IARJSET

ISSN (Online) 2393-8021
ISSN (Print) 2394-1588

International Advanced Research Journal in Science, Engineering and Technology

5th National Conference on Science, Technology and Communication Skills – NCSTCS 2K22

Narula Institute of Technology, Agarpara, Kolkata, India

Vol. 9, Special Issue 2, September 2022

# Interpersonal Communication with Virtual Reality

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**Abstract**: Virtual technology has immense potential as a methodology for studying interpersonal communication. Virtual Reality or augmented technology is increasingly available and accessible for research and in-depth study in any field of study and not just computer science. This flashlight describes a technical approach and its use to study the media phenomena, and shows media research perspectives and possibilities. We take advantage of the many opportunities that VR and virtual environments provide to highlight technical requirements and workflows to make objective measurements that can be applied to communication research and communication between individuals. Prior research in this venture shows that communication in the virtual environment is as intricate as in the physical world. The essence of virtual reality is an inclusive relationship between the participants and the virtual environment, where the direct experience of immersive environments builds up the communication. In this sense, VR can be considered as a leading step towards the general development of current communication as an interface similar to televisions, computers or telephones. The crucial feature of this evolution is the complete immersion of human sensory-motor channels in a single live and global communication experience. VR has also become an alternative to evaluate social and psychological dynamics in academic settings. The capabilities of VR go beyond education for the sake of personal enrichment. Take into account the financial effects of receiving job training or developing skills that may be used for real-world corporate communication. Ever since the worldwide pandemic, organizations have had to deal with the increasing difficulties in managing remote work practices. Virtual reality (VR) is an important, cutting-edge technology that has the potential to revolutionize how businesses operate using organizational communication. The effect of immersion in a three-dimensional, interactive, computer-generated environment where virtual things have spatial existence is what VR technology offers. It has long been recognised that VR has a special ability to enhance human cognitive capabilities (i.e., the capacity to gather and process information, concentrate attention, and carry out activities) in simulated situations. Thus virtual reality has immense scope in bringing a modern outlook over the traditional interpersonal communication techniques.

**Keywords:** Virtual, Augmented, Communication, Technical, Interpersonal, Cognitive.

## I. INTRODUCTION

It is fair to say that the latest ventures in the gaming industry, technological advancements and the market's centrifugal behavior around these new explorations has thrown more light over virtual and augmented reality. The growth in the extensive use of VR technology among the present generation and also in various fields of study, has made researchers explore VR as a tool for communication. Current artificial intelligence technologies are thus available for research purposes in fields apart from computer science. It is indeed true that Virtual Environments have great potential as a method to study interpersonal Communication. Virtual Reality (VR) is usually described by the media as a particular collection of technological hardware. However, virtual reality must not be reduced to a hardware system, it is also a communication technology or medium. It is possible to define Virtual Reality in terms of human experience as, (Steuer, 1992): "a real or simulated environment in which a perceiver experiences telepresence", where telepresence can be described as the "experience of presence in an environment by means of a communication medium".

## II. VIRTUAL REALITY AS A COMMUNICATION TOOL

Communication is a discipline that is always evolving. With every new technology advancement, people have access to more channels and chances for data distribution and consumption. Virtual reality (VR) and augmented reality (AR) have eagerly risen in importance in recent years. There are clear signs that we're all ready for these advancements, from the use of virtual reality in business interactions to the historic success of games like Pokemon Go. Because of the coronavirus, a record number of people are working from home, which may finally usher in their routine use of VR and AR at home—or at least give the technology a boost on the route to becoming commonplace. Digital platforms have long since made it possible to communicate in more creative ways, and the process of creating content for different platforms is evolving. The way we communicate stories is changing thanks to VR. Theoretically, SVR can facilitate every communication process imaginable and, thus, potentially exceed communication effectiveness compared to real-world settings. For example, one can follow a live keynote presentation, rewind to watch parts of it

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again, and then catch up with others, just like pressing fast-forward on a television set1. Additionally, SVR provides communication tools that are not available in the real world.

Interpersonal communication is described as the process by which a group of social actors in a given context negotiates the meaning of the numerous situations that develop between them. Two significant consequences of this concept also have a significant impact on multi-user VR. If interpersonal communication is a negotiation process: - new processes and activities will emerge throughout contact which question and change the initial relationship between subject and context; - the social context in which the VR experience happens will play a vital role. Virtual reality communication makes it abundantly clear that this dual effect has a strong impact on how one positions and constructs oneself (Riva & Galimberti, 1997). As we've already seen, the virtual world itself may be thought of as a type of interlocutor since it introduces unfamiliar objects and meanings into the positioning process. Furthermore, there is no assurance that the claimed identities of the interactors in virtual reality are the genuine ones (Mantovani, 1995; Mantovani, 1996a). Virtual reality is a communication environment where the interlocutor is more convincing in terms of physical appearance but less substantial and credible in terms of personal identity, according to Mantovani (1996a). Our social milieu has altered as a result of communication technology, as Meyrowitz (1985) notes. As reference societies like the family, school, or church, which historically anchored social settings in agreed sets of rules, increasingly lose their hold, the impact of social context on the creation of identity is starting to weaken, especially in younger people.

The current state of affairs would appear to be that new media are hastening the demise of conventional rule-based social settings, whose slow departure is steadily demeaning the media.

However, the process through which personal identity emerges could vary. Communication allows for effective identity construction since it allows for interaction. As a result, the chance for contact becomes crucial to comprehending the settings in which affiliations and identities may be developed. Through dialogue enabled by multi-user VR, people discover or create groups with like-minded people.

## III. COMMUNICATION AND COLLABORATION

People can now acquire and analyse enormous volumes of information at a pace that defies our imagination thanks to technology. Virtual reality can help us interpret information in novel ways as opposed to the typical keyboard or voice commands that we use to access enormous amounts of data.

Let's examine how data visualisation, language learning, and the development of shared spaces might improve communication and cooperation using virtual reality (VR).

### A. Presentation of Data

Instead of using 2D Excel sheets, pie charts, and bar graphs, users may show data using VR as a multi-dimensional model on a 3D canvas. People may walk across the environment of data.

Consider the Virtual Reality Network Visualizer created by the Institute for Manufacturing at the University of Cambridge. Utilizing a VR headset and controllers, users of the programme may explore a company's supply chain network.

VR visualisations, like those created by LookVR, provide a greater field of vision as well as additional aspects like lighting, haptics, and depth in comparison to 2D visuals. Users may also see how changes in one one affect other variables. Users can establish links and perform cross-referencing more easily as a result. People can spot patterns and trends more quickly in a virtual reality environment because there are less distractions. As a result, they may be better able to recognise and address dangers and issues more quickly. By adjusting the appearance of each data set according to colour, size, and shape, platforms like Virtualitics may help e-commerce companies find groups of comparable consumers and compare each group more effectively.

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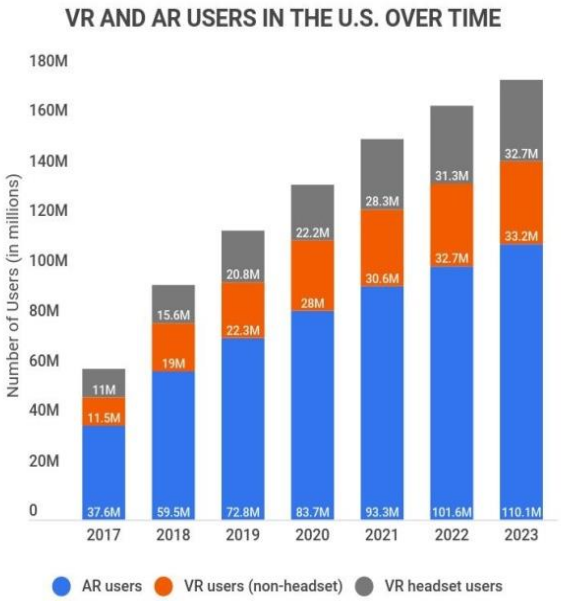


Fig. 1 VR and AR Users in the US over Time

### B. Language Barrier

Virtual reality may make learning a language less daunting and more engaging. For non-English speakers who need to learn English to be more competitive at work, VirtualSpeech, for instance, provides courses.
The photo-realistic surroundings of the VR software help users get ready for real-world professional events including attending interviews, running meetings, and giving speeches. Additionally, the software analyses speech to provide users immediate feedback on their fluency, pace, eye contact, and other speaking characteristics.

### C. Social Virtual Reality

VR collaboration tools will be required in the new normal due to self-isolation and social distancing practises. Users may gain from the following:

FaceTime and Zoom video chats fall short in creating a sense of "shared space." But for planning and producing virtual events, tours, onboarding, and training for the workplace, virtual reality may offer room-scale and co-presence.

Some businesses, like eXp Realty, have gone as far as moving their primary offices online. On their PCs, staff members download software created by VirBELA that enables them to participate in meetings, share papers, and access technical help in eXp World. There are ways to make virtual surroundings less daunting than traditional video conferencing. Participants could feel more comfortable sharing original ideas as a result of their new digital look. Virtual reality is already being used by engineers at Hyundai and Kia to evaluate automotive designs.

When a meeting comprises a large number of individuals who may not be very familiar with one another, using an avatar to represent oneself can assist users safeguard their identity and actual location.

### D. Social Impacts: Positive and Negative

With a realistic VR experience, you can spend time with your loved ones far away at the touch of a button. Think about the first time you used FaceTime or any other video conferencing software. It's a lot different than just talking on the phone. VR multiplies this more linear communication medium by a factor of 100.

Then there are many practical and non-recreational benefits.

1. Conduct virtual business meetings with teams around the world.
2. Know your e-commerce products better before you buy.
3. Take a virtual tour of any place on the planet.

The more accurate these "avatars" are, the more realistic the experience will be. In fact, one might think that digital photos are far more than avatars, which can represent almost 100% chances of what we actually look like.

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However, virtual reality's most blatant drawback is its tendency to escapist. So if someone is recessive and dejected with their life, you can use VR as an escape route and immerse yourself in another world where you don't have to be yourself. Social media has given us a little bit of that. People conceal behind their computers and treat people like they wouldn't treat them if they were in front of them. Health is another concern. And not just the more obvious health problems (loss of vision, seizures, etc.), but health problems that can develop with long-term use.

According to research carried out in Germany by Statista (see below), almost 50% of people would use VR as a tool for choosing their holiday destination (providing it was free). 13% of those surveyed were actually willing to pay for the VR.

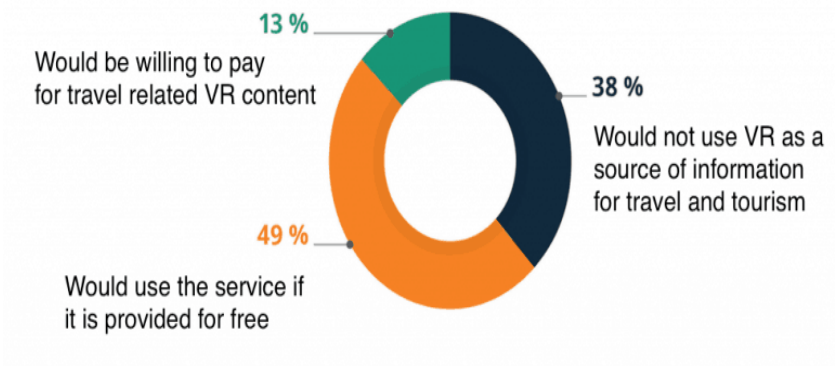


Fig. 2 Tourism VR Stats

“Compared to other media, VR is an extremely powerful way to deliver information,” said Jeremy Bailenson, a communication professor at Stanford and co-author of the report who founded Stanford’s Virtual Human Interaction Lab in 2003. “VR is arguably the most powerful medium in history and research about its effect on children is only just emerging.”[7] Jim Steyer, AB ’78, JD ’83, founder of Common Sense Media, agreed with Bailenson, writing in the report, “Because VR is in its infancy, we have a unique opportunity to stay on top of this technological wave before it overwhelms us.” Common Sense Media is an independent nonprofit organization that helps parents make smart choices about media and technology for their children.

## IV. CONCLUSION

Communication is a discipline that is ever-evolving. With every new technological advancement, people have access to more channels and chances for data distribution and consumption. Virtual reality (VR) and augmented reality (AR) have eagerly risen in importance in recent years. A more creative method of communication has long been made possible by digital platforms, and the process of creating content for these channels is also evolving.

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