

EXPANSION OF SPACE IN METAVERSE COMMUNICATION AND ITS PROBABLE IMPACT

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Abstract: *The central and often overlooked aspect of communication is 'space'. Spatial distance between sender and receiver renders a significant impact on the communication process. The physical distance facilitates assessing the type of relationship the sender and receiver share within the society. Though this space-dependent analysis was prevalent in the post-war period yet with the advancements of the internet; this epistemological analysis faded. Through the seminal work of Edward T. Hall – 'The Hidden Dimension (1966)', the terminology and the concept of 'proxemics' entered into the lexicons of communication (Brown, 2001). The impact of the spatial distance varies with culture. Metaverse is the future of communication technology. It is the transformation of the web from a 2D to a 3D plane. Communication in the metaverse is through avatars. These avatars lead the communication process in a virtually constructed and defined space. The objective of this study is to find the possible impact of the virtual space on the future communication process. Since the metaverse is still developing, the resources of this study are based on accessible works of literature and articles in various periodicals. The insights gathered through this study are expected to be useful for further metaverse communication-related analysis and development.*

Keywords: *Proxemics, Avatar, Communication, Metaverse.*

Introduction

Neil Stephenson first penned the notion of the metaverse in his science-fictional novel – 'Snow Crash (1992)'. He showed a virtual world, where people represent themselves through a three-dimensional avatar, and lives there to escape the sufferings of reality (Huddleston, 2021). Almost 30 years later, the same concept resonated in the voice of Mark Zuckerberg, CEO & founder of Meta

(formerly Facebook). Metaverse plans to revolutionize healthcare, travel and tourism, education, work, sports & entertainment; i.e – all sections of life and livelihood. Metaverse had already arrived with Daler Mehndi's performance on metaverse; before this Justin Bieber, an eminent Canadian singer did the same (INC42, 2022).

As opined by Harrison et al. (1972) non-verbal communication plays a pivotal role in communication, it paves the way and structures all communication processes. According to Albert Mehrabian, the communication process is composed of 55% non-verbal, 38% vocal, and 7% lexicons (Permain Basin, n.d.). Space is one of the determinants of non-verbal communication. Edward T. Hall, known for his contribution to cross-cultural communication, also identified and analyzed the use of space in communication. He conceptualized the spatial factor under the term 'Proxemics'. Often the theory is known as the *theory of proxemics*. Human spaces can be classified into four distinct categories; namely – 'Public Space', 'Social Space', 'Personal Space', and 'Intimate Space' (Hall, 1971); all these classifications are based on the physical distance between the communicator and the receiver.

Metaverse is expected to transform the global communication phenomenon by 2026 (Gartner, 2022). As communication fosters and decides the future of society, it's high time to ascertain the future of society aligning with the metaverse. Communication in the metaverse is based on three-dimensional (3D) space. Presumably, the virtual spatial distance, between one avatar with another, is expected to impact the communication process. The degree of such impact certainly remains unrecognized as metaverse is yet to diffuse in society.



Objectives & Research Questions

Evaluation of the functional application of space by representational avatars of humans in the metaverse is the prime purpose of this study. Along with the prior intent, this study will both analyze and synthesize the theoretical understanding of the *theory of proxemics* in the upcoming age of metaverse. Also to provide prima-facial insights about the human relationships, disguised as an avatar, with one another using the 3D virtual realm. Since the metaverse is all about the future, this study will conclude by outlining the path of the appearing communication phenomenon.

This study will try to answer the following questions listed below:

- a) To what extent the ‘theory of proxemics’ can be applied to metaverse communication?
- b) What will be the probable impact of ‘space’ in metaverse communication?
- c) How does this virtual spatial distance affect the relationship between human beings?

Research Methodology

This paper will induce qualitative insights from the available works of literature and articles from various periodicals. Thus, content analysis methodology is ascertained for this study. To give a holistic view the content analysis must be undertaken in two separate segments – a) Conceptual Analysis and b) Relational Analysis (Berelson, 1952). The text and concepts will be broken down into manageable codes. This will facilitate the synthesis of the empirical findings with the framework. The content analysis differs from other types of research, it does not rely on individuals to provide data. It is the examination of data that has previously been recorded in social media, text, books, or any other physical or virtual medium (Clootrack, n.d.).

Literature Review

For instance, let's step into the future, imagine a technical educator, residing in Texas, of

mass communication and journalism, teaching camera skills to his/her pupil in India through the metaverse. No 2D screens, only a Virtual Reality (VR) headset, and with the help of Brain-Computer Interface (BCI) he/she is found to manipulate the avatar. The teacher and the pupils are present on the same virtual plane- the metaverse. Though the universe of Texas is miles apart from India, the metaverse will create a virtual universe beyond reality. The word metaverse is made up of two words - Meta means ‘beyond’ and Universe. Thus metaverse is all about creating a virtual universe beyond the physical universe.

There are three layers to the creation of metaverse – a) Interaction; b) Computation and c) Information. Interaction is all about hardware, i.e - the usage of Augmented Reality (AR)/ Virtual Reality (VR) devices (Deloitte, 2020). Computation of the analog stimulus through Artificial Intelligence (AI) or Machine Learning (ML) via 5G + Edge bandwidth (Deloitte, 2020). Information processing through blockchain technology, i.e the distributed ledger technology (Deloitte, 2020). To deliver an immersive experience, the AR cloud is recreating the physical world with the help of 3D modeling virtually (Roy, 2021). This initiates the development of Xtended Reality (XR) – the blending of reality and virtual reality (VR), Augmented Reality (AR), and Mixed Reality (MR) (Qualcomm, n.d.). The Internet is inherently global. The development of Web 3.0 – the metaverse will certainly globalize everything stretching the post-modern society to an unimaginable extent.

It is evident from the above literature that physical reality has a significant role in the metaverse. Communication in the real universe is influenced by space; theorized by Edward T. Hall. The knowledge gap remains with the classifications of spatial distance in web 3.0 and its impact on human communicators.

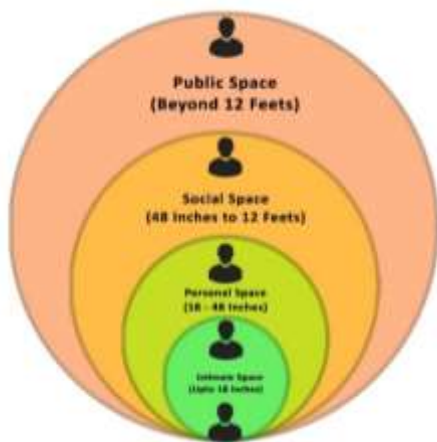
Content Analysis

Conceptual Analysis: Theory of Proxemics



Edward Twitchell Hall in *'The Hidden Dimesnison'* (1969) theorized the theory of proxemics. The structure of this theory was based on the human perception of space (Brown, 2001). He opined that although recognition of space arises from the basic human sensory receptor, it varies over culture. Intentional or unintentional application of space in communication can determine both the success or failure of any communication process (Hall, 1969). Though the book provided insights ranging from the anthropology of personal spaces to macro-level spaces, this study will only focus on personal spaces.

Hall's most remarkable innovation revolves around informal or personal spaces encircling any individuals. As opined by Hall (1969), the four zones of interpersonal distances are based on the culture of the west. It had proposed and measured the distance between two communicators in inches and feet. This space determines the human relationship (Brown, 2001). An *intimate relationship* can be determined if the distance between two communicators is within 18 inches. If the distance is between 18 to 48 inches, the relationship can be termed as *'Personal'*. *'Social relationship'* can be determined if the participants share a space ranging from 48 inches to 12 feet. If the distance between any participants in the communication process is beyond 12 feet then the relationship they share is *'Public'* (Hall, 1971).



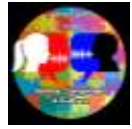
Diagrammatic Representation of Distance Classification: by Author

Conceptual Analysis: Cross-Cultural Communication

Elements of Non-verbal communication vary over culture (Kreuz & Roberts, 2019). Being an important element, of non-verbal attributes, of communication; the spatial distance varies over culture too. To evaluate this variation, Hall identified two major categories; namely – contact culture and non-contact culture (Hall, 1971). These are featured by the amount of contact allowed between communicators. Physical touching in 'contact culture' is not only permitted but also necessary to establish an interpersonal relationship (Social Mettle, 2020). On the other hand, physical touch is detrimental to the communication process, in a 'non-contact culture' unless the communicators are friends or family members. Middle-Eastern countries prefer relatively Lesser social distances than Western Countries (Kreuz & Roberts, 2019). Proxemics is also gender-specific in some geopolitically defined cultures. As reported by Kreuz & Roberts (2019). There are special cars used by women in Tokyo, Seoul & Rio de Janeiro subways so that they can avoid personal or intimate spaces with men.

Conceptual Analysis: Metaverse and Its Components

Three Dimensional: 3D means three-dimensional. It arises from expanding a two-dimensional (2D) image, consisting of only height and width, by depth. The basic purpose of the metaverse is to create immersive technology. Immersiveness originates from the three-dimensional presence of any matter in a virtual plane. Thus, metaverse technology is actively trying to transform the two-dimensional image of screens into a three-dimensional model of the virtual universe (Nvidia, 2021). The sole addition of the dimension of 'depth' initiates the expansion of space beyond reality.



Avatar: Users often upload their real images or design a 2D or 3D model of themselves for their profile, depending on the different virtual platforms. Simply said, an Avatar is a digital depiction of a person. This digital identity is unique to each individual and might be static or dynamic. In the Metaverse, an avatar works on the same principles as other online avatars (Sharma, 2022). An avatar is a user's identity over the whole virtual universe. Anyone can build and utilize an avatar in the Metaverse to the same degree as 2D avatars on other platforms. Meta is making its avatars as lifelike as possible. Rather than merely using facial nods to record movement, a Metaverse avatar will recreate the full person, including their body motions, to give the impression that they are there (Sharma, 2022).

The two categories of avatars that the metaverse is focusing on are - a) VR Avatar - The VR avatar, which is also the most often utilized by most virtual reality users, is one in which the user perceives the virtual environment via the eyes of the avatar. Other VR users will only see a restricted depiction of this individual in the avatar. Users will be able to see the VR avatar's entire upper body, but the lower body will be missing due to tracking limitations (Sharma, 2022). This also implies that your VR avatar will only be able to imitate your hand movements and not your lower limbs; b) Full Body Avatar - avatars with full bodies are more sophisticated. This avatar uses full-body sensor recognition to reproduce not just a user's hand actions but also their body movements. So, instead of merely using controllers as hands, the headset will identify and use legs as well (Sharma, 2022).

Virtual Universe: The metaverse is the replication of the physical universe in the virtual plane; i.e the mirror image of the physical universe (LEE, et al., 2021). The universe is all about space and time. Anthropologically, all that surrounds the human – the environment, architecture, events, family, and other constituents comprise the human universe. The metaverse is structured

by three-dimensional graphical creation of all those components that made up the human universe. The prototype of such a universe can be found in 'Decentraland' – a browser-based 3D virtual world platform. It has graphically created the residential and commercial spaces and avatars, and most innovatively, it also has its currency; i.e the economy of its own. Any user of metaverse can own a virtual land, build their establishment, serve the other users or sell their products through blockchain-assisted cryptocurrency (Decentraland, 2021).

Metaverse Communication: The communication capabilities of the metaverse are proposed to be rooted in the real universe. Secondly, the communication in the metaverse is not bounded by physical limitations; one can be present in multiple bubbles, under the same metaverse, and can communicate with multiple avatars at the same time. Thirdly, communication in the metaverse will be guided by moral and cultural values; with utmost priority given to privacy concerns. Thus communication with a friend in the metaverse will not be the same as public conversation -like the concert. Artificial intelligence will ensure that the communication norms of the real world are satisfied in the metaverse.

Relational Analysis

Real Universe and the Metaverse: Structural Relations - The real universe is made up of natural elements along with man-made establishments. The metaverse proposes to replicate the physical universe by using computer-aided designs (CAD) software or by using a more developed camera that supports 360-degree imaging. No metaverse, till now proposed, will be completely fictitious in its structure, but the only difference is they will add extra layers on the top of the existing physical universe. As in the games of the Grand Theft Auto series, the basic physical structure was the same as in the physical world; only the activities performed by the protagonist were beyond reality.



Avatars and Human Beings – In the real world, human beings are the primary communicators. The identity of the communicators is known to some extent to one or another. Whereas avatars in the metaverse are three-dimensional representatives of human beings, the physical presence as communicators is absent. There are two options available to the communicators in the metaverse. On one hand, they can remain anonymous or can disguise under any pseudo-identity and communicate. The other option is to use their same identity, as in the real world, to communicate in the metaverse.

Communication Process - The most basic model of communication consists of four elements, namely - Sender, Message, Channel, and Receiver. For interpersonal communication in the physical world, the sender creates a message and channelizes it through a medium to reach its prospect receiver. In the metaverse, the same phenomenon is replicated but within virtual limitations. Both the sender and the receiver are virtual representatives, in the form of an avatar. The message can be created in any language and transformed into the language of the receiver through artificial intelligence without any latency, if necessary. The medium is mechanical; generally, the VR headset or smart glasses.

Findings

The findings of this study are categorized, aligning with the pre-determined research questions.

Proxemics In Metaverse – From the above content analysis, it is quite evident that Metaverse will expand its structure on the pre-existing real physical universe rather than creating a completely new virtual reality. The metaverse will certainly use the established spatial classification of communication, theorized by Edward T. Hall, as its base structure. As these will facilitate the ultimate users -human beings to familiarise themselves with metaverse quickly. The only uncertainty remains with the possibility of altering the

basic structure of communication for the metaverse in the late future. To date, no such possibilities are found in any form.

Communication in the metaverse is mutually agreed upon by the avatars and the participating avatars are in the same metaverse plane. In the mutually agreed spatial distance, no differential perception of space, by each avatar, is expected to exist. Before the initiation of such communication, the metaverse bubble will be pre-defined by its participants. Even spatial transition, if any, can be experienced by all participating avatars. The theory of proxemics in this communication phenomenon presumably will apply.

Impact of Space In Metaverse - The spatial relations will help in providing the real-life experience to the ultimate human users disguised as an avatar in the metaverse. As mentioned earlier, this will act as the basic structure of the metaverse. The structure that human beings are familiar with and also the structure on which basis the metaverse will evolve. The recognition of space by the human senses, assisted by the innovative hardware and software, will help to establish the basic purpose of the metaverse – the immersive communication technology.

Metaverse is beyond any physical boundaries. A man residing in Japan can communicate with a citizen of Spain without traveling the globe. The creation of the space beyond the physical limit will create endless possibilities for cross-cultural communication. The avatars can synchronously communicate by using all technical aids that serve the purpose of communication. The creation of this virtual space is expected to eliminate the imbalances existing between the present information and trade exchanges.

Impact on Human Relationship - Humans are part of the basic structure of society. Communication is the basic unit of socialization. The metaverse can only extend the limit of the space and give an immersive feeling that the existing web 2.0 has failed to



provide. It is quite certain that society will change as the basic unit of society is changing.

Relationships among human beings will reach a new complexity. To ascertain, the actual relation between one human with another, one has to analyze separately the spatial relationship in real life and the relationship in the metaverse. From a spatial perspective, one might be seen sharing 'intimate space' in the metaverse while in the physical world they might be sharing 'social space'. For this instance, neither we can conclude that they had a complete intimate relationship nor a complete social relationship. This complexity and uncertainty will be hard to evaluate; thus exact relationship status will remain unknown completely to other individuals in the society, as well as to some extent even it will seem confusing to the participant communicators. A completely new form of relationship will likely evolve after the introduction of the metaverse. If seen from distance the relationship will be the same as the existing societal classification but if examined minutely the relationship could suggest a different story altogether; which is still unknown.

Cross-cultural communication and Metaverse- An inherently global medium like the metaverse; is built to facilitate cross-cultural communication. Though initially, cross-cultural communication is likely to face some hindrances from differential communication practices (especially related to the application of a space) yet with time the metaverse is expected to create a culture of its own. That will homogenise the spatial differences. Thus, in the long run, cross-cultural communication will be practiced in the best form possible.

Conclusion

Metaverse is an inevitable future of society. Classification of the spatial distance on the metaverse though seems to follow the *theory of proxemics* initially yet there is a huge possibility that this classification will change over time. Initially, relationships between human beings will probably be like a train

track. That consists of two parallel lines that never converge. One line will be the communicative channel in real-life and the other one is the metaverse platform. The presence of rail sleepers will always be there to show the difference between the two communication phenomena but in a blurred or indistinct form. Humans will be those trains that have to follow both the communication line, paved by technological innovation – the metaverse and basic social structure – the physical world, to function. But will hardly be able to choose any one line of communication to live with. In the late future, metaverse will evolve itself to become the only mono track for humans to deal with.

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