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Communication in the Metaverse

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Preface

Divided into 10 chapters, this book provides a detailed account of the role of communication in the metaverse. Chapter 1 is an introduction that addresses the five objectives of this monograph: How examining the metaverse (1) enhances our understanding of human communication, (2) explains new ways of expressing one's identity, (3) shows that it is not a utopian space for communication, (4) highlights humans' creativity, and (5) poses multiple threats to humankind nonetheless. Then, the authors describe three other books that are competitors in the domain of the metaverse. Chapter 2 provides both historical and contemporary definitions of the metaverse, as well as descriptions of augmented reality (AR), virtual reality (VR), mixed reality (MR), and extended reality (XR). Then, the authors proceed to explain the three broad objectives for the development of the metaverse: (1) Using artificial intelligence (AI) to a new level, (2) mimicking offline everyday life experiences, and (3) enjoyment. What comes subsequently is an argument about the requirements for fully immersive VR, including its 12 essential features. Chapter 3 offers a general description of communication in the metaverse, with a particular emphasis on interpersonal communication, intercultural communication, and health communication. The second half of the chapter addresses the notion of social presence in the metaverse. Social presence refers to the subjective experience of communicating in one space or environment, notwithstanding the fact that one is physically "located" in another.

Chapter 4 addresses the processes of social construction of meaning, ideas about physical reality, the rules for daily communication, and our self-concept/identity in the metaverse. An important premise is that, even in VR, discourse is socially constructed and gives insight into the language used in different contexts. The end of the chapter addresses self-presentation strategies employed by metaverse inhabitants to construct their personas, including impression management strategies and the creation of avatars. Chapter 5 focuses on nonverbal communication in the metaverse, including body language, emotional expressions, facial expressions, and the voice. Of equal relevance are channels of feedback (on the part of receivers), avatar manipulation, and deep synthesis/deepfakes. The chapter ends with a discussion of emoticons and emojis.

Chapter 6 emphasizes interaction, collaboration, and training in the workplace. The main gist is that the metaverse is an environment for a vast array of joint human endeavors through work collaborations (e.g., interacting with co-workers, having business meetings), in addition to individual workloads. Certain sections highlight digital twins and workplace training for millennial employees. Chapter 7 is about education in the metaverse: immersive technologies increasingly play a large part in learning and teaching, especially with the exponential rise of AR, VR, MR, and XR hardware and applications over the past few years. A significant portion grapples with digital literacy. The end of the chapter applies Social Cognitive Theory (SCT) to learning and teaching in the metaverse.

Chapter 8 tackles deception in the metaverse. After a section defining fake news, misinformation, disinformation, conspiracy theory, and selective exposure theory, other sections cover the theory of weak ties and moral panic theory. The last part of the chapter is an account on social engineering, a term encompassing for a wide range of malicious activities undertaken through human interactions. Chapter 9 addresses other problems in the metaverse: privacy concerns, surveillance, and hate speech. For example, six categories of privacy concerns illustrate how dangerous the metaverse can be: (1) Context collapse, (2) privacy leakage during data transmission, (3) privacy leakage during data processing, (4) compromised or rogue end devices, (5) unlawful monetization of data, and (6) stalking. With respect to surveillance, a case study on China sheds light on how threatening the monitoring of public opinion can be. And targets of hate speech in the metaverse tend to be minority groups as targets.

Chapter 10 is a discussion and a list of detailed suggestions for future research. The main conclusion of this book is that communication in the metaverse rests on four principles. As such, the metaverse is (1) a complex interactive environment, (2) a socially shaped environment, (3) a controlled media environment, and (4) a disruptive innovation. The latter principle, disruptive innovation, can be broken down into four categories: disruptive communication, a higher capacity for deception, social engineering, and privacy concerns and surveillance. *Apropos* future directions for research, we offer solutions regarding communication in the workplace and reducing the digital divide.

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Chapter 1
Introduction

This book explores the diverse methods and facets of communication in the metaverse, from interpersonal relationships to health communication, and from collaboration in the workplace to social interaction in educational contexts. More specifically, the aim is to analyze the profound interplay between the metaverse and the larger communicative context in which it is entrenched. In this manner, this work concentrates on the interlaced factors underlying its origins, development, actualization, and popularity, as well as the fundamental discords, uncertainties, and dangers that can have serious consequences on both society and the individual. To date, no major volume on communication in the metaverse has been published. The few books on similar subjects focus on technical communications that are based on software or computing networks, and on strategic communications for military or defense agencies.

This book offers fresh insights on the social side of communication, covering frameworks such as social constructionism, social networking theory, social cognitive theory, and impression management—among a myriad other concepts such as interpersonal communication, intercultural communication, health communication, and social presence. In regards to the academic approaches used in this book, the authors applied multiple theories, conceptual analyses, case studies, examples, across the world, and statistics. The end of the book also includes detailed suggestions for future research.

The metaverse reflects the human aspirations to transcend the limits of space and time by enabling interactants to express their words, minds, and bodies through novel sensory experiences, representing a shared virtual universe of consensual illusion (Zhai et al., 2022). By and large, the term "metaverse" is often referred to as a digital transformation of most aspects of our lives; it can be achieved physically into a virtual approach. Other definitions of the metaverse have been suggested, including lifelogging, mutual space in virtually, embodied/spatial cyberspace, a mirror world, a setting of simulation, and collaboration. The immersive nature of the metaverse remains an essential matter because it purports to enhance our

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communicative, social, and emotional intelligence abilities by imitating, or even improving, the three-dimensional scenario (Wang et al., 2022).

Our book is timely because, as the COVID-19 pandemic recomposed our daily interactions through widespread social distancing measures, the necessity for alternatives to physical and face-to-face communication greatly increased and opened new horizons through technological solutions. Although some of the latter, such as extended-reality gaming and real-time video meetings, had already existed for a long time, early 2020s technical progress and societal transformations engendered by COVID-19 accelerated the evolution of the metaverse, motivating big-tech owners and investors to pour tens of billions of dollars. All this also led to predictions that the metaverse would be a big internet battleground in the next years to come (Anderson & Rainie, 2022). A case in point is Microsoft's investment in the metaverse to the tune of US$ 70 billion in 2022, in addition to investments made by Google and Epic Games (and large corporations such as Gucci, Nike, and Walmart, to name a few). Nevertheless, these investments only represent the tip of the iceberg for a trend that has already gone far and that involves a great chunk of humankind (Caragnano, 2023).

The Five Objectives of This Book

As a *mélange* of science, technology, and social construction, the metaverse transforms the frontiers of communication that will have long-lasting impacts on society. In doing so, it illustrates how social reality changes with each phase of this digital medium. As a set of technologically driven representations (or replicas) of our three-dimensional world, the metaverse is progressively fashioning the sociotechnical hypotheticals of data-based phenomena—the likely corollary being fundamental changes of important structures, processes, habits, and ways of life in the next few decades. At the heart of the systematic examination of the role of communication in the metaverse are the interrelations among humans, digital platforms, and the principles, standards, and ethics entrenched within such structures and systems (Bibri, 2022). To date, not a single book has adequately covered that breadth of knowledge. To provide an overview appropriate for students, scholars, and practitioners, the current work seeks to address five objectives: How examining the metaverse (1) enhances our understanding of human communication, (2) explains new ways of expressing one's identity, (3) shows that it is not a utopian space for communication, (4) highlights humans' creativity, and (5) poses multiple threats to humankind nonetheless.

Enhancing Our Understanding of Human Communication

The first objective of this book is to explore users' experiences in virtual reality (VR) and the metaverse at large, with the aim of generating more understanding and safer experiences for this public. As the supreme mode of human communication in the deep media sphere, the metaverse will inescapably reshape the fundamentals of such human social interactions. Hence, looking at approaches such as interpersonal relationships in the metaverse not only increases our awareness of how VR could replace face-to-face communication in the future (rightly or wrongly, and with or without the assistance of an intermediary), bit it can also reshape the concepts of space and time within human communication itself. Because it is often portrayed as an infrastructure-driven method for the betterment of society, the metaverse has the potential to promote communication at all levels: the interpersonal, social, collaborative, intercultural, and global levels, thereby becoming an overarching infrastructure for humans to enjoy such modes of communication (Jiang & Xu, 2022).

Human communication is based on experience, knowledge, character traits, and relationship skills with others. An individual's "adequate" level of communication depends on his or her aptness at knowing what is going on around him- or herself and make the right decision. Positive human relations are deemed the most important indicators of happiness and add to personal success in the real world (Dalton et al., 2010). Therefore, as the metaverse becomes more accessible to all (not just the tech-savvy ones), practitioners and scholars will have to reexamine their prior understandings of communication theory, strategies, and applications. The hard task is to ascertain the value or extent to which the metaverse will transform or, at least, expand our abilities in human communication.

Speaking of extending our abilities, Canadian scholar Marshall McLuhan's (1975) media extension theory rests on the premise that the advent of new types of media boosts our understanding of human communication by extending the span (or reach) and power of the human body. Whether it be oral, text, printing, or electronic communication, any form of communication media technology will externalize our five senses and the ability to process and remember information (Qingguang, 2011). Within the rapid expansion of digital media such as the internet, a wide assortment of media texts, audio, images, videos, icons, and memes have been incorporated into this growing interconnected communication system. As a result, users can produce an unlimited number of connections and diverse interactions through such digital media. This situation also illustrates the "decentralized" nature of the internet, thanks to all-channel networks that allow us to be nowhere and everywhere at the same time. This has not only disempowered mass communication, but it has also empowered interpersonal communication. In the twenty-first century, such integration and decentralization have been accelerated in the metaverse (Song, 2022).

The metaverse affords many academics the opportunity to move the discipline of communication to new directions. For example, from adding fresh insights to integrated communications scholarship with new perspectives on digital media studies (Hallahan, 2008), to examining the behavior and cognitive impacts of

communication on metaverse users, avatars, and other publics (Tkalac, 2008), the new approaches promulgated throughout ten chapters in this book will inspire updated evaluations and definitions of current communication approaches. Having said that, academics should emphasize not only the medium used but also the interconnections between micro-level and macro-level facets of social life within virtual environments. The media and communication field has experienced an unprecedented turn of events through the changing nature and behavior of digital media audiences occasioned by the metaverse or other platforms. The long-established notion of "audience"—as mere listeners, viewers, or consumers of mass media content—is not viable anymore because the exponential broadening of media channels and sources has reconfigured audiences entirely. Put differently, the age-old collective term for media receivers (in the "simple sequential model" sense of the mass communication process) is hardly applicable in the metaverse because the latter does not operate on a "source-channel-message-receiver-effect-feedback" principle. The exponentiality of the metaverse has given users novel roles—many of which are yet to be discovered. In a nutshell, the communication process is going through unforeseen forms of communication (Obiaje & Adelabu, 2022).

Explaining New Ways of Expressing One's Identity

The relationship between one's self-identity and the manner in which people present themselves in the digital realm has been the focus of manifold studies. Yet, these have mostly looked at online blogs or social networking sites such as Facebook (see Michikyan et al., 2015; Paliszkiewicz & Madra-Sawicka, 2016). Notwithstanding the fact that the results from these studies can be used to demonstrate, in part, what transpires in the metaverse, there is still a need to understand why metaverse users project themselves in ways that align with their self-identity and the personal information they reveal to others. The idea of altering an existing identity or fashioning a new identity in VR is fairly new. This is why researchers should address how people present themselves through reembodiment in digital environments. The idea of utilizing the metaverse to transform or reconstruct one's identity through self-disclosure should continue to be explored.

In light of the significant shifts in behaviors, attitudes, and lifestyles of youths, it would be reasonable to make attempts at understanding the myriad possibilities that the metaverse provides for identity construction—and the dependence on recently developed digital platforms for identity presentation (i.e., impression management) (Zhou & Tian, 2023) and avatar formation (Lee et al., 2023). Given the promise to offer enhanced realism and presence, the metaverse can soon become a venue that meets most of the youths' identity needs, especially if they have not been met at public events or through social interactions. The metaverse can improve one's identity through virtual social support; indeed, even digital social interactions can be conducive to better psychological well-being throughout an individual's lifespan (Oh et al., 2023).

Showing It Is Not a Utopian Space for Communication

The third objective is to demonstrate that the metaverse is not a utopian space for communication. Before even delving deeply into the gist of this volume, it would be useful to ask whether or not the metaverse will become a utopian space for communication because of its gradually higher level of virtuality. The development of the metaverse is anticipated to occasion deep-rooted changes to private rooms, workplaces, and collectivities as a whole—with up-to-the-minute tools and possibilities. This will make human interactions within families, friends, and wider communities richer in social bonding. This is pivotal for safeguarding civil liberties, which have been harshly impacted by the "new normal" that was accelerated by the COVID-19 pandemic. Today, the erosion of human interactions and social bonding continues to be normalized (in spite of the alleviation of draconian measures imposed during the pandemic) and the surveillance technologies (highly present at that time) have not been removed (Bibri, 2022).

Through new ways of interacting with and reacting to each other, the metaverse will allow people to integrate practices, institutions, and policies within a social system aimed at bettering our lives and, ultimately, making us thrive. One of the concerns of a techno-utopia is that it will dampen human communication, producing a distant or divisive society as a consequence of its addiction to digital technologies and owing to the reality—if truth be told—that users have a difficult time separating their lives/identities from these technologies (even for the greater good of humanity). It is the authors' conviction that the metaverse represents a series of steps toward an arrangement of digital platforms in which interactants can effortlessly contact and interact with each other irrespective of time or location. In this process, it will reduce fragmentation between members of society, as well as among grouping of cultures and societies themselves. To this point, there is also a requirement for reexamining urban imaginaries with respect to present-day urbanism, where a great degree of daily living is digitally and virtually mediated (Bibri, 2022).

Techno-utopianism alludes to any set of beliefs and values founded on the principle that progress in science and technology will, in due course, achieve a utopian ideal or an impeccable society in the distant future. In this hypothetical situation, everyday life, in consort with processes of government, laws, and social conditions, will be exclusively made for collective benefits and the well-being of its citizenry. Detractors of techno-utopianism draw attention to its tendency to shelve the positive outcomes of laws while highlighting government interference and infringement on privacy and civil liberties. This account of illusory imaginaries of our future world as a techno-utopia summons time-honored cultural fears about the effects of sociotechnological advances on society (Bibri, 2022).

Experts remain divided about the prospective success of a truly immersive metaverse. Some predict that augmented- and mixed-reality environments will turn out to be useful in our day-to-day interactions. Others express concerns that existing online problems may be exacerbated if Web 3.0 development is directed by those responsible for today's overarching web platforms (Anderson & Rainie, 2022).

However, the authors of this work maintain that the metaverse does not appear to be utopian, and thus not designed for an idealistic "universe." Rather, it is intended to be influenced by economic competition of diverse entities, which include big-tech corporations such as Apple, Meta, and Microsoft (Mac et al., 2022). Propelled by modern advances in state-of-the-art technologies such as extended reality, artificial intelligence, and blockchain, the metaverse is growing out of science fiction into an imminent reality. The degree of "communicative realism" hinges on the companies' potential to carry virtual and augmented reality tools to adequate levels of interaction or collaboration among individual users. Naturally, unbridled capitalism could be an obstacle to proper communication, but only time will tell.

Highlighting Humans' Creativity

Humans are highly complex biological, psychological, social, and technological beings. They are also highly creative beings; they have demonstrated their capacity for reaching great levels of conscious and unconscious interactions in "unchartered territories." In this manner, they have also incorporated new frameworks of meanings and rationales for their interactions, which appear more "sensical" to users and explain what drives them to engage in any type of communication in new spaces. This penchant for creativity allows us to imagine states or conditions that did not exist before. As we will see in later chapters, humans are able to find many novel ways of expressing emotions, desires, and passions—e.g., from rational to irrational, from happy to depressive, from very emotional to abstract/logical, and from intelligent to limited/stupid (Raich et al., 2021).

During the China Metaverse Summit, the year 2021 was baptized the Year of the Metaverse. Is the metaverse the hope or the hype? Is it a windfall or an illusion? There is ample talk in all sectors (Zhai et al., 2022). The metaverse is certainly not an accidental phenomenon; it is well thought-out. It is an expression of the limitless expansion of our imagination. However, counter to science fiction, social relations within the metaverse can mimic those of the real world. What transpires in the metaverse is a mirror image of the three-dimensional world, a simulation. This turns the metaverse into a real-world and perceivable space to communicate and operate (Nevelsteen, 2015).

Exposing the Threats Posed by the Metaverse

A procedural problem persists when a technology is not properly regulated, leading us to risk being overly naïve in predicting its negative impacts. The book will explain that, because the metaverse is socially constructed, it can lead, inter alia, to social engineering. In this context, social engineering consists of resorting to deceptive means of communication to create a relation with the target user in order to exploit

him or her for financial, ideological, political, or even sexual gains. The wide assortment of technologies and methodologies at the hands of "social engineers" in the metaverse is colossal. Additional dangers pertain to privacy concerns, surveillance, hate speech, and bullying/mobbing.

Humans are at the forefront of a new social construct where each of them can be a target of the predicaments posed by the metaverse. Youths in particular (i.e., Generation Z and millennials) spend more time online and in VR (see Matusitz & McCormick, 2012). Millennials use it for over two-and-a-half hours a day. Generation Z spends almost three hours a day on it (*World Economic Forum*, 2019). They represent the largest volume of the population in the metaverse. Roblox, a supreme user-generated game site, is designed on the concept of "metaverse," but could undoubtedly be a bastion for ill-intentioned users. Over 80% of Roblox users are under 25 years old (*Statista*, 2021). *Fortnite*, the most popular online game platform in the world, is immensely popular among users between 14 and 24 (Wilson, 2021).

Competition with Other Works

In their book titled *From Microverse to Metaverse: Modelling the Future through Today's Virtual Worlds*, Leighton Evans et al. (2022) provide various descriptions of the metaverse, including private companies' endeavors at building all-inclusive VR empires that can metricize, commercialize, and manipulate users' actions and interactions. A great deal of the book is also devoted to traditional concepts of the digital, such as social worlds, gaming worlds, user-generated worlds, and commerce/entertainment. Of particular interest in their work is the notion of microverse. Not to be confused with the Microverse® (the online school for remote software developers), microverses are the multiple social networks and spaces in the metaverse that have substituted our numerous day-to-day social functions and activities for interactional purposes. Although *From Microverse to Metaverse* was well written and adequately describes the metaverse as an experiential and virtual world that can be embraced by the vast majority of users, it contains two major flaws: (1) aside from a few chapters (e.g., *Gaming Worlds*), a significant number of sources are outdated and (2) the emphasis of the book is too broad, ranging from fitness to desire, and from social to commerce. In other words, there needs to be a stronger common denominator across all chapters.

In *Unconscious Networks: Philosophy, Psychoanalysis, and Artificial Intelligence*, Possati (2023) explains the role of communication in artificial intelligence. At first, we were pleased with the book because it deals with social network theory, human–machine interaction (i.e., what Possati calls "humans and nonhuman actants"), and the ways in which human communication unconsciously shapes technology (and vice versa). However, we quickly grew disappointed because the work turned out to be a volume written for academics and experts in the disciplines of technology studies, artificial intelligence, psychoanalysis, and philosophy.