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Research on the Reshaping of Social Interaction Mode and Philosophical Review by Science and Technology in the Digital Age

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Abstract: *The iterative development of digital technology has profoundly reshaped the mode of social interaction, promoting its migration from embodied interaction to screen-based communication and from physical fields to digital interfaces. This study analyzes the systematic reconstruction of communication modes, spaces, rules, and relationships through technical logic, examining the dimensions of ontology, epistemology, value theory, and views of space-time. It highlights alienation phenomena such as emotional flattening, cognitive isolation, and identity crisis in digital communication. The research suggests that it is essential to establish a symbiotic framework that encompasses technical ethics, social governance, and individual practices. This framework should strike a balance between practical reasoning and humanistic values to promote the healthy development of communication methods in the digital age.*

Keywords: *Digital Technology; Social Communication Mode; Technology Remodeling; Philosophical Review; Digital Alienation*

1. Introduction

1.1 Research Background

In the 21st century, digital technologies such as the Internet, big data, and artificial intelligence have accelerated the pace of change, pushing society toward a digital transformation in all aspects. By 2025, the global Internet popularity rate is expected to exceed 70%. Digital media such as social media and instant messaging deeply reconstruct the logic of human communication: the traditional way relying on the face-to-face interaction and body contact, it gradually gives way to symbolic communication mediated by the screen; The closed communication network based on geography and consanguinity was disintegrated and reorganized by the algorithm-driven open social platform. Technological changes not only improve the efficiency of cross-cultural connections but also cause new dilemmas such as emotional alienation, cognitive cocoon, digital identity anxiety, and so on. In this context, the transformation of social communication driven by digital technology has gone beyond mere technological application. It now encompasses intensive research into philosophical dimensions such as ontology and epistemology, which urgently requires a systematic theoretical analysis [1].

1.2 Research Significance

In the digital age, technology has important theoretical and practical value in reshaping social communication. On the theoretical level, the research integrates the perspectives of philosophy of technology, sociology and ethics, breaks through the dependence of traditional communication theory on physical space, provides a new framework for analyzing the evolution of human existence in digital communication, promotes the construction of the theoretical system of "philosophy of digital communication" and fills the theoretical gap of technical instrumentalism analysis. On the practical level, the problems of emotional alienation and cognitive deviation caused by digital communication require an urgent theoretical response. Therefore, the research will provide support for formulating ethical norms of digital communication and optimizing algorithm governance strategies, offer practical guidance for individuals to maintain subjectivity in both virtual and real communication, foster an inclusive digital ecology, and facilitate the coordinated development of technology and people.

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1.3 Definition of Core Concepts

1.3.1 Science and Technology

Science and technology are a systematic knowledge system and a practical tool for human beings to understand and transform the world. In the digital age, it refers to a technology cluster centered on digitalization and intelligence. Its scope includes the Internet, big data analysis, artificial intelligence algorithms, VR/AR, and blockchain. It constructs a digital ecology of human-computer interaction through data processing and network transmission. Unlike the expansion of traditional technology into the physical world, digital technology focuses on the coding, storage, and operation of information, forming a technology that blends virtual and reality [2]. It not only promotes social development as a productive force but also reshapes the logic of human cognition, life, and communication as a medium, becoming the core variable to analyze contemporary social changes.

1.3.2 Social Communication Mode

Social communication mode refers to the stable behavior framework and relationship formed through human interaction, encompassing mode, space, rules, and relationship structure. The traditional model is based on face-to-face interaction in physical space, relying on tangible media such as language and expression, and restricted by realistic ties such as geography and blood relationship. The mode of the digital age relies on digital media to facilitate symbolic interaction, exhibiting the characteristics of de-contextualization: the scene shifts from physical space to digital interface, the rules shift from vulgar ethics to code logic, and the relationship network expands from a closed circle to an open connection. This model encompasses both individual information transfer and the establishment of group consensus, and its development signifies a profound transformation in the way humans exist socially due to technology [3].

1.3.3 Digital Transformation

Digital transformation refers to the systematic structural changes caused by the infiltration of digital technology into all aspects of social communication. It is not a mere application of technology, but a reconstruction of communication: In terms of mode, it converts physical interaction into data transmission. Spatially, it dismantles the limitations of the physical field and constructs a virtual topology. Regarding rules, part of traditional ethics is substituted with algorithmic programs. Relationally, it blurs the boundary between strong and weak connections. In addition, the transformation is bidirectional because technology not only meets the needs of communication, but also affects the purpose of communication in turn. For example, traffic algorithms promote attention communication, and data protocols redefine communication boundaries. Its essence is the ontological reconstruction of human communication practice by digital technology as a new social transcendental condition.

2. Digital Technology Reshapes the Mode of Social Interaction

2.1 From Face-to-Face to Screen-Based Communication

Traditional social interaction is based on face-to-face interaction, which involves the physical presence of the body. Embodied media, including language, expression, and body movements, constitute a complete chain of emotional transmission. The interaction process is characterized as real-time, situational, and holistic. Digital technology changes the way we communicate by turning face-to-face interactions into screen-mediated and symbolic exchanges. Instant messaging technology enables cross-temporal connection through text, voice, and emojis. Still, it lacks nonverbal information, such as tone and eye contact, that are present in face-to-face communication. The short video and live broadcast platform breaks down the communication scene into fragmented visual symbols, and interaction is simplified into standardized operations, such as likes, comments, and sharing. While virtual reality technology aims to simulate the sense of embodiment, it substitutes physical presence with data modeling, which diminishes emotional resonance [4]. To sum up, while improving efficiency, screen-based communication is also alienated by mediatization: even though people can stay connected in real time, many issues still arise from their absence. Emotional expression tends to be formalized, and the technical interface eliminates the possibility of deep communication.

2.2 From the Physical Field to the Digital Interface

Traditionally, communication space is strictly restricted by geographical distance and place function.

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Geographical proximity is a basic condition for establishing relations. Physical spaces, such as cafes and community squares, serve as platforms for social functions of public communication. Digital technology creates a de-geographical communication interface through network protocols. Social media is connected by nodes into a hyperspace network, allowing users to interact with any node in the world in real-time, thereby eliminating physical distance as an obstacle to communication. Moreover, the algorithm recommendation mechanism filters information according to interest tags, forming a stratospheric communication circle layer that replaces the traditional communication network based on regions [5]. Anonymous platforms, such as forums and encrypted social networking sites, conceal the user's real identity, transforming the communication space from its physical presence to a virtual scene defined by code. Spatial transformation breaks the geographical limitations of past communication. Nevertheless, it also induces anxiety—people become lost in subjectivity due to the overwhelming amount of information and constant scene switching in the endlessly expanding virtual space.

2.3 From Conventional Specification to Code Logic

Traditionally, social communication relies on established ethical norms to maintain order, including flexible constraints such as etiquette habits, moral norms, and community consensus, and communication responsibility is directly bound to one's real identity. Digital technology transforms communication rules into computable code programs. Data privacy protocols, such as the GDPR, redefine communication boundaries with technical terms, and users must click "agree" to transfer some of their data rights. Second, the traffic algorithm determines the content weight based on quantitative indicators, such as forwarding volume and stay time, so technical mechanisms, including hot search and recommendation, replace the logic of public opinion screening. In addition, the virtual identity management system allows users to create multiple digital avatars, and the relationship between communication behavior and responsibility is weakened, which breeds anomie behaviors such as cyber violence and privacy invasion. The logic that code is norm makes the rules of communication change from ethics to external technical enforcement. Technical rationality supersedes value rationality, leading to a lack of a humanistic scale in digital communication.

2.4 The Expansion from "Strong Link" to "Weak Link"

Social communication is centered on strong connections such as kinship, geography, and career, and the relationship is based on long-term interaction and emotional resonance, characterized by stability and deep trust. Digital technology promotes the large-scale expansion of weak links: the friend mechanism on social platforms makes the cost of establishing relationships close to zero, and users can have hundreds or even thousands of weak connections, but most relationships stay in information exchange; Community communication, such as WeChat group and Discord server, aggregates members with interest tags to form temporary intimacy, but it isn't easy to develop into deep emotional connection. The popularity of human-computer interaction, such as dialogue with an intelligent assistant, makes social-like relationships possible, further diluting the uniqueness of interpersonal interaction [6]. In short, although the expansion of weak links has expanded the channels of information acquisition, it has led to relationship inflation: people are trapped in group loneliness in massive weak connections, the emotion of strong connections diminishes because of these weak ties, leading the emotional aspect of communication to give way to instrumental rationality.

3. A Philosophical Perspective on the Reconstruction of Digital Communication

3.1 Concept of Existence

The remolding of communication modes by digital technology has essentially triggered an ontological change in human existence. In traditional communication, the body, as the foundation of existence in the world (Heidegger), confirms the authenticity of existence through embodied interaction. Digital communication transforms people into a digital form—the avatar of a social platform, the modeling of virtual space, and the behavioral data generated by algorithms constitute the representation of existence, and the necessity of physical presence is eliminated. Merleau's theory of embodied cognition points out that the body is the medium through which the world is recognized. The absence of the body in digital communication leads to the rupture of existence: people experience dual existential anxiety in screen-based interactions, relying on digital identity to gain social identity, and feeling the nothingness of self-essence due to the fragmentation of digital existence. The displacement of ontology

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renders the philosophical proposition of "who am I" to be about how data defines me, and technical logic oversteps the subjectivity of existence [7].

3.2 Cognitive Theory

Digital communication reconstructs the mechanism of cognition and consensus formation among subjects [8]. Habermas's theory of communicative rationality emphasizes that ideal communication should aim at understanding, but digital technology promotes the penetration of instrumental rationality into communication. Algorithmic recommendations can lead to information acquisition becoming a cognitive cocoon, and communication becomes a tool to reinforce existing prejudices. The fragmented expression of real-time communication weakens the critical thinking ability, and emotional symbols replace propositional argument. Moreover, the anonymity of virtual identity leads to decentralized cognition, and the formation of consensus no longer depends on rational debate. It is still influenced by quantitative indicators such as traffic and likes. The shift in epistemology has created difficulties: on the one hand, information overload tends to make cognitive judgment superficial; on the other hand, in digital communication, intersubjectivity is alienated into data interaction, and the authenticity of cognition is obscured by symbolic interaction. As a result, the possibility of human beings obtaining truth through communication is eliminated by a technical intermediary.

3.3 Theory of Value

The technical logic of digital communication and the tension of humanistic values constitute the core topic of contemporary axiology. Scheler's value ethics posits that emotions are the primary carriers of value. At the same time, digital communication simplifies emotional interaction into computable symbolic operations: giving a like is quantified as emotional identification, and forwarding content replaces deep resonance, resulting in the deconstruction of the emotional value of communication. The significance of anomie in technological empowerment is evident: the transfer of data privacy transforms communication boundaries into products of technological contracts, and data benefits supplant the value scale of individual dignity. Cyber violence often escapes moral responsibility through the use of virtual identities, highlighting the inadequacy of ethical responsibility in a technological environment. This conflict pertains to the tension between technical efficiency and humanism. When communication behavior is reduced to mere data transmission and algorithm matching, human values are increasingly overshadowed by the instrumental value of technology.

3.4 Space-Time View

Digital technology fundamentally reconstructs the way human beings experience time and space. McLuhan's global village theory has evolved into real-time space-time compression in contemporary times: instant communication breaks the restriction of geographical distance on communication, global interaction can be completed in an instant, and the continuity of linear time is disassembled into parallel fragment nodes by multitasking. Additionally, the cyberspace constructed by virtual reality technology replaces the three-dimensional coordinates of physical space with data topology, and the space production mentioned by Lefebvre is redefined by technical code; communication space is no longer a container of social relations, but a product of algorithm programming. The change in space-time view leads to double alienation. In the temporal dimension, the technical requirements of real-time response cause individuals to fall into a persistent anxiety of presence. In the spatial dimension, the infinite extension of virtual interfaces leads to a crisis of spatial identity, causing people to lose their connection to physical places in both the virtual and real worlds.

4. The Influence and Reflection of Digital Communication Mode

4.1 The Communication Expansion of Technology Empowerment

Digital technology provides unprecedented empowerment for social interaction. Cross-cultural communication breaks through geographical and language barriers. Relying on instant translation and international social platforms to realize a low-cost global connection, the efficiency of information flow between different civilizations has been significantly improved. Moreover, technology has created a communication empowerment channel for vulnerable groups. People with disabilities overcome physical limitations through voice interaction and visual aids, gaining equal social participation rights. Groups in

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remote areas integrate into a broader social network with the help of network platforms, reducing the negative impact of geographical isolation. Technological empowerment expands communication possibilities, turning inclusive communication from concept into practice and reinforcing the foundation of fairness in social connections.

4.2 The Alienation Characterization of Digital Communication

4.2.1 Emotional Alienation

Digital communication simplifies emotional interaction into symbolic operations, and standardized feedback, such as emoticons and likes, replaces emotional resonance in face-to-face communication. People become flat in high-frequency, shallow interactions, and deep emotional connections are deconstructed by flow logic: The focus of communication behavior tends to be on data, such as likes and comments, rather than genuine emotional experiences. This alienation can result in emotional flooding, causing individuals to gradually lose the authenticity of their emotional expression while trying to maintain a digital image.

4.2.2 Cognitive Alienation

The information cocoon built by the algorithmic recommendation mechanism creates a closed loop, strengthening inherent cognition. Individuals become entrenched in their views within homogeneous information circles, which can lead to weakened critical thinking. Debates turn into confrontations of opinions, and consensus relies more on social influence than on rational argumentation. In addition, the fragmented communication style diminishes deep thinking abilities, replacing the cognitive process of forming lengthy, logical sequences with the quick and straightforward consumption of information. This shift fosters superficial emotional transformations in cognitive capacity.

4.2.3 Existential Alienation

The variety of digital identities contributes to an identity crisis. Individuals create distinct digital avatars on various social media platforms, leading to a fragmentation that separates their real selves from their digital selves. As virtual communication becomes the norm, people increasingly rely on technical feedback to affirm their value, finding themselves defined by data. In doing so, we can avoid the subjectivity of existence being overwhelmed by technology.

4.3 Constructing the Symbiosis Framework of Technology and Humanity

4.3.1 Technical Ethics

To establish the ethical bottom line of digital communication and promote the transparent design of algorithms and data privacy protection mechanisms, technical developers need to embed humanistic value orientation in the program architecture, such as setting the ethical threshold of content review, establishing the algorithm deviation correction mechanism, balancing instrumental rationality and value rationality in the source of technical design, and avoiding the technical logic from surpassing the essence of communication.

4.3.2 Social Governance

It is necessary to improve the governance system of digital communication and standardize the platform responsibilities (such as user data usage boundaries and cyber violence accountability mechanisms) through policies and regulations. At the same time, it is suggested that we promote the popularization of digital literacy and education, cultivate the public's critical understanding of technical logic, guide society in establishing digital communication norms that consider both efficiency and humanistic care, and strengthen the value-leading role of public communication spaces.

4.3.3 Individual Practice

To advocate for the return of technology embodiment, individuals must actively balance online and offline communication, remain aware of emotional authenticity in digital interactions, and avoid being swayed by flow logic. Through conscious, deep communication and embodied interaction in physical spaces, we can maintain genuine relationships, adhere to the subjectivity of existence in digital environments, and achieve the coordination and unity of technical applications and humanistic experiences.

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5. Conclusion

It has become an irreversible trend for science and technology in the digital age to reshape the social communication model. Technology not only transforms the format of communication but also undermines the philosophical foundations of human social existence, shifting from face-to-face interaction to screen-based symbolic communication and from the physical world to digital interfaces. At the ontological level, the substitution of digital incarnation for embodied existence leads to a crisis of self-identity. On the epistemological level, the algorithm cocoon dispels the foundation of communicative rationality. At the level of axiology, the influence of technical efficiency on emotional quality exposes the dilemma of digital civilization.

In essence, remodeling requires transcending the criticism of instrumental rationality and establishing a new philosophical paradigm for digital communication: it is necessary to recognize the communication expansion brought about by technological empowerment, such as cross-cultural connection and empowerment of vulnerable groups, and to reflect on the subjectivity of guardians with ontology to avoid being completely alienated by data logic. In the future, we should focus on fostering a harmonious relationship between technology and humanity by emphasizing technical ethics, social governance, and personal practices. Our goal is to ensure that digital technology serves as a tool for enhancing communication, rather than becoming a restraint on human nature. This process is a philosophical response to digital civilization, and it also explores the ultimate proposition that "technology is created for humans."

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