Digital Consciousness and Identity

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ABSTRACT

The aim of the study is to analyze how the development of digital consciousness and the widespread ingress of digital technologies into daily life affect the under-standing and formation of human identity in contemporary society. This aim encompasses several key research directions: studying the impact of virtual agents and artificial intelligence systems with elements of digital conscious-ness on individuals' self- perception and their views of the world; identifying the role of digital media in the process of forming and rethinking social identity; analyzing the consequences of continuous interaction with digital technologies and content for personal development, self-esteem, and self-presentation; considering ethical and philosophical issues related to the creation and interaction with digital conscious-ness; reflecting on potential pathways for the development of relationships between humans and digital technologies, assessing opportunities and risks associated with a closer integration of artificial intelligence into the social and personal spheres of people's lives. The result of exercising this interdisciplinary approach and combining various theories and observations show that people, with the help of technology, are taking part in developing their own identity, further proving the impact of digitalization on an individualistic and collective level; digital technologies also tend to have a profound and transformative impact on the peoples' self-awareness and relations in a globalized world; furthermore, the use of digital technologies proves to be an effective means of global and subtle influence on the life, behavior and beliefs of modern people. It has been argued that postmodernism and cyberculture, in addition to having an ontological connection, share a model of world perception, which is not affiliated with any type of hierarchical model. The result of the author's reasoning is the conclusion that changes in technology or data loss are not mere technical problems – people end up feeling serious consequences of them, including drastic shifts in their personality, cognitive abilities and general well-being. This deeply affects the user's ability to maintain their productivity, interact with information, and, more broadly, their ability to function in everyday life. Such situations highlight the need for the development and implementation of strategies and policies that consider potential vulnerabilities associated with technology dependence and aim to minimize the negative consequences of such dependence. Ethical considerations around cognitive extenders should include discussions on precautionary measures and development standards that ensure protection and support for users in the event of technological changes, updates, or failures. This might involve creating more resilient systems for data storage and recovery, developing more transparent and predictable update schemes, and introducing policies that support users' cognitive autonomy and well-being.

Introduction

Reflecting the deep and widespread integration of digital technologies in the modern world and in the lives of individuals, an international study in 2021 found that there are 4.66 billion active internet users and 4.2 billion active social media users worldwide. In the context of social isolation and quarantine measures introduced due to the COVID-19 pandemic, further enhancement, and expansion of digital penetration at a global level was observed.

At the individual perception level, there is increasing evidence that digital technologies have a significant impact on brain function, mental state, and behavioral responses, confirming that digitalization can fundamentally alter our minds, self-awareness, and brains, including at a neurobiological level. This suggests that the impact of digitalization on humanity could be much deeper than previously assumed.

Objective. The aim of the study is to analyze how the development of digital consciousness and the widespread

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penetration of digital technologies into daily life affect the understanding and formation of human identity in contemporary society. This aim encompasses several key research directions:

-studying the impact of virtual agents and artificial intelligence systems with elements of digital consciousness on individual's self-perception and their views of the world;

- identifying the role of digital media in the process of forming and rethinking social identity;

- analyzing the consequences of continuous interaction with digital technologies and content for personal development, self-esteem, and self-presentation;

- considering ethical and philosophical issues related to the creation and interaction with digital consciousness; reflecting on potential pathways for the development of relationships between humans and digital technologies, assessing opportunities and risks associated with a closer integration of artificial intelligence into the social and personal spheres of peoples lives.

Methods of Research

The ***methodological foundation*** of this research is a deep analysis and interpretation of texts, including philosophical works, popular science articles, and digital content, to explore ideas about digital consciousness and identity, using logical analysis to identify premises, conclusions, and possible contradictions in existing theories, and developing new conceptual frameworks that might better describe the interrelationships between consciousness, identity, and digital technologies.

Conceptual foundation. The basis of this work is the observation of profound changes in collective and individual ideologies and identities over the last centuries. These changes touch on various aspects of human existence, including issues of individualism versus collectivism, and differences between modernist and postmodernist worldviews. Particularly significant is the transition from the tangible world of the industrial era to the boundless realms of the virtual, digital space of modernity. This transition is accompanied by significant shifts in the understanding of time and space and the blurring of boundaries between the real and the virtual, which suggests a potential rethinking of fundamental human experiences, views, ideologies, and self-identification.

Against this backdrop, active interaction is ongoing between established and evolving human paradigms and digital innovations. A deep understanding of this multilayered process requires the application of an interdisciplinary approach, combining diverse theories and observations, to fully grasp the complexity and dynamics of current changes.

From an anthropological perspective, the idea was proposed that the era of digital technologies is marked by two unique phenomena in human history: the first is related to the gradual integration of digital devices into the human body, and the second is associated with the enhancement of our functional abilities (Aycock, 1995: 56). It was suggested that through digital technologies, people actively participate in creating their personal identity, indicating a significant impact of digitalization at both individual and collective levels (*Shvets, 2013: 82*). From a socio-economic standpoint, it was noted that in an era of uncertainty, globalization plays a key role in shaping our "self" and identity. In the context of digitalization, which accelerates globalization through global digital networks, it is assumed that digital technologies can have a profound and transformative

effect on our self-awareness and relationships in a globalized world.

Sociological analysis points to the onset of an era called the third modernity, in which digital transformation is seen to resolve the longstanding contradiction between individuality and collectivism (*Zuboff, 2020: 320*). This suggests that the use of digital technologies could be an effective means for a global and subtle impact on the lives, behavior, and beliefs of modern people.

From a cultural studies perspective, since the late 20th century, it has been argued that postmodernism and cyberculture, having an ontological connection, share a model of world perception not based on hierarchy. This suggests that they can synergistically influence our views and behavior. At the same time, their common traits, characterized by a lack of hierarchy in contemporary ideology and digital culture, may act as mutual amplifiers in the postmodern context.

In the digital era, there is a complex interaction at various levels between global changes and personal transformations, from the industrial period to the contemporary digital era. People affected by these changes adapt, survive, and transform in a dynamically changing world through the process of digital integration. This interaction, occurring at a deeper level of time and space, involves both direct and indirect contact between various aspects of digital technologies and the evolving world and culture, as well as changing and developing human views, behavioral patterns, ideologies, and identities.

Recent research in the field of neuroimaging has provided compelling evidence that during human development, neural mechanisms are formed that mediate processes related to self-identification and environmental perception through learning. It has been discovered that sociocultural contexts significantly influence the neural foundations responsible for self-reflection.

Given that digitalization represents a global and evolving sociocultural process, it can significantly influence our brain and its related functions, especially for people born in a highly digitalized world. Reviews and studies show that intense interaction with digital technologies can lead to brain development disorders, emotional and social intelligence issues, cause social isolation, sleep problems, reduced cognitive abilities, and difficulties with attention, semantic memory, and social perception. Additional neurobiological data indicate the impact of digitalization and social networks on the brain, psyche, cognition, and human behavior, including the development of speech, visual perception, perception of one's own body and brain, multitasking, and empathy. These findings suggest that the process of digitalization and our adaptation to it can radically change our brain and psyche through direct and neurobiological effects.

In the era of digitalization, where human interaction with the world, culture, and society becomes increasingly intense due to various processes, different aspects of our personality are subject to both direct and indirect influence, being shaped and modified under the influence of digital technology elements, both consciously and subconsciously. On the other hand, as we adapt to the conditions of the digital age, many of us develop our "digital personalities," as noted by Clark in 1994 (*Clarke, 1994: 87*). This process of forming a "digital personality" may initially be conscious and intentional, driven by constant access to the internet, transactions, and communication. However, over time, as we delve deeper into the digital world, awareness

and control over our own digital activity may decrease, leading to our "digital personality" more accurately reflecting our true "self." Thus, our original essence is increasingly manifested and represented in the digital world, through both conscious and unconscious actions, facilitating the growth and development of our "digital personality." Ultimately, this leads to a strengthening of the representation of our true "self" in our digital image.

Results and Discussion

In the digital age, the "digital self" emerges as a new and evolving element of personality, with various aspects of our "self" — from emotions, attitudes, feelings, thoughts, cognition, and memories to motivation, concepts, behavior, experience, ideologies, values, and identity — being influenced and modulated through digitalization. This influence is manifested in both digital and physical spaces, but with different mechanisms of interaction, including neurocognitive and neurobiological changes, as well as shifts in psych sociocultural processes.

Tsatsou notes changes in the perception of time and space as "time compression" and "space removal," which may lead to significant changes in the definition and perception of time, space, and reality, radically transforming the fundamental aspects of the experience of existence and perception of reality for future generations (*Tsatsou, 2009: 15*).

The "digital identity" is considered an emerging form of self-awareness, a bridge between the physical and digital worlds, involving changes in fundamental concepts and experiences, self-identification, as well as in the human mind and mental abilities. This results from multilevel and multisystem interactions of personality, mind, and brain with the world, culture, and society through digitalization, affecting psychosocial, cultural, and social aspects of life.

As digitalization is an ongoing and global process, a full understanding of its impact on people, especially youth, at the level of self-awareness, mind, and brain will take time. It is important to apply an interdisciplinary approach in studying the "digital self" to analyze such a complex and multifaceted topic, including identifying and analyzing changes in self-perception and developing strategies to prevent and mitigate potential negative consequences. There is an urgent need to warn of potential risks before the impact of digitalization on humanity becomes irreversible.

The influence of digital media on human identity. The interaction of humans with technology, especially artificial intelligence, leads to the merging of human and artificial identities, creating a process of hybridization of identity. This expansion of individuality through artificial elements generates new forms of identity. Questions of anthropomorphism become secondary to more significant ethical considerations related to the hybridization of identity, which pose practical challenges for users, the industry, and regulators.

It is important to recognize and discuss the ethical implications of such hybridization, including vulnerabilities arising from asymmetric and asynchronous relationships between people and their artificial counterparts. The disruptive potential of technologies can harm humans if these vulnerabilities are not considered. Therefore, the discussion should be based on fundamental principles aimed at protecting human vulnerability and ensuring the ethical integration of technologies into human identity.

Ultimately, the deep interaction of humans with technologies justifies the need to develop and implement mechanisms to protect the new, artificial identity. This underscores the importance of an interdisciplinary approach to studying and managing the impact of digitalization on human identity, including legal, ethical, and social aspects.

Research on the impact of technology on human identity and personality in the modern world opens complex questions about how interaction with technology changes us and how, in turn, these changes affect the development of technology itself. Special attention is given to the role of artificial intelligence, which, with its ability to mimic and supplement human cognitive processes, is seen as a key factor in the cognitive coupling process between man and technology. This process leads to the creation of hybrid forms of identity, in which human and artificial aspects merge, creating new vulnerabilities and challenges.

The goal of the research is not to abstractly study the destructiveness of technology in all possible aspects of its impact on society, economy, or politics. Rather, the focus is on specific risks and vulnerabilities that arise in the personal aspect of human interaction with technology. Questions of freedom of action and identity formation in the context of using modern technologies are at the center of attention (*Aycock, 1995: 5*).

The study suggests rethinking the issue of anthropomorphization of technologies, shifting the focus to the hybridization of human activity and technology. It is important to understand how the close merger of humans with artificial intelligence and other technologies affects not only cognitive practices and personality formation but also the development of artificial personalities. Recognizing the interconnections between humans and technology allows for a deeper understanding of ethical issues related to minimizing risks and vulnerabilities for users, as well as determining ways to conceptually change the perception of both human and artificial personalities.

Anthropomorphism, the process of attributing human qualities to non-human objects or entities, has become a key aspect in the fields of human-computer interaction and robotics, sparking extensive scientific discussions and research. This is particularly evident in the context of modern technologies such as personal computers, social robots, and "smart" devices, which have reached a high degree of complexity and are capable of impressive levels of interaction and adaptation. Such technologies not only can mimic human functions but, in some cases, replace them, giving rise to unique forms of artificial agency.

The problem with anthropomorphism is that it can lead to the degradation of interpersonal relationships, disappointment in justified expectations of technology, increased psychological stress, and the objectification of people. Integrating artificial intelligence into interpersonal relationships, such as friendship, love, or care, raises questions about the moral appropriateness of expecting artificial agents to perform functions traditionally associated with human partners. These technologies are proposed to perform roles that include emotional support and understanding, introducing a new dynamic into the concept of social services and interpersonal communication.

Thus, anthropomorphism in the context of modern technologies represents a dual phenomenon: on one hand, it enhances human-machine interaction, making it more intuitive and natural; on the other hand, it generates risks and challenges associated with overestimating the capabilities of artificial intelligence and its impact on human relationships and psychology. This highlights the need for deep understanding and reflection on the consequences of an-

thropomorphism of technologies, as well as the development of strategies to minimize potential harm and strengthen positive interactions between humans and technology (*Damiano, Dumouchel, 2018: 75*).

Our discussion emphasizes the importance of overcoming the narrow focus on anthropomorphism in the context of human-technology interaction. This is indeed just one side of a multifaceted interaction, which involves much broader and more complex phenomena. Rethinking our interaction with technology requires us to explore such phenomena as the hybridization of personality, which perhaps more accurately reflects the depth of changes occurring in personality under the influence of technology than simple anthropomorphic perception of devices.

The strong bond between humans and their devices, as well as working with them in tandem, does not necessarily require belief in their "liveliness" or anthropomorphic qualities. It is important to understand that this relationship and interaction can deeply influence our freedom of action, without resorting to anthropomorphic representations. An approach to understanding and perceiving technology based on factual data and realistic expectations can help form healthier and more productive relationships with technological tools and devices, while avoiding excessive anthropomorphism and associated ethical issues (*Baker, 2013: 225*).

Hybridization of personality and technology raises questions about how technological changes affect our personality and freedom of action, offering a deeper level of analysis of the interaction between humans and technology. Such an approach opens the path to a more comprehensive understanding of technological impact on humans, going beyond simple anthropomorphism and allowing us to better understand how we can use technology while maintaining our individuality and independence.

We are raising an extremely important aspect in the discussion on human-technology interaction, focusing on the fact that the essence of changes in human identity and cognitive practices caused by technologies is not limited to simple anthropomorphic perception of these technologies. Our analysis offers a deeper look at the interdependence between humans and artificial agents and how this interdependence affects the identity formation of both parties (*Epley et al., 2007: 864*).

Conversational agents such as chatbots and virtual assistants indeed serve as vivid examples of how technology impacts our cognitive interaction and communication practices. Through natural language processing, these agents can participate in dialogues, creating the impression of "live" communication. However, as you rightly noted, focusing on the human-like characteristics of such technologies diverts attention from more substantial issues related to the hybridization of personality and cognitive coupling between humans and machines.

This coupling or merging leads to algorithmic processes defining the parameters of our interactions and communication, limiting, or modifying our cognitive processes. Such deep interaction between humans and technology requires contemplation not only in terms of functionality and convenience but also from ethical and social consequences perspectives.

Issues related to cognitive agency and the changing nature of dialogues involving artificial agents raise significant ethical considerations. They require critical reflection and the development of approaches that preserve human autonomy and the ability to think critically amidst increasingly integrated collaboration with technologies. Developing these approaches is an important task for researchers, developers, and society, aiming to find a balance between the benefits of technological progress and preserving our cognitive independence and personal identity.

Our discussion emphasizes the importance of recognizing the role of modern computer technologies, especially those based on artificial intelligence, as cognitive extenders. These technologies act as external agents that enhance, augment, or supplement human cognitive impact, opening new possibilities for performing tasks that might otherwise be inaccessible or require significantly more effort.

Distinguishing cognitive extenders from nootropics and internal cognitive enhancers underscores the physical and conceptual boundary between external tools and interventions directly targeting the brain. While nootropics affect internally to enhance cognitive functions, cognitive extenders operate externally, offering similar benefits through external devices and systems.

Furthermore, differentiating between cognitive extenders and tools offering "cognition as a service" raises questions about the degree of integration of these technologies into our cognitive processes. While both types of tools enhance human experience and performance, their coupling with the user can vary significantly, affecting our dependence on these technologies and their impact on our personality and cognitive autonomy.

In this context, important ethical considerations arise about how we should use and interact with cognitive extenders. Questions about ensuring that these technologies serve to enhance the human experience without diminishing our cognitive independence or creating excessive dependency require careful consideration. It is necessary to find a balance between using these tools to expand our capabilities and maintaining our ability to solve cognitive tasks independently without constant support from artificial intelligence.

The approach to developing and using cognitive extenders should consider these ethical dimensions, ensuring that technologies serve to enhance human cognitive agency, not replace it. This implies developing technologies that support and enhance human cognitive activity while preserving critical thinking, creativity, and user independence.

Our analysis underscores the key idea that cognitive extenders, especially those involving artificial intelligence, do not simply supplement or replace certain functions of the human brain but also contribute to a fundamental rethinking and transformation of the user's cognitive processes. This reconfiguration of tasks and skill development in close collaboration with technologies emphasizes that human-computer interaction can significantly alter the ways we perceive, process, and interact with information.

The example of Helen and her augmented reality glasses illustrates one of the narrow use cases for cognitive extenders, where technology helps compensate for impaired cognitive functions, for instance, due to Alzheimer's disease. This example clearly demonstrates how cognitive extenders can significantly improve people's quality of life by restoring or supplementing lost cognitive abilities and providing support in performing daily tasks.

More broadly, the definition proposed by Hernandez-Orallo and Vold extends the concept of cognitive extenders to cases where there is no explicit impairment of cognitive

functions. Thus, tablets, mobile devices, and other digital tools can be considered as cognitive extenders, as they integrate so deeply into our cognitive processes that they become inseparable from performing a wide range of tasks, influencing how we remember, communicate, and create (*Hernández-Orallo, Vold, 2019: 510*).

This close integration between humans and technology highlights how technological tools can not only expand our cognitive capabilities but also significantly alter our cognitive strategies and problem-solving methods. It also points to the importance of developing and using these technologies with consideration for their potential impact on cognitive development and the cognitive autonomy of users.

Conclusion

Reflecting on how cognitive extenders alter thought processes and interactions with technology requires a deep understanding of these processes and the development of approaches that ensure technology's positive impact on human cognitive activity. This underscores the necessity for an ethical and thoughtful approach to developing and using cognitive extenders, given their ability to deeply transform our ways of thinking and interacting with the surrounding world.

Our analysis delves into important issues related to cognitive extenders and raises critically important ethical considerations regarding their use and impact on human personality. Rethinking the relationship between humans and technologies as hybrid agents, rather than interactions between two independent entities, truly opens new horizons for understanding and addressing potential vulnerabilities and destructive consequences.

Viewing humans and artificial agents as a unified whole, where each side contributes to the overall cognitive and operational functionality, we can better understand how deeply technologies integrate into our lives and how much we rely on them. This perspective allows us to see that changes in technologies or data loss are not merely technical issues; they can have serious consequences for personal identity, cognitive abilities, and overall human well-being.

We raise an important issue about how changes in the technological ecosystem can lead to the loss of crucial data and settings, which, in turn, can disrupt the established coupling between the user and their technological tools. This deeply affects the user's ability to maintain their productivity, interact with information, and, more broadly, their ability to function in everyday life. Such situations highlight the need for the development and implementation of strategies and policies that consider potential vulnerabilities associated with technology dependence and aim to minimize the negative consequences of such dependence.

Ethical considerations around cognitive extenders should include discussions on precautionary measures and development standards that ensure protection and support for users in the event of technological changes, updates, or failures. This might involve creating more resilient systems for data storage and recovery, developing more transparent and predictable update schemes, and introducing policies that support users' cognitive autonomy and well-being.

In summary, our discussion emphasizes that the use of cognitive extenders requires a comprehensive approach that considers both the potential of these technologies to improve human life and the possible risks and vulnerabilities they may create. Responsible implementation and use of cognitive extenders require attention to ethical aspects and active participation from all stakeholders in the process of developing and implementing these technologies.

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Цифрова свідомість та ідентичність

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У статті показано, як розвиток цифрової свідомості та широке проникнення цифрових технологій у повсякденне життя впливають на розуміння та формування людської ідентичності в сучасному суспільстві. В тому числі досліджено вплив віртуальних агентів та систем штучного інтелекту з елементами цифрової свідомості на самосприйняття індивіда та його поглядів на світ; виявлено роль цифрових медіа в процесі формування та переосмислення соціальної ідентичності; проаналізовано наслідки для особистості постійної взаємодії з цифровими технологіями та контентом; розглянуто етичні та філософські питання, пов'язані зі створенням та взаємодією з цифровою свідомістю. В результаті застосування міждисциплінарного підходу, поєднання різноманітних теорій і спостережень виявлено, що за допомогою цифрових технологій люди беруть активну участь у створенні своєї особистої ідентичності, що вказує на значний вплив цифровізації як на індивідуальному, так і на колективному рівнях; зазначено, що цифрові технології можуть мати глибокий і трансформуючий вплив на нашу самосвідомість і відносини в глобалізованому світі; обгрунтовано, що використання цифрових технологій може бути ефективним засобом глобального та непомітного впливу на життя, поведінку та переконання сучасних людей. Виявлено також онтологічний зв'язок між постмодернізмом і кіберкультурою, які, поділяючи неієрархічну модель сприйняття світу, можуть синергетично впливати на погляди та поведінку людей. Результатом авторських міркувань є висновок, що зміни в технологіях або втрата даних є не просто технічними проблемами - вони можуть мати серйозні наслідки для особистості, когнітивних здібностей і загального добробуту людини. Зокрема це глибоко впливає на здатність користувача підтримувати свою продуктивність, взаємодіяти з інформацією, і такі ситуації підкреслюють необхідність розробки та впровадження стратегій і політики, які враховують потенційну вразливість, пов'язану із технологічною залежністю, і спрямовані на мінімізацію негативних наслідків такої залежності. Так само необхідно обговорювати і впроваджувати запобіжні заходи й стандарти розробки, які забезпечують захист і підтримку користувачів у разі технологічних змін, оновлень або збоїв. Це може включати створення більш стійких систем для зберігання та відновлення даних, розробку більш прозорих і передбачуваних схем оновлення та запровадження політик, які підтримують когнітивну автономію та благополуччя користувачів..

Ключові слова: цифрова свідомість, ідентичність, штучний інтелект, цифрова особистість, антропоморфізм.