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METAVERSE BETWEEN OBJECT AND METAPHOR: POSSIBLE SCENARIOS FOR INCLUSION

METAVERSO TRA OGGETTO E METAFORA: POSSIBILI SCENARI PER L'INCLUSIONE

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Abstract

The metaverse is a complex concept, the use of which has evolved beyond Stephenson's 1992 vision, including aspects of the physical world, objects, actors, interfaces and networks that build and interact with virtual environments. Over the past year, the metaverse has stimulated interest in several fields of knowledge (Computer Science, Engineering, Social Sciences, Economics just to name a few), becoming an inter-intra disciplinary suitcase word. Starting with a brief historical overview that traces the prodromes and definitions of this extension of reality in a descriptive manner, this contribution problematizes the phenomenon from an inclusive perspective, outlining a dual characterization: on the one hand, the metaverse as object, on the other, as metaphor. This last aspect prompts further reflection, raising questions about both the use of technology for educational purposes, and possible future scenarios, in relation to key aspects such as accessibility and data privacy.

Il metaverso è un concetto complesso, il cui uso si è evoluto oltre la visione di Stephenson del 1992, includendo aspetti del mondo fisico, oggetti, attori, interfacce e reti che costruiscono e interagiscono con gli ambienti virtuali. Nell'ultimo anno, il metaverso ha sollecitato l'interesse di diversi campi di conoscenza (Computer Science, Ingegneria, Scienze Sociali, Economia solo per citarne alcuni), divenendo una *suitcase* word inter-intra disciplinare. Partendo da un sintetico quadro storico che ripercorre in modo descrittivo i prodromi e le definizioni di questa estensione del reale, il presente contributo problematizza il fenomeno da una prospettiva inclusiva, tratteggiandone una duplice caratterizzazione: da un lato, il metaverso come oggetto, dall'altro, come metafora. Quest'ultimo aspetto stimola ulteriori riflessioni, susci-

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[1] The entire contribution is the result of the shared reflection and joint work of the authors. However, regarding the writing of the text, Gianmarco Bonavolontà is the author of sections 1 and 4; Ilaria Tatulli and Daniele Bullegas contributed equally to the writing of section 2; Antonello Mura and Antioco Luigi Zurru contributed equally to the writing of section 3.

tando interrogativi sia sull'uso delle tecnologie a scopo didattico, sia sui possibili futuri scenari, in relazione ad aspetti fondamentali quali l'accessibilità e la privacy dei dati.

Keywords

Media; Accessibility; Inclusion; Privacy.
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1. Metaverse: roots and development

Technological innovation has had a significant impact on society, making it more complex than ever before and constantly evolving, also providing new opportunities and solutions to meet contemporary challenges. Technologies have introduced new models of communication, production, organization, and relationships, that have radically changed the way people live, work, and interact. Particularly, the dissemination of information and communication technologies (ICT) has made possible the creation of a digital society, in which communication and information exchange takes place mainly through internet and online platforms. Whenever a new technology enters everyday life, it brings a framework of emancipation and progress within which, not less, possible contradictions and risks coexist, which may generate potential backlashes. In that regard, the Special Pedagogy discourse plays a significant role in identifying opportunities for present and future society. Within this framework, the metaverse phenomenon can be inscribed.

In the transition from *Facebook* to *Meta*, the metaverse phenomenon has imposed itself on the community, with visions that oscillate between dystopian positioning and utopian perspectives: on one hand, it is appalling to think that the drifts of such technology could lead to the manipulation and control of the masses, on the other, it is affirmed that the metaverse is a place where possibility and reality can meet.

In this perspective, investigation becomes important, avoiding the risk of falling into common sense and, consequently, propose inaccurate, hasty, and radical assessments that feed extremist and radical beliefs.

Talking about the metaverse somehow means referring to cyberpunk culture and, therefore, to science fiction imagery that in many cases has anticipated themes that later became reality, as the development of the internet and telematic networks.

Referring to this cultural thread, it is worth mentioning authors such as William Gibson, Bruce Sterling e Neal Stephenson. The latter, in particular, with the novel *Snow Crash* in 1992, coined the term metaverse.

The text describes 21st century American society on the brink of collapse, where characters find retreat in a parallel world to escape their everyday life's misery. The metaverse in *Snow Crash* is a highly decentralised network, in which there is not a system administrator or a backdoor for manipulation, that is, an entity without authority and control. The author imagines it as a huge virtual environment, which attempts to replicate the physical world, but where users interact with *avatars*.

In addition to science fiction literature, the roots of the phenomenon can be identified in certain applications, mainly video games, which are very close to the logic of the metaverse. Specifically, it refers to *Active Worlds*, *The Sims*, *Second Life*, *Minecraft*, *Fortnite*, *Decentraland* and, finally, *Roblox*, which is a very popular platform among young people[2].

Increasingly, the concept of the metaverse has become an object of multidisciplinary interest in the fields of technology, art, and philosophy. Some authors (Al-Ghaili et al., 2022; Dwivedi et al., 2022; Zhang et al., 2022) have suggested that the metaverse could have a significant impact on society in the future and on everyday life, providing new opportunities and challenges in manifold fields such as communication, work, play, medicine, and education.

In this regard, one of the earliest definitions of the metaverse as an agent of change is attributed to the Canadian entrepreneur and author Matthew Ball, which within the volume *"The Metaverse: And How it Will Revolutionize Everything"* describes his vision of the phenomenon as: «*A massively scaled and interoperable network of realtime rendered 3D virtual worlds that can be experienced synchronously and persistently by an effectively unlimited number of users with an individual sense of presence, and with continuity of data, such as identity, history, entitlements, objects, communications, and payments*» (2022, p. 42).

However, an unambiguous definition of the metaverse is not easy and probably nor is it possible at present. This is due as much to the complex and prismatic intrinsic nature of the object as to its non-existence and intangibility: the metaverse does not exist at present and will probably not exist for a long time yet. Nevertheless, it can be said that it is a new technological frontier, positioned as an evolution of the *WWW*, composed of various virtual worlds, which can be accessed through an avatar, that is, a digital alter ego. It is an environment where people can socialize with others. Interaction with this world can take place mainly through the mediation of screens, but in the future, it will most likely be accessed through wearable devices, which will allow for a more immediate enjoyment. It can be imagined as a world parallel to the real world, «*an embodied internet where you're in the experience, not just looking at it*», to use

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[2] The list is not exhaustive but shows some of the most important and well-known platform-applications.

Zuckerberg's words to describe it[3]. With a provisional synthesis, the metaverse can be interpreted as a term, a concept, a paradigm that refers to an immersive, shared digital reality, interoperable and persistent, which can be explored and modified by users similarly to reality and may include virtual worlds, games, social networks, augmented reality services and other forms of digital content, in a continuous and changing development. Starting from this possible and brief definition, through the Special Pedagogy perspective, it becomes relevant to engage processes of interlocution and critical analysis of the immersive experience represented by the metaverse, to grasp the possible cultural and social implications for inclusion processes.

2. Possible points of view

As mentioned above, some reflections see the metaverse as an extension of the physical world, allowing users to explore augmented and virtual reality technologies. Several authors perceive it as a platform for creating immersive digital experiences that can be used for learning; others consider it as a decentralised system that can facilitate the exchange of digital products; finally, some see the metaverse as an escape route from the real world to explore alternative realities (Damar, 2021; Gökçe Narin, 2021; Sá & Serpa, 2023). The complexity and heterogeneity of these visions can be synthesized in a dichotomous categorical perspective that distinguishes between object and metaphor, thus restoring meaning and significance to the concept of the metaverse.

2.1 Metaverse as object

Understood as an object, the metaverse is an ecosystem convergence of new technologies born in the 20th century that have evolved in different and separate ways: artificial intelligence, big data, virtual and augmented reality, blockchain, IoT and network integration are just a few of the technological devices supporting its development. In addition, the rise of cloud computing has provided high-level calculation power to support the development of the metaverse, enabling the rendering of 3D graphics. The human-computer interface is the way to access the virtual and immersive world, providing users with a completely real, persistent, and fluid interactive experience. These technologies take on a new and different meaning, leading to the development of another concept: spatial computing (Greenwold, 2003).

This technology allows users to interact with the digital world in a more intuitive and natural way, creating more immersive visual experiences and interactions based on perceiving and understanding the surrounding physical space. Scholars Shashi Shekhar and Pamela Vold (2019, p. 2) define it as: «*a set of ideas and technologies that*

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[3] Zuckerberg, M. (2021, ottobre 28). Founder's Letter, 2021. Meta. https://about.fb.com/news/2021/10/founders-letter/ last access 21/02/2023.

transform our lives by understanding the physical world, knowing and communicating our relation to places in that world, and navigating through those places». Spatial computing combines elements of virtual, augmented, and mixed reality to enable people to engage with digital representations of physical spaces, objects and environments in *expanded experience* (Floridi, 2022). It also allows people to interact with digital content in a more natural and intuitive way, using gestures, voice commands and other physical actions. A key feature of this technology is its ability to create a sense of presence in a virtual environment. This can be particularly useful in simulated scenarios, allowing users to interact with virtual objects in a realistic way. These attributes open up a wide range of applications in areas such as gaming, education, healthcare, architecture and industrial design to spatial computing.

2.2 Metaverse as metaphor

Metaphor is a rhetorical device whose main purpose is to make comprehensible an unknown concept by means of a known concept or image. It is not a literally reference to the same thing, but something similar and related. Although metaphor works, there is a risk of misunderstanding because it interprets the new through the old, losing nuance in the process. The metaverse, as a metaphor, could be an immersive environment that combines technology and the digital world with real life. It creates a dimension where people can interact and experience reality in a new and different way.

From this perspective, the metaverse is something very new, but it is also something very old. Indeed, since the dawn of time, humanity has created imaginary worlds through storytelling. It has invented artificial paradises in order to escape contingency and to transcend ontological finiteness, which is experienced as a condition that is too narrow and too restrictive. The need to search for existential alternatives to reality has led man to create dimensions beyond the real to produce meaning. However, this has not completely dissolved the possible confusion. From this point of view, the metaverse is also a form of mediation or re-mediation (Bolter et al., 2002). It aims to objectify the imaginary, in the same way as other technologies such as writing and printing (Buffardi & De Kerckhove, 2011; Maragliano & Pireddu, 2012).

The digital paradigm has enabled the reproduction of physical reality and the splitting of the individual through its virtual twin (Rossignaud & De Kerckhove, 2020). Therefore, in the future, the metaverse could be a virtual space that completely subsumes reality, in that continuum between online (artificial reality) and offline (physical reality) that Floridi (2015) defines as *onlife*. A condition is envisaged where

the more immersive the experiences become, the more difficult it will be to separate physical and digital reality.

3. Possible scenarios and emerging critical issues

Among the various aspects that call for critical reflection on the multiple possibilities offered by the metaverse, the dimensions of education and learning are of primary importance. They open up new pedagogical scenarios.

The possibilities for developing the metaverse in education can be manifold. Looking at the world of virtual reality, augmented reality and the new technologies that make it possible to simulate the real world, where concepts take the form of things, it is easy to see how education can benefit from the deliberate use of these worlds. Considered apart from every technician reduction about the learning-teaching process, the dynamics of didactics itself represents a 'metaverse' of content, tools, languages, interactions, and experiences that enable the subject to experience the world he or she is attempting to build.

On the other hand, after videogames, one of the main applications of the metaverse is education. For some time now, it has been possible to observe how gamification can improve learning processes by activating those components of immersion and involvement, linked to the concept of flow (Csikszentmihalyi, 2008), which allow one to be constantly positively stimulated. Today, thanks to the affordability of virtual reality devices, it is already possible to imagine a future in which these technologies will increasingly influence learning processes, with the intention of improving educational outcomes. However, in an educational context, it is also important to consider the potential critical aspects of this phenomenon, mainly from an inclusive perspective.

The design of immersive learning devices must take into account the heterogeneity represented by the different learning modes and special educational needs present in school contexts. Failing to consider these risks minimising the dysfunctionality of barriers to accessing the metaverse. In this sense, accessibility and participation are central to the technological design and pedagogical potential of the phenomenon. The term accessibility refers in a broad sense to the ease of access and enjoyment of the world around us by as many people as possible, without discrimination. «Whether an environment is accessible or not undoubtedly has a very different impact on individual performance and fulfilment» (Mura, 2011, p. 43).

Accessibility is not only a right, as emphasised by the *Convention on the Rights of Persons with Disabilities* (2006) but is also regulated by national and international laws aimed at eliminating barriers, whether physical or otherwise. From a pedagogical perspective, services, content, objects, or places can be defined as accessible when

they enable individuals to accomplish new existential possibilities and minimise or eliminate barriers to access or use in both the physical and digital realms (Mura, 2011). On the one hand, the metaverse makes it possible to 'teleport' within virtual worlds and interact with physically distant people and objects, thus enabling accessibility. On the other hand, because much of the content is visual, the experience is predominantly visual, creating barriers that limit access and discriminate against participation by people with sensory impairments. This risk is particularly significant in the educational context, where «the academic success of all students should be promoted, with particular attention to supporting the various forms of diversity, disability and disadvantage» (MIUR, 2012, p. 9).

Another critical issue for any online environment is the potential loss of privacy. Indeed, as technology advances, there are growing concerns about the security of personal data. As the metaverse is conceived as a digital copy of the physical world, huge amounts of data (big data) will be managed in virtual environments, with the risk that privacy will be compromised or managed against the will of users. The issue of the relationship between big data and privacy has two main dimensions. Firstly, it is likely that data collection itself conflicts with privacy. Secondly, the correlation analysis obtained from the mining of big data may lead to privacy violations (Scagliarini, 2021). In such a scenario, it is necessary to ask what level of control users have over the personal information that is generated by their activities and that is unintentionally disclosed. Again, is the current model of data gathering, profiling and microtargeting the best way to maintain free access to the meta-verse? What other complications might arise in this regard in education and training contexts?

These are complex issues with often paradoxical implications, from security to freedom of expression. Although legal instruments for privacy management already exist at national and European level, it will be necessary to rethink these legal instruments in order to regulate how information can be used and managed.

It is clear that the right to accessibility and respect for privacy will be fundamental principles for the design and implementation of inclusive metaverses.

4. Conclusions

In 2021, there has been an exponential increase in interest in the metaverse, which is now a cultural and scientific object of interest with a wide range of disciplines involved. This growing attention is met with questions regarding the uncertainty of its conceptual definition, technological standards, and evaluation methods. In this sense, a clear consensus on the concept of the metaverse is still difficult to achieve. In the light of the historical study of the origin of the phenomenon, it could be argued that it is not a new technology, but rather a label applied in the most recent period to

technologies produced in the last 30 years. The metaverse is not a synonym for virtual reality, but rather an expression of an interconnected network of devices, products, tools, infrastructures, and experiences. The metaverse offers itself as part of the future, without exhausting it, and «whatever form it takes, it already represents today [...] the horizon of possibilities within which the system of digital mediality thinks and proposes to accomplish its intimate vocation to transform itself by transforming the world (with us in it) » (Maragliano, 2022, p. 137).

Will the world of education be part of this transformation? Will the Metaverse revolutionise the way people learn and teach? Would the metaverse enable more efficient and effective acquisition of knowledge and skills through personalised experiences, based on the different learning styles, interests and abilities of individual learners? The metaverse is not yet a reality, it is still an ambitious project that needs to be conceived with a perspective that is able to take into account the values of inclusion and the culture of accessibility, in order to overcome «the discriminatory and stigmatising logics that result from after-the-fact adaptations» (Mura, 2002, p. 96). Without the world there is no possible metaverse, the risk is to bring the same ideas, the same ways of thinking and the same critical issues that exist in the physical reality. In this sense, Special Pedagogy is called upon to play a proactive and responsible role in guiding the development of this phenomenon. From an inclusive perspective, the design and implementation of the metaverse represent the elements of a cultural challenge. Once again, it shows the fact that the disability issues call for broad civil awareness, as the foundation for the construction of possible worlds, based on individual and collective participation.

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