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RECEIVED 03 September 2025
ACCEPTED 15 October 2025
PUBLISHED 06 November 2025

CITATION
Haugsbakken H, Hagelia M and Bergsjø LO
(2025) Learning ethics through the Metaverse:
challenges and responsible educational
design solutions. *Front. Educ.* 10:1698260.
doi: 10.3389/feduc.2025.1698260

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Learning ethics through the Metaverse: challenges and responsible educational design solutions

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This conceptual paper explores the potential of learning and teaching ethics in the Metaverse. This argument will be developed by exploring two different perspectives. The first perspective situates the paper within a broader context and discusses five challenges that arise from using the Metaverse. These challenges include the impact of new technologies on ethics, establishing trust in the Metaverse, accessibility to Metaverse technologies, how institutions engage in power plays to influence and set norms for ethical standards, and issues related to data ownership and intellectual property. The second perspective considers and conceptualizes four responsible educational design solutions that can be applied to facilitate learning ethics within the Metaverse. This means addressing the extent to which the Metaverse can support transformative learning, identity experimentation, immersive technology-enhanced learning, and collaborative approaches. Taken together, these perspectives provide a starting foundation and research contribution for creating an alternative pedagogical and practical framework that reconceptualizes the Metaverse as pedagogical space for reflective–practical sensemaking and exploration about ethics in education.

KEYWORDS

Metaverse, ethics, education, design solution, reflection, immersive

1 Introduction

Over the past few years, several systematic research reviews have thoroughly investigated the role of the Metaverse in education, showing diverse insights and interesting findings (Feng et al., 2024; Han et al., 2025; Maghaydah et al., 2024; Pradana and Elisa, 2023; Stracke et al., 2025). They indicate, first and foremost, that its use is still in the making and remains an emerging field. Research suggests that the field is somewhat fragmented, and instrumental approaches are often applied in research designs (Stracke et al., 2025). For example, studies attempt to explain adoption patterns (Maghaydah et al., 2024), learning experiences (Feng et al., 2024), knowledge acquisition strategies (Han et al., 2025), and aspects of engagement and motivation (Pradana and Elisa, 2023). In fact, research measures the effects of learning in great detail but lacks a precise epistemological framing grounded in established learning theories (Stracke et al., 2025). This indicates unexplored potential in connecting human experience and recognition to the Metaverse, thereby offering a more holistic understanding of learning processes in education. Furthermore, specific reviews (Kourtesis, 2024) highlight that the next step in the research horizon is to address the ethical and social implications of Metaverse use in education, indicating a research gap.

As a contribution, the main goal of this conceptual paper is to develop an analysis that emphasizes how ethical understanding, or learning and teaching about ethics in the Metaverse, can be realized through a perspective that emphasizes practical engagement and reflective interpretation. This will be developed by stressing what we call responsible educational design solutions. To clarify, by this, we mean digital solutions that are recognized as legal, secure, robust, and ethical. To justify the reflective practice perspective, however, one might ask: how do we facilitate teaching and learning about ethics by utilizing a technology that is still not well understood and charged with ambiguities? Generally, applied ethics can be defined as understanding the characteristics of a good choice that contributes to a good life and considering what might be the most suitable option or options to achieve this goal. In a way, applied ethics can be condensed down to the question: “What should you do?” This simple yet complex question leads to the understanding that when people set moral boundaries for their actions, they need to use values, principles, attitudes, and norms as guides for decision-making. These elements determine the acceptable ways of pursuing what we value. It is also possible to adopt a single principle and use it as a guide, but applied ethics becomes challenging when values and principles contradict each other.

Indeed, philosophers have discussed ethics for millennia, but it has perhaps taken on a different nature today. In this context, we argue that facilitating learning and teaching about ethics in a complex technological environment might require a different and alternative approach. Here, and to clarify, our objective is not to engage in a debate about ethics *per se*, but to discuss how we can facilitate learning about ethics for both educators and students through the Metaverse in a context characterized by great uncertainties. This argument will be expanded by exploring two interrelated perspectives. The first one situates the discussion within a broader context related to challenges that emerge from the use of the Metaverse in education. The second perspective is grounded in an explorative and reflective approach akin to the pedagogical concepts introduced by Dewey (1997) and Schön (1983), which we call for responsible educational design solutions. Our point here, nonetheless, is that they argued for the need for exploratory understandings, where one probes and tests to learn from one’s practices and experiences (learning by doing), and applies retrospection (reflective practice) across contexts. In addition, sense-making might also be added to our perspective (Weick et al., 2005). These approaches invite educators and students to explore moral dilemmas through their own experiences rather than through abstract notions that are difficult to relate to.

That being said, to set the above into practice represents a challenge as the Metaverse can appear unfamiliar, ambiguous, and complex. The Metaverse is not entirely novel. As early as 1992 (Joshua, 2017), Neal Stephenson coined the term. There have been predictions about its demise, but it remains surprisingly very alive. Today, the Metaverse encompasses a broader meaning, as it can be understood as a virtual ecosystem where people interact through various technologies, including virtual reality (VR), augmented reality (AR), and mixed reality (MR). All of these might be referred to as extended reality (XR) technologies. Platforms such as VRChat, Second Life, and Roblox illustrate

these possibilities. We note, however, that the Metaverse has interesting capabilities and capacities that can support learning and teaching about ethics as it can reshape digital experiences. Users can create avatars to explore, participate in activities, or shape their own experiences. The Metaverse experienced a surge in popularity during the COVID-19 pandemic, which accelerated its adoption across various sectors (Dwivedi et al., 2022). A notable overall feature, which we observe, is that mixed-reality devices have become more user-friendly at a reduced cost, thereby lowering the threshold for adoption and engagement (Kaddoura and Al Hussein, 2023; Lin and Suh, 2021). This change in technology architecture enhances the capabilities and capacities of virtual environments, allowing for the creation and experience of new worlds, and thus providing new avenues for learning about ethics (Lin and Suh, 2021). This change in technology architecture enhances the capabilities and capacities of virtual environments, allowing for the creation and experience of new worlds, and thus providing new avenues for learning about ethics.

The argument will be discussed in the following sections of the paper. The first part addresses five key challenges that arise from using the Metaverse, while the second part explores responsible educational design solutions. The paper concludes with a discussion and a brief conclusion.

2 Part I: challenges in use of the Metaverse

Then, to begin our argument, specific challenges must be addressed when exploring the Metaverse as a platform for learning about ethics. These challenges are not merely obstacles; they provide insights into the complexities and practical considerations of utilizing such an advanced digital environment for education. The five challenges we have singled out are related to the impact of new technologies on ethics, trust, access, platform ownership, and data ownership. This list of challenges is not exhaustive, as there are many more that could have been part of our argument. The rationale for prioritizing them is that learning ethics should not be limited to merely applying a method for facilitating learning; educators must also consider larger matters, such as roles in social and cultural contexts and how these can shape learning processes. Therefore, by highlighting the five challenges, we explain why. By addressing these challenges, we aim to understand and navigate the ethical landscape of the Metaverse as part of a larger set of issues.

2.1 The impact of new technologies on ethics

New technologies will impact how we perceive, discuss, and learn ethics. As noted earlier, ethics is, at its core, a reflection on what constitutes a life worth choosing, a “good life”. Different ethical models and theories recommend various options, which are discussed within the field of moral philosophy. There is a current debate on which ethical model best contributes to the ethical challenges posed by emerging technologies (Coeckelbergh, 2023;

Ess, 2020; Floridi, 2013; Vallor, 2016). From a historic perspective, new technology has functioned as a catalyst for moral traditions, although each moral philosophy presupposes that the human condition is relatively stable. The most influential ethical traditions stem from a historic period when agricultural technologies enabled societal changes, enhancing the freedom to choose a good life, at least for the few privileged men. Between the 6th–4th centuries BCE, Plato, Aristotle, Buddha, and Confucius reflected on the qualities that constitute good lives and the qualities of persons choosing such lives, identified as virtues. Later philosophical traditions have refined, criticized, and transformed these ethical traditions, in parallel with further technological development and societal impact.

The historical process has, however, been slow compared to the exponential pace of changes in both technology (e.g., artificial intelligence, biotechnology) and society (e.g., communication, education, health, work, and leisure) that we see today. Plato, Aristotle, Buddha, and Confucius could observe and assume that the practical conditions of human beings and their environment were relatively stable, and so could their predecessors. For example, rule-driven ethical models presuppose that a person can investigate whether a particular rule applies universally, as Kant claims, while Bentham and Mill's utilitarian approach presupposes that a person can know and access which action leads to the greatest overall happiness or prevents the most harm. Even if such assumptions were held in earlier eras, they no longer hold in today's global, data-driven media environment. We have an unprecedented opportunity to share information, values, and norms across national and regional boundaries. However, we are still lacking a common, universal understanding of what constitutes ethical choices (Awad et al., 2018). Although this lack of common understanding is not evident from ethical guidelines and frameworks developed by governments and organizations across the globe (Jobin et al., 2019; Hagendorff, 2020), some researchers have highlighted cultural differences also between the ethical guidelines (Hongladarom and Bandasak, 2024; Younas and Zeng, 2024), and the need to translate and integrate ethical guidelines into a cultural context through value-sensitive processes inspired by virtue ethics (Murashova et al., 2025).

A possible approach to ethics in this fast-changing environment is to focus on how a person can live a life worth choosing in any moral world, whether digital or physical, *rather* than on what such a life entails. A representative of this approach is the contemporary moral philosopher (Vallor, 2016, 2024). Based on a cross-cultural approach—a comparative analysis of virtues in Buddhist, Confucian, and Greek traditions of moral philosophy—Vallor identifies twelve virtues and adapts them to the present technosocial context as “technomoral virtues” (Vallor, 2016, p. 118): honesty, self-control, humility, justice, courage, empathy, care, civility, flexibility, perspective, magnanimity, and technomoral wisdom. This approach is well-suited for the Metaverse, as it builds on a spectrum of moral traditions and focuses on habits rather than beliefs. It is also well-suited for skills training in educational settings. This approach, based on virtue ethics, supplies the rule-based approach of ethical guidelines and frameworks by translating and integrating rules and guidelines into practical contexts.

2.2 Metaverse and the trust-leap

Establishing digital solutions that are designed to be trustworthy is not sufficient; it need to be trusted by the users. This is what Botsman labels a trust-leap in technology (Botsman, 2018). One can argue that trust is a difficult concept to grasp, but it is closely linked to a firm belief in the reliability or ability of someone or something. But the solid belief in reliability or ability will certainly be challenged when there are fluctuations or degrees of ambiguity. For example, when there is a firm belief in reliability and uncertainty is low, a confident expectation emerges that something or someone will act in a way that is beneficial or at least not harmful. That said, a great challenge with the use of any technology is that trust is often facilitated by those who provide it, an aspect reflected also in research on the Metaverse (e.g.: Al Shehhi and Otoum, 2023; Ali et al., 2023; Cheng et al., 2024; Gupta et al., 2023; Jeong and Kim, 2023; Jin, 2024; Kumar and Shankar, 2024). This is exemplified through several technical arrangements in the technologies we use, which also apply to the Metaverse. Just to mention a few: reliability means that technology will perform consistently and as expected without frequent errors. Security involves assurance that user data and privacy are protected, safeguarding against unauthorized access, breaches, and cyber threats. Usability refers to a user-friendly design that meets the needs and expectations of its users. Transparency involves a clear understanding of how the technology works. Dependability means availability and functionality when needed, with minimal downtime or disruptions. Support and maintenance signify that one has adequate support, regular updates, and maintenance to keep the technology running. Interoperability ensures confidence that the technology can work seamlessly with other systems and devices, allowing for integration. Even more complicated technologies, such as blockchain, employ advanced algorithmic and encryption protocols to guarantee trust in applications like smart contracts (Haugsbakken and Langseth, 2020). In short, trustworthy solutions are secure, legal, and ethical. In other words, this means that trust is attempted rationally imposed by measures, a strategy used to reduce uncertainties.

However, one cannot rely solely on the procedural guarantees of a technology provider. It would be inaccurate to completely rely on technical guarantees. With regard to the Metaverse, we believe that a different approach, one that Botsman has interestingly suggested, needs to be applied. Botsman's (2018) “trust-leap” can occur when users take a risk to do something new or different, moving from familiarity to uncertainty. This leap is argued to be crucial for innovation and the adoption of new technologies, enabling societal progress by allowing people to embrace change. Botsman's focus is foremost on the global sharing economy, and she argues that using ride-sharing services like Uber or renting through Airbnb involves performing a trust-leap, relying on trust in technology and other participants. A prerequisite for these trust leaps is mechanisms such as reputation systems, transparency, positive experiences, and regulations that reduce perceived risk. These mechanisms are built to overcome inherent and culturally dependent skepticism, building trust in new technologies and maintaining established trust. Trust-leaps are important to the sharing economy, digital transformation, and broader societal trust.

The concept of trust plays a pivotal role in driving innovation and adapting to change. In educational contexts, however, the “trust-leap” also implies that learners and teachers must develop confidence not only in the technology itself, but in the ethical design, pedagogical intentions, and governance structures that frame immersive learning environments.

In the case of the Metaverse, a similar argument can be developed. We suggest that a trust-leap can be established through a negotiative approach where users explore the various facets of this new technology in an educational setting and through a relational and symmetrical relationship (Latour, 1987, 2005). This needs to be enacted through processual approaches where technology and practices are enacted simultaneously. A trust-leap means that trust in the Metaverse can be normatively established as an attempt to embrace a new technology, involving the practice of approving something one is hesitant or unwilling to adopt. This transition involves moving from skepticism or uncertainty to acceptance. If a trust-leap is to occur, we believe it will require the construction of mechanisms of feedback, as has been developed for digital services such as Uber and Airbnb. This transition can be aided by pedagogical approaches informed by virtue ethics to develop the technomoral skills that are necessary to safely perform the leap of trust. Among other aspects, users need to acquire experiences, which must be shared and examined in light of their values, principles, attitudes, and norms. This process, as part of a community, demonstrates how reliability can be enabled. In addition, design choices that appear to enhance trust should be further tested and developed, e.g., how virtual agents should be constructed (Gao et al., 2025). This will be a task that the early adopters of the Metaverse can explore. Their experiences may play a pivotal role in wider technological acceptance, and the extent to which they manage to experience it will determine a further leap of trust. It is worth noticing, that the prerequisite for even considering a leap of trust is that other ethical challenges are being addressed, especially the challenges of the digital divide, powerplay and data ownership, which we will now elaborate. In short, for the Metaverse to be trusted, it must be trustworthy and responsible, that is, legal, secure and ethical.

2.3 Access to immersive realities and the digital divide

As immersive technologies such as virtual and augmented reality continue to evolve, these new “immersive realities” could inadvertently exacerbate existing societal divides if access and opportunities are not equitably distributed. The World Economic Forum has expressed concern that immersive experiences are creating a new digital divide (Lacey, 2023). An Ipsos (2022) survey reveals gaps in affinity and adoption of the Metaverse across demographics such as gender, income levels, and rural/urban communities. A clear line is drawn at under 40 years of age, while there is also a significant gender divide, where men seem to have greater interest and engagement than women. The survey results show that the most active communities for the Metaverse are gamers, creators, and influencers. Cost is cited as a key barrier, as the Metaverse is primarily accessible to affluent populations. The

study further indicates that many feel more comfortable expressing their identity in virtual worlds than in the physical world, raising profound questions around authenticity and human connection that warrant careful examination.

The World Economic Forum also emphasizes that as developers and policymakers shape the future of the Metaverse and Web 3.0, inclusivity must be a priority to prevent further marginalization of underrepresented groups (Lacey, 2023). There are some signals in the survey data about how to address the divides. Initially, the “first digital divide” focused on access to technology and the internet. Now, we face the “second digital divide,” which highlights disparities in how this technology is used. This latter divide underscores the social inequalities that emerge from differences in digital literacy, skills, and engagement, impacting how effectively individuals and communities can benefit from new technological advancements. For example, gamers are more familiar with and engaged in immersive experiences, and esports will soon have more viewers than the world’s largest sports league, the American National Football League (Sachs, 2018). In 2024, esports had 500 million viewers (2024), which is just 15% of the total gamer population of 3 billion (Schüdy et al., 2023). The World Economic Forum (Lacey, 2023) suggests encouraging and promoting a broader set of options for the Metaverse to help narrow the digital divide. This includes building awareness that the Metaverse is for everyone by showing people what the experience will be like for them. They also point out the need for clarity on what it takes to participate, as device ownership is currently a key driver of participation. Educational initiatives can demonstrate how people can participate in immersive experiences without significant investment or access to devices. Educational institutions can help counterbalance unequal access that limits the potential for global citizens to benefit from immersive experiences.

For technology to be effective in educational settings and to close the two digital divide gaps mentioned, it must become cheaper and more user-friendly. The user interface must be improved and simplified to make it easier for teachers and students to adopt the technology. Today, we see that AI enhances immersive technologies by increasing realism through advanced graphics, sound, and dynamic content adaptation to user behavior, as well as personalizing experiences by analyzing user data and adjusting the experience in real time. AI can automate time-consuming tasks such as modeling and texturing, which reduces development costs. By making the user interface more intuitive and lowering costs, AI increases productivity and makes the technology accessible to more users (Harshit, 2023; Qayyum et al., 2024). This would, again, help to close the first gap of the digital divide, related to access. Traditionally, the Metaverse has been seen as a collective virtual shared space, created by the convergence of virtually enhanced physical reality and physically persistent virtual space, including the sum of all virtual worlds, augmented reality, and the internet. To integrate the Metaverse into education, it may be necessary to broaden its definition to make it more inclusive and reflective of its potential in the education sector. A broader definition can help a more diverse group of users to embrace immersive technologies and applications that the Metaverse can offer in educational contexts. By doing so, we can ensure that the Metaverse serves as a tool for enhancing learning experiences and bridging the digital divide rather than widening it. In addition, incorporating

immersive technology into education can enhance the digital literacy of a more diverse group, which can further aid in closing the second digital divide related to the use of digital technology.

2.4 The powerplay of ethics shaped by organizations

The Metaverse may become a type of “battleground” for a powerplay between technology providers and other organizations. Consequently, it can be interesting to discuss this from a new institutional perspective (DiMaggio and Powell, 1983; Scott, 1995), as this theoretical lens can provide insights into how such diverse powerplays unfold. This research lens is interesting, as we anticipate that the Metaverse industry will be influenced and shaped in new ways when new actors enter and challenge existing ones in its organizational fields (Scott, 1995). Not surprisingly, legitimacy contests will arise, and we will see patterns of institutional processes. Perhaps a visible property connecting ethics to our idea of a powerplay is the formation and enactment of various value-systems. These can be briefly defined as a set of beliefs, principles, ethics, and priorities that guide behavior and decision-making, enabling individuals or organizations to discern right from wrong. In organizational life, these are expressed and identifiable in proposed guidelines for ethical conduct. We can expect to encounter not just one, but multiple ones, leading to varying ethical perspectives. For instance, as public organizations, such as government agencies, begin to explore the Metaverse, they will likely develop their own ethical guidelines. These guidelines may slightly differ from or be similar to those formulated by tech companies from the same environment.

An approach to demonstrating how ethics can become part of a ‘legitimacy contest’ is observed when organizations increasingly adopt elements of a value-system. This often leads to what organizational researchers describe as “institutional isomorphism” (DiMaggio and Powell, 1983). According to New-Institutional theory, this refers to the phenomenon where organizations become similar to each other. But institutional isomorphism also offers other explanatory capabilities; it explains how organizations exert power over each other or interact within the same organizational field, even when their actions lack a clear purpose. Institutional isomorphism typically manifests in three forms: coercive, mimetic, and normative (DiMaggio and Powell, 1983). Coercive isomorphism occurs when one organization exerts formal and informal pressures on another to adopt specific guidelines. Mimetic isomorphism occurs when organizations mimic the actions of others to appear more legitimate or successful, often triggered by uncertainty as they seek guidance from peers on practices and policies. Normative isomorphism occurs through professionalization within a field, initiated when individuals with common educational backgrounds and professional networks in the Metaverse industry begin to agree on industry standards, best practices, and legal frameworks. In other words, institutional isomorphism can lead to a homogenization process that standardizes ethical approaches in the Metaverse.

Another property within institutional dynamics that we wish to highlight is how an alternative institutional perspective can shed light on different outcomes and the processes of heterogenization

in organizations, potentially affecting understandings of ethics (Røvik, 2007). In fact, we predict that as the Metaverse expands, we will see a greater diversity and complexity in approaches. This becomes more apparent when we examine the diffusion of ideas within and across organizations and their adaptation to local organizational contexts. Determining how organizations adopt new ideas and implement them as practices is challenging, often involving translation and negotiation between actors within and between organizations. In such processes, different actors may hold various assumptions and expectations about what constitutes ethics, leaving much open to interpretation. This complexity increases when ethics are ambiguous. The past and present experiences and understandings of ethical principles and values by an actor, along with the organizational context where ethics are negotiated, can shape potential guidelines for the Metaverse. This suggests that when ethics are operationalized within an organization, a significant element of construction is involved, indicating that actors are not merely passive recipients but actively engage in making sense of the Metaverse.

In the context of the Metaverse, an intriguing observation is the significant variation in value systems across different virtual communities and organizations. This diversity underscores the complexity of establishing universal ‘best practices.’ Practices that are effective in one context may not be suitable in another, highlighting the challenges associated with transferring knowledge between organizations. This dilemma also extends to the communities within the Metaverse, where informal values, norms, and belief systems might emerge differently among users. These informal frameworks can often contrast with the formal guidelines set by the institutions that govern these virtual spaces. Both informal ethical norms and formal ethical frameworks are subject to adaptation, extension, or reinvention, which leads to the complex meaning of ethics. As a result, we can anticipate other patterns in the adoption of ethical principles, shaped by cultural-cognitive elements. These elements influence which ideas about ethical standards gain prominence. The development of these norms involves contributions from both users and developers, encompassing issues such as privacy, property rights over virtual assets, and acceptable behaviors. Inevitably, different ethical standards may vie for dominance, engaging in a contest for legitimacy within the Metaverse’s socially constructed system of norms, values, and beliefs. Stakeholders, including users, developers, and regulators, strive to establish legitimacy for their actions, influencing the ethical landscape of the Metaverse. This interplay of informal and formal ethical considerations, shaped by the cultural and cognitive backgrounds of stakeholders, highlights the dynamic nature of ethics in virtual environments. The powerplay between organizations might be beyond the control of educators. But they can execute a conscious and precautionary approach, where solutions are carefully chosen and well-founded, and where the different value systems and powerplays are discussed.

2.5 Ownership of data and intellectual properties

User-generated content will make up much of the Metaverse, raising questions about whether users or the platform owners

hold the rights (Saluzzo, 2023). There are also significant concerns around the vast personal data that will be collected about users' movements, interactions, and preferences within these virtual worlds (Dwivedi et al., 2022). An example is Microsoft's Copilot Recall, which utilizes Windows Runtime to help you find anything you have seen on your PC. This feature was considered a "privacy nightmare" because Copilot Recall would take screenshots of your laptop every few seconds. Recall was an upcoming preview experience exclusive to Copilot+ PC, designed to help you easily find and remember things you have seen using natural language. This led to a significant debate about who truly owns and controls this data. That said, intellectual property rights like copyrights and patents become murky when users create content in the Metaverse. How will these be governed across platforms? The need for open standards to allow cross-platform functionality raises questions about who sets and controls those standards. The level of centralized control is a key point of debate. Meta's Metaverse is largely controlled by the single company Meta (formerly Facebook), giving it immense power over protocols and what content is allowed. In contrast, the Metaverse vision laid out by Neal Stephenson is built on a distributed idea where no central entity has all power. There are widespread concerns that the major tech companies will wield too much control. Regulating ownership in the Metaverse is highly complex but critical to protect user interests (Dwivedi et al., 2022).

One significant challenge is the unclear legal frameworks surrounding intellectual property in the Metaverse (Al-Kfairy et al., 2025; Dharma, 2023; Tan, 2021). As technology rapidly evolves, legislation struggles to keep pace, leading to uncertainties about how traditional intellectual property rights apply in these virtual worlds. Additionally, the global nature of the Metaverse means that cross-border transactions are commonplace, complicating the enforcement of rights across different jurisdictions. A good example of this was when Meta planned to change the Meta Privacy Policy on June 26, 2024. Meta intended to train AI on users' photos. There was a significant European resistance movement, and Meta ultimately withdrew the changes at the last moment. Nevertheless, Meta has stated that Meta AI has already been trained on publicly shared posts from Instagram and Facebook, including photos and text (Clark, 2023). This complexity is compounded by the prevalence of user-generated content, which raises difficult questions about ownership and rights. The companies behind Metaverse platforms play a crucial role in shaping guidelines for intellectual property, further complicating the landscape (Dwivedi et al., 2022). Thus, it becomes unclear who has access to what. Ownership and location of data become blurred, creating significant uncertainty about who can access data, who can see it, and whether the technology is secure. Just in 2024, for example, we have seen two instances of public panic cases with Microsoft's Copilot Recall and Meta's use of our photos in training. Data can be mishandled, and the applicable rules are unclear. Europe has different regulations from the USA, and while there are national regulations, they are often overridden by large tech companies. This issue is well-documented by Max Schrems, who filed a complaint with the Irish Data Protection Commission to stop the transfer of personal data between Facebook Ireland and Facebook Inc. in the USA. He has won twice and has now announced that he will pursue a third lawsuit

(noyb, 2023). These rulings highlight the power that major tech companies hold.

Despite these challenges, the Metaverse also presents numerous opportunities for managing intellectual property. For example, blockchain technology offers a solution by providing indisputable proof of ownership through the tokenization of digital assets. This technology, along with smart contracts, enables the automatic enforcement of licensing agreements and royalty payments, reducing the administrative burden and potential for disputes. There are also ongoing discussions on possible regulatory frameworks in specific regions, such as the EU, to strengthen data ownership regulation. To navigate these challenges and opportunities, it is essential to develop clear legal frameworks and standards for intellectual property rights in the Metaverse and with a global scope. The real value in the Metaverse lies in user interactions and user data, and the battle over ownership of these aspects is likely to intensify in the future. Therefore, regulating ownership in the Metaverse is highly complex but necessary to ensure a balanced and equitable digital landscape (Al-Kfairy et al., 2025; Dharma, 2023; Dwivedi et al., 2022; Tan, 2021). This means that the teacher will have to keep updated on the latest regulations and ethics guidelines, to ensure that not only the students' privacy, but also rights to intellectual property and data ownership are not violated, and that necessary steps of precaution are taken. The measures will depend on the legal context of the teacher and students, but also cultural differences related to risk appetite and requirements of the educational system.

3 Part II: responsible educational design solutions

In this second part of our conceptual paper, we propose four responsible educational design solutions that can serve as pedagogical approaches to learning about ethics through the Metaverse. A central matter with these is that they need to encompass explorative and reflective elements and align with pedagogical ideas introduced by Dewey (1997) and Schön (1983, 1987). This means that we consider responsible educational design solutions to be those that facilitate learning through investigation and reflection across contexts, and that these will influence learning about ethics. Our understanding of responsible educational design solutions refers to approaches and strategies that prioritize ethical considerations, inclusivity, and the wellbeing of learners, while at the same time, is a technology that leverages and supports pedagogical practices to enhance learning experiences. These solutions aim to create an educational environment that is not only effective but also equitable, sustainable, and respectful of diverse learner needs and contexts.

3.1 Educational design solution 1: transformative learning

The first responsible educational design solution we propose is connected to what is called ongoing transformative learning, which means combining technology with pedagogy to enhance

a more learner-centric approach to education. Transformative learning, however, can be argued to begin when we as individuals seek to make sense of our experiences (Mezirow, 2006). Applying that to a learning process, experience, meaning, and reflection are important components. Our frames of reference, shaped by culture and language, define and limit, to a certain extent, how we perceive, think, and feel. A crucial part of how we engage with the environment is what can be called the “habit of mind,” which involves meaning perspectives that act as primary frameworks for how we interpret things. These perspectives, developed during our upbringing, guide how we perceive, understand, and relate to things both consciously and unconsciously. The other part of the frame of reference is the “point of view,” which forms the basis of our attitudes, ideas, values, behaviors, and mental habits stemming from our meaning perspectives (Illeris, 2013; Mezirow, 2006).

In our view, the Metaverse has, first and foremost, the capabilities, capacities, and affordances that can raise interesting opportunities about how educators can facilitate learning and teaching about ethics. The Metaverse can create immersive and interactive experiences, allowing students to explore, experience, and interact with multiple digital artifacts. Through the technology, it will be important to experience and reflect on issues such as equity and ethical dilemmas. This engagement can either broaden or challenge personal mindsets and preconceptions about particular issues. Such a shift can develop beliefs and viewpoints that are more accurate and valid, leading to more morally sound decision-making and actions (Mezirow, 2009). The interesting affordance with the Metaverse, however, is that the immersive context does not inherently predetermine what is right or wrong. The goal is to encourage students to maintain an analytical distance from themselves and their practices by challenging their meaning-making perspectives. Moreover, this facet entails the potential for change. The students can become aware of and critically reflect on their meaning-making perspectives, which then are part of the larger transformative learning process they engage with. This process can lead to changes in their understanding of themselves and their “standpoint,” such as attitudes toward groups with different religious and cultural backgrounds. Such an approach can contribute to a deeper understanding of ethics and moral issues, but also promotes personal growth and development.

3.2 Educational design solution 2: identity experimentation and role-play

The second responsible educational design solution is identity experimentation and role-play, which can be facilitated in the Metaverse, as it can, for example, enhance personal simulation in new and engaging ways. To frame this aspect within pedagogical theory, however, role-play is applied to support learning through emotional engagement and immersion (Leming, 2016, p. 70). Role-play takes a different approach to how we usually perceive conventional knowledge processes; instead of knowledge transfer of objective information from sender to receiver, the assumptions are altered as the uncertainties and differences in co-creation processes are addressed. Its primary goal is to challenge students’ frames of

reference, enabling them to see and understand phenomena from diverse perspectives.

Various perspectives highlight the benefits of engaging in role-play, which can lead to transformation among individuals, groups, and societies (Boal, 1995; Schechner, 2003). Illeris (2013), expanding on Mezirow’s theory of transformative learning, emphasized the emotional dimension of learning and identified three key components: content, incentive, and interaction. Content involves cognitive understanding and insight, particularly in relation to ethics and morals. Incentive concerns motivation and emotion, the driving energy behind learning. In role-play, this is evident through empathy and identification as students assume roles (Leming, 2016). Interaction addresses the social and relational context in which learning unfolds. Although Illeris included a societal context, we interpret this as the social and material environment that shapes learning. In the Metaverse, we claim, this interaction can be further enhanced, creating an environment for exploring ethical and moral dilemmas through identity experimentation and role-play. This approach can be easily integrated into immersive technology and applied across all school subjects and educational systems.

3.3 Educational design solution 3: immersive technology enhanced learning

The third responsible educational design solution is what we call immersive technology-enhanced learning (Li et al., 2024). The rationale for proposing it lies in the affordances associated with the Metaverse, which enable new and engaging forms of personal simulation. For example, when we interact with any given environment, whether real or virtual, our experience is often in the first person (Winn, 1993), meaning it is direct and often non-reflective, perhaps even unconscious. Third-person experiences, such as using others’ descriptions found in books, involve conscious reflection and may not offer the same depth (Winn, 1993). Traditional teaching often relies on knowledge derived from books and teachers, which students must then apply in real situations. In contrast, situated learning—acquiring knowledge and skills in the same environments where they will be used—suggests that students learn concepts more easily in relevant contexts (Lave and Wenger, 1991). Realistic and authentic environments are not always possible in a school setting, but interaction in a virtual environment can often be a good substitute for real experiences. In a way, immersive technology can offer a high degree of realism and interactivity, creating vivid, situated learning experiences that link experience with theory. Studies on human learning show that people learn more when multiple senses are engaged in the learning process (Barraclough and Guymer, 1998; Chittaro and Ranon, 2007). We can potentially absorb more information when we see, listen, hear, and act simultaneously. Then, in immersive environments, this ability can be facilitated by offering multisensory experiences, such as three-dimensional spatial sound or haptic stimuli (e.g., vibration or force feedback). The use of VR has been shown to have some effect on learning outcomes (Jagatheesaperumal et al., 2024; Li et al., 2024; Sathyasundari et al., 2024). For example, technology can offer a wide range of experiences and reinforcements, some of which are

impossible to try in the real world due to distance, cost, danger, ethics, morality, or impracticality.

Accordingly, the Metaverse can offer advantages over very traditional learning practices. For example, the Metaverse can offer experiences that are impossible to try in the real world due to various constraints. Virtual classrooms can simulate dangerous tasks, allow students to practice tasks they are not yet ready to perform, show the consequences of failure, or make students feel more comfortable in a learning situation. Therefore, the Metaverse allows users to work with virtual companions—avatars of other users who can be co-located or distributed across different geographic locations. These interactions can be controlled by real people, depending on the interface and their ability to use the technology. Students can ask questions they might not dare to ask their friends or teachers, or talk to people from another culture. More complex approaches allow students to interact with simulated companions and their computer-generated behavior, such as when absent classmates need to be replaced to complete a task. Then, educators can create rich, engaging learning experiences that not only enhance understanding and retention but also provide a safe space for exploring ethical dilemmas and moral questions.

3.4 Educational design solution 4: collaborative approaches

The fourth responsible educational design solution we propose is called collaborative approaches. This pedagogical strategy provides the Metaverse to facilitate various immersive collaborative learning experiences, which can be either synchronous or asynchronous. One relevant aspect is how students can learn about ethics by engaging in problem-solving dilemmas that require exploration and reflection on which values or principles should be weighed in specific learning scenarios. A parallel to how this would be in practice, for example, is to examine research cases that explore how work-life training and how the use of virtual realities affect employee engagement (Burova et al., 2022a,b). The notable aspect is that the Metaverse can transcend the limitations of physical spaces, enhancing brainstorming sessions, meetings, and conferences, surpassing traditional video conferencing tools. Unlike standard online meetings focused on updates and task organization, the Metaverse offers in-depth learning opportunities, primarily through the use of digital twins. Digital twins are an advancement in immersive technologies, bridging the physical and digital realms (Chamola et al., 2023). They gained prominence during the pandemic in certain companies and sectors. A digital twin is a virtual model that accurately reflects a physical object, process, system, or service. This technology is used for comprehensive work-life training in industries such as manufacturing, healthcare, and urban planning. Digital twins replicate not only the physical appearance of real-world entities but also their behavior and dynamics. By integrating sensors, data analytics, and machine learning algorithms, these models provide real-time monitoring, simulation, and analysis.

4 Discussion

To discuss our outlined perspective, we will engage with three points related to the current research discourse on the Metaverse in education. The first point concerns our *research contribution*. As noted, existing research has primarily focused on measuring learning outcomes and the effectiveness of different pedagogical designs (see: Feng et al., 2024; Han et al., 2025; Maghaydah et al., 2024; Pradana and Elisa, 2023; Stracke et al., 2025). This insight indicates a reductionist tendency; learning is approached as an outcome of processes rather than exploring the nuances and complexities that make up such learning processes. Also, current research tends to lack a precise pedagogical framing grounded in the established learning theories. As a result, the field lacks an epistemological orientation that views the Metaverse as a space for reflection, experimentation, and knowledge construction. Moreover, approaches to connecting ethics are lacking (Kourtesis, 2024). In this way, our research work can be considered a contribution.

Building on this foundation, the second point we wish to stress is how our conceptual paper adds a *more reflexive and normative alternative* to the dominant technical research on using the Metaverse in education. While recent studies have begun to integrate pedagogical and ethical perspectives (e.g., Al-Kfairy et al., 2024, 2025; Diao and Su, 2025; Geng and Su, 2024; Imamguluyev et al., 2023; Jong et al., 2024; Lee et al., 2023; Onu et al., 2024; Tsappi et al., 2024; Wang, 2024), techno-centric approaches still dominate. Most of these studies emphasize system performance, usability, and learning efficiency rather than the underlying human, social, and ethical dimensions of learning. Consequently, the deeper relationships between the Metaverse and ethics—especially from humanist and social-scientific perspectives—remain insufficiently explored. That said, our research work is an attempt to redirect the discussion on ethical and epistemological meaning-making. Rather than examining how technology in educational designs can be best optimized and effective, we are foremost interested in highlighting the importance of nurturing ethical reflection, empathy, and critical awareness. This shifts the discussion from “what works” to “what matters.” Although we have outlined only one possible direction of many, we acknowledge that our argument is not exhaustive. Instead, we propose recognizing the potential of the Metaverse as a space for reflective and dialogic learning, which can advance a more responsible and human-centered educational paradigm.

The third point we discuss concerns recommendations for how educators can apply different pedagogical approaches to teach and learn about ethics through the Metaverse in education. These five themes, presented in Table 1, are intended to bridge pedagogical theory and practice. They can serve as concrete examples of how responsible design solutions can be enacted in educational settings. In essence, they outline practical teaching strategies for using the Metaverse to explore ethical themes in multiple ways. Each theme identifies a pedagogical core idea, a learning objective, and a proposal for implementation in practice. We imagine that these examples can function as lesson plans or proposed learning designs. Taken together, they illustrate that learning about ethics in immersive environments depends less on technological

TABLE 1 Key pedagogical implications for learning ethics through the Metaverse.

Theme	Proposal	Purpose
Ethics as learning	Frame ethics as applied and experiential learning.	Make learning concrete and practice-based.
Technology's role	Discuss how the Metaverse reshapes moral contexts.	Build critical awareness of technology's influence.
Learning design	Use immersive, collaborative simulations.	Enable shared ethical reflection.
Normative stance	Fostering ethical awareness.	Support participatory learning.
Pedagogical space	Use the Metaverse as a "third space."	Create a dialogic arena for reflection.

novelty and more on the intentional design of reflective and participatory experiences.

First, the theme “Ethics as learning” frames ethics with the objective of fostering applied and experiential learning. This means that students must engage with ethical issues not only through discussion in the classroom, but also through what can be called embodied or immersive experience. For example, upper-primary or lower-secondary students could explore ethical topics related to inclusion and belonging in a virtual school environment. Inside the Metaverse, they might enact different identities and take on the roles of different students—a newcomer speaking another language, a peer who feels excluded, or one who tries to build community. Through these embodied and immersive experiences, students can see how words, actions, and attitudes affect others and how respect, equity, and empathy must be translated into action. The ethical dimension emerges when they reflect together on what fairness and equal participation truly mean.

Second, the theme “Technology’s role” serves as a pedagogical approach or lesson where the objective is to recognize that the Metaverse reshapes moral contexts, meaning that technology-rich learning environments themselves become factors in shaping these contexts. Such contexts call for critical awareness of how design choices mediate interaction, amplify certain voices, and silence others. For example, students could investigate how algorithms or virtual settings influence what they perceive as “normal” behavior. Such discussions can cultivate digital ethical literacy and an understanding that technology itself is never neutral.

Third, the theme “Learning design” emphasizes the role of immersive and collaborative simulations as means to foster shared ethical reflection. Here, we imagine a lesson or a learning design intended to engage students collaboratively in larger projects where they have to make many ethical decisions and solve problems that are based on equal and sustainable solutions. For example, they could be engaged in designing a “virtual sustainable city,” where they must distribute limited digital resources—such as energy, housing, or data access—among different groups of citizens. Each decision exposes trade-offs related to equity, inclusion, and environmental justice. This type of task develops moral reasoning and supports the ability to justify ethical choices rather than relying on intuition alone.

Fourth, the theme “Normative stance” highlights a pedagogical approach that engages students in an immersive environment aimed at fostering ethical awareness of complex social issues. Instead of having a learning context where moral rules are predetermined, the teacher facilitates exploratory learning processes, while the environment itself—such as a Metaverse setting—invites dialogue, collaboration, and perspective-taking. For example, in a social studies or history lesson, a Metaverse scenario can allow students to engage in complex, real-world situations—such as migration, climate policy, or digital surveillance—where they must interpret information, negotiate viewpoints, and construct arguments by working together. Through guided reflection and structured dialogue, students can practice analytical reasoning, empathy, and deliberation.

Finally, the theme “Pedagogical space” conceptualizes the Metaverse as a “third space” for learning about ethics. When designed with intention, such an immersive environment can become a dialogic arena where ethical reasoning is practiced through shared, embodied, and creative exploration. Here, the boundaries between formal instruction and personal experience blur, allowing learners to test perspectives, build empathy, and co-construct understanding. For example, educators could organize reflective “atelier sessions” where students collaboratively reconstruct ethical scenarios they have previously encountered in immersive settings. By revisiting these experiences together, they can analyze how perspective, context, and interaction shaped their moral reasoning.

Building on these five themes, learning about ethics through the Metaverse clearly requires a degree of planning. The technology alone does not guarantee that learning about ethics will happen; rather, it is through critical dialogue, reflection, and participatory design that immersive spaces can support the development of ethical awareness. To translate these themes into practice, educators should: (1) embed ethical reflection directly into the learning design of the immersive task, so that students engage with moral questions through experience rather than abstraction; (2) provide opportunities for debriefing and dialogue to help students transform emotional or intuitive reactions into articulated ethical reasoning; and (3) ensure equitable access, transparency, and governance so that all students can safely participate in immersive learning.

From this perspective, it is also important to recognize that cultural and geographical differences can influence how ethical dilemmas are understood. This is quite evident, as students bring their previous experiences into the Metaverse. Therefore, there is good reason to assume that ideas such as justice, privacy, and accountability will be interpreted very differently across regions. It is also likely that various values, attitudes, and belief systems—whether individualistic or collectivist in orientation—will play a significant role in how ethical dilemmas are taught and learned in the Metaverse. Thus, we can assume that meaning-making and interpretation processes, when viewed in light of responsible educational design solutions, are highly context-sensitive and display considerable adaptive variation, rather than representing universal principles interpreted identically across contexts.

While these strategies are essential, implementation also depends on broader support and competence development.

Beyond practical lesson planning, we recommend efforts at two interconnected levels: teacher and institutional. Regarding teachers, it is important to build competence within four knowledge domains: (1) designing ethically charged immersive scenarios (alignment to curriculum, age-appropriateness, accessibility), (2) facilitating dialogue and debriefs that move from moral reactions to ethical justification (protocols, questioning, and reflection tools), (3) safeguarding and governance (basic data/IP literacy, consent routines, platform settings, and classroom safety), and (4) assessment of ethical reasoning (analytic rubrics for values clarification, perspective-taking, and justification quality). At the institutional level, practical support should include a vetted “starter stack” of low-cost platforms, opt-in sandboxes, model consent and risk checklists, and a named IT/ethics liaison. Taken together, such measures can lower the threshold from theory to practice and help educators see the value of using the Metaverse in education.

5 Conclusion

To summarize our conceptual paper, we have explored the potential of learning and teaching ethics in the Metaverse from two perspectives. The first perspective was ethical issues, which we framed as challenges. The second perspective was educational design choices. Our lists of challenges and design choices were not intended to be exhaustive but to constitute central perspectives on learning ethics in the Metaverse.

First, we identified and discussed five central challenges that must be addressed for the Metaverse to be a responsible choice in teaching and learning about ethics, legal, secure, and ethical. The challenges that we analyzed were (1) the impact of new technology on moral values, which we argue, can be met by supplying ethical guidelines with process-oriented approaches, (2) the trust-leap, which can be aided by feedback mechanisms and by securing responsible solutions, (3) the digital divide, which can be handled through user-friendly and cost-effective digital solutions, and digital competence building, (4) the powerplay between organizations with diverging value systems, which is difficult to educators to solve, but that can be countered by well-founded pedagogical design choices, and 5) data ownership and intellectual property which, as we argue, can be addressed with a combination of legal frameworks, ethical guidelines and pedagogical approaches. Secondly, we identified and discussed responsible educational design solutions. The idea here was that the design solutions could build on and use the strengths of the Metaverse. The design solutions we analyzed were (1) learner-centric approaches, to strengthen transformative learning, (2) role-play, to facilitate emotional engagement and immersion, (3) immersive technology-enhanced learning, to create authentic environments, and (4) collaborative approaches, to engage in problem solving and ethical reflection.

The synthesis of the two perspectives highlights the Metaverse’s potential as a transformative platform for learning about ethics. To evaluate and validate the usefulness of the Metaverse as a tool for ethical reflection in educational settings, empirical research will be needed. Due to the value-sensitive character of both ethics and education, this validation cannot be performed just by us or once

and for all. Rather, the evaluation and validation should consist of studies across the globe, at different levels in various educational systems, in the intersections of different cultural contexts, digital platforms, and, last but not least, over time. Such can be investigated by applying design-based research, iterative case studies, and participatory co-design. In addition, both educational design and processes can be co-developed with stakeholders and students. New technology is being developed faster than educational systems, and ethical principles and norms are changing. However, these changes are also intertwined and should be monitored carefully through iterative evaluation processes.

Author contributions

HH: Writing – review & editing, Writing – original draft. MH: Writing – review & editing, Writing – original draft. LB: Writing – review & editing, Writing – original draft.

Funding

The author(s) declare that no financial support was received for the research and/or publication of this article.

Conflict of interest

The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

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