

Computer-Mediated Reality Communication for Richer Human Interaction in Post Abnormal

Neha Bhushan (Research Scholar)

Himachal Pradesh University

Summer Hill, Shimla (HP)

Abstract

The growth of digital and virtual communication has accelerated in several ways due to pandemic. The present time, where we are living through the Covid-19 pandemic, can be labelled as 'Post-Abnormal' which has raised the need for rich media content. The dependency on computer-mediated communication is at its peak in the post-COVID situation where we are still struggling for face-to-face interaction without a mask and social distancing. Marshall McLuhan in his concept, 'Medium is the message', explained media as extensions of the human body, in this post-abnormal situation media has to play an important role in providing more interactive and enriched content. Virtual reality (VR) and augmented reality (AR) has the ability to move us beyond the confines of social distancing and may allow us to connect with everyone without any fear. Virtual reality, augmented reality, Mixed reality which may allow for richer human interaction like hologram avatars may help in entertainment, learning and provide better emotional support. Virtual reality, augmented reality and 3D social media systems can be powerful tools to engage individuals in an environment that can be perceived as real in the virtual world. Although, computer-mediated communication has been the effective medium of pre-pandemic but in the view of the researcher, 'computer mediated reality communication' is the future of the 'Post-Abnormal'. In this paper, communication in the post-abnormal has been discussed from the point of view of Media richness theory.

Keywords: Augmented Reality, 3D Social Media System, Pandemic, Post Abnormal, Virtual Reality, Virtual Communication,

Introduction

In the article 'The pandemic is a Portal', the famous Indian novelist and activist, Arundhati Roy appropriately explained how coronavirus threatened the country. As quoted by her '*pandemics have forced humans to break with the past and imagine their world anew*'. It is still hard to say that when the pandemic can be called an Endemic. This new world in which we are forced to live in isolation to avoid the risk of getting infected has been termed as the post-abnormal in this paper. The COVID appropriate behaviour like wearing masks and government guidelines on physical distancing has changed the way we used to communicate before the pandemic. In the post abnormal we are forced to stay behind the safe walls of our home and dependent on digital technology for almost all the necessities from education, entertainment, to emotional & mental health care. Face-to-face communication which used to be the most effective communication earlier now has been severely affected; face masks as a protective measure against pandemic have hampered non-verbal communication through facial expressions.

The dependency on computer-mediated communication has sped up digital communication like never before. In the post-COVID situation, we are still struggling for face-to-face interaction without a mask and social distancing. In this post-abnormal situation, media has to play an important role in providing more interactive and enriched content. Virtual reality (VR) and augmented reality (AR) have the ability to move us beyond the confines of social distancing and may allow us to connect with everyone without any fear. Virtual reality, augmented reality and 3D social media systems can be powerful tools to engage individuals in an environment that can be perceived as real in the virtual world. Although, computer-mediated communication has been the effective medium of pre-pandemic in the view of the researcher, 'computer-mediated reality communication' is the future of the 'Post-Abnormal'.

Media Richness Theory

Media richness refers to the ability of the communication channel to deliver the messages which contain rich information. According to **Maity et al., (2018)**, richness of media helps in reducing the ambiguity of the messages, improves the interpretation of messages for the users. Media Richness theory also known as Information Richness theory (MRT) was first introduced in the year 1986 by Richard L. Draft and Robert H. Lengel. According to this theory, media which can efficiently clarify ambiguous issues can be considered as rich media whereas the communication media which is capable of conveying meaning and understanding taking more time can be referred as less rich media. The origin of media richness theory was based on organizational communication. This theory talks about

the richness and capability of the medium to convey message. For example, the communication through text-messaging or emails do not include facial expression which conveys the important meaning in the process of effective communication. The applicability of this theory in new media based studies has been opposed by many researchers. **Lu, Kim, Dou and Kumar (2014)** in their study found that websites with 3D views of a fitness centre were more successful in creating a student's intention to visit the gym than a website with static 2D images. In this paper the qualities of extended reality (XR) has been viewed with reference to media richness theory.

Reliance on Technology for Effective Communication

The restrictions imposed by the pandemic have provided us the opportunity to explore the effectiveness of communication technology. Digital technologies helped authorities in delivering official, trustworthy, and timely information about COVID-19 to the public. According to Pew Research Centre the universal view of some innovators, developers, business and policy leaders, researchers and activists are that the larger segments of the population come to rely more on digital connections for work, education, health care, daily commercial transactions and essential social interactions which may result in people's a deeper relationship with technology by the year 2025. Few of these experts express their hope in technological enhancement in the form of virtual and augmented reality and AI that may allow people to live smarter, safer, and more productive lives, in key areas like health care, education, and community living.

Additionally, these experts also forecast the creation of 3-D social media systems that allow for richer human interaction; mediated digital agents gradually taking over significantly more repetitive or time-consuming tasks; a "flying Internet of Things" as drones become more prolific in surveillance, exploration, and delivery tasks. These discussions are the result of a non-scientific investigation of selected 915 experts conducted on June 30- July 27, 2020, by Pew Research Centre.

Use of Artificial Intelligence (AI) may help in improving social interaction as well as nutrition, health and education stated by Jeanne Dietsch, a co-founder and former CEO of MobileRobots, Inc. Internet and information technology will remain central to the post-pandemic scenario, where innovations will drive the surge in use (**De et al., 2020**). Technology and online platforms provide an opportunity to facilitate social engagement to those who have limited access to places outside their homes (**Genoe et al., 2018**).

Computer Mediated Communication during Pandemic

Computer mediated communication (CMC) is a type of communication that takes place with the help of computer. When the communication can be done through an electronic medium it can be referred

as Computer mediated communication. During the pandemic, the need of CMC has been increased like never before. The fundamental human need is to have a sense of belonging derived by the desire to be connected with others. **(Baumeister & Leary, 1995)** CMC focuses on the role of interactivity between parties through mediated channels of communication **(Rafaeli, 1988)**. Pandemic has changed the communication pattern in our life. During pandemic computer mediated communication has become the best substitute of face- to- face human communication. Use of interpersonal media like video chatting, texting, phone calling etc., help in decreasing loneliness and have increased satisfaction in life. **(Choung & Choi, 2021)** Earlier CMC and media used to supplement face to face interaction now it is being used to replace them. Computer mediated communication can be of two types: synchronous and asynchronous. The communication which happens in the real time is synchronous communication whereas the communication which does not happen in real time is called asynchronous communication. The advantage of CMC is that it is not dependent on time and place, which means two people who want to communicate with each other do not need to be available at the same time. CMC also has an ability to reach out the vast number of receivers simultaneously. It also helps in keeping the previous conversations which reduce the workload of senders to repeat anything. As compared to face-to-face interaction CMC provides higher level of self disclosure. **(Jiang et al., 2011)** CMC provided opportunities to people during pandemic to continue to meet social needs and stay in touch with important people by having healthy communication. In the new world which has been referred as post-abnormal in this paper, the dependency on CMC and more interactive media content like computer mediated reality (CMR) may further increased.

Communication in a New World: The Post-Abnormal

It is needless to explain the vital role communication plays in human life. In the challenging times of pandemic, it is even more necessary to maintain effective communication among individuals. From corporate work to personal relationships the dynamics of communication have changed in the post-abnormal. Like never before, we are now more dependent on digital devices for communication. Expression-based effective face-to-face communication is now dependent on machine-based Emojis in the post-abnormal. It is not like the emojis were not popular earlier but now our dependency on emoji-based communication is even more. According to the psychologist Rachael Jack of the University of Glasgow, “Humans are pretty bad at interpreting meaning without the face,” as a result of that it is difficult to understand the social message through phone conversation. The past few months have shown us the fatal risk of virus transmission in human to human communication. Human-machine interaction (HMI) has proven to be the safest option at this time. In this new world, there is a need for rich communication through digital mediums. Computer-mediated reality communication;

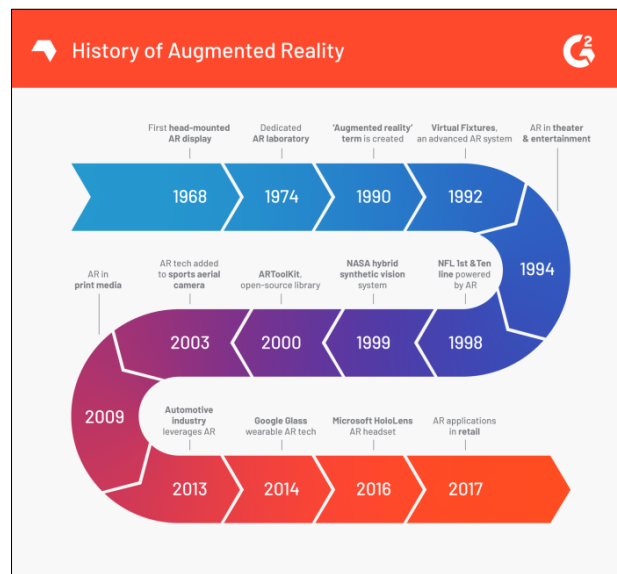
virtual reality, augmented reality and extended reality are the solutions that may fulfil the communication need of the Post-Abnormal.

Computer-Mediated Reality in Post Abnormal

Pandemic has changed the way we used to communicate. No doubt it has driven us even faster towards immersive communication technologies. Experts predicted that there can be more immersive ways to stay connected to those we love or work with. **(Linda A. Cicero/ Stanford News Service)** Computer-Mediated Reality (CMR) can be considered as one step ahead of computer mediated communication (CMC). It has the ability to manipulate individual's perception of reality either by adding or subtracting the information with the help of smartphone or wearable computer devices. Computer Mediated Reality was an attempt to experience the perceptual world in a new way by using different kinds of sensors, transducers, and other body--borne devices controlled by a wearable computer (Mann 2001). We are aware of the role of computer-mediated communication in strengthening human communication during pandemic. The researcher visualizes Computer-Mediated Reality (CMR) as the most important technology of the post-abnormal. Visual perception of the user can be enhanced with the help of computer-Mediated Reality. CMR can also be considered as superset of augmented reality and virtual reality.

Augmented reality (AR) blends the individual's perception of the real world with the digital world. Augmented reality refers to computer displays that add virtual information to a user's sensory perceptions. (Feiner, 2002) As compared to virtual reality, AR is a new technology. The technology was invented in the year 1968 although the term 'Augmented Reality' was coined in the year 1990 by Tom Caudell. The first head-mounted display called 'The Sword of Damocles' was created in the year 1968 by Ivan Sutherland who was the computer scientist and professor in Harvard. In the year 1994, this technology was first time brought in the entertainment industry by the producer Julie Martin. The technology was first time used by Sportsvision broadcasts for the live telecast of NFL game in 1998. In 1999 NASA has used the AR technology to provide better navigation. Print media has used augmented reality for the first time in 2009 to make the pages more alive. In 2013 Mobile Augmented Reality Technical Assistance (MARTA) app was launched by Volkswagen. It was used to provide repair instructions to the users. Google launched AR glasses in 2014 which users can wear for immersive experiences. More advanced AR glasses has been launched by Microsoft called HoloLens. It helps in scanning the surrounding and let users create their own AR experiences. IKEA released AR app in retail industry in 2017. A brief history of the technology can be seen in the below mentioned figure.

Fig.1



Source: <https://www.g2.com/articles/history-of-augmented-reality>

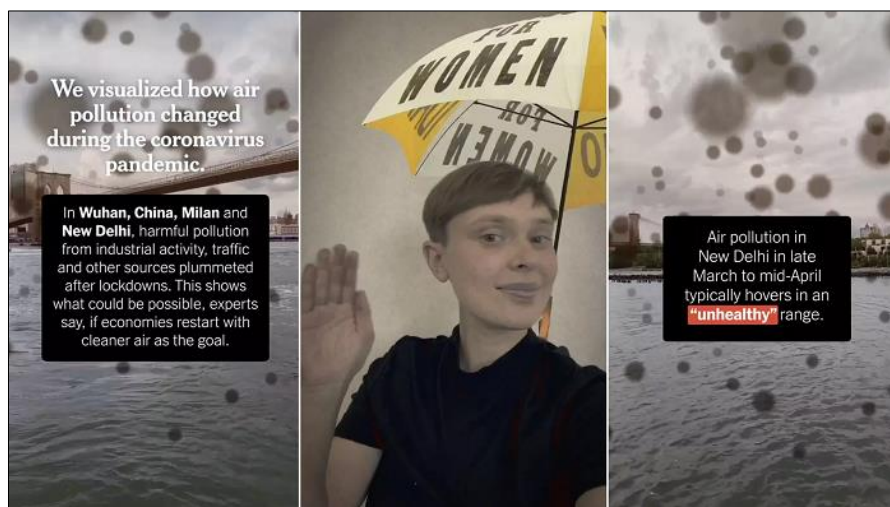
Virtual Reality (VR) provides immersive experience with the help of computer generated environment which appears to be real. It can be similar to the real world or completely different. Such environment can be perceived with the help of VR headset or Helmet. This technology has been extensively used in the video games, education, medical field and sports. As compared to phone call or video chat the interaction with the help of VR is more natural and effective. The first VR headsets were released by the video games companies in the year 1990. In virtual reality everything experienced by the user is a part of the artificially constructed environment although in AR everything which user experience is a part of the real environment. The combination of both the realities may be called as **mixed reality (MR)**. Together AR, VR and MR known as **extended reality (XR)** that is the combination of real and virtual environment and human-machine interaction with the help of wearable devices.

Effective Communication through Extended Reality in Post-Abnormal

Extended reality has the ability to replace face-to-face communication with the same effectiveness in post-abnormal. **Hart et al., (2021)** in their study, *"Manipulating Avatars for Enhanced Communication in Extended Reality"*, compared 3D avatars with facial expressions with 2D screens attached avatars without facial expressions; found that the users preferred 3D avatars with facial expressions more than 2D screen and it also helped in improving overall communication. AR has already been adopted by the users of smartphones. There are many apps already available that allow the users to virtually preview the real environment. The famous and most popular social media platform, FaceBook also

has started its experiment with 'smart glasses' and has already announced new advances in virtual reality and augmented reality. The famous AR effect 'Which Disney character are you' is already popular among the users of FaceBook and Instagram.

There is a huge demand for more interactive and engaging communication in the post-abnormal. AR tools are capable of creating more interactive and engaging content which may result in effective and rich communication. According to Axios, in the partnership of The New York Times and FaceBook, The Times has experimented with AR technology for the first time which resulted in making the publisher created content more interactive and engaging.



Source: Screen shots from the NYT's Instagram filters about pollution

Monica Drake, assistant managing editor at The Times said, "We actually think that AR tools will be useful to convey our journalism,"

Corporate communicators have already accepted the XR technology for creating impactful communication. Incorporating this technology into communication may help in evoking strong emotions in the consumers. The technology is capable of showcasing visuals that can help in effective storytelling. An immersive experience created by AR tools may help in generating deep emotional connections and reactions in the consumers.

The benefits of extended reality which may result in effective communication can be:

Interactivity

Interactivity is one of the important elements of effective communication. Interactivity can be defined as the extent to which user can participate in the communication. Tools of extended reality are capable of providing interactive content in the form of 3D avatars etc. **Suh and Lee (2005)** found that,

the perceived level of products knowledge can be enhanced with the help of interactivity feature of virtual reality.

Vividness

When the technology is capable of producing sensory rich mediated environment, it can be referred as Vividness. **(Steuer, 1992)** The communication which is presented vividly can be more persuasive. With the help of extended reality tools it is possible to provide in-depth and vivid information to the media audience. The media richness theory also supported this idea that the more rich the media is in the communication process leads to better understanding of messages.

Emotional storytelling

Incorporating extended reality into communication can help in evoking strong emotions, empathy, engagement and understanding. From the communication point of view visual storytelling is one of the important ways of delivering information. Immersive experiences created by the AR and VR can help in sharing information more effectively.

Conclusion

The tools of extended reality have the capability to make communication more rich, personal, interactive and vivid. As stated by Kandaurova & Lee, 2019, the richness of the virtual reality has the capability to increase the presence. Rich communication mediums with three-dimensional technologies as compared to two-dimensional are capable of providing more immersive experience to the users. Considering the pandemic guideline which has restricted people from face-to-face communication in the post-abnormal, technologies like augmented reality and virtual reality can make the communication medium rich and effective. Users who are highly dependent on technology for health care, fighting isolation, emotional support, education, and most importantly communication, with the help of VR and AR tools can hear, feel and interact with their surroundings. In the post-abnormal any communication media which can incorporate extended reality technology can be called as rich medium.

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