interface
comunicação, saúde, educação
https://www.interface.org.br
eISSN 1807-5762

Articles

Meta-presentiality, Digital Health, and Collective Health

Metapresencialidade, Saúde Digital e Saúde Coletiva (resumo: p. 17)

Metapresencialidad, Salud Digital y Salud Colectiva (resumen: p. 17)

Naomar de Almeida Filho[a]
<naomaralmeida@gmail.com>

[a] INCTI Inovação, Tecnologia e Equidade em Saúde, Instituto de Saúde Coletiva, Universidade Federal da Bahia. Rua Basílio da Gama, s/n, Canela. Salvador, BA, Brasil. 40110-040.

In this essay, I present preliminary reflections on digital technologies as new forms of health promotion in the contemporary world. First, I introduce the concepts of technology, reality, presence, virtual reality, and extended reality, through critical realism. Second, I discuss the emerging concept of meta-presentity as fundamental for the socio-technical appropriation of digital technologies in the fields of Education and Health. Third, I critically analyze the notion of Distance Education, in contrast to the idea of meta-presential learning spaces, in the context of an innovative model of Higher Education. Fourthly, I briefly discuss Digital Health as a set of knowledge, techniques, and practices capable of overcoming the dualism of "hard " vs. "soft" technologies in health. Finally, I evaluate epistemological issues specific to the field of Collective Health, to redefine telehealth as health care mediated by meta-presentiality.

Keywords: Digital technologies. Digital health. Collective health. Telehealth. Meta-presentiality.

Almeida Filho N. Meta-presentiality, Digital Health, and Collective Health. Interface (Botucatu). 2024; 28: e240132
https://doi.org/10.1590/interface.240132

Introduction

Around the world, in contexts traversed by technoscience, especially in the fields of Education and Health, the use of Information and Connectivity Technologies (ICT) has been increasingly expanded[1]. Instead of the conventional expression "information and communication technologies", the acronym ICT here appears re-signified by the term "connectivity", based on the observation that themes and problems pertinent to human social communication, especially in the area of Health, far extrapolate the restricted operational sense of information systems and interconnected networks, necessary and sufficient in the focus of this text.

During the Covid-19 pandemic, epidemiological control measures based on physical distancing had a profound impact on the field of Education, with the suspension of teaching activities in the physical environment of schools, colleges, and universities[2]. New technical objects, emerging technologies, and pedagogical innovations have been developed to enable digital interface modalities in networks connected in real-time, allowing to extrapolate physical, social, and institutional limits of the school environment far beyond the old Distance Education (DE)[3].

In the field of Health, Digital Health Technologies (DHT) have been used both at the clinical-individual level and at the collective-population level[4]. At the clinical level, especially in individual health care, increasingly powerful computer programs are already capable of performing a complex and diversified series of diagnostic and therapeutic support tasks. At the population level, mega databases, fed by increasingly fast and powerful digital networks, connected in interconnected systems, provide greater instrumental effectiveness in the spheres of public health policies. To understand the set of knowledge, practices, and techniques that has been called Digital Health (DH), I have been trying to elaborate, pursuing a greater degree of consistency and rigor, a conceptual series pertaining to: the processes of formation of subjects with transformative capacity – Critical Technological Competence[5]; the internal level of health practices – Quality-Equity[6]; and the operational framework of ubiquity made possible by the DHT – Meta-presence[7].

In this article, taking the concept of meta-presentiality as a conceptual foundation for new practices of care and promotion of individual and Collective health, I present some reflections on the use of DHT in the contemporary world. Firstly, I introduce the concepts of technology, central to the theories of Álvaro Vieira Pinto, Milton Santos, and Ricardo Bruno Mendes-Gonçalves, and the concepts of reality, place, and presence, highlighting the notions of virtual reality and extended reality, through the philosophy of information of Luciano Floridi and the critical epistemology of Juan Samaja. Secondly, I present the emerging concept of meta-presentiality as a foundation for a socio-technical appropriation of digital technologies in the fields of Education and Health. Third, I critically analyze the notion of Distance Education (DE), in contrast to the idea of Meta-Presential Learning Space (MPLS) that underpinned the project of an innovative model of higher education based on a practical conception of meta-presence. Fourthly, I briefly discuss Digital Health (DH) as a set of knowledges, technologies,

techniques, and practices capable of overcoming the dualism between "hard " and "soft " technologies in health care. Finally, I evaluate epistemological and pragmatic issues specific to the field of Collective Health, to redefine telehealth as health care mediated by meta-presentiality.

Conceptual foundations

According to Álvaro Vieira Pinto[8], the term technique refers to how the productive acts of the human being are performed, materializing in instruments, machines, and artifacts that transform nature, humanizing it through culture. From a semantic point of view, the term technology comprises a metonymy, useful to designate material technical objects operated by techniques, guided by technologies, and justified by a technological ideology[8]. The concept of technology refers to knowledge about technique; however, in the common social discourse, the notion of technology often boils down to technique, or sets of techniques, equating process and discourse. As a derivation of this lay connotation, the anthropological conception of technology comprises the set of techniques developed and appropriated in a given period of history[9].

For Milton Santos[10], techniques should be understood not only in their material dimension, but also in their immaterial aspects, as a set of instrumental and social means by which human beings carry out their lives, producing and, at the same time, creating space, time, and technique. In this framework, he proposes to approach the technical phenomenon as a complex totality, given that it is not possible to conceive of a rigid separation between "a geographical environment on the one hand and a technical environment on the other" (p. 35)[10]. In late capitalism, which instrumentalizes cybernetics as a general platform for production, distribution, and commercialization of goods, products, and services, ICTs become fundamental to redefining geographic and geopolitical landscapes. For this reason, Santos[10] designates as "technical-scientific-informational" era (p. 132) the contemporary context of globalized capitalism that results in the historical movement of digital colonialism[1].

When critically evaluating the dominant thinking on the issue of health technology, Ricardo Bruno Mendes-Gonçalves[11] classifies four approaches, suggesting a progressive gradient of complexity (p. 203-5). First, the concept of technology is used to designate a certain set of "things", in principle indifferent to the structural determinations of society, referring to the so-called "technological objects" that carry an essential reality in itself, "things in themselves", before and outside their relation to the other designated aspects of reality (work, production, society). In a second aspect, technology is recognized by the technological quality of the objects that compose it, taken as mediators of man's transforming action on nature. Here, technology is immanent potency or ontological property of "technological things", technologies as "things-in-themselves" with productive potency. In a third aspect, the work of producing knowledge, from a Science mythologized as a producer of certainties and absolute truths, is attributed to the main role in the genesis of what appears as the unveiling of the productive powers of nature. The fourth and last aspect, to be considered in the predominant theories and discourses on technology, is the subordination of the operative concept of technology to the more general idea of scientific-technological development and technical progress[11].

The conception of technology as an ideology reveals the power of technocentrism, an overvaluation of technology that feeds the social imaginary of the contemporary world, capable of transforming technology into mythology[12]. In this context, the term digital (from the Latin *digitus*, root of "finger" and "digit", in the sense of number) designates systems and processes carried out by the numerical coding of signals, data, and information, as well as their effects, in addition to qualifying technical objects whose functionality and operation depend on strings of commands made possible by logical systems expressed as algorithms. At the same time, the adjective "virtual" refers to the effects of simulation and modeling of environments, spaces, objects, systems, and processes using signs and syntaxes in binary code. In this specific sense, digital technologies allow the encoding and condensation of signals, data processing, transmission, and integration of image and sound, generating immersion devices that are increasingly efficient from the sensory point of view, pertinent to a state of virtually constructed reality[13].

Luciano Floridi[14,15] assumes that the natural world is configured in informational ecosystems, in a space of realities and temporalities that are simultaneously natural and informational. The ontological problematique of Floridian informational realism focuses on the difference between material reality and virtual reality. As I indicated elsewhere[7], in order to support an understanding of these new realities and guide practices made possible by digital techniques-innovations-solutions, we can consider the following glossary: a) Restricted Reality – physical environment in which beings relate to each other directly, with synchronous material presence of the subjects; b) Projected Reality – reproduction of restricted reality environments through telepresence, with technological mediation that projects as image processes and situations in time and space; c) Augmented Reality (AR) (or extended) – extension of the real-concrete environment that takes place in a direct, synchronous way, and can take place through virtual presence (or telepresence), made possible by the use of digital devices for context reproduction; d) Virtual Reality (VR) – a fully simulated environment, detached from a concrete material matrix, with microecological references converted to digital signals that, decoded and reconverted into sensory stimuli, provide experiential perceptions of immersion[13].

On a practical level, with the advent of digital image and sound technologies, new forms of reality imply new territorialities, made possible by devices and systems of production of immaterial contexts[16].

From this epistemological perspective, the construction of reality results from a fundamental dialectic between systematic knowledge established as theory, through matrices or explanatory models, and the problems generated by the permanent reference to the empirical field, that is, in close and inevitable interaction with reality. Based on this framework, I propose a critical stance towards the numerous concepts of information that predominate in the epistemologies of the global north. Likewise, I reject the idea of the materiality of information in a concrete world, which is the foundation of the theories inspired by the semantic turn of neopragmatism that has dominated the field of the so-called "information sciences"[16,17].

Finally, I find promising the approaches to the digital world based on the critical realism postulated by Roy Bhaskar[18] and Juan Samaja[19], which provide a denser understanding of socio-historical phenomena, allowing the establishment of connections between concepts and theories as a mode of production of knowledges, practices, and techniques. The techno-scientific mode of production comprises a productive process of concepts, models, theories, and values defined by specific attributes and peculiar processes; by definition, distinct from the mode of production in general[18]. For Samaja[19], the methodological and analytical praxis of the sciences, marked by limits and conditions of concrete reality, but not the material properties of events or phenomena, is decisive for producing scientific knowledge.

Concepts of meta-presence and meta-presentiality

Recently, I had the opportunity to critically evaluate the concepts of presence, telepresence, and meta-presence to propose the operative concept of meta-presentiality applied to health[7]. Undoubtedly, the issue of human presence has been highly valued in research on the fundamentals, processes, and impacts of ICT, especially in the field of Education[20]. Although little mentioned, theories of presence are fundamental for critical approaches to pedagogical practice, from the pioneering contributions of Deweyan pragmatism to recent Freirean phenomenological approaches. For teachers, being present implies awareness of themselves, of their institutional contexts, and, above all, of the connections based on knowledge and trust, created every day with students, their parents, and community members; for students, attendance requires awareness of the history, the place and, above all, the learning of each student, in dialogue with classmates and teachers[21].

The word presence originates from the Old French *présence* (12th century), directly from the Latin *praesentia*, meaning the condition of "being in one place and not in another"[22]. However, the advent of ICTs soon made it possible to overcome the limits of physical presence in contexts of restricted reality, through telepresence or virtual presence[23]. The prefix "tele-" originates from the Ancient Greek τῆλε, meaning "remote, distant, at a distance, far from"[22]. In the field of computer science, the notions of telepresence and virtual presence were pioneered in the early 1980s[24]. In the 1990s, semantic distinctions between natural presence, sensory presence, and telepresence were proposed[25]; and, in recent decades, the notions of copresence and social telepresence have appeared[26].

The prefix "meta-" comes from the ancient Greek μετά, meaning "beyond, after, or behind"; in the first two senses, it corresponds to the Latin prefix "trans-"[22]. In philosophical jargon, it acquired the sense of "transcendence" by designating metaphysics as one of the branches of classical philosophy. In the glossary of the philosophy of knowledge and the sciences of language, it carries the connotation of reflexive or recursive, incident on oneself or other things of the same kind, referring to a level above or beyond. Thus, metalanguage designates the language that analyzes a language; metadata is data that encodes other data; metanalysis is an analysis of analyses; metascience is a science that studies the sciences.

In the field of technosciences, the prefix "meta-" has been little used to requalify concepts derived from face-to-face learning. Balsemão-Pires[27] used the word meta-presence in a semantic analysis of the role of imagination in the ideological production of social consciousness, designating an imaginary presence that marks the physical absence of a symbolic subject. At the same time, Cuberos[28] proposed a triple classification of modes of cognition: face-to-face, telepresence, and meta-presence (p. 24). Even without explicit reference to these initial contributions, the signifier meta-presence has also been used in critical studies in the field of the arts, particularly on cinema[29] and literature[30]. These references to meta-presentiality have occurred at a proto-conceptual level, without greater epistemological rigor.

A more detailed formalization of the concepts of meta-presence and meta-presential was recently presented by Alves[31], to analyze the online condition in the framework of cybercultural studies through Baudrillard's theory of simulacra[32]. For him, the concept of presence needs to be completely revised, considering that the experiential bases of social presence impose a sensation of presence of the biological body in a cybernetic world[31]. Given the technical potentiality of emission, reception, and transfer of signals for the creation of mental images, as if it were a sensory consciousness, the absent physical-material body assumes a phantasmatic form of virtual presence or meta-presence. In communication processes mediated by information technologies, meta-presence functions through a technical process of simulation that Alves[31] calls "duplication of the self by a digital support", creating and maintaining "a spectral countenance of the individual who remains always online, always in a network, a simulacrum of his presence" (p. 11).

In the cybernetic world, technical forms of telecommunication determine a certain deterritorialization of identity that, as a political form, promotes new modalities of presence (telepresence or meta-presence) through digital encoding and transcription of the physical body in the communicative act[33]. Made possible by the autonomy of cybernetic media, online status is materialized as a form of simulacrum[32], without certification of validity, materiality, or even synchrony (provided by advances in digital data storage devices). For Alves[31], because of this online condition, mental matrices that previously allowed distinguishing between absence and presence are overcome by references based on a constant meta-presence (which he calls metapermanence) demarcated by the virtual impossibility of absence itself.

In this proto-conceptual construction, a semantic transition from descriptive notation (meta-presence) to the demarcation of an attribute (meta-presentiality) can be observed. As I have pointed out[7], these essays on the theoretical application of the idea of meta-presence in the information, communication, and related sciences merely make fleeting or lacuna mention to the matrices of countercolonial thought because they are based on an epistemological-conceptual framework from the global north[1]. However, none of these initiatives originally made explicit the intention of developing and treating the concept of meta-presentiality in a theoretical-critical framework, integrated with a historical-political perspective.

Distance Education vs. Meta-presentiality

With the advancement of ICT in the field of Education, it was finally possible to propose, develop, and apply technical solutions that generate accessibility, scale, deepening, and ubiquity, relatively effective for the organization of knowledge and planning of the teaching-learning process, in an integrated way, guided by updated pedagogical conceptions, especially for adult learning. At first, this trend had wide repercussions in the educational environment with the use of an operative notion of Distance Education (DE), with all its limitations and controversies[3,34,35].

In the current Brazilian educational scenario, one of the most discussed issues has been the effectiveness of distance learning models, in particular their pedagogical effects and political meanings. The notion of DE in force in Brazil dates back to the Law of Guidelines and Bases of Education (Law 9394/96)[36], approved at the end of the last century when the internet was only consolidating itself as an alternative means of communication; there was little development in image, sound and connectivity technologies; access to individual communication devices had not yet become popular; nor had the digital sociability systems of social networks been invented. Later updates, such as CNE/CEB Opinion No. 12/2012[37], which defined Operational Guidelines for the provision of DE courses, maintained the outdated perspective of non-face-to-face teaching, and limited using recorded classes and pre-programmed materials. Recognizing the advances in digital education, Decree 9057/2017[38] established standards for DE courses based on the real-in-person versus virtual-remote dichotomy. To reduce pedagogical losses and cognitive damage resulting from the Covid-19 health crisis, the DE regulation was updated in Opinion CNE/CP 11/2020[39], in practice embracing all the conceptions and terminologies that existed at the time, without further effort in selection, systematization or conceptual elaboration. In this and other documents, the official norm simply lists diversified, overlapping, and even contradictory terms, with the predominance of significant markers of physical distance, especially the terms "remote" and "non-presential", reaffirming the exclusionary binary conception between local-face-to-face and remote-non-face-to-face, and accepting so-called hybrid formats, especially in the private education sector[35].

The expansion of private education, which occurred during and after the Covid-19 pandemic, massively incorporated principles, models, and practices of conventional DE, without resolving the issues of quality, inequality, conceptual bias, and terminological confusion[2]. These are pre-programmed teaching models, ensuring greater supply, territorial coverage, and profitability, which have been guided by a conservative pedagogical conception. Such models, in various versions, both analog and digital, at the limit dispense with the teacher physical presence and, even more frequently, are declared "non-face-to-face activities" from the student's point of view. Proposals for education without teachers have been denounced as a simplistic approach to complex processes, mere standardization of didactic devices to reduce personnel and contain costs to increase profitability[40]. In this conventional perspective, based on a linear conception of temporality, the notion of synchronicity can be taken as an explanatory category of the material presence of the actors in the educational process, based on a typology referring to learning devices that classifies

them, in a temporal dichotomy, as synchronous or asynchronous actions[41]. Thus, the notion of Distance Education tends to be overcome by a more comprehensive conception of ICT-mediated teaching-learning, which can be referred to here as Digital Open Education (in Portuguese, with the advantage of maintaining the acronym EAD).

In 2012-2013, I had the privilege of participating in the development of an operational conception of meta-presential learning as part of the project of an innovative model of Higher Education: at the Federal University of Southern Bahia (UFSB). In the original UFSB project[42], as a critical alternative to the notion of distance education, we evaluated numerous technological solutions to produce a sense of presence or telepresence, available in the specialized literature. Aiming at the democratization of education through the use of digital technologies, we tried to overcome limitations of physical material presence through strategies to restructure the pedagogical space and the teaching-learning relationship through synchronous online remote access via meta-presence and asynchronous digital access[35,43]. Through proactive practice, we sought to overcome the limited idea of distance learning, creating and testing immersive environments and real-virtual situations in the concrete process of implementing the new university institution. To this end, we designed teaching-learning environments as collective spaces and places, in real, virtual, or real-virtual situations, in which the student could experience and explore real, potential, or pre-programmed issues and problems, cultivating self-learning attitudes integrated with formative demands and needs[42,43].

In this experiment[35,42], subverting established certainties about the space-time of teaching-learning spaces, we tested the concept of MPLS, materializing the idea of a "virtual wall", or "digital window", as an immersive and collective audiovisual interface. At the MPLS, students and teachers access programs, and share applications and databases "in the cloud", allowing storage and retrieval of materials and pedagogical records generated at any point in the digital network. This architectural-informational arrangement, of very low cost, enhances the reality of the encounter so that the MPLS is no longer configured as an exclusively virtual environment since it includes the concrete reality of all forms of presence, material and virtual, synchronous and asynchronous, local and remote[42-45].

Seeking a conceptually rigorous elaboration, we designate the presence of subjects in virtual learning environments as meta-presence, proposing meta-presentiality as a concept that supports this formulation[43]. This theoretical-methodological co-creation effort includes a conscious appropriation of the polysemic prefix "meta-", with the resulting proposition of the concepts of meta-presence and meta-presentiality applied to the design of an open, inclusive, and territorialized higher education model[42-46]. In the process of socio-technical appropriation conducted at UFSB, the notion of meta-presence is concretized as a "concept in a practical state" (p. 170), in the sense established by Althusser[47].

In the fields of Education and Health, when considering various forms of presence – real-material-concrete, as well as digital-virtual-informational – many studies adopt different conceptions: virtual presence, copresence, telepresence, and even hyperpresence and holistic presence[21-26]. In Brazil, for an analysis of the presence-absence dialectic in the context of the Covid-19 pandemic, Akerman and Moysés[2] used the notions of telepresence, social presence, copresence, and meta-presence, referring directly to Baudrillard[32], Floridi[15], Tori[3] and Alves[31]. Akerman & Moysés[2] defined meta-presence as "social presence mediated by technology" (p. 24), without mentioning the developments of the concept of meta-presence at UFSB[35,42-46].

Meta-presentiality and Digital Health

Given that physical presence can be complemented with virtually reconstructed forms of presence, taking as a reference digital technology that produces immersive perceptions, I recently proposed the concept of meta-presence as fundamental for a critical theory of Digital Health[7]. In the field of Health, the notion of telepresence occurs more frequently, reinforced by the correspondence with the ideas of telemedicine and telehealth that have already achieved great acceptance, especially after the Covid-19[48] pandemic. To justify my preference for the prefix "meta-", instead of reinforcing the conception of "tele-" as distant, I weighed some criteria of epistemological consistency and pragmatic advantages[7].

First, notwithstanding the existence of an inertial semantic pattern, I considered it inappropriate to adopt a conception that was not rigorous from an epistemological point of view, prioritizing the physical-geographical distance to the detriment of the intersubjective proximity of people engaged in the patient's (or user's) relationship with health professionals. Second, the polysemy of the term meta-presence, and its derivative meta-presentiality, opens a horizon of meanings that includes the online condition, reterritorialized as virtualized presence, far beyond the prefix "tele-" which simply means far, remote, at a distance. Third, distancing myself from the opportunistic recovery of the idea of metaverse[33], which enshrines individualism and isolation, I sought integrative possibilities of the real-material and digital-virtual interfaces of meta-presential spaces of health care. Finally, I considered the practical operational issue of the immediate applicability of this concept to the formation of subjects in a digital culture[7]. In this sense, I propose to expand the concept of MPLS that we tested at UFSB as a practical solution to achieve meta-presentiality, capable of incorporating other forms of presence necessary for engagement and motivation, more effective and consistent than distance learning. This implies, by analogy, the creation of Meta-Presential Care Spaces (MPCS), especially regarding the practices called telehealth[7].

The model of care that has been called telehealth implies technological densification, socio-technical appropriation, and techno-social integration of DHT through online platforms,in the form of telemedicine (remote clinical care), telesurgeries (remotely controlled robotic surgical interventions) and teleconsulting (consultation with specialists), which undoubtedly contributes to the advancement and consolidation of a new generation of models of care and potentially reconfiguring the field of Health[49].

Care models based on telehealth, still in the process of being conceived and implemented in different parts of the world, result from innovations in DHT and advances in DH concepts, especially expanding coverage and de-territorializing health care, promoting new participatory strategies[50].

In the literature that has been presented as a theoretical framework for DH, there is a predominance of approaches that are merely descriptive of the physical base (connectivity, equipment, and auxiliary devices), the structures (networks, systems, and databases), the instruments (electronic medical records, self-administered records, and protocols), the operational processes (software, apps, and routines) and the application of digital techniques for problem-solving or referral of interventions in situations of Health[51]. Such studies seem to be more interested in mapping technological applications, aiming to prospect markets for launching products; therefore, they do not seek a denser and more consistent understanding of the set of knowledges, techniques, and practices, capable of guiding a political re-articulation of health ecosystems and their transversalities[52].

One hypothesis to be analyzed is that DH can be considered an emerging field of knowledges, meanings, techniques, and practices in formation. This social field comprises institutional ecosystems, intellectual competencies, operational capacities, and technical skills, as well as a subjective scope (immaterial dimensions that determine a collective know-how) that configures a digital culture whose materialization occurs in multiple dimensions and interconnected social spaces. In convergence with Moraes and Fornazin[4], I have considered the following socio-technical appropriation strategies that define DH[7]:

- Implementation of organizational technologies (structure and process) in all plans, sectors, levels, and dimensions of the Health System.
- Incorporation of care, preventive, and rehabilitative technologies in the health care network, in the form of protocols, consensuses, and therapeutic guidelines.
- Adoption of robotic automation technologies to perform high-precision surgical interventions.
- Introduction, at different scales, of diagnostic technologies in the form of massively used automated tests and structured and remote diagnostic systems.
- Appropriation of digital connectivity technologies to carry out clinical interaction activities in virtual care environments.

In the current global context, which has strong repercussions on the local-national scenario, operative conceptions of reality and presence instrumentalized in DHTs are undoubtedly of interest to the epistemological demarcation necessary for the construction of the new field of DH. In this sense, Floridi[15] proposed the idea of an infosphere, with levels of abstraction and semanticization models that, in short, imply processes of construction of reality. In this way, the modeling process creates a dialectical interface between data, through processes of semanticization of the real, and information, which articulates pragmatic processes capable of generating knowledge. In Floridian terminology[53], processes of production of semantic information enable, in interactive cycles, the production of digital technologies that provide virtualities and realities.

In the case of Digital Health, welcoming the different forms of meta-presence must overcome challenges imposed by restricted conceptions of material reality and physical presence, which result in models of Health Care and increase costs, reduce scale, and restrict access, factors that promote health inequities[7]. At last, it is a matter of generating alternative realities understood in the notions of meta-presence and correlates and the practical concept of meta-presentiality as an effect of socio-technical appropriation of devices and procedures, in the simultaneous plans of health care and health professional training activities[50-52].

Digital Health and Collective Health

As we have seen, throughout the planet, the wide diffusion of mobile devices for internet access, in addition to other technological advances, has made it possible to implement DHTs to improve health conditions, resulting in the improvement of global health promotion strategies, through the set of actions called Digital Health[54]. In Brazil, the concept of DH has driven the adoption of good practices in the Brazilian National Health System (SUS), as indicated in the document "Digital Health Strategy for Brazil 2020-2028"[55].

In the context of Collective Health, this movement implies a wide spectrum of DH-based techno-assistance practices capable of overcoming the dualism between "hard technologies" and, at the opposite pole, the so-called "soft technologies"[56]. In this way, procedural and symbolic variants of practices in the application of scientific knowledge are incorporated, allowing a more theoretical-critical and less instrumental qualification of the term technological[11]. In an epistemologically more rigorous formulation, for its constitution, DH will need to value above all the "critical technological competence" in the formation of the epistemic subjects who construct it politically[6]. In this process, the concept of meta-presentiality can undoubtedly contribute as an interface and simultaneously as a founding component of the academic-disciplinary field and political practices of Digital Health.

The implementation and consolidation of SUS[57] as an important macro public policy have been based on a territorialized logic, on a conventional model of "local health systems" (SILOS) disseminated by PAHO, mainly in Latin America, during the last decades of the 20th century[58]. To ensure universal coverage and comprehensive health care for users, health establishments (primary care units, specialty centers, emergency care units, hospitals, etc.) are positioned in a regionalized, decentralized, and hierarchical physical network[58]. The strategic management of the system is disseminated to all Brazilian municipalities, made possible through the distribution of financial resources *per capita* and remuneration for the provision of services[57]. This model assumes that the health care process is the effect of a face-to-face intersubjective relationship, with a physical presence guided by the clinical relationship that will be, by definition, individualized and artisanal. In fact, in a more critical framework, these assumptions express restrictive or limiting conditions of that complex

material, social, and psychic process that, in the field of health, has been called the doctor-patient relationship or, in its most current version, the user-health service relationship. In any case, it refers to the interpersonal encounter between the subject who suffers, and the professionals trained to promote relationships, carry out practices, apply techniques, and mobilize technologies that enable health care[11].

At the political level, in a viable scenario of radical and profound transformation of the SUS, it is possible to develop, test and apply DHTs that generate immersibility, deepening, meta-presentiality, and ubiquity, providing accessibility, effective for the implementation, in an integrated way, of knowledges and practices for preventive, curative, and rehabilitative action, necessary for the planning, management, and evaluation of health care systems, plans, programs, services, and strategies. Thus, with the future advancement and consolidation of the DH field and its gradual integration and convergence with the scientific principles and ethical-political values of Collective Health, we must overcome the logic of geographic territoriality and restricted face-to-face functionality of local health systems, creating and consolidating health care systems based on meta-presentiality[7].

With the digital transformation of the SUS, health systems with a linear, regionalized, and hierarchical structure – with a physical base planned in a pyramidal structure of serial referral-counter-referral type: basic health unit <=> consultation office <=> specialty center <=> hospital – should evolve to ecosystems models of Digital Health, reticulated or matrixed, self-managed and complex. With the digital transformation, such models will be increasingly de-territorialized or reterritorialized based on meta-presentiality. In this scenario, services, care, management, governance, regulation, and evaluation will be carried out through participatory actions and procedures of monitoring, self-care, health care, and health promotion mediated by DHTs, guided by the theoretical-methodological-pragmatic framework of Digital Health as a space of knowledges, practices, and techniques, integrated conceptually, politically and institutionally with the field of Collective Health. This is an initial propositional formulation, to be the object of critical appropriation and practical development of intersectoral public policies, creatively elaborated, carefully implemented, and rigorously evaluated.

Finally, I hope that the present effort of conceptual elaboration can help the constitution of Digital Health as a field of technological action oriented towards the quality-equity of health care in Brazil, in Latin America, and, in an optimistic view, on a planetary scale.

Conflict of interest

The author has no conflict of interest to declare.

Funding

Study carried out as a Senior Consultant of the Secretariat of Information and Digital Health at the Ministry of Health (Seidigi/MS) in the context of technical cooperation with the Pan American Health Organization – Brazil Representation (CNT/PAHO Service Contract 23-00005655).

Acknowledgments

To the secretary Ana Estela Haddad and colleagues of the Working Group for the Implementation of the SUS Digital Trans-Formation Program. To the coordinator Roseli Lopes and colleagues from the Alfredo Bosi Chair of the Institute of Advanced Studies at USP. To the director Luís Eugenio Portela de Sousa and colleagues from the Institute of Public Collective at UFBA.

Editor
Antonio Pithon Cyrino
Associated editor
Tiago Rocha Pinto

Submitted on
09/27/23
Approved on
02/05/24

References

1. Faustino D, Lippold W. Colonialismo digital: por uma crítica hacker-fanoniana. São Paulo: Boitempo; 2023.
2. Akerman M, Moysés SJ. L'enseignement à distance et la dialectique présence-absence. Revue Santé Scolaire Universitaire. 2021; 12:22-5.
3. Tori R. Educação sem distância: as tecnologias interativas na redução de distâncias em ensino e aprendizagem. 2a ed. São Paulo: Artesanato Educacional; 2017.
4. Moraes I, Fornazin M. Nem tecnoforia nem tecnofobia: abordagem crítica da incorporação das tecnologias digitais na Saúde. In: Paim JS, Almeida-Filho N, organizadores. Saúde coletiva: teoria e prática. 2a ed. Rio de Janeiro: Medbook; 2023. p. 666-88.
5. Almeida-Filho N. Competência tecnológica crítica em Saúde. Interface (Botucatu). 2018; 22(66):667-71. doi: 10.1590/1807-57622018.0257.
6. Almeida-Filho N. Qualidade-equidade em saúde: novos desafios em um estado de mal-estar social. Interface (Botucatu). 2020; 24:e200171. doi: 10.1590/Interface.200171.
7. Almeida-Filho N. Metapresencialidad: concepto fundante de una teoría crítica de la salud digital. Salud Colect. 2023; 19:e4655. doi: 10.18294/sc.2023.4655.
8. Vieira-Pinto A. O conceito de tecnologia. Rio de Janeiro: Contraponto; 2005.
9. Mauss M. Techniques and technology. In: Schlanger N, editor. Techniques, technology and civilization. New York: Berghahn Books; 2006. p. 147-53.
10. Santos M. A natureza do espaço: técnica e tempo, razão e emoção. São Paulo: Hucitec; 1996.
11. Mendes-Gonçalves RB, Ayres JRCM, Santos L, organizadores. Saúde, sociedade e história. São Paulo: Hucitec; 2017. doi: 10.18310/978-85-66659-74-0.
12. Papert S. A critique of technocentrism in thinking about the school of the future [Internet]. Cambridge: M.I.T. Media Lab Epistemology and Learning Memo No. 2; 1990 [citado 20 Set 2023]. Disponível em: https://dailypapert.com/a-critique-of-technocentrism-in-thinking-about-the-school-of-the-future/
13. Steuer J. Defining virtual reality: dimensions determining telepresence. J Commun. 1992; 42(4):73-93. doi: 10.1111/j.1460-2466.1992.tb00812.x.
14. Floridi L. Steps forward in the philosophy of information. Ethics Polit. 2012; 14(1):304-10.
15. Floridi L. The fourth revolution: how the infosphere is reshaping human reality. Oxford: Oxford University Press; 2014.
16. Høstaker R. The immateriality of information. Cybernetics Human Knowing. 2021; 28(1-2):31-45.
17. Bates MJ. Information and knowledge: an evolutionary framework for information science. Inf Res [Internet]. 2005 [citado 20 Set 2023]; 10(4):239. Disponível em: http://www.informationr.net/ir/10-4/paper239.html
18. Bhaskar R. Scientific realism and human emancipation. London: Verso Books; 1986.
19. Samaja J. Epistemología y metodología: elementos para una teoría de la investigación científica. Buenos Aires: EUDEBA; 1993.
20. Lombard M, Ditton T. At the heart of It all: the concept of presence. J Comput Mediat Commun. 1997; 3(2):JCMC321. doi: 10.1111/j.1083-6101.1997.tb00072.x.
21. Rodgers CR, Raider-Roth MB. Presence in teaching. Teach Teach. 2006; 12(3):265-87. doi: 10.1080/13450600500467548.

22. Rey A. Dictionnaire historique de la langue française. Paris: Dictionnaires Le Robert; 1993.

23. Toet A, Mioch T, Gunkel S, Niamut O, Van Erp JBF. Assessment of presence in augmented and mixed reality. PsyArXiv. 2021. doi: 10.31234/osf.io/gvkwx.

24. Minsky M. Telepresence. New York: Omni Magazine; 1980. p. 45-51.

25. Biocca F, IJsselsteijn WA, Freemann J, Lombard M, editors. Immersed in media: telepresence theory, measurement and technology. Oxford: Routledge; 2013.

26. Haddouk L, Milcent C, Schneider B, Van Daele T, Witte NAJ. Telepsychology in Europe since Covid-19: how to foster social telepresence? J Clin Med. 2023; 12(6):2147.

27. Balsemão-Pires E. A individuação da sociedade moderna: investigações semânticas sobre a diferenciação da sociedade moderna. Coimbra: Imprensa da Universidade de Coimbra; 2011.

28. Cuberos R. Dis-localizaciones del orden simbólico en la comunicación móvil celular. Rev Facultad Arquitectura Diseño Universidad Zulia. 2011; 2(24):20-9.

29. Marvell L. Tarkovsky's Solaris and the (im)possibility of a science fiction cinema. In: Redmond S, Marvell L, editors. Endangering science fiction film. New York: Routledge; 2015. p. 132-45.

30. Gill LK. I Represent freedom: diaspora & the meta-queerness of dub theatre. In: Johnson EP, editor. No tea, no shade: new writings in black queer studies. Durham: Duke University Press; 2016. p. 113-30.

31. Alves ML. Status online: ausência de ausência como metapresença [Internet]. In: Anais do 2o Encontro Regional Centro-Sul da ABCiber; 2019; São Paulo. São Paulo: Associação Brasileira de Pesquisadores em Cibercultura; 2019 [citado 20 Set 2023]. Disponível em: https://abciber.org.br/simposios/index.php/centro-sul/IIcentrosul/paper/view/470

32. Baudrillard J. Simulacros e simulação. Lisboa: Relógio D'água; 1991.

33. Losurdo NJ, Grobbel C. AR/VR and the metaverse will (someday) change financial services regulation – here's how [Internet]. London: Goodwin; 2022 [citado 20 Set 2023]. Disponível em: https://www.goodwinlaw.com/en/insights/publications/2022/02/02_16-ar-vr-and-the-metaverse-will-someday

34. Tori R. A presença das tecnologias interativas na educação. ReCet. 2010; 2(1):4-16.

35. Almeida-Filho N. Educação a distância, ambiente virtual de aprendizagem, metapresencialidade: revisão de conceitos. In: Rangel-S ML, Riccio NCR, Guimarães JMM, organizadoras. Educação a distância em saúde coletiva: interfaces na formação profissional. Salvador: EDUFBA; 2016. p. 7-13.

36. Brasil. Presidência da República. Lei n° 9.394, de 20 de Dezembro de 1996. Estabelece as diretrizes e bases da educação nacional. Brasília: Presidência da República; 1996.

37. Brasil. Ministério da Educação. Conselho Nacional de Educação. Parecer CNE/CES Nº: 12/2012. Diretrizes Operacionais Nacionais para a oferta de Educação a Distância. Brasília: Câmara de Educação Superior, Conselho Nacional de Educação; 2012.

38. Brasil. Presidência da República. Decreto n° 9.057, de 25 de Maio de 2017. Regulamenta o art. 80 da Lei nº 9.394, de 20 de Dezembro de 1996, que estabelece as diretrizes e bases da educação nacional. Brasília: Presidência da República; 2017.

39. Brasil. Ministério da Educação. Conselho Nacional de Educação. Parecer CNE/CP Nº: 11/2020. Orientações educacionais para a realização de aulas e atividades pedagógicas presenciais e não presenciais no contexto da pandemia. Brasília: Câmara de Educação Superior, Conselho Nacional de Educação; 2020.

40. Bernard RM, Abrami PC, Lou Y, Borokhovski E, Wade A, Wozney L, et al. How does distance education compare with classroom instruction? A meta-analysis of the empirical literature. Rev Educ Res. 2004; 74(3):379-439.

41. Malik M, Fatima G, Hussain A, Sarwar A. E-learning: students' perspectives about asynchronous and synchronous resources at higher education level. Bull Educ Res. 2017; 39(2):183-95.

42. Universidade Federal do Sul da Bahia. Plano orientador [Internet]. Itabuna: UFSB; 2014 [citado 20 Set 2023]. Disponível em: https://ufsb.edu.br/wp-content/uploads/Plano-Orientador-UFSB-Final1.pdf

43. Almeida-Filho N, Coutinho D. Counter-hegemonic higher education in a remote coastal region of Brazil: the Federal University of Southern Bahia as a case study. In: Aman R, Ireland T, editors. Educational alternatives in Latin America new modes of counter-hegemonic learning. London: Palgrave Macmillan; 2018. p. 143-75.

44. Pungartnik C, Santos GS. Compreensão e produção oral em língua inglesa em situações metapresenciais: desafios e possibilidades. Rev CBTecLE [Internet]. 2021 [citado 20 Set 2023]; 4(1):90-114. Disponível em: https://revista.cbtecle.com.br/index.php/CBTecLE/article/view/261

45. Veloso M, Guimarães J. Tecnologias digitais na formação docente e de estudantes: desafios da metapresencialidade na UFSB. In: Sales MVS, organizadora. Tecnologias e educação a distância: desafios para a formação. Salvador: Eduneb; 2018.

46. Guimarães RS. Da metapresencialidade ao ensino remoto emergencial: como será o ensino superior num mundo pós-pandemia? Rev Int Educ Superior. 2021; 8:e022019. doi: 10.20396/riesup.v8i00.8660639.

47. Althusser L. Pour Marx. Paris: Maspero; 1965. Sur la dialectique matérialiste; p. 170.

48. Shachar C, Engel J, Elwyn G. Implications for telehealth in a postpandemic future. JAMA. 2020; 323(23):2375.

49. Phillips MA, Harrington TS, Srai JS. Convergent innovation in emerging healthcare technology ecosystems: addressing complexity and integration. Technol Innovation Manag Rev [Internet]. 2017 [citado 20 Set 2023]; 7(9):44-54. Disponível em: https://timreview.ca/sites/default/files/article_PDF/Phillips_et_al_TIMReview_September2017.pdf

50. Long L-A, Pariyo K, Kallander G. Digital technologies for health workforce development in low- and middle-income countries: a scoping review. Glob Health Sci Pract. 2018; 6 Suppl 1:S41-8.

51. Iyawa GE, Herselman M, Botha A. Digital health innovation ecosystems: from systematic literature review to conceptual framework. Procedia Comput Sci. 2016; 100:244-52.

52. Schroeder T, Schulz T, Haug M, Gewald H. A conceptual framework for a digital health innovation ecosystem. In: Proceedings of 25th Pacific Asia Conference on Information Systems (PACIS); 2021; Dubai. Dubai: AIS Electronic Library; 2021. p. 1-14.

53. Gonzalez de Gómez MN. Luciano Floridi e os problemas filosóficos da informação: da representação à modelização. InCID. 2013; 4(1):3-25.

54. World Health Organization. Global strategy on digital health 2020-2025. Geneva: WHO; 2021.

55. Brasil. Ministério da Saúde. Secretaria-Executiva. Departamento de Informática do SUS. Estratégia de saúde digital para o Brasil 2020-2028. Brasília: Ministério da Saúde; 2020.

56. Campos GWS. A mediação entre conhecimento e práticas sociais: a racionalidade da tecnologia leve, da práxis e da arte. Cienc Saude Colet. 2011; 16(7):3033-40.

57. Paim JS. O que é SUS. Rio de Janeiro: Editora Fiocruz; 2009. (Coleção Temas em Saúde).

58. Novaes HM. Ações Integradas nos Sistemas Locais de Saúde (SILOS): análise conceitual e apreciação de programas selecionados na América Latina. São Paulo: PROAHSA; 1990.

Neste ensaio, apresento reflexões preliminares sobre tecnologias digitais como novas formas de promoção da saúde no mundo contemporâneo. Primeiro, introduzo os conceitos de tecnologia, realidade, presença, realidade virtual e realidade estendida, por meio do realismo crítico. Segundo, discuto o conceito emergente de metapresencialidade como fundamental para apropriação sociotécnica de tecnologias digitais nos campos da Educação e da Saúde. Terceiro, analiso criticamente a noção de Educação a Distância, em contraste com a ideia de espaços metapresenciais de aprendizagem, no contexto de um modelo inovador de Educação Superior. Em quarto lugar, discuto brevemente a Saúde Digital como conjunto de saberes, técnicas e práticas capaz de superar o dualismo "tecnologias duras" vs "tecnologias leves" na saúde. Finalmente, avalio questões epistemológicas próprias do campo da Saúde Coletiva, com vistas a redefinir a telessaúde como cuidado em saúde mediado por metapresencialidade.

Palavras-chave: Tecnologias digitais. Saúde digital. Saúde coletiva. Telessaúde. Metapresencialidade.

En este ensayo presento reflexiones preliminares sobre tecnologías digitales como nuevas formas de promoción de la salud en el mundo contemporáneo. Primero, introduzco los conceptos de tecnología, realidad, presencia, realidad virtual y realidad extendida, a partir del realismo crítico. Segundo, discuto el concepto emergente de metapresencialidad como fundamental para la apropiación sociotécnica de tecnologías digitales en los campos de la educación y de la salud. Tercero, analizo críticamente la noción de Educación a Distancia en contraste con la idea de espacios metapresenciales de aprendizaje, en el contexto de un modelo innovador de educación superior. En cuarto lugar, discuto brevemente la Salud Digital como conjunto de saberes, técnicas y prácticas capaz de superar el dualismo "tecnologías duras" vs "tecnologías blandas" en la salud. Finalmente, evalúo cuestiones epistemológicas propias del campo de la Salud Colectiva, con el objetivo de redefinir la telesalud como cuidado de salud mediado por metapresencialidad.

Palabras clave: Tecnologías digitales. Salud digital. Salud Colectiva. Telesalud. Metapresencialidad.