The Art of Communicating with Brain, Heart, and Soul: An Islamic Perspective on Neurophilocommunication

Dito Anurogo[a] [✉] | Niken Sasadhara Sasmita[b] | Ubed Abdilah Syarif[c] | Nur Rahmah Awaliah[d] | Budhy Munawar Rachman[e] | Jia Yi Wang (王家儀)[f]

[a]Faculty of Medicine and Health Sciences, Universitas Muhammadiyah Makassar, Indonesia.
[b]Faculty of Medicine and Health Sciences, Universitas Negeri Surabaya.
[c]Al-Mustafa International University (MIU), Tehran, Islamic Republic of Iran.
[d]Faculty of Medicine and Health Sciences, Universitas Muhammadiyah Makassar, Indonesia.
[e]Driyarkara School of Philosophy (STF), Jakarta, Indonesia.
[f]Chief Executive Officer (CEO) TMU Research Center of Neuroscience, Taipei Neuroscience Institute, Taiwan.

ABSTRACT

Communication in the digital age has been transformed into more complicated ways due to various mediums and platforms based on information technology and digital devices. The digital age has brought about complex changes to communication through the use of technology and digital devices. It has more threats as well as benefits and innovations. In the meantime, many people who engaged in communication don't fully take advantages but fall into miscommunication due to lack of digital literacy. In particular, in the field of health services, the threats of digital communication would make people, for instances the patients, in danger. While it offers benefits and innovations, it also brings new threats, particularly in the field of healthcare where miscommunication can harm patients mentally and physically. The miscommunication, misunderstanding etc. would harm their health mentally and physically. To address these issues, it is crucial to explore and analyze communication from multiple perspectives using scientific approaches. Hence, thinking and research on communication is extremely important. Various scientific approaches should be applied to analyze and sharpen communication in multiple perspectives. This manuscript discusses soft-skills of communication in the field of health issues of the digital era. This study is an attempt to invent the theoretical foundation of the ways in communication throughout analytical and philosophical approaches. It is Neurophilocommunication (NPC) that comprise of thoughts in communication that could be applied in the field of health issues on digital base and platforms.This study proposes NPC, a concept combining communication and neuroscience to enhance communication in healthcare in the digital era. The goal is to establish a theoretical foundation for effective communication and to improve the health outcomes of patients.

INTRODUCTION

The current mode of communication requires more skill and capability in coping of technically information and digital technology driven communication that changes overtime in day to day development of digital era. The world has transformed and became much more complicated, people found many more disruptions in every single of life parts including the way of human communication [1]. Effective communication has become increasingly important in today's digital era [2]. With the rapid development of digital technology, communication has become more complex and disrupted in various aspects of life. Digitalized communication between communicator and communican transmissed in meta data, codes, signs or texts created the algorythm of messages, people, interests, and communities. The cyberworld is now assumed as main reality to some people who engage almost whole their life in it. Digital communication involves the transmission of metadata, codes, signs, and texts, creating algorithms of messages, people, interests, and communities. But many people do not recognize even do not realize what is precisely going on in the cyberworld due to lack of digital literacy [3]. It resulted the miscommunication, misperception, misunderstanding and misinformation that often make disinformation. The messages eventually corrupt that may

MIER

create disharmony between parties who engage in communication.Some individuals engage almost all of their life in the cyberworld, which is considered the main reality for them [4]. However, many people lack digital literacy, resulting in miscommunication, misperception, misunderstanding, and misinformation. These issues can create disharmony between communicating parties [5].

Communication problems have gotten increasingly difficult to solve in this age of digital technology. Especially when taking into account the existence of the metaverse, telemedicine, teleportation, and other technological developments in communication based on AI, DL, and ML [5], [6]. In order to generate communication patterns that are Islamic, respectful, open, productive, ethical, and cultural, the digital society calls for a strategy that is all-encompassing and interdisciplinary. One of the "soft talents" that is essential in today's world is the ability to communicate effectively. There are five types of soft skills that are absolutely necessary in this day and age [7], [8]. To start, skills in interpersonal and group communication. Second, a disposition toward acting with ethics and integrity in one's behaviour. Third, the ability to manage change in the environment (diversity). The fourth quality is the ability to motivate others. Fifth, hone your abilities in management that are strategic and visionary. In this essay, we will investigate the art of healthy Neurophilocommunication (NPC) 5.0 for philosophers, neuroscientists, academicians, physicians, other medical professionals, and other scholars, students, and community members living in the digital age for day-to-day life. The advancements in AI, DL, and ML have brought about new forms of communication such as telemedicine and teleportation. To effectively communicate in this digital age, a comprehensive and interdisciplinary strategy is necessary.

This includes five essential soft skills: interpersonal and group communication, ethical and integrity-driven behavior, adaptability to change, the ability to motivate others, and strategic and visionary management. In this essay, we will explore the concept of Neurophilocommunication (NPC) 5.0 as a solution to communication problems in the digital age, especially in the fields of medicine, health, healthcare, and public health [9], [10], [11]. In particular,new kinds of communication in the field of medicine, health, healthcare and public health emerged using digital technology. With the rise of digital technology in health services, the need for proper communication has become more pressing. Now, we have "virtual hospital"which operates telemedicine where medical services, health consultations between doctors and patients, and medical treatments work on line. The surge of pandemi of Covid'19 globally in last two years (2019-2021) has forced people to be isolated, separated from the meetings, gathering or other face to face interactions or at least kept in distance [12], [13]. This phenomenon has been called "the new normal" unlike "normal" as usual. The health issues soon became a big deal and main concern as well for everyone, for communities, governments, and then came into global account and concern. Hence, the way of communicating health issues has been questioned not only in the medical services but also in many fields in relation with health.

Research questions in this study were started with raising the curiousity to find a proper communication with less mistakes due to the increasing digital technology's utility particularly in health communication. How to make a good quality in transmitting messages without any misperception or misinformation between parties who engage in communication is one of main thing to be made in this research.Hopefully, this study would discover the ways in creating a healthy communication. There is a connection between communication in health services, online medication, for giving excellent service for the community. A number of studies have been carried out regarding this, including the title Application of Telenursing in Health Services: Literature Review.

This study discusses the phenomenon of the development of information and communication technology which has a major influence in the field of health services, especially in the field of nursing. Nurses are required to be able to use technology, which is then known as remote nursing services or telenursing. Technologies and devices that can be used include telephones, personal digital assistants, smartphones, facsimile machines, internet social media, video/audio conferencing, teleradiology and other computer information systems.

Telenursing can be implemented in Indonesia, and has even been implemented throughout the world. Especially, in the era of the Covid-19 pandemic, where the frequency of face-to-face or physical contact was limited at that time. A number of studies have been conducted on the application of telenursing in health services, demonstrating the significance of technology in the field of nursing. In this study, we investigate the theoretical foundation of what we call a "Neurophilocommunication (NPC) that will hope fully construct a view and practice of better communication in changing mode in the disrupted era due to digital and information technology's transformation particularly in health issues.

We designed this mode of communication which requires multiple methods and recognizing interdisiplinary approaches. It suits for philosophers, neuroscientists, academicians, physicians, other medical professionals, and other scholars, students, and community members living in the digital age for day-to-day life. This study aims to investigate the theoretical foundation of NPC as a mode of communication suitable for philosophers, neuroscientists, academicians, medical professionals, scholars, students, and community members. The research questions focus on finding ways to improve the quality of communication, reducing misperception and misinformation between parties. The goal is to discover ways to create a healthy form of communication from Islamic perspective.

LITERATURE REVIEW

Communication encompasses all aspects of verbal and nonverbal human activity that elicit responses from others. Communication consists of the communicator (sender or sender of the message), the communicant (message recipient), the message, the medium, and the effect or impact. Understanding communication extends beyond a simple chat, discourse, or interview. All behaviors (gestures, expressions, facial expressions, etc.) communicate specific and unique messages, hence they are all types of communication [14], [15], [16]. Communication may be defined as the process of transferring information between two or more parties. This process is dynamic and interactive, resulting in the eventual formation of mutual understanding [17]. Colleagues are able to communicate in a professional, cordial, and forthright manner in the workplace .

The language utilized is one that is understood by all employees at the location. When connecting and speaking effectively, active listening and questioning techniques are employed to create comfort]. Effective communication must also be pursued with patients, clients, colleagues, and guests in order to prevent problems and satisfy all parties [18], [19]. The purpose of communication (from the Latin term communicatus, which means "to share" or "to belong together") is to share in a spirit of unity and kinship. The goal of every kind of communication is for both parties to get an understanding of the message being conveyed. Another research that discusses the relationship between communication in health services, online medication, for the sake of excellent service to the community is entitled Public Health And Online Misinformation: Challenges And Recommendations. The article discusses how the internet has become a popular resource for learning about health [20], [21]. In fact, the internet, through the many social media accounts and applications, provides tools to investigate a person's health condition. This is both an opportunity and a challenge. If it is used properly, supervised by parties who really understand about health and technology, this condition can support people's lives. Conversely, if the available social media accounts and health applications are only financially profit oriented, it is possible to develop the technology without detailed supervision from doctors or health experts. In fact, there are many channels that provide inaccurate information [22]. Therefore, policy makers must be able to form an online information ecosystem that can be accounted for. It's not about producing the information. It is also a matter of proportional supervision and control. Public sensitivity to filter information is also a fundamental factor [23], [24].

Meanwhile, a study entitled How Health Communication Via Tik Tok Makes A Difference: A Content Analysis Of Tik Tok Accounts Run By Chinese Provincial Health Committees explains the phenomenon of social media as a tool of health campaigns in China, the country with the largest population in the world [25], [26], [27]. As one of the countries with the largest population and area in the world, China can be a reflection of how internet-based social media has become an unavoidable phenomenon in human life. Therefore, strategic steps are needed to utilize it, including in the field of health services. The provincial government in China uses Tik Tok, one of the country's most popular social media platforms, as a means of health campaigns [28], [29], [30]. Not only to promote the program, through the comments column, the public and official account admins can interact with each other. What China is doing can be replicated in other countries, of course with all kinds of adjustments. In China, Tik Tok is indeed the most popular, but in other countries Instagram, Twitter or Facebook may be popular. Most importantly, the government or policy makers must be adept at formulating programs for using social media.

In the oscillating realms of informational influx, we stand on the precipice of a cognitive renaissance. A paradigm where the sinuous elegance of communication is not merely a vector of information transfer, but a meticulously crafted artwork that weaves its threads across the vast tapestry of human cognitive and cultural expanse. The concept of communication, a symphonic interplay of expressions, is undergoing a metamorphic transition, echoing a cosmic dance where knowledge, culture, and technology intersect in harmonious synchrony. The copious influx of information, a direct beneficiary of policy liberalization, has cast light upon the indispensable need to refine our intellectual apparatus. This isn't merely an act of augmenting cognitive capacities but is analogous to crafting a refined lens that can perceive, dissect, and assimilate multifaceted informational spectra with laudable precision [31]. The postulates of Information Literacy, as enunciated by the International Federation of Library Association and Institutions (IFLA), are not static doctrines but dynamic elements that evolve, adapt, and resonate with the rhythmic oscillations of informational dynamics [32], [33], [34], [35].

The simulacra theory, juxtaposed in this narrative, casts a reflective lens upon the manipulated realities, echoing the profound need to navigate these constructed realms with informed discernment and critical acuity. Echoing the philosophical and practical imperatives of Lasswell's and Kotler's theories, communication transcends linear trajectories to embody a multidimensional space. Here, each message is a living entity, a dynamic organism that adapts, evolves, and resonates within the intricate ecosystems of societal, cultural, and individual contexts. The communicative objectives, hence, are not mere transactions but dynamic interactions, echoing a harmony where information and meanings are not just transferred but transformed. As we transcend into the transcultural spheres, the incorporation of cultural and indigenous wisdom emerges as a sanctified covenant. Paremiocommunication emerges as a sacred chalice, echoing the profound rhythms of indigenous wisdom and cultural narratives. Each message, hence, becomes a pilgrimage, a sacred journey where informational contents and cultural wisdom converge, echoing a symphony where cognitive comprehension and cultural resonance dance in harmonious synchrony.

Neurocommunication, which relates to the communication of neuroscience, is fraught with considerable challenges. How exactly can neuroscientists successfully address these issues while also advancing their research program's objectives? Over the past decade, attempts to transmit accurate information about new scientific discoveries to the general public have expanded beyond the limit of unidirectional efforts, despite the fact that this remains a central objective of science communication. The public's expectation of meaningful participation and conversation on ethical and social concerns resulting from research has led to the creation of more interactive and multidirectional communication tactics. The public expects to have input on the direction of scientific research, and neuroscientists feel uneasy when making predictions about how society

will react to the prospect of new information and technologies. In this setting, the number of persons pushing for stronger direct communication between scientists, journalists, and the general public has increased significantly. However, for individual scientists, the time required for such successful science communication activities is considerable [36], [37], [38].

This is especially true if one considers communication to include not just the dissemination of factual representations of neuroscience to the general public, but also public engagement activities that often take the form of two-way forums where debate and discussion can occur. Communication within the discipline of neuroscience has its own set of distinct challenges. To begin, the complexity of the brain [39], [40]. As new understanding about the brain comes from a range of neuroscience subspecialties, the importance of explaining complicated chemical pathways, as well as their connections and effects, is growing. Second, the mental and physical significance of one's own life, philosophy, and religion. While challenging the nature of "belief," scientific progress in understanding brain function and the biological bases of behavior has the potential to result in socially charged attributions of moral responsibility, new definitions of "normal" behavior, and a deeper understanding of how humans think and learn [41].

Thirdly, the effects of CNS (central nervous system) illnesses on community health. Due to the widespread effects that neurological disorders can have on an individual's life and on society, there has been a great deal of attention and enthusiasm for recent advances in neuroscience that promise to provide diagnostic tools, therapeutic interventions, and even cures for neurological disorders. Addressing the enormous human and societal effects of CNS diseases. Fourthly, individuals with neurological and mental health issues risk discrimination. Due to the prevalence of unfavorable social views regarding the causes and origins of mental health problems, it is difficult, and in some cases impossible, to have significant public discussions about mental health issues.

The study of communication philosophy focuses on particulars in a manner that is dependant on the environment, the passage of time, and the input of the public; all of these variables are peculiar to public opinion. The philosophy of communication does not give us with unchallengeable certainty; rather, it is put to the test of public opinion and provides a road map detailing the specifics and providing ways to deal with those specifics. The basis for engaging in this practice is a commitment to the principle of communication. The philosophy of communication is a form of communicative architecture that necessitates an understanding map at every level, from the most fundamental particulars to the most sophisticated degrees of temporal comprehension, up to the revelation of a position in the public arena. This comprehension map must start with the most fundamental details and progress to the most complex levels of temporal comprehension. In the subject of communication theory, it is considered permissible to disagree with an author's perspective as well as a communication philosophy. The pragmatic communication theory acknowledges the variety of perspectives held by the public.

This realization is the outcome of accepting the possibility that a communication theory could become obsolete and die out, only to be reborn by public opinion. When the major characters in a novel no longer feel that a specific philosophy of communication can give an enactment that is logically consistent with the storyline, that philosophy of communication will undergo some kind of transformation, proliferation, atrophy, or extinction. This will occur when they no longer feel that the philosophy of communication can provide a logically compatible execution with the story's storyline. Those who have influence in the public sphere and a solid grasp of a certain communication philosophy are accountable for preserving its life. When this occurs, a new form of intellectual diversity emerges in the shape of a novel technique of interpersonal communication [42].

A simple philosophy of communication barely touches the surface of the enormous and intricate area of communication. It is an admission to others of one's preconceived views or biases in the field of communication

science. The goal of a communication philosophy should not be to gather an indisputable body of facts; rather, it should be to improve people's ability to understand each other and communicate successfully. The philosophy of communication is part of a larger community that includes communicative drama, emplotment, and characters who help by confirming and arguing public opinion, and who are always attentive to a story of the human condition that calls for a broader perspective and cautions against conflating "new" with progress. This community also includes people who study the evolution of communication throughout history. This society of communicative theatre, communicative planning, and communicative characters seeks to aid in the affirmation and discussion of public opinion.

Husserl chooses the first horn of the dilemma, which is to reject the "inevitable" Aristotelian worldview, as he previously viewed it. He acknowledges that this was an error. Therefore, he disagrees with the concept that the lógos semantikós does not have a unique relationship with the apóphasis. In this manner, non-declarative sentences are not the primary carriers of meaning; rather, they express evaluations of actions we have undertaken. The argument, according to Husserl purists, is consistent with his previous theoretical work. To begin with, only acts with an objective nature, such as theistic or postulating acts, have an intentional matter that can be categorized as nominal or propositional, and are thus the only ones that give meaning. The second type of utterance, the declarative phrase, combines an act of objectification with a propositional topic. This type of clause is known as a proclamation. Third, the declarative phrase has a signifying function (a "lógos ti kata tinós") different from the intuitive satisfaction (the cognitive function) and the intimating (kundgebende) use of expressive symbols. This operation is known as a "lógos ti kata tinós" (the communicative function).

Health communication is derived by combining the terms communication and health. This chapter's introduction provided a concise explanation of communication comprehension. According to the World Health Organization (WHO), health is not just the absence of disease, infirmity, or impairment but rather the presence of all these that allow people to participate fully in society and the economy. The definition of health is expansive and difficult to express due to its multifaceted nature. For example: personal, biomedical, and societal. Consequently, health is a state / condition of a person free from all physical ailments and mental disorders, which are in fact complex and sometimes not evident. On the basis of some of the aforementioned definitions of health, we can conclude that health communication is the process of sending health messages through specific medium from the message sender to the message recipient. The approach strives to explain, enlighten, and direct (both physical and spiritual) health components holistically and thoroughly in order to attain human behavior for society welfare. When compared to general communication, the messages in health communication are specific and distinct.

Typically about the challenges or patterns of health that the community faces. For instance, COVID-19. The following are a few of the ways that health communication has been defined by scholars and professionals. Educating, persuading, and inspiring people, organizations, and communities to take action to enhance their health and the health of their communities is the goal of health communication The theory, research, and practice of health communication are concerned with the understanding and interdependence influencing communication (symbolic interactions in the form of messages and meanings) and health-related attitudes, behaviors, and outcomes. In health communication, both parties actively engage in back-and-forth conversation in an effort to reach a consensus on a shared understanding of health issues. It's a way for both parties to refresh their mutual understanding by obtaining unbiased health data. Health communication is a deliberate endeavor to influence public health behavior utilizing a variety of communication principles and techniques, including interpersonal and mass communication. The following principles are 12 fundamental to healthy communication ethics in the digital era. 1. Pray before and after doing activities in cyberspace (internet). 2. Increase critical reading from trusted website sources. 3. Read scripture and scientific references/journals more often than social media. 4. Not all viral news or things contain the truth. Not all truths become viral news. 5. Be and behave as a netizen (internet citizen) as you want to be treated by other netizens.

6. Do miniriset (check, confirm, clarify) when you receive news or information from social media. 7. You should not immediately share any news or videos you receive. 8. Think before commenting. 9. Comment politely, courteously, ethically and culturally. 10. Avoid toxic friendships and respect your time on social media. 11. Avoid constant status updates, watch out for sexual predators. 12. Parents should always accompany their sons and daughters on the internet and social media [43].

METHODOLOGY

This study adopts a philosophical qualitative approach by employing genealogical and multidisciplinary analysis to construct the theoretical framework of Neurophilocommunication (NPC). The methodology integrates elements from philosophy, neuroscience, communication studies, health sciences, and information technology to develop a comprehensive understanding of healthy and ethical communication models in the digital era—particularly within health services and telemedicine contexts [44].

A genealogical method was applied to trace the historical roots, evolution, and conceptual transformations of communication across various epistemological domains. The genealogy in this context refers not merely to historical chronology, but to a critical analytical process that investigates how contemporary communication practices in health have been shaped by philosophical, cultural, and technological developments. This study also uses conceptual analysis to formulate NPC as a hybrid model that merges neuroscience insights (neuro), philosophical reasoning (philo), and modern communication theories (communication). The analysis focuses on identifying conceptual gaps in existing communication theories when applied in high-stakes settings like telemedicine, digital consultations, and public health education during crises such as the COVID-19 pandemic.

In addition to literature review and philosophical inquiry, this research is normative in nature, aiming to propose a value-based communication paradigm for health practitioners, educators, and policymakers. The methodology acknowledges phenomenological aspects of human experience in digital interaction and emphasizes ethical literacy, digital wisdom, and cultural sensitivity as part of communicative competence. Thus, the methodological framework of this study is inherently interdisciplinary and reflexive, seeking to offer both conceptual clarity and practical relevance for stakeholders involved in health-related communication in the digital era.

RESULTS AND DISCUSSION

Health Communication Goals

Health communication has multiple functions. First, to encourage people and society to keep their bodies and health so that they are always in good shape. Second, providing an environment favourable to the development of clean and healthy lifestyle habits. Third, transmit, forward, and disseminate accurate health information in order to create a sustainable information chain that has a positive effect on the larger community. Fourth, empower the people to make decisions independently, especially about their own health. The pragmatic and practical objectives of health communication are outlined herein. First, enhance community competency and effective communication abilities. Verbal and nonverbal communication skills are essential for disseminating health messages and information to the public.

Second, enhancing health practitioners' understanding of the process and dynamics of health communication. For instance, the principle of effective communication, the content or message of communication between humans, how to compose content so that messages are conveyed and distributed effectively, communication media selection strategies, screening targets or information targets, setting feedback, and public responses to communicators.

Third, health practitioners must comprehend the interplay between the audience and the public when communicating. Fourth, comprehend the relationship between the conduct of individuals who are provided with health information and the many facets of health. Form attitudes, practices, habits, and a culture of clean and healthy living. This fifth objective is the overall objective of health communication. The five objectives must be combined so that health practitioners have the appropriate attitudes, behaviors, and ethics for effectively communicating the substance of health services or messages to the public. For health information to be properly transmitted, persuasive communication and great self-assurance are required.

Health communication provides practitioners and students with numerous concrete benefits. First, comprehend the interdependencies between numerous health and behavior factors. Increasing public and public comprehension and awareness of health is the second objective. Thirdly, identify the level and kind of talents (soft skills) required to improve the community's health, preventive, advocacy, and health service delivery systems. Implement health intervention strategies and techniques at the community or community level. Fifth, addressing health care inequalities or discrepancies between people, ethnic groups, and tribes in a society [28], [29], [30].

Sixth, refresh the function of health professionals. By expanding the capacity, competence, knowledge, and abilities of health workers and medical teams, bolstering the health service superinfrastructure, constructing networks and partnerships, and fostering accountability and transparency in health services. Knowing, evaluating, and analyzing health service demands is the seventh step. For the benefit of the general public, the future super-infrastructure of public health services should be strengthened.

Communication and Professionalism

Professionalism requires proficient communication in all fields. The increasing quantity of books written on the subject of communication is evidence of the subject's centrality in the modern world. In addition to the difficulties of communication with a defined persona (patient-doctor), there are soft skills connected to written, group, team, and interprofessional acts that must be taught [45]. Also, since we live in the age of digital technology and the millennial generation, we need to think about the long-term effects of the internet as well as the effects of more recent mobile technologies (based on microchips and nanotechnology), such as personal digital assistants and smartphones, which are growing quickly and have a lot to offer in the field of medicine.

Furthermore, we must recognize the impact of the media, particularly television, on the behavior of patients, medical professionals, and other healthcare workers. Not to mention those who face additional communication challenges due to mental health issues, physical illnesses, or learning disabilities. Some of the new communication challenges that both patients and medical professionals face include the evolution of information on the Internet (World Wide Web) and new web technologies (such as social networks), the communication of risks and benefits, the fact that research findings frequently reach the public through the Internet or other media before the profession is aware of them, and soon. Professional behavior and abilities are characterized by the capacity to communicate with varied groups of people and to be easily understood. Due to this, professional training now devotes a larger portion of the curriculum to the instruction and evaluation of "communication skills." Indeed, the basic curriculum for medical and health education communication has been widely discovered and published.

Historically, communication training in medical colleges has focused entirely on communication between the professional (medical team) and the patient; however, this has begun to change. To address communication with colleagues and other professionals, for example. However, there are numerous situations and relationships that necessitate effective communication, and each has its own unique art. The medical curriculum does not address all topics and facets of communication.

Communication Barriers

Various obstacles (barriers) must be quickly overcome in the process of effective communication. These obstacles include of personal and organizational obstacles. Lack of ability, soft skills, and training, poor language skills (especially International language proficiency), lack of understanding that effective and clear communication is important, negative behavior and attitudes when communicating, explanations to patients are not considered the highest priority, lack of time, fatigue, and stress are examples of personal barriers [46].

Miscommunication is also known as misunderstanding, misperception, or a reaction or acceptance of a communication process that is incorrect. Professional expertise is accompanied by its own jargon. A profession's specific body of knowledge is accompanied with a specialized vocabulary. In healthcare, interning freshmen and medical students are at the bottom of the professional ladder. They adopted the language chosen by their profession or elders without delay. Jargon is not always an efficient method of communication.

Many medical personnel appear to forget that not all patients are medical problem experts. The employment of jargon as a security or protective shield is common among junior doctors. It can also be used purposely to mislead non-professionals, which is a key characteristic of skilled professionals. "Isn't he intelligent, using all those big words?". In 1970, American sociologist and prominent critic of the medical profession Eliot Freidson stated that doctors intentionally hide information from patients in order to maintain their dominance and professional authority. Providing information in words that a layperson cannot comprehend can be interpreted as a failure of communication. Such behavior results from a physician's 'tremendous isolation' from the larger society and leads to the exercise of irrational social control.

During the era of paternalism and the prior "doctor must know and offer best" jargon, not only were difficult phrases employed to keep the patient in the dark, but the names of drugs and ailments were also withheld from patients.Several things contribute to misunderstandings. First, incorrect presumptions. This assumption is comparable to bias, which is a false assumption that has not been demonstrated to be true, but which someone already believes. Second, the lack of context or message comprehension during the communication process. Third, the misrepresentation of information that is, the meaning of the information communicated becomes prejudiced or perverted.

Communication distortion is a type of misinterpretation that occurs during conversations, typically owing to cultural and perceptual differences. It may also be the result of variances in communication perception due to an individual's accent, pronunciation, intonation, dialect, accent, pronunciation, and speaking style. Fourth, psychological disorders. The psychological or psychological state of a person can have a significant impact on the message's comprehension. To avoid misinterpretation, do not force yourself to participate in lengthy discussions when you are exhausted.

Strategies to Avoid Miscommunication

A few measures can be used to prevent miscommunication throughout the process of speaking or discussing [47]. Before speaking, carefully consider your words. In other words, speak infrequently. A intelligent man mulls over his words a thousand times before speaking. He considers the emotions of his interlocutor. When speaking, he takes into account numerous variables and concerns so that his words are easy to comprehend and do not lead to misunderstandings. Second, be an attentive listener. Patients should feel comfortable venting to their physicians. After the patient had expressed all of his or her complaints and problems, the physician explained the answer. Finally, ask. This procedure is straightforward. In order to avoid misunderstanding, inquire immediately whether there are any ambiguous points or statements.

Fourth, deliberate thought. Likewise, this procedure is straightforward. Discuss many topics as well as any expectations, thoughts, barriers, and communication dynamics. Fifth, etiquette. In other words, when conversing, one should be polite by toning down their voice. Sixth, be truthful. When interacting with all parties in the deliberation, bring up any internal and mental difficulties, challenges, and roadblocks. The communicated message should be clear.

Significance of Communication's skill for practitioner in medical and health field

The community is expected to participate actively in the process of health communication. Not merely as an object, but also as a topic. Especially in the digital age, when social media is dominated by misinformation and health hoaxes. Here are some techniques for encouraging public and patient participation in health communication and service delivery. First, health professionals comprehend the patients' and the public's skills, competencies, values, passions, and preferences. When the medical community comprehends the public's wants and needs, it will be easier to deliver health messages to them. Second, patients and the general public are presented with a clear and valid option (informed choice), as opposed to a passive option or consequence with high levels of ambiguity (passive consent) [48]. Third, training in collaborative decision-making (between health professionals and patients/the public). Fourth, decision making and research based on evidence for the benefit of patients and the public. Fifth, educate the public and patients on how to understand clinical evidence.

Accessibility to electronic health records or virtual medical records, in line with current rules and regulations, for patients and the general public. Conducting a patient experience survey to enhance or enhance the quality of priority health services is the seventh objective. When medical errors or omissions occur, patients and their families should be treated with candor and compassion. Accessibility to comparison data on quality and outcomes for the public. As a foundation for growing the competence of physicians, the difficulties of the medical profession still require a strengthening of professional behavior, self-awareness, self- development, and effective communication. A physician with ideal qualities possesses professional, competent, ethical, administrative, and leadership abilities [28], [29], [30].

The competency of physicians is supported by information management, scientific underpinnings of medical science, clinical skills, and health problem management. Effective communication includes conversing with patients and their families, dealing with coworkers, and interacting with the community. Excellent communication is one of the needed skills for physicians or doctors. Effective communication needs the capacity to research and exchange verbal and nonverbal information with patients of all ages, family members, community members, coworkers, and professionals from other fields. Given this framework, it is expected that doctoral graduates can communicate with patients and their families, work partners (colleagues and other professionals), and the community.

The doctor's competence in communicating with patients and their families includes the ability to build relationships through verbal and nonverbal communication, empathize verbally and nonverbally, communicate using polite and understandable language, listen actively to explore health problems holistically and comprehensively, convey health- related information (including bad news, informed consent), and conduct counseling in a respectful, good, and correct manner. Competence in communicating with work partners (colleagues and other professions) encompasses a wide range of skills, such as the ability to provide accurate and relevant information to law enforcement, health insurance companies, the media, and other parties as needed, as well as the ability to present scientific information effectively. A doctor's skill in engaging with the community includes communicating with patients and community members to jointly identify and solve health

problems, as well as advocating with connected parties to resolve individual, family, and community health issues.

A physician or general practitioner must possess exceptional interpersonal skills. Practical and pragmatic competencies include the following: the ability to communicate verbally and in writing; the ability to educate, advise, and train individuals and groups on health; the ability to develop health management plans; the ability to conduct therapeutic consultations; the ability to communicate verbally with friends, colleagues, and other health workers (referral process and consultation); and the ability to conduct therapeutic consultations.

The Neurophilocommunication

When discussing the notion of Neurophilocommunication 5.0 (figure 1) in depth, it is vital to explore many scientific and interdisciplinary views. Beginning with neuroscience, philosophy, communication, phenomenology, and the progression of science and technology. Literacy with the notion of balance and harmony in all directions is the objective. Individuals with high literacy intelligence and emotional and intellectual maturity are able to converse. Communication must be supported by various factors, such as teamwork, channel, and cost-effectiveness, for it to be effective. Communication on a global scale must also take into account numerous viewpoints, including education, economy, digitalization, health, sociocultural, impact, and geopolitics. Obviously, additional factors, such as regulation, policy, local wisdom, culture, politics, and ideology, must also be addressed.
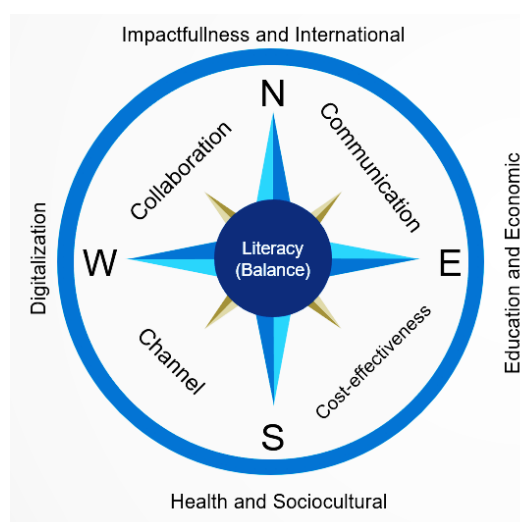

Figure 1. The Art of Neurophilocommunication (NPC)

The absence of time and location limitations made possible by the proliferation of digital communication is especially advantageous for knowledge workers. Theoretically, a person can work wherever, whenever, for as many hours, and at whatever location they like, with no constraints (realizing choices). In this age of constant connectedness, it may be tempting to focus solely on these allegedly advantageous sorts of independence, but one must be prepared for unforeseen consequences such as the creation of an expectation of constant availability.

During a digital transfer, information is represented by binary numbers known as "bits," also referred to by their abbreviated form [49], [50]. Because of this quality, information that may be represented by a range of values is said to as analog. The majority of modern data transmission technologies are digital or entail the conversion of digital signals to analog signals. In today's digital environment, it is significantly more challenging to set such standards. Digital media is distinguished by its quick storage, duplication, and broadcast of

information. Since the time of Socrates, the written word has been permitted considerably more freedom to "roam about".

When it comes to digital interactions, human rights protect both the freedom of the individual and his or her right to a private existence. As previously said, we appreciate honesty, politeness, decency, prudence, moderation, openness, openness to new ideas, tact, tolerance, and dependability in our digital and non-digital communicators. This holds true for both our modern and analog communication methods. These are not challenges that can be reduced to specific requests from individuals, which is the normal strategy of the human rights movement. Instead, they are challenges that the human rights sector cannot tackle. Agents should, on the contrary, battle for these standards because doing so forms them into the kind of persons they have good reason to be and because it shapes social reality in a certain way. This is because this exercise transforms them into reasonable individuals.

Neurophilocommunication in Telemedicine

Telemedicine is a service that improves a patient's health by allowing two-way, real-time interactive communication between the patient and a distant physician. Telehealth and telemedicine are comparable but not interchangeable. Telehealth is the use of telecommunications and IT to deliver health assessment, diagnosis, intervention, consultation, supervision, and information remotely. Telehealth is a broader definition of telemedicine that incorporates telephones, email, and remote patient monitoring (RPM) devices for health education or ancillary healthcare services [51], [52].

Mobile and electronic technology have made telemedicine more accessible. Almost 90% of Americans use the internet. About 81% of Americans have smartphones, 75% have desktop or laptop computers, and 50% have tablets or e-readers. Mobile technology availability has helped telemedicine improve. Internet use in healthcare is currently widespread. Electronic medical records store and access patient and provider medical information. Patients can view findings, refill prescriptions, and communicate their doctor using these services. Live video synchronous telemedicine allows us to interact face-to-face with providers in real time. Store-and-Forward or asynchronous telemedicine lets us transfer imaging, labs, or exam results for later interpretation. We use smartphone cameras, digital stethoscopes, ophthalmoscopes, otoscopes, and wearable biosensors to improve telemedicine for patients and clinicians. RPM records and transmits data from mobile devices to healthcare providers. Continued study is needed to improve the physical exam for telemedicine consultations, especially in specialities where patient touch is critical. Now is the moment to implement telemedicine services. We'll be ready for the next epidemic and healthcare's future if we accomplish this.

The Neuriphilocommunication for Metaverse

Telemedicine will use wetaverse. Telemedicine has risen in recent years, especially after the COVID-19 pandemic and movement limitations. Metaverse will increase the number of customers who use this technology to receive professional care [53], [54]. With advancements in Artificial Intelligence (AI), nanorobotics, Augmented Reality (AR), and Virtual Reality (VR), the demand and supply chain have widened patients' choices, changing consumer behavior. The progressive medical sector is ready to adopt Metaverse.

The Metaverse is a Web 3.0 technology that uses AI, VR, and AR to help front-line pandemic employees function better and ease post-traumatic stress disorder (PTSD) symptoms. The metaverse expands typical telemedicine services, allowing doctors to examine patients in a safe virtual environment to diagnose and cure certain ailments. First, with the convergence of blockchain, digital twins, convergence, and virtual hospitals into the Metaverse, clinicians will be able to offer more comprehensive treatment packages and programs. Second, AR and VR improve patient experiences and outcomes. Accuvein uses AR to let healthcare providers

visualize patients' veins. Metaverse for telemedicine will facilitate healthcare professional collaboration. Sharing information between healthcare providers will speed up ailment diagnosis. Students and trainees will be able to investigate the human body in a safe, virtual reality instructional environment.

The Metaverse opens up new possibilities in minimally-invasive surgery, where physicians currently use VR, AR, and AI. Using immersive technologies, surgeons can acquire a 360-degree image of a patient's body to execute complicated procedures.The Metaverse could transform mental healthcare by allowing doctors to employ immersive technologies to treat anxiety, delusions, hallucinations, and eating disorders. Metaverse helps develop virtual hospitals, convergence, blockchain technology, and digital twins in addition to future.

CONCLUSION

The concept of Neurophilocommunication (NPC) emerges as an interdisciplinary response to the increasing complexity of communication in the digital age, especially within the domains of healthcare, medicine, and public health. Rooted in philosophy, neuroscience, and communication studies, NPC is a theoretical construct that aims to redefine how individuals interact meaningfully and ethically through digital platforms. The study underscores that communication is no longer a linear process but a dynamic, interactive, and multifaceted phenomenon, influenced by artificial intelligence, virtual environments, and digital disruptions. Miscommunication in health contexts—particularly in telemedicine—can have profound consequences; thus, there is an urgent need to develop communicative models that are grounded in critical thinking, ethical awareness, emotional intelligence, and cultural literacy.

By integrating philosophical inquiry, neuroscience perspectives, and practical health communication frameworks, this study proposes NPC as a conceptual and normative model to guide practitioners, scholars, and digital citizens toward more empathetic, transparent, and effective communication. NPC emphasizes the importance of soft skills, human rights,patient-centered values, and technological adaptability in constructing a healthier communication environment in the digital era. Future research is encouraged to empirically test and further elaborate the principles of NPC, especially in diverse sociocultural and clinical settings, so that its applicability can be continuously refined and contextualized to address real-world challenges.

Author Contribution

All authors contributed equally to the main contributor to this paper, some are as chairman, member, financier, article translator, and final editor. All authors read and approved the final paper.

Conflicts of Interest

All authors declare no conflict of interest.

REFERENCES

[1]   A. Luthfia, F. Handayani, F. M. Gasa, S. Ramadanty, and A. R. Ridzuan, "Navigating the Cyber Frontier: Youth Capabilities

to Confront Dis/Misinformation with Digital Literacy and Digital Security," in *2023 17th International Conference on Telecommunications (ConTEL)*, IEEE, Jul. 2023, pp. 1–8. https://doi.org/10.1109/ConTEL58387.2023.10198919.

[2]   N. Sirlin, Z. Epstein, A. A. Arechar, and D. G. Rand, "Digital literacy is associated with more discerning accuracy judgments but not sharing intentions." Aug. 21, 2021. https://doi.org/10.31234/osf.io/7rb2m.

[3]   S. N. Tambe and N. A.-H. K. Hussein, "Exploring the Impact of Digital Literacy on Media Consumer Empowerment in the Age of Misinformation," *MEDAAD*, vol. 2023, pp. 1–9, Jan. 2023, https://doi.org/10.70470/MEDAAD/2023/001.

[4]   N. Steinfeld, "How Do Users Examine Online Messages to Determine If They Are Credible? An Eye-Tracking Study of Digital Literacy, Visual Attention to Metadata, and Success in Misinformation Identification," *Soc. Media + Soc.*, vol. 9, no. 3, Jul. 2023, https://doi.org/10.1177/20563051231196871.

[5]   A. M. Guess *et al.*, "A digital media literacy intervention increases discernment between mainstream and false news in the United States and India," *Proc. Natl. Acad. Sci.*, vol. 117, no. 27, pp. 15536–15545, Jul. 2020, https://doi.org/10.1073/pnas.1920498117.

[6]   K. Aslett *et al.*, "Testing the Effect of Information on Discerning the Veracity of News in Real Time," *J. Exp. Polit. Sci.*, vol. 11, no. 3, pp. 262–276, Nov. 2024, https://doi.org/10.1017/XPS.2023.20.

[7]   S. Narula, "Combating Fake News through Media and Information Literacy in India," *J. Content, Community Commun.*, vol. 4, no. 8, pp. V–VI, Dec. 2018, https://doi.org/10.31620/JCCC.12.18/01.

[8]   R. C. Moore and J. T. Hancock, "A digital media literacy intervention for older adults improves resilience to fake news," *Sci. Rep.*, vol. 12, no. 1, p. 6008, Apr. 2022, https://doi.org/10.1038/s41598-022-08437-0.

[9]   V. Isidori *et al.*, "Digital Technologies and the Role of Health Care Professionals: Scoping Review Exploring Nurses' Skills in the Digital Era and in the Light of the COVID-19 Pandemic," *JMIR Nurs.*, vol. 5, no. 1, p. e37631, Oct. 2022, https://doi.org/10.2196/37631.

[10]   P. Kumar, F. Huda, and S. Basu, "Telemedicine in the COVID-19 era: the new normal," *Eur. Surg.*, vol. 52, no. 6, pp. 300–301, Dec. 2020, https://doi.org/10.1007/s10353-020-00666-9.

[11]   M. Samadbeik, P. Bastani, and F. Fatehi, "Bibliometric analysis of COVID-19 publications shows the importance of telemedicine and equitable access to the internet during the pandemic and beyond," *Heal. Inf. Libr. J.*, vol. 40, no. 4, pp. 390–399, Dec. 2023, https://doi.org/10.1111/hir.12465.

[12]   R. Sun, D. W. Blayney, and T. Hernandez-Boussard, "Health management via telemedicine: Learning from the COVID-19 experience," *J. Am. Med. Informatics Assoc.*, vol. 28, no. 11, pp. 2536–2540, Oct. 2021, https://doi.org/10.1093/jamia/ocab145.

[13]   V. S. Vasiliou, I. Philia, C. Drosatou, E. Mitsi, and I. Tsakonas, "LeadinCare: A Qualitative Informed Digital Training Platform Development to Increase Physicians' Soft Communication Skills After COVID-19," *Psychol. Health Med.*, vol. 29, no. 1, pp. 39–54, Jan. 2024, https://doi.org/10.1080/13548506.2023.2206144.

[14]   A. Kelmaganbetova and M. Luchik, "Non-verbal means of communication of young people," *Bull. Karaganda Univ. Philol. Ser.*, vol. 105, no. 1, pp. 95–101, Mar. 2022, https://doi.org/10.31489/2022ph1/95-101.

[15]   S. Birlik and J. Kaur, "BELF expert users: Making understanding visible in internal BELF meetings through the use of nonverbal communication strategies," *English Specif. Purp.*, vol. 58, pp. 1–14, Apr. 2020, https://doi.org/10.1016/j.esp.2019.10.002.

[16]   N. Thümler, "How to sell without words: What science knows about nonverbal behavior in personal sales and service," *Manag. Mark.*, vol. 17, no. 4, pp. 503–527, Dec. 2022, https://doi.org/10.2478/mmcks-2022-0028.

[17]   L. E. Uwatt, A. E. Timothy, E. Obiekezie, V. U. Uguma, V. E. Ironbar, and G. Ukume, "Verbal and Nonverbal Communication and Nigerian University Workplace Peacefulness," *Int. J. Membr. Sci. Technol.*, vol. 10, no. 3, pp. 1140–1155, Aug. 2023, https://doi.org/10.15379/ijmst.v10i3.1697.

[18]   B. Swire-Thompson and D. Lazer, "Public Health and Online Misinformation: Challenges and Recommendations," *Annu. Rev. Public Health*, vol. 41, no. 1, pp. 433–451, Apr. 2020, https://doi.org/10.1146/annurev-publhealth-040119-094127.

[19]   A. Krishna and T. L. Thompson, "Misinformation About Health: A Review of Health Communication and Misinformation Scholarship," *Am. Behav. Sci.*, vol. 65, no. 2, pp. 316–332, Feb. 2021, https://doi.org/10.1177/0002764219878223.

[20]   M. Ebrahimi, "Counteracting Online Health Misinformation," 2022, pp. 90–101. https://doi.org/10.4018/978-1-7998-8235-0.ch005.

[21]   D. Kbaier, A. Kane, M. McJury, and I. Kenny, "Prevalence of Health Misinformation on Social Media—Challenges and Mitigation Before, During, and Beyond the COVID-19 Pandemic: Scoping Literature Review," *J. Med. Internet Res.*, vol. 26, p. e38786, Aug. 2024, https://doi.org/10.2196/38786.

[22]   P. J. Fitzpatrick, "Improving health literacy using the power of digital communications to achieve better health outcomes for patients and practitioners," *Front. Digit. Heal.*, vol. 5, Nov. 2023, https://doi.org/10.3389/fdgth.2023.1264780.

[23]   E. Dmitrieva, "Patient - Health Care Provider Communication In The Digital Era," *Communicology*, vol. 8, no. 3, pp. 150–162, Sep. 2020, https://doi.org/10.21453/2311-3065-2020-8-3-150-162.

[24]   H. K. Y. Almathami, K. T. Win, and E. Vlahu-Gjorgievska, "Barriers and Facilitators That Influence Telemedicine-Based, Real-Time, Online Consultation at Patients' Homes: Systematic Literature Review," *J. Med. Internet Res.*, vol. 22, no. 2, p. e16407, Feb. 2020, https://doi.org/10.2196/16407.

[25]   赵智美, "Research on Short Videos of Medical Science and Health Communication on TikTok Platform," *Journal. Commun.*, vol. 11, no. 03, pp. 424–429, 2023, https://doi.org/10.12677/JC.2023.113065.

[26]   W. Zhang, J. Mei, W. Song, R. Evans, and Y. Xiang, "Why Do Citizens Engage With the TikTok Accounts of Public Hospitals in China?," *Sage Open*, vol. 11, no. 4, Oct. 2021, https://doi.org/10.1177/21582440211061568.

[27]   S. Che and J. H. Kim, "Sentiment Impact of Public Health Agency communication Strategies on TikTok under COVID-19 Normalization: Deep Learning Exploration," *J. Public Health (Bangkok).*, vol. 32, no. 8, pp. 1559–1570, Aug. 2024, https://doi.org/10.1007/s10389-023-01921-5.

[28]   S. Che, S. Zhang, and J. H. Kim, "How public health agencies communicate with the public on TikTok under the normalization of COVID-19: A case of 2022 Shanghai's outbreak," *Front. Public Heal.*, vol. 10, Nov. 2022, https://doi.org/10.3389/fpubh.2022.1039405.

[29]   Q. Chen, C. Min, W. Zhang, X. Ma, and R. Evans, "Factors Driving Citizen Engagement With Government TikTok Accounts During the COVID-19 Pandemic: Model Development and Analysis," *J. Med. Internet Res.*, vol. 23, no. 2, p. e21463, Feb. 2021, https://doi.org/10.2196/21463.

[30]   A. Nurdin and D. Rahmadani, "Creative Communications on Tiktok," *Proc. Int. Conf. Da'wa Commun.*, vol. 3, no. 1, pp. 308–323, Nov. 2021, https://doi.org/10.15642/icondac.v3i1.507.

[31]   T. Ottosen, N. S. Mani, and M. N. Fratta, "Health information literacy awareness and capacity building: Present and future," *IFLA J.*, vol. 45, no. 3, pp. 207–215, Oct. 2019, https://doi.org/10.1177/0340035219857441.

[32]   A. Caton, D. Bradshaw-Wardis, K. Kinshuk, and W. Savenye, "Future Directions for Digital Literacy Fluency using Cognitive Flexibility Research: A Review of Selected Digital Literacy Paradigms and Theoretical Frameworks," *J. Learn. Dev.*, vol. 9, no. 3, pp. 381–393, Nov. 2022, https://doi.org/10.56059/jl4d.v9i3.818.

[33]   N. N.B. and R. R. Varghese, "Literature on Information Literacy," *DESIDOC J. Libr. Inf. Technol.*, vol. 41, no. 4, pp. 308–315, Aug. 2021, https://doi.org/10.14429/djlit.41.4.16405.

[34]   K. Hostetler and T. Luo, "Managing cognitive load in information literacy instruction," *Educ. Technol. Res. Dev.*, vol. 69, no. 2, pp. 583–606, Apr. 2021, https://doi.org/10.1007/s11423-021-09962-x.

[35]   A. R. Priwati and A. F. Helmi, "The manifestations of digital literacy in social media among Indonesian youth," *Humanit. Indones. Psychol. J.*, vol. 18, no. 1, p. 14, Feb. 2021, https://doi.org/10.26555/humanitas.v18i1.17337.

[36]   M. M. Mehanna, "Design of Clinical Trials and Ethical Concerns in Neurosciences," *Int. J. Res. Ethics (ISSN 2665-7481)*, vol. 5, no. 1, Feb. 2022, https://doi.org/10.51766/ijre.v5i1.115.

[37]   D. Watts, J. D'Souza, M. A. Azevedo, G. Chaimowitz, and F. Kapczinski, "Stigmatized individuals: a case for precision ethics," *Trends Psychiatry Psychother.*, 2023, https://doi.org/10.47626/2237-6089-2021-0354.

[38]   B. C. Stahl, S. Akintoye, B. T. Fothergill, M. Guerrero, W. Knight, and I. Ulnicane, "Beyond Research Ethics: Dialogues in Neuro-ICT Research," *Front. Hum. Neurosci.*, vol. 13, Mar. 2019, https://doi.org/10.3389/fnhum.2019.00105.

[39]   R. Schmälzle and D. Meshi, "Communication Neuroscience: Theory, Methodology and Experimental Approaches," *Commun. Methods Meas.*, vol. 14, no. 2, pp. 105–124, Apr. 2020, https://doi.org/10.1080/19312458.2019.1708283.

[40]   T. Gargot, "Could Computational Approaches Challenge How we Understand and Tackle Mental Disorders Stigma?," *Eur. Psychiatry*, vol. 65, no. S1, pp. S61–S61, Jun. 2022, https://doi.org/10.1192/j.eurpsy.2022.198.

[41]   R. A. Smith and A. Applegate, "Mental health stigma and communication and their intersections with education,"

Commun. Educ., vol. 67, no. 3, pp. 382–393, Jul. 2018, https://doi.org/10.1080/03634523.2018.1465988.

[42]   J. B. Bavelas, "Pragmatics of Human Communication 50 Years Later," *J. Syst. Ther.*, vol. 40, no. 2, pp. 3–25, Jun. 2021, https://doi.org/10.1521/jsyt.2021.40.2.3.

[43]   B. Pantev, "Husserl's Theory of Communication," *Theory, Cult. Soc.*, vol. 37, no. 6, pp. 3–23, Nov. 2020, https://doi.org/10.1177/0263276420915496.

[44]   A. Toledo-Chávarri, A. T. Castaño, J. D. Rodríguez, A. A. Sacks, and P. Serrano-Aguilar, "PP149 A Multidimensional And Multistakeholder Approach: Assessing Ethical, Legal, Organizational, Social or Patient-centered (ELSI+) for Telemedicine In Neurological Diseases," *Int. J. Technol. Assess. Health Care*, vol. 38, no. S1, pp. S88–S88, Dec. 2022, https://doi.org/10.1017/S0266462322002616.

[45]   C. S. Biyani *et al.*, "First urology simulation boot camp in the United Kingdom," *African J. Urol.*, vol. 23, no. 3, pp. 258–267, 2017, https://doi.org/10.1016/j.afju.2017.03.002.

[46]   B. Zhao *et al.*, "Making the Jump: A Qualitative Analysis on the Transition From Bedside Assistant to Console Surgeon in Robotic Surgery Training," *J. Surg. Educ.*, vol. 77, no. 2, pp. 461–471, 2020, https://doi.org/10.1016/j.jsurg.2019.09.015.

[47]   S. Yang, R. A. Carter, L. Zhang, and T. Hunt, "Emanant themes of blended learning in K-12 educational environments: Lessons from the Every Student Succeeds Act," *Comput. Educ.*, vol. 163, 2021, https://doi.org/10.1016/j.compedu.2020.104116.

[48]   Barsihannor, M. Ilham, A. T. Saputra, and A. Syatar, "Abdullah Saeed's Construction of the Hierarchy of Values in the Qur'ān: A Philosophical Hermeneutic Perspective," *J. Islam. Thought Civiliz.*, vol. 13, no. 1, pp. 119–132, 2023, https://doi.org/10.32350/jitc.131.09.

[49]   S. Semerikov, I. Teplytskyi, Y. Yechkalo, O. Markova, V. Soloviev, and A. Kiv, "Computer simulation of neural networks using spreadsheets: Dr. Anderson, welcome back," in *CEUR Workshop Proceedings*, E. V., M. F., Y. V., Y. V., K. V., K. V., K. A., K. H., N. M., S. S., and S. A., Eds., Kryvyi Rih State Pedagogical University, 54, Gagarina Ave., Kryvyi Rih, 50086, Ukraine: CEUR-WS, 2019, pp. 833–848. [Online]. Available: https://www.scopus.com/inward/record.uri?eid=2-s2.0-85069465467&partnerID=40&md5=c8ae91f6be11190e888e091960d611bd

[50]   A. V Babkin, D. D. Burkaltseva, A. V Betskov, H. S. Kilyaskhanov, A. S. Tyulin, and I. V Kurianova, "Automation digitalization blockchain: Trends and implementation problems," *Int. J. Eng. Technol.*, vol. 7, no. 3.14 Special Issue 14, pp. 254–260, 2018, https://doi.org/10.14419/ijet.v7i3.11.16020.

[51]   F. León-Vargas *et al.*, "Is a cloud-based platform useful for diabetes management in Colombia? The Tidepool experience," *Comput. Methods Programs Biomed.*, vol. 208, 2021, https://doi.org/10.1016/j.cmpb.2021.106205.

[52]   B. O'Donoghue, K. O'Connor, A. Thompson, and P. McGorry, "The need for early intervention for psychosis to persist throughout the COVID-19 pandemic and beyond," *Ir. J. Psychol. Med.*, vol. 38, no. 3, pp. 214–219, 2021, https://doi.org/10.1017/ipm.2020.56.

[53]   S. V Afshar, S. Eshaghi, and I. Kim, "Pattern Analysis of Virtual Landscape within Educational Games," *J. Digit. Landsc. Archit.*, vol. 2022, no. 7, pp. 435–442, 2022, https://doi.org/10.14627/537724042.

[54]   I. N. D. Silva, J. Garcia-Zubia, U. Hernandez-Jayo, and J. B. D. M. Alves, "Extended Remote Laboratories: A Systematic Review of the Literature From 2000 to 2022," *IEEE Access*, vol. 11, pp. 94780–94804, 2023, https://doi.org/10.1109/ACCESS.2023.3271524.