

Embodiment Characteristics of the Metaverse from the Perspective of Phenomenology of Perception

Sun Zhipu

School of Journalism and Communication, Shandong Normal University, Jinan, China
sunzhipu2001@163.com

Abstract: *"The research on the 'Metaverse' gained significant attention in the field of communication studies in 2021. Its technological foundations have presented an emerging trend towards a rediscovery of the significance of the body. Under the influence of new communication technologies, the importance of the body in future communication patterns may become increasingly prominent. Understanding the intricacies of the body is essential for the development of communication studies. This article revisits the concept of the body mentioned in Merleau-Ponty's phenomenology of perception and argues that our understanding of the body should transcend constraints of empiricism and return to a unified phenomenological perspective encompassing the body-mind-environment relationship. Through an analysis of the two fundamental bodily activities of perception and behavior, this article explores how the Metaverse extends human perception beyond traditional media, constructs new social and cultural dimensions, and highlights the need for further attention to the variations of the body in different communication contexts.*

Keywords: *The Metaverse; Embodied Communication; Phenomenology of Perception Merleau-Ponty*

1. Introduction

"Communication is about spiritual interaction and engagement, fundamentally unrelated to the body." The trend of de-embodiment (also known as disembodiment) in mainstream communication studies has long been evident in mass communication, which represents an unverified and unquestioned basic assumption in this field. Mainstream communication studies, primarily focusing on mass media practices, perceive the body as a barrier that needs to be overcome.[1]

However, with the development and maturation of technologies such as biometric quantum chips, VR/AR, and digital twins, people's "bodily participation" has been stimulated. Wearable devices enable human-computer interaction and interpersonal interaction in virtual reality scenarios. These devices can integrate multiple types of information, allowing for direct collection, storage, playback, transmission, and analysis of information without the need for external devices. Furthermore, holographic technology and haptic feedback technology apply interactive feedback from virtual space to the physical body in "zero-latency," allowing for a reexperiencing of the communicative aspects of the "body-centric" era. [2]Faced with the changes brought about by the "return of the body," many scholars have reevaluated the relationship between the body and communication and reflected on the issue of bodily neglect within traditional research paradigms.

Some scholars refer to this parallel form of the body existing alongside physical space as the "technological body" or "quasi-body." This concept also signifies the embodiment of the "cyberspace avatar," which is not a mere replica of the physical body. Different media platforms entail different forms of bodily participation, and the characteristics of the quasi-body also vary. We attempt to find a specific context for discussing this quasi-body. For some scholars, the important features of the metaverse include scenarization, bodily participation, virtual identity, immersive social interactions, game interactions, and emotional experiences. These features are believed to reflect the demand for and embodiment of communicative practices influenced by technological environments, where real space and virtual scenes intertwine, and physical bodies merge with virtual identities.

In the face of emerging media such as the metaverse, we need to address a series of questions: How can we incorporate the body into communication research? What are the characteristics of the body in the metaverse? What significance does this body shaping hold?

2. How to Perceive and Understanding the Body

The phenomenology of perception, as explained by French philosopher Maurice Merleau-Ponty, provides the earliest systematic interpretation of embodiment as a concept in research. Through introducing the notion of "corporeality," Merleau-Ponty categorized human subjectivity of human existence as "the active engagement of a living organism with the world through the unique physiological structure of the human body." [3] In doing so, he integrated the concepts of body/mind, internal/external, and almost all other binary oppositions. He believed that the mind, body, and world form an inseparable circular system, with the human body occupying a central position within these relationships. Thus, the body is not merely a mechanical entity or a disembodied mind. The human body is a necessary condition, and individuals rely on their bodies to participate in social construction as subjects. With this in mind, we can use the foundational principles of phenomenology to understand and define embodiment within metaverse communication.

2.1. Embodiment in Phenomenology of Perception Merleau-Ponty

Behavior and perception are the most fundamental activities of embodiment. By exploring Merleau-Ponty's explanations of these two activities, we attempt to understand the characteristics of the body. [4]

Empiricist schools of psychology and physiology often regard behavior as an actual event-based activity. They mostly revolve around simple models of "stimulus-response" without escaping the tone of "realism." However, behavior should be seen as a "form" or "structure," different from the concept of "form" in gestalt psychology, where "form" refers to a perceptual object rather than an actual phenomenon. By considering the body and the environment as a dialectic, both are integrated into a process of interactional structuration.

To better understand what behavior is, it must be linked to perception. According to Merleau-Ponty, form is an elusive combination of "concepts" and "existential structures." that exists between spontaneity and selfhood. It represents a "know ability" that is in a state of birth, which can be perceived through perceptual consciousness. Perception, unlike empiricism's "sensation," cannot completely correspond or reduce any structural presentation to a specific impression of the perceiver.

Any perceptual activity is based on the "field," and perceptual consciousness possesses "authenticity." A genuine perceptual phenomenon appears before objective relationships and comprises a sequence of perceptual experiences with sensibility. For example, vision, based on "authenticity," is not just the ability of the body to capture and process light in the common sense; rather, the subject of perception is a capacity that emerges simultaneously with or is co-originated by a certain environment, where observing this behavior is not about objective stimuli or intentional agency but a neutral, completely open "communication." In this sense, all perceptual objects in the field of perception, such as visible things, are a natural "bestowal."

Merleau-Ponty also stated, "If I want to accurately express the experience of perception, then I should say that it is someone perceiving within me, rather than me perceiving." Scholars interpret this "someone" as referring to ancestors' experiences, indicating that the perceived phenomena do not belong solely to pure existence. "As I see it, it is a part in my personal experience and perception is a form of reconstruction that must rely on pre-existing sedimentation within my body. As a perceiving subject, I am filled with a natural ability that initially surprises me." This also indicates that the formation of perception is constrained by social, cultural, and historical aspects. When examining such perception from the perspective of the perceiving subject, it possesses inherent nature (i.e., the perceived object exists within the perceptual system), but it goes beyond the scope of what is known. The same applies to the perceptual field, which unfolds around bodily movements. Perception integrates the perceived object into the phenomenon while extending its existence to the limits of human perception.

Based on whether the structure of behavior becomes immersed in the specific content of the surrounding environment or emerges as an independent theme above the environment, Merleau-Ponty distinguishes three forms of behavior in more detail: chaotic states, variable forms, and symbolic forms.

Firstly, chaotic state behavior refers to a state where the organism is completely fused with the environment, and "behavior is entirely confined to the range of its natural conditions." The body only exhibits a passive "organic state."

In variable form behavior, the organism gains relative independence, and once it grasps the structure of behavior, it can apply it to similar situations. This enables learning, resembling the "S-O-R" model of

classical behaviorism (taking organism's agency into consideration).

The final form is symbolic behavior, which is unique to humans. In this case, the body best embodies subjectivity—the connection between behavior and the environment goes beyond the "S-R" or the "S-O-R" response patterns of classical behaviorism. Humans can construct a linguistic and cultural world based on the first two forms of behavior. The changes and extensions of bodily intentionality occur in different mediated environments.

2.2. The Precondition of Embodiment

The first step in having a body is to possess bodily intentionality, where an "intentional arc" projects an image onto the body's body-schema. It represents the body's interactive practice with the world, taking on postures when faced with actual or potential tasks. The fixed nature of this schema within the body signifies the ownership of a body. Additionally, there exists a network-like connection between the senses that constitute perception. Sensation itself is a form of "synesthesia." From the discussion of behavior and perception, we can also observe that a body interacting with the environment is one that unifies the mind and body. The mind and body are not separate but rather conceptually relative, varying with the order system corresponding to different behaviors. Furthermore, we recognize that the body is a unity of perception and kinesthesia. It not only serves as a "receiver," but also perceives the existence of objects and is capable of perceiving their presence.

3. The Body in the Perspective of Media Communication

The media environment school starts from the characteristics of different media to study the profound social impacts generated by changes in the media environment[5]. It argues that "media is environment" and "environment is media." Building upon the concept of "meta-media," it advocates dividing the environment into three levels: symbolic environment, perceptual environment, and social environment (multi-medium environment). Based on this categorization, we divide the environmental forms of the metaverse into two levels: the meaningful environment and the actual environment.

The actual environment refers to the tangible surroundings in which individuals receive media information. It can be divided into two parts based on its impact on the communication of meaning: the media itself and the physical environment in which individuals interact with the media. This includes the physical space where behaviors occur (physical field) and the physiological aspects related to the body and its mechanisms (physiological field).

The meaningful environment, relative to the actual environment, encompasses the overall space of meaning covered by media within the socio-historical context. It includes the portion that can be represented through symbols, which requires social construction. Additionally, it consists of non-symbolic parts that are perceptible but not necessarily represented symbolically, as well as aspects that surpass human perceptual limits (as previously mentioned, the foundation of perceive ability is socially and historically constructed). This forms a mental field where behaviors take place within the sociocultural realm.

Table 1: Differences in Body Engagement between the Metaverse and the Internet

	Internet	Metaverse
Symbolic Form	Data-based flat audiovisual products	Realistic scene reproduction under digital twin
Meaning Space	Specific symbol systems	Cyberspace environment
Physical Field	Physical space	Physical space + virtual space
Physiological Field	Physical body and its innate physiological mechanisms	Physical body and its innate physiological mechanisms
Mental Field	Internet culture construction	Metaverse culture construction
Perceptual Field Range	Range of perception in external interaction through devices and media	Range of perception in external interaction through devices and dual perceptual system within the media's intrinsic environment
Mind-body Relationship during communication and action	Mind-body intentionality is greatly restricted (non-natural conditions)	Mind-body intentionality is less restricted (closer to natural conditions)

Examining the communicative environment constructed by media in these two levels helps to address the lack of comprehensive understanding of the overall environment in research. Building upon this foundation, the author further explores the changes in communication characteristics and the mind-body relationship introduced by the incorporation of the body in the metaverse.

Comparing the internet with the metaverse, we can easily identify the features of bodily participation presented in the metaverse.(Table 1)

3.1. Embodied Foundation of the Metaverse: Unity of Body Intentionality and Mind-Body-Environment

When examining the intentionality of the body in the physical environment, its expression is complete. However, we cannot say that individuals are embodied in the specific media space where communication behaviors occur. The media space refers to the part of the actual environment where the media itself exists, forming the meta-field of information exchange. For example, in traditional print media such as newspapers, their media space is limited to the newspaper's layout and its extended perceptual field. From this perspective, traditional media cannot provide an environment similar to "reality," and the expression of intentionality based on the structure of reality cannot be completed in the media environment. At the same time, the bodily experience provided in this media environment is different from the bodily experience in reality. Therefore, people need to seek "verification" to prove the "applicability" of the bodily experience provided by the media, leading to a sense of "anxiety." From this perspective, the author does not consider communication behaviors in the traditional communication field as "embodied."

In contrast, the metaverse creates a new cyberspace environment. In metaverse communication, individuals traverse between two parallel sets of bodily forms - avatars and physical bodies. In the parallel cyberspace, bodily experiences can be transferred. When the cyber body closely approximates the real body, the perceptual structure in the cyberspace is indistinguishable from reality. However, the physical environment in which the devices are worn also provides perceptual cues, resulting in some perceptions occurring in the body. Thus, within the realm of communication, the mind-body-environment unity is achieved, making it embodied.

3.2. Expanded Perception and Perceptual Contradictions

Regarding the examination of chaotic behavioral order, the reactions brought about by traditional media occur outside the media space. The media carrier acts as a perceptual object that constitutes the organism's stress response. For example, when watching a horror movie, the audience's startle response occurs in the real world when frightening images appear. On the other hand, the perceptual field in the metaverse occurs within the cyberspace, where the perceptual object is not the media itself but the behaviors caused by things in the media space. This expands the range of perceptual behaviors mediated by the media.

Perceptual experiences are expanded in the metaverse. In the stage of fully replicating reality through cyber digital simulation, there are two levels. From a vertical comparison of technological development, the visual and sensory presentations in the metaverse are only "like reality," and the body is also only "like a body." This means that we are aware that the environment we are in is "unreal," and therefore, the perceptual experience is different from reality. The body and environment are based on the perceptual experiences of real people, so they cannot completely replicate the real scene. Additionally, perception still relies on the real body, and the perception of virtual bodies comes from the endowment of the "mental field" and the physical foundation. This unique nature of the cyberspace brings about more rich perceptual experiences. Horizontally, the metaverse can present an imaginary reality by shaping imaginative elements within the cyberspace, enriching the range of perceptual objects.

In environments that have not yet fully replicated the real world, the link between these two different embodiments is still the physical body. The interaction effects of the cyberspace still act on the physical body. However, data analysis and presentation deviations may lead to different behaviors in the cyberspace compared to the real space. This contradiction may cause changes in bodily intentionality and transcending perceptual experiences.

3.3. Constructing a New Mental Field

Although the cyberspace is parallel to the real space, it also shapes different bodily experiences and

may be constructing a parallel "mental field" distinct from the real world. In the movie "Ready Player One," players can enter the virtual reality "OASIS" disguised with a hidden identity, gender, appearance, and wealth, allowing for real-time transformations and disguise of avatars. This is a new institutional framework in the cyberspace, different from ethical norms in the real world.

The emergence of the question is the return of the body

4. Conclusions

The starting point of our understanding of the body should perhaps return to human development. Future communication media should not only be tools for efficient information delivery but also platforms and environments for constructing and developing individuals. Phenomenology of perception suggests that we should develop from a perspective of "unity of mind-body-environment," transcending the paradigm of empiricism and expanding our understanding of human beings.

In our analysis, we see a "flowing body" in the metaverse, moving between real space and cyberspace, navigating through physical fields, physiological fields, and mental fields, shaping different behaviors. This makes the already neglected issue of the body in communication studies even more complex. Future research needs to not only consider the body but also explore the connections between different bodily forms and the relationship between the body and the environment.

References

- [1] Sun Wei. (2018). *Communicator's Bodies: Communication and Presence--Evolution from Consciousness Subject Body-subject to Intelligent Subject*. *Chinese Journal of Journalism & Communication* (12), 83-103.
- [2] Liu Mingyang, Wang Hongkun. (2019). *From "Embodied Mediation" to the Transformation of "Quasi-Embodied Mediation" in Media Ethics*. *Shanghai Journalism Review* (05), 75-85.
- [3] Merleau-Ponty. (2001). *Phenomenology of Perception*. (Jiang Zhihui, Trans.). Beijing: Commercial Press.
- [4] Zhang Yaojun. (2004). *The Embodiment of Metaphor: Merleau-Ponty's Phenomenological Study of the Body*. Published doctoral dissertation, Zhejiang University, Hangzhou, Zhejiang.
- [5] Li Mingwei. (2008). *The Theoretical Analysis Framework of the Media Ecology School*. *Journal of Beijing Institute of Technology (Social Sciences Edition)*, 3-6+10.