there are always two sides to the development of technology. So it is with VR: On the one hand, thanks to progress in VR development, especially in its perception of reality and its sense of scene and control, the virtual environment has brought completely new experiences to users. Given its appeal, then, virtual life is playing an increasingly important part in people's social lifestyle. On the other hand, though, VR being a brand new branch in science and technology, it has given rise to a lot of new problems.

A story told in the VR environment is actually putting a person into the story itself rather than just having them follow a narrative, i.e., the person usually becomes actively involved. In contrast to other media, VR users are therefore far more easily influenced. In the next few years, with the rapid development of VR, problematic issues arising in VR will only intensify. The potential risks of these may even turn out to be greater than those in artificial intelligence.
Among the many problems with VR that deserve our attention, the following are listed here:

1. Excessive substitution of virtual life for real life. Users may distort their perceptions of reality, be obsessed with virtual social life and escape from the real world, which is highly likely to result in autistic disorders. This may especially affect low-income sections of the population and vulnerable groups who prefer virtual experiences to those of the real world. As a result, the "otaku" phenomenon among younger people may become more serious. Once such social problems arise, they are difficult to solve.

2. VR obsession and addiction. As people become increasingly obsessed with and addicted to the virtual world, they are likely to get lost in actual reality. The strong sense of scene in VR and vivid role experiences can make people addicted, especially teenagers. Addiction to virtual movies, virtual games, virtual gambling, etc., should therefore be recognized and prevented as early as possible.

3. The spread of pornography. Since pornographic content in VR is highly attractive and seductive, it has strong visual impact. Its negative influence on minors is a problem that cannot be ignored. This form of communication is extremely difficult to manipulate and the problem is likely to persist.

4. Abuse of sensuous and conscious control. Compared with words, movies and TV, VR is more powerful in influencing and shaping subjective awareness and social cognition and therefore has a stronger “brainwashing” effect. Users will be easily mislead and conned by schemes such as pyramid sales and false propaganda, with potentially very harmful effects.

5. Invasion of personal data and privacy. VR collects personal data and analyzes them. If this area is not regulated properly, personal data are likely to be misused or disclosed.

6. Additional conflicts. It includes using VR to harm the physical and mental health of third parties and others not directly involved.

Generally, if moral principles are violated, the VR industry mat well bring human beings nearer hell than heaven.

At the same time, although VR has entered the public realm only relatively recently, it has caused many legal issues. Compared with the rapid advancement of science and technology, relevant laws governing progress are always late and far from perfect. VR is already involved in many legal disputes affecting each of its main areas, hardware, content and platform. Usually, legal issues corresponding to hardware are have to do with property rights protection, while those corresponding to content relate to data protection. Issues corresponding to platform are about responsibility and

infringements thereof.

Here are some examples:

1. Rise in potential criminal issues. Many people predict that while VR creates "real" sensuous and conscious experiences, it is also likely to trigger crimes. For example, many VR games include violence, blood, horror, and pornographic elements. When these elements are visually presented through VR, players are likely to become obsessed with these experiences, which, on return to everyday reality may translate into negative behaviors and criminal acts. However, at present, there are almost no legal definitions of VR crimes.

2. Misuse of personal data and privacy issues. Since VR requires details of user identity, it collects a large amount of accurate data, including personal physical details (weight, height, etc.), geolocation, hobbies and interests, and so on. While the phenomenon of collecting user data has existed for a long time, the data and privacy of users has not been protected sufficiently due to lack of related laws.

3. Personal portrait rights issues. In order to enhance the experiences of users, VR often simulates personal portraits of users and stores them in its database. The purpose of this is to make the user feel more involved. However, just how these portraits are used and how they are protected gives rise to a series of legal issues. At present, a lot of countries like China and Russia have not yet produced any relevant legislation in this regard.

Obviously, although VR has achieved success in commerce, shortcomings in its legal aspects have also been exposed.

It has become urgent to consider how to reduce and avoid social and ethical problems in VR and how to face and deal with its legal issues. The VR industry is presently trying to respond actively and find ways to solve these problems.

Nowadays, VR gives users an increasingly strong sense of reality, especially in its violent, horrifying and pornographic elements, which users find exciting and

stimulating. However, with the continuous development of VR, the rating system in this area has reached a breaking point.

In fact, much VR equipment sets the age limit of users at 12 or 13, or older. Children under this age are required to be supervised by adults. In terms of these restrictions, the main concern is that VR experiences are likely to have a negative impact on young or weak users both physically and mentally, such as through addiction and the distortion of perceptions of reality in the virtual world.

It does make sense. The “reality” provided by VR is both a selling point and a source of risk. Children are easier to influence than adults. Especially in the current market, VR content is filled with violence and adult themes with no strict grading system. Such elements do harm to minors both physically and mentally.

Concerning the protection of personal data and privacy, many countries have begun to include personal data and privacy in VR into the protection act.

In VR, the collection of data is critical. But the data should be collected according to the free will of users, and the information collected should be specific and clear. If the user is a child, parental consent must also be required. In addition, rules for using personal data are needed in order to keep personal data safe and prevent the loss or misuse of it.

If the rules related to personal data and privacy are violated, relevant action must be taken to stop data processing or delete the relevant data, and fines or compensations for victims should also be imposed. [3]

Among legal VR issues, one of the most difficult points is to identify who should take responsibility for what goes wrong. Who is responsible for harm and accidents caused by the VR experience? Is the cause of accidents hardware or software? Who should take responsibility, the hardware manufacturers or the software developers?

Some rules are made as follows: If accidents are caused by VR and users get injured or sick, VR companies cannot avoid responsibility. That is, if those accidents are caused by faults in hardware or there are no safeguards in the hardware, the

hardware manufacturers are likely to be held responsible. In the same way, if the accidents are caused by faults in software or the absence of precautions in the software, the software developers cannot quite escape responsibility.

As it stands, relevant regulations and rules try to divide responsibilities in terms of the main constituent elements of VR.

There are three simple principles in terms of ethical issues in VR: 1. Human beings (including animals) should not be harmed seriously due to the use of VR; 2. The virtual avatar should not be seriously injured; 3. The risk of obsession and addiction should not be concealed from users. Needless to say, these three principles define the ethical bottom line for VR. [4]

"The Research Ethics of VR," a product of research in that field, cover six main topics: the limits of experimental environments, informed consent, clinical risk, dual-use, online research, and a general point about code of conduct limitations in research.

What exactly do these six topics refer to? Limits of experimental environments refers to two aspects: 1. VR which produces serious or continuous pains or harm cannot be used; 2. minimization of risk should be included in the research area. Informed consent is a requisite for the VR experience, and those who do not have informed consent ability cannot participate in the experience. Clinical risk includes the clear and honest introduction of available scientific and technological achievements against current clinical experiments. Dual-use means that VR is subject to strict restrictions in military and other applications. Code of conduct limitations in research include ethical principles and moral principles.[5]

Faced with the negative impact of VR on individuals and society in terms of social, ethical, and legal issues, VR industry should establish a regulatory system corresponding to each of those aspects. However, the fact is that while VR advances relatively rapidly in technology it makes relatively slow progress in producing ethical regulations as key part of regulatory law. While ethical regulations need to catch up with technological developments, they also constitute the bottom line for legal regulations.

The internet age has built new ways of lifestyle, which have profoundly affected perceptions, emotions and behaviors of people. Even though VR faces a number of social, ethical, and legal issues, it is nevertheless an irreversible technological change. Seeing that VR is to stay, we cannot ignore its problems but must improve corresponding laws and popularize ethical norms to make the internet a true ladder of human progress.

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