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Avoiding virtual dystopia: A design theory for emancipatory participatory immersive platforms☆

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ABSTRACT

Immersive platforms, accessed via VR and AR interfaces, offer a profound digital experience but raise significant privacy and ethical concerns. Current systems collect extensive user data; this enables manipulative advertising and behavior control, fosters self-censorship, and diminishes authentic self-expression – especially among marginalized communities. The unchecked development of immersive platforms threatens to create oppressive environments due to power imbalances and a lack of regulation. This paper addresses the urgent need for emancipatory design guidelines to prevent such outcomes. By integrating critical theory with Participatory Design, we propose Emancipatory Participatory Immersive Platforms. These platforms involve users in their design and dismantle oppressive structures through four emancipatory tools (i.e., agency, dialogue, inclusion, and rationality), substantiated by eight actionable design principles. Our framework aims to empower users, promote inclusivity, and ensure rational engagement – and thereby foster immersive platforms that maintain functional benefits while enhancing freedom and equity.

Introduction

Immersive platforms (IPs) have rapidly garnered attention throughout the past years, introducing new kinds of digital interactions for people on the World Wide Web. IPs are a subgroup of *digital platforms*, which are technology that facilitates the exchanges between platform providers, complementors (i.e., creators of products, services, and content), and consumers (i.e., users) (Gawer & Cusumano, 2014). On IPs, the lines between consumers and complementors become increasingly blurry as users frequently assume a dual role: not only being the target but also the locus of creation (Schöbel & Leimeister, 2023). Moreover, IPs are a three-dimensional representation of the physical world but in an online context (Haj-Bolouri, 2023), which means users rely mainly on virtual reality (VR) and augmented reality (AR) interfaces (e.g., headsets) to access and interact in IPs. Thereby, IPs offer users the feeling of being physically present in digital environments that, in turn, do *not* physically exist, creating a sense of immersion (Jennett et al., 2008). Packer and Jordan (2002, as cited by Carvalho, 2013) summarized their appeal: "The fantasy of being transported into another world, to be taken

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wholly into the imaginary real, is a primal desire (Carvalho, 2013)."

In spite of the attractions of IPs, worries about their adverse effects are increasing. For instance, scholars criticize IPs for their privacy erosions, which could lead to unprecedented levels of control over users' thoughts and actions (Calabrò et al., 2022). Already today, the VR/AR systems employed in IPs collect data on users' eye movements, facial expressions, and even physiological responses, providing insights into their emotional states and preferences (Slater, 2018). This data can be used to create highly targeted and manipulative advertising strategies, thereby increasing the power of those who control the platforms (Batinovic et al., 2024; Bozkir et al., 2021). The integration of algorithms enhances this surveillance capability by enabling real-time analysis and predictive modeling, which can be used to influence and manipulate user behavior subtly (Huynh-The et al., 2023). To this end, IPs serve as critical enablers of a surveillance society (Zuboff, 2019) by permanently and explicitly permeating surveillance in people's everyday lives. The resulting awareness of being watched leads to self-censorship and a loss of authentic self-expression (Manovich, 2002).

Another critique refers to the potential of the underlying technological structure of IPs to be hijacked by corporate interests. As IPs inherently require algorithms to offer and personalize user experiences, corporations can use these algorithms to shape the platform (e.g., through content curation algorithms) without users becoming aware of it (Kane et al., 2021). Thereby, corporations can exploit IP structures to manipulate user experiences, which can lastingly alter their social beliefs and influence real-world behavior (Kane et al., 2021; Li et al., 2022). Such manipulative design practices exploit users' psychological vulnerabilities, diminishing their capacity for critical thinking and genuine self-expression. Thereby, corporations can exploit IPs to manipulate users to not act in their best interest and, for instance, instead contribute to their own commodification for corporate profit (Fuchs, 2014; Zhou et al., 2018).

Power imbalances, particularly in digital platforms, likely result in dynamics where platform owners can dictate the terms of use and access, creating dependencies where they can manipulate terms and conditions to maintain dominance (Hurni et al., 2022). The absence of regulation and participation is leading to a 'digital Wild West,' where platform owners can build oppressive IPs unimpededly (Du, 2023). As we have seen in social media platforms already, emancipatory design guidelines are urgent, as providers will exploit this lack of oversight to create oppressive online environments (Gillespie, 2018). Still, the absence of a predominantly-used IP shows that there is still time and opportunity to foster more human-centered IPs. While behavior control in IPs oppresses humans, people are often unaware of the extent to which they are controlled. Importantly, they lack options to exert control even if they become aware (Kane et al., 2021). Consequently, research must support emancipating users by offering design guidelines for reducing oppression while maintaining the features and benefits of IPs (Patel et al., 2024). The focus of this paper is on how to accomplish this objective.

We follow innovative scholars who pioneered combining critical theory and design science to derive prescriptive design guidelines for humane information systems (Kane et al., 2021; Young, 2023; Young et al., 2024; Young et al., 2021b). Using Participatory Design as our kernel theory under the lens of critical theory, we propose design principles based on the materiality of IPs that support emancipation. These principles feed into a new class of IPs we call Emancipatory Participatory Immersive Platforms (EPIPs) that not only include their users in their design but also break down underlying oppressive structures. We contribute to this endeavor by focusing on dismantling oppression through four emancipatory tools – agency, dialogue, inclusion, and rationality – which we substantiate through eight actionable design principles.

The remainder of this paper is structured as follows. We begin by conceptualizing IPs and deriving their basic technological framework. Next, we introduce *Critical Theory* and *Emancipatory Research*, which we subsequently apply to IPs to identify four oppressive features. We then argue for a new IP design theory and introduce *Participatory Design* as our kernel theory. Followingly, we present our design theory – *Emancipatory Participatory Immersive Platforms* – and describe eight guiding design principles. Next, we examine the materialization of our theory's emancipatory potential. We close the paper by discussing its implications for research and practice.

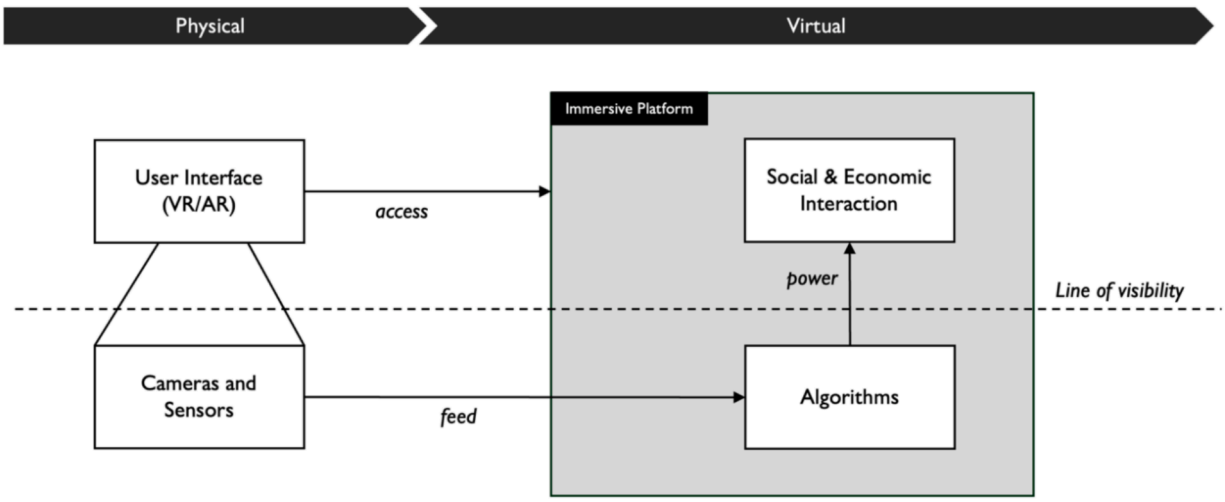

Fig. 1. Basic Technological Model of Immersive Platforms.

Conceptualizing immersive platforms

To evaluate immersive platforms, it is first essential to understand their functioning and material properties. A *digital platform* is a technology that organizations use to interact with users to deliver products and services (Gawer & Cusumano, 2014). Usually, the members access the digital platform through a user interface, such as a website accessed on a computer or smartphone. *Immersive platforms* (IPs) are an emergent type of platform (Schöbel & Leimeister, 2023) and are differentiated through fundamental technological characteristics (Schöbel et al., 2023). Fig. 1 shows a basic technological model of IPs that illustrates four fundamental features. First, IPs employ a **novel user interface**, namely VR/AR systems. Second, these VR/AR systems contain various **cameras and sensors** to track and digitize gestures and mimics. Third, these data feed into **algorithms** that personalize and shape user experiences. Lastly, IPs use this algorithmic output to offer novel ways of **digital socialization and economic activities**. We provide a visual representation of the four unique characteristics of IP in Fig. 1.

These four features make IPs unique; products and services become experiential. Whereas companies use digital platforms to sell (physical or virtual) goods, users of IPs consume the experience of using such products in the virtual space. For example, Givenchy used digital platforms (e.g., Amazon) to sell its fragrances for decades. People utilize these platforms to buy perfume to use in the physical world. Contrarily, in immersive environments, Givenchy provides virtual pool parties for users to experience what it is emotionally like to wear their fragrances in a social setting (Smith, 2022). These experiences work and create emotions for users, as the human brain displays similar physiological reactions to physical and virtual content, blurring the line between what happens in the physical and the online world (Diemer et al., 2015).

In summary, IPs offer users novel ways to virtually experience social and economic interactions as they would in the physical world. As a result, designers may be unable to apply design logics from digital to virtual platforms. IPs and their contents can address users on a profound emotional level, which is both a benefit and a drawback of such systems. Consequently, designers often struggle to understand the impact of their designs on human cognition and behavior. Ultimately, these four features make it more challenging to apply learnings from previous designs of digital platforms to IPs.

Theoretical background: A critical perspective on immersive platforms

Critical theory provides a valuable framework for analyzing how design features of a particular information system (IS) can or should be applied to another (Myers & Klein, 2011). As such, critical theory addresses "social conditions and institutions and oppressive forms of control, often enabled and supported by IS, which prevent the realization of humane, just, and free organizations and society" (Cecez-Kecmanovic, 2011, p. 442). It is necessary to consider their influence to dismantle oppressive forms of control during the design of IS (Brooke, 2002).

Critical theory's core tenets, including emancipation, critique of ideology, historical contextualization, reflexivity, and interdisciplinarity, offer valuable insights for examining how digital environments can reinforce or challenge social inequalities (Alvesson & Willmott, 1992b). Emancipation and liberation, the fundamental goals of critical theory, aim to empower marginalized groups and promote social justice by identifying and dismantling systems of oppression (Freire, 2020; Richardson & Robinson, 2007). Emancipation embodies a theoretical state where power dynamics among agents are balanced and egalitarian (Brooke, 2002; Introna, 2002). In contrast, oppression is characterized by skewed power dynamics that result in domination and marginalization. Oppression in IS can manifest in various ways, including constraining users' freedom to act, express, belong, and think (Young et al., 2021b).

Understanding the drivers of oppression is complex, with a rich body of literature exploring its implications and remedies (Hirschheim & Klein, 1994; Myers & Klein, 2011; Stahl, 2008). While the concept of emancipation has been extensively studied in organizational literature (Alvesson & Willmott, 1992a, 1992b) and within IS (Richardson & Robinson, 2007; Young et al., 2021a), examining it through the lens of IS often remains shaped by the dominant IS ideologies and paradigms (Cecez-Kecmanovic, 2011; Richardson & Robinson, 2007).

The critique of ideology, central to critical theory, aims to uncover and challenge the power structures and ideologies that dominate society. These ideologies shape and are shaped by social, economic, and political systems (Adorno & Bernstein, 2001; Adorno & Bernstein, 2020; Horkheimer, 1972). For IPs, this critique is essential for understanding how these environments are designed and controlled by technology corporations with profit-driven agendas, reinforcing capitalist ideologies, consumerism, and digital surveillance (Zuboff, 2023). It also highlights how dominant paradigms in IS literature influence design philosophies and behavioral manipulations of users (Cecez-Kecmanovic, 2007; Kane et al., 2021; Myers & Young, 1997).

Historical contextualization emphasizes understanding phenomena within their historical context, recognizing the evolution of social conditions and power dynamics over time (Marcuse, 1964). For IPs, this perspective reveals how past power dynamics are replicated or transformed in these new environments (Castells, 2011). IS research often aligns with design philosophies prioritizing user manipulation and exploitation, reflecting broader capitalist paradigms (Zuboff, 2019). Hence, reflexivity is crucial for a holistic consideration of design.

Reflexivity in critical theory encourages practitioners to reflect on their own biases and positionality to avoid perpetuating the power dynamics they critique (Bourdieu, 1990). For designers and researchers of IPs, this involves considering how their cultural background influences the creation of virtual spaces and striving to incorporate diverse perspectives (Benjamin, 2019; Said, 1978). Consequently, an interdisciplinary approach is needed to uncover oppression, drawing on theories from diverse fields to understand the multifaceted impacts of these environments and develop holistic solutions (Fuchs, 2020). Interdisciplinarity, a key aspect of critical theory, integrates insights from sociology, philosophy, political science, and economics to analyze social issues comprehensively (Habermas, 1984).

Grounding our research in critical theory informs our choice to adopt an interdisciplinary view in analyzing the oppressive features of IPs. This involves borrowing theoretical considerations from business, sociology, and political science to uncover oppressive features beyond traditional IS paradigms. As Harvey (2007) suggests, critical theory is essential for uncovering and challenging power imbalances and advocating for more democratic and participatory design approaches. This perspective is crucial for critically evaluating immersive technology's current development and applications.

The oppressive nature of immersive platforms

While Fig. 1 depicts the four unique characteristics of IPs, critically evaluating them uncovers oppressive tendencies, as shown in Fig. 2. This section analyses these oppressive features of IPs by integrating various theoretical lenses (e.g., critical theory, existentialist, feminist, and postcolonial perspectives) to provide a comprehensive understanding of these challenges.

Oppressive Feature 1: Immersive platforms accelerate the digital divide

IPs, accessed through high-performance VR/AR interfaces and requiring high-speed internet, create substantial barriers for economically disadvantaged users, exacerbating unequal access to digital technology – the digital divide (Selwyn, 2004; Van Dijk, 2020). Critical theory highlights how prohibitive technological requirements perpetuate social inequalities by privileging those who can afford such hardware and services while marginalizing those who cannot. As a result, this divide is not merely technological but essentially socio-economic, reinforcing existing power structures and social hierarchies (Adorno & Bernstein, 2020; Horkheimer, 1972).

The exclusion of users based on their material possessions perpetuates a cycle of marginalization, as economic barriers prevent equitable participation in digital spaces, thus maintaining and growing social inequalities (Alzahrani, 2020; Ivanova, 2018; McCloud et al., 2016). As Warschauer (2004) argues, access to digital technologies is crucial for social inclusion and empowerment, and the lack of access can lead to significant social disadvantages. Moreover, through their material requirements, these IPs propagate an ideology that equates technological access with socio-economic status, supporting a system where the privileged gain more opportunities and benefits from advanced technologies (Zuboff, 2023). This ideological stance reveals how the design and deployment of these technologies reinforce structural inequalities (Fuchs, 2020; Marcuse, 2013).

Oppressive Feature 2: Immersive platforms collect and analyze user data leading to behavioral modification and surveillance-based exploitation

To enable the unique immersive features of IPs, their design mandates the collection and analysis of advanced user expressions (e.g., eye, face, and voice tracking) and behaviors (Slater & Sanchez-Vives, 2016). This data collection gives platform providers insights into users' emotional states and preferences beyond traditional technologies (Slater, 2018). It can be used to create highly targeted and

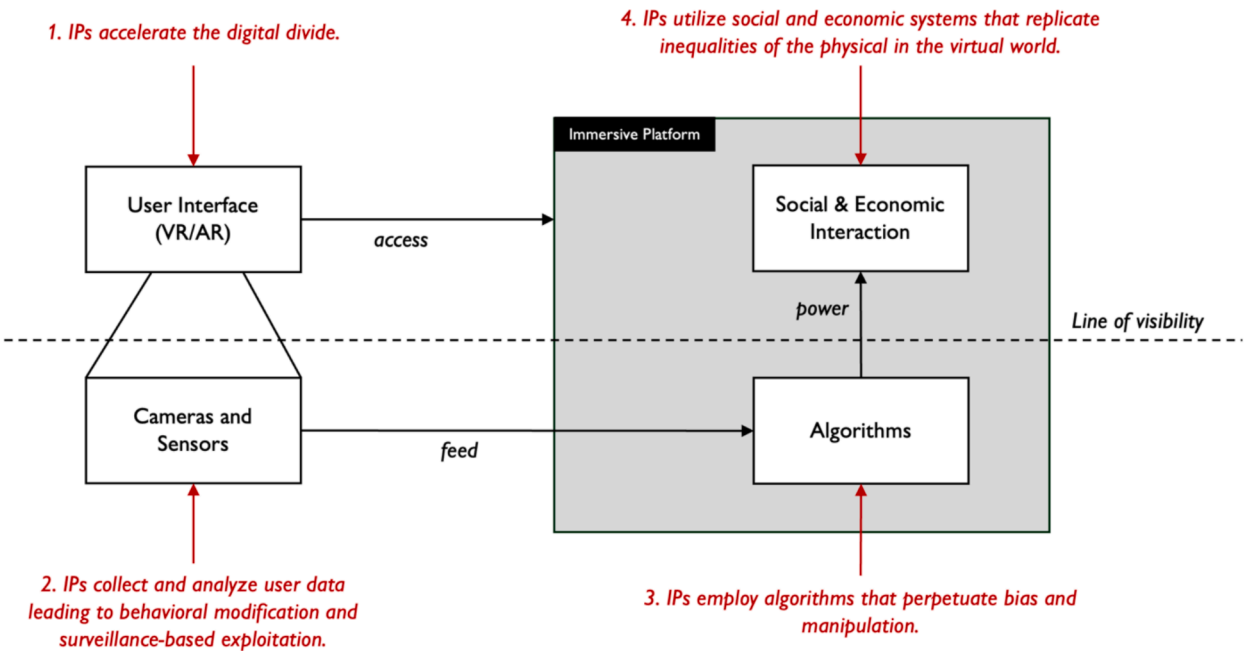

Fig. 2. Oppressive Features of the Immersive Platform Model.

manipulative advertising strategies, increasing the power of platform providers over their users (Bozkir et al., 2021). Thus, beyond feature functionality, IPs' surveillance-based exploitation represents a central theme in their current business model (Srnicek, 2017a).

While existing social media is also under much scrutiny for its pervasive data collection (Ruckenstein & Granroth, 2020), this is amplified in IPs due to their broader and deeper range of data collection (Shi et al., 2021). Conventionally, digital platforms often offer users a sense of social anonymity (Marga, 2023). However, the representation through avatars and a high degree of immersion unique to IPs removes this form of privacy at an accelerated pace toward mirroring the lack of social anonymity in face-to-face interactions (Baccon et al., 2019). More importantly, beyond anonymity between users, all of these tools allow IP providers to remove the privacy of users to the platform providers far beyond alternative platform technologies. This entrenches their power over users through surveillance.

Behavioral Modification. Pervasive surveillance mechanisms significantly impact user autonomy and freedom (Manokha, 2018). The resulting surveillance society leads to self-censorship and a loss of authentic self-expression (Manovich, 2002). Specifically, continuous monitoring creates a self-deception that denies one's freedom by adopting imposed roles. This is conceptualized as existential 'bad faith' (Sartre, 1997), forcing users to modify their behavior and restrict their freedom to explore and express themselves genuinely. Empirical evidence suggests that users in highly surveilled environments alter their behavior to conform to perceived norms, thereby reducing their capacity for genuine self-expression (Andrejevic, 2004; Boyd, 2014). Moreover, users in highly monitored environments exhibit a reduced willingness to engage in creative and spontaneous activities (Burtch et al., 2015; Zhou, 2003). Research on digital self-presentation indicates that constant surveillance prompts users to meticulously curate their online personas, often at the expense of authenticity (Hogan, 2010; Marwick & Boyd, 2011). This behavioral modification can lead to psychological stress and a diminished sense of self-worth as users feel compelled to present an idealized version of themselves rather than their true identities.

Surveillance-based Exploitation. Surveillance capitalism, as described by Zuboff (2023), commodifies personal data, transforming users into objects of economic value and stripping them of their agency. From a critical theory perspective, this dynamic is a form of digital oppression where corporations manipulate individuals by controlling their data (Horkheimer et al., 2002). Users become passive subjects within IPs, their actions and preferences harvested for profit, reinforcing a system of control and exploitation (Andrejevic, 2019). For example, using biometric data to tailor advertisements in VR environments not only invades privacy but also manipulates user behavior (Nair et al., 2023). This manipulation is evident in the design of targeted advertising algorithms that exploit cognitive biases to increase consumer spending, further entrenching corporate power (Laux et al., 2021; Zwick & Denegri Knott, 2009). The lack of transparency and consent in data collection practices exacerbates these power imbalances, as users are often unaware of how their data is used and for what purposes (Barocas & Nissenbaum, 2014).

Oppressive Feature 3: Immersive platforms employ algorithms that perpetuate bias and manipulation

IPs are inherently a type of social platform that requires algorithms to function. Algorithms, used to personalize user experiences, often exhibit bias stemming from non-representative training datasets and homogeneous design processes of proprietary algorithms, which perpetuates discrimination and inequality (Kane et al., 2021; Noble, 2018; O'neil, 2017). Additionally, algorithms (e.g., content curation algorithms) can manipulate user experiences, which can lastingly alter social beliefs and influence real-world behavior (Kane et al., 2021; Li et al., 2022).

Algorithmic Biases. Biases hinder authentic self-expression and reduce individuals to predefined categories, compromising their ability to be recognized as unique individuals. Sartre's notion of bad faith is evident when users internalize these biases and conform to limiting stereotypes (Eubanks, 2018). Research has shown that algorithms trained on biased data can reproduce and amplify societal prejudices, leading to discriminatory outcomes in areas such as facial recognition and content recommendation (Binns, 2018; Buolamwini & Gebru, 2018). Additionally, the lack of diversity among those designing these algorithms often leads to blind spots in recognizing and mitigating bias (Ajunwa, 2019; Myers West et al., 2019). For instance, facial recognition systems in virtual spaces have been found to exhibit racial and gender biases, leading to unequal treatment of users (Buolamwini & Gebru, 2018).

Such biases leading to loss of equality are particularly worrisome (Adam, 2002; Adam & Richardson, 2001). Feminist theory highlights how algorithmic bias disproportionately affects women and marginalized genders, reinforcing systemic inequalities. Underrepresenting diverse identities in training data and algorithm design leads to discriminatory outcomes (Leavy, 2018; Leavy et al., 2020) that perpetuate gender biases (Butler, 1990; Perez, 2019). Similarly, through the lens of postcolonial theory, the role of biased algorithms in misrepresenting and marginalizing non-Western cultures becomes clear. The dominance of Western-centric data and perspectives in algorithmic design leads to the erasure and misrecognition of diverse cultural identities (Kotliar, 2020; Said, 1978). This perpetuates a digital form of colonialism, marginalizing non-Western identities and reinforcing global power imbalances (Benjamin, 2019). For example, content moderation algorithms often disproportionately target and censor expressions of non-Western cultural practices (Gillespie, 2018). The biases embedded in these algorithms can lead to significant real-world consequences, such as unequal access to opportunities and resources in both virtual and physical spaces (Noble, 2018).

The opacity of algorithmic decision-making processes further heightens discrimination. Indeed, modern AI algorithms are shrouded within a black box (Castelvecchi, 2016; Tingelhoff et al., 2025a) that obscures the reasons behind certain decisions, making it difficult to challenge or rectify biased outcomes (Pasquale, 2015). Proposals for algorithmic transparency and accountability, such as open-source algorithms and independent audits, have been made (Diakopoulos, 2016). Yet, most algorithms remain proprietary (Ananny & Crawford, 2018; Mirghaderi et al., 2023). From a critical theory standpoint, this opacity of algorithmic processes helps protect corporate interests. It maintains existing power structures, as the resulting lack of accountability perpetuates a sense of powerlessness among users, being subjected to arbitrary and opaque forces shaping their virtual experiences (O'neil, 2017).

Algorithmic Manipulation. Misrepresenting information and spreading misinformation through algorithms represent significant forms of digital oppression. Manipulative design practices exploit users' psychological vulnerabilities, compromising their autonomy and well-being. This not only perpetuates existing power structures but also diminishes users' capacity for critical thinking and genuine self-expression.

Content curation algorithms that reinforce existing beliefs and preferences can create echo chambers, contributing to social polarization and the spread of misinformation (Li et al., 2022; Tufekci, 2017). From a critical theory standpoint, echo chambers maintain ideological control and reinforce existing power structures. These algorithms limit intellectual freedom and critical thinking by restricting diverse perspectives, thus perpetuating social division and conflict (Habermas, 1984). The echo chambers created by content curation algorithms restrict users' exposure to diverse perspectives, reinforcing existing biases and ideological control (Zuboff, 2023). Studies show that social media platforms often intensify this issue by prioritizing engagement over accuracy, leading to the proliferation of false information (Vosoughi et al., 2018). The design of these algorithms frequently favors sensationalist and emotionally charged content, deepening divisions and hindering constructive dialogue (Guess et al., 2018).

Oppressive Feature 4: Immersive platforms utilize social and economic systems that replicate inequalities of the physical in the virtual world

Social and economic structures within IPs often replicate and exacerbate real-world inequalities. Critical theory emphasizes how economic structures within IPs reinforce class divisions and perpetuate social inequalities. The resulting social and economic barriers restrict freedom by limiting opportunities available to lower-income users, leading to existential bad faith where individuals cannot fully realize their potential due to structural constraints.

The commodification of virtual spaces and goods mirrors real-world capitalist dynamics, concentrating wealth and power among a few (Harvey, 2007). The artificial scarcity imposed by monetization models creates a hierarchical digital society that mirrors and amplifies real-world inequities (Van Dijck et al., 2018). Research indicates that users from lower socioeconomic backgrounds are less likely to participate in virtual economies due to these financial barriers, further entrenching digital inequality (Fuchs, 2021; Pearce & Rice, 2013). The concentration of economic power in the hands of a few major corporations amplifies these disparities, limiting the potential for equitable digital participation (Scholz, 2016). For instance, pay-to-play models and the commodification of virtual goods and real estate create economic barriers that limit access and participation (Castronova, 2008; Scholz, 2016).

The exploitation of digital labor is another critical issue. Users often contribute valuable content and services within IPs without fair compensation, reflecting the dynamics of the platform economy (Scholz, 2012). From a Marxist perspective, this exploitation represents a form of capitalist oppression where labor is commodified and undervalued. The concept of alienation applies here, as users are estranged from the value they create, profiting IP owners. Extracting value from user-generated content without fair recompense undermines equitable participation in the digital economy (Fuchs, 2014). For example, creators of virtual assets or participants in virtual economies often receive minimal rewards compared to the profits generated by platform owners (Zhou et al., 2018). This exploitation is further compounded by the lack of legal protections and labor rights for digital workers, leaving them vulnerable to unfair treatment and economic instability (Berg et al., 2018).

The need for a new design theory

Design science is a research paradigm that emphasizes creating and evaluating innovative artifacts designed to solve practical problems and improve the environments in which they are implemented (Hevner et al., 2004). Unlike behavioral science, which seeks to explain and predict human or organizational behavior, design science focuses on extending human and organizational capabilities by developing (technology) artifacts, such as systems, platforms, and interfaces (Gregor & Hevner, 2013). The knowledge generated from design science is derived from both the construction and application of these artifacts, contributing to theory and practice (Hevner et al., 2004; Peffers et al., 2007). The insights gained through design science enhance the theoretical understanding of the problem domain, leading to the development of comprehensive and refined theories (Hevner et al., 2010).

There are several reasons necessitating a new design theory. First, a significant gap between theoretical understanding and practical application indicates that existing frameworks do not fully capture the intricacies of contemporary challenges (Gregor & Hevner, 2013). Second, when interdisciplinary approaches are required to solve complex problems that span multiple domains, new design theories can integrate insights from various fields to provide a more holistic and effective solution (Baskerville et al., 2018; Walls et al., 1992). Third, new design theories are critical to advance theory to guide future research and development when innovative artifacts reveal new dimensions of interaction and usage previously unexplored (Markus et al., 2002). For IPs, all three reasons apply; the following explains why.

First, IPs introduce a fundamentally different mode of interaction, characterized by their immersive, multisensory environments that merge virtual and physical experiences. Existing design theories do not adequately capture these complexities. For instance, power asymmetries and privacy erosions are inherently embedded in the architecture of many IPs, which contrasts sharply with human-centered design principles (Marabelli & Newell, 2023). These discrepancies indicate a significant gap between our theoretical understanding and the practical requirements of ethically designed IPs.

Second, as immersive platforms mirror societal structures of the natural world virtually, they create a myriad of ethical dilemmas. Addressing these requires a new theory that integrates insights from a broad spectrum of disciplines, including ethics, psychology, philosophy, and human–computer interaction. This is essential to develop a holistic framework that can both mitigate oppression and foster positive, equitable user experiences (Young et al., 2021b).

Third, IPs represent a transformative evolution of internet interaction, introducing dynamic three-dimensional and multisensory

experiences that blur the boundaries between physical and digital spaces (Yoo et al., 2023). This shift creates new affordances and interactions that require theoretical advancements beyond current interaction paradigms (Schöbel & Tingelhoff, 2023). Thus, developing a new design theory is warranted to ensure that this shift is addressed effectively and ethically.

The development of a new design theory mandates an appropriate kernel theory (Walls et al., 2004; Walls et al., 1992). A kernel theory in design science is a foundational theory that provides the underlying principles and concepts used to inform the design and development of artifacts (Walls et al., 1992). By grounding the design in established theories, researchers can better understand the problem context, anticipate potential challenges, and devise more effective solutions (Gregor & Jones, 2007). Additionally, using kernel theories allows the research results to contribute back to the theoretical domain, enhancing the overall body of knowledge (Baskerville et al., 2018; Markus et al., 2002). This cyclical relationship between theory and practice is a hallmark of design science, ensuring that the research is both practically useful and theoretically sound.

Participatory design as a kernel theory

We chose *Participatory Design* (PD) as our kernel theory. PD is a design methodology that emphasizes the active involvement of stakeholders, particularly end-users, in the design process of IT artifacts. By engaging participants in the design process, PD aims to democratize technology development, thereby challenging traditional power hierarchies and promoting more socially just outcomes (Schuler & Namioka, 1993). PD's core principle is that those most affected by the design should have a significant say in its creation, ensuring their voices and perspectives shape the final product. Traditional design processes often marginalize certain groups, either by excluding them entirely or by minimizing their input. PD counteracts this by actively involving marginalized groups in the design process, ensuring their needs and concerns are addressed (Robertson & Simonsen, 2012). Thereby, PD promotes "widespread participation in public discourse and surfacing of diverse perspectives," overcoming hegemonic design driven by dominant voices (Miranda et al., 2016, p. 304).

The four materialities of IPs, as evidenced by both the functional and oppressive features, mandate a participatory approach to system design. First, IPs require VR/AR user interfaces to access the platform, enabling novel ways for users to interact with digital content (Hadi et al., 2023). On the one hand, this allows more participation through the enhanced richness of the user experience, which actively shapes the system (Cummings & Bailenson, 2016). On the other hand, this necessitates intuitive design to ensure accessibility and usability for all users (Spittle et al., 2022). Second, cameras and sensors capture more user characteristics when expressing themselves. This improves user participation as engagement includes more social cues, making online interactions less ambiguous (Hennig-Thurau et al., 2023; Lennig et al., 2023). However, this pervasive data collection raises significant privacy and ethical concerns, necessitating a design approach prioritizing user consent and control over their data (Zuboff, 2023). Third, algorithms prescribe relevance to all information on IPs. This helps users identify and contribute to the topics they feel are relevant and deserve participation, further incentivizing engagement. Conversely, if users have no means to influence these algorithms, the interests of marginalized groups risk being misrecognized or erased (Kotliar, 2020). Fourth, IPs, like all platforms, depend on their users' social and economic interactions. Participation enables users to benefit from the resulting opportunities while simultaneously preventing their exploitation through the platform (Alaimo & Kallinikos, 2017; Van Dijck, 2013).

Applying the themes of participatory design to modify immersive platform design

To utilize PD's full potential, it needs to be adapted to the peculiarities of each context (Smith & Iversen, 2018). Still, each application of PD shares common themes (Frauenberger et al., 2015; Vandekerckhove et al., 2020): enabling (1) *diverse* co-design, (2) *equitable* power structures, and (3) *inclusive* access. These themes must also guide the application of PD to IPs. Hence, in this section, we apply these common PD themes to IP design to derive three modifications (M1, M2, M3) that will yield our design principles.

The first PD theme emphasizes fostering diversity within IPs' co-design process. By actively involving participants from diverse backgrounds, cultures, and experiences, a co-design process can capture a richer array of perspectives and needs. This inclusive approach ensures that IPs are accessible and relevant to diverse user groups beyond existing stakeholders. Therefore, a PD for IPs must ***enable all members of society to become co-creators*** (M1).

The second PD theme promotes equitable power structures. PD aims to anticipate discriminatory power imbalances by democratizing the design process and redistributing decision-making authority among stakeholders. This is important, as impaired decision-making not only oppresses marginalized groups but also stifles innovation and the development of more equitable systems (Silva, 2007). By involving end-users directly, PD challenges traditional top-down approaches and fosters inclusive participation, which can reveal and address hidden power dynamics (Luck, 2003). In IPs, the ownership of information and participation are essential for maintaining individual agency and user power (Fuchs, 2021; Scholz, 2016). As such, dissolving power structures in IPs gives ownership of information and content back to their creators. Contextualizing this theme of PD, a participatory IP must ***entail structures that distribute ownership among stakeholders to ensure societal and economic equity*** (M2).

The final theme of PD addresses access barriers. PD requires the inclusion of all stakeholders in the design process of IPs, ensuring that their needs and constraints are met effectively. Access barriers include disparities in hardware availability, technological literacy, and content accessibility, all of which contribute to a digital divide (Zuboff, 2019). PD's involvement helps identify and eliminate specific access barriers, such as lack of technological literacy, cultural differences, and physical limitations (Timpka & Sjoberg, 1996). It fosters a sense of ownership among users, enhancing their engagement and commitment to using the developed systems effectively (Milton et al., 2021). Therefore, contextualizing this theme of PD, a participatory IP requires ***all stakeholders to be able to access all aspects of the IP*** (M3).

With these foundational logics, PD is widely recognized as a prominent paradigm for advancing diversity-equity-inclusion (DEI) in research and design. Yet, from a critical perspective, participation within oppressive systems risks perpetuating and even entrenching existing power imbalances. Participation, when detached from an explicit commitment to emancipation, can unwillingly reinforce inequities by failing to disrupt the structural conditions that marginalize certain groups (Myers & Klein, 2011). True equity in co-design must, thus, go beyond procedural participation to embrace an emancipatory approach that seeks to dismantle systemic barriers, redistribute power meaningfully, and enable participants to influence outcomes on their own terms (Hirschheim & Klein, 1994). Therefore, while PD remains a powerful tool for addressing DEI, its efficacy depends on embedding an emancipatory framework that explicitly confronts and dismantles structures of oppression.

To achieve this, we propose a hybrid framework that combines the strengths of PD with the emancipatory insights of critical theory. Our three modifications to the design of IPs, rooted in the logics of PD, serve as an inductive guide to fostering technological change. Simultaneously, critical theory offers a deductive lens to uncover and address oppressive features embedded within systems, ensuring that design processes are not merely participatory but transformative. Thus, our framework bridges the bottom-up approach of PD with the top-down critique provided by critical theory to reorient participatory design and achieve authentic emancipation.

How would the design of such a system look?

The unique combination of PD and critical theory feeds into the design of a new class of IPs we call Emancipatory Participatory Immersive Platforms (EPIPs); they not only include their users in their design but break down underlying oppressive structures. On the one hand, PD provides us with three modifications to dismantle IPs' oppression: enabling all members of society to become co-creators (M1); employing structures that distribute ownership among stakeholders to ensure societal and economic equity (M2); and making the EPIP and all its contents accessible to all stakeholders (M3). On the other hand, critical theory provides us with a guide for identifying and dismantling oppression through four tools of emancipation (Young et al., 2021b): freedom to act (e.g., Cram et al., 2017; Demetis & Lee, 2018); freedom to express (e.g., Cecez-Kecmanovic, 2011; Stahl, 2008); freedom to belong (e.g., Andrade & Doolin, 2016); and freedom to think (e.g., Lyytinen & Hirschheim, 1988; Myers & Klein, 2011). Grounding each tool's emancipatory potential – both by promoting its full realization and protecting it against destabilization – helps each tool actively reinforce and balance the emancipatory potential of the other.

Combining PD and critical theory, we derived eight design principles. Table 1 illustrates these design principles, how they relate to the emancipatory tools from critical theory, how they link to the proposed modifications grounded in the themes of PD, and how they help to emancipate users from IPs' oppressive features previously established.

To confirm that our design is grounded in an established kernel theory of ethics and not simply a reflection of focal stakeholders' preferences, we applied the EDGE method (Young et al., 2024). We can show that our proposed design principles move EPIPs away from current oppressive IPs and closer to an ethically grounded state throughout all four emancipatory tools. We provide the complete analysis in the methodological Appendix.

Emancipatory tool 1: Design for agency

The first tool for emancipation, *agency*, refers to the capacity of individuals to act independently and make their own free choices. This concept is essential in understanding how individuals can influence and shape their social and material conditions (Giddens, 1984). Additionally, agency is viewed as a multifaceted concept encompassing intentionality, autonomy, and the capacity to produce effects (Konopasky & Sheridan, 2016). Reaching an optimal level of agency for EPIPs entails balancing promoting agency of the individual by empowering users to participate (Design Principle 1) by protecting agency through overcoming corporate commodification of this participation (Design Principle 2).

Design Principle 1: Promoting agency – An EPIP should empower users to participate by ensuring their ability to interact with social and economic opportunities

EPIPs enable users' freedom to act by allowing users to participate fully in social and economic activities, fostering a sense of empowerment and autonomy. To ensure that all users can participate in social and economic interactions, EPIPs must incentivize agency while being easy and intuitive to use. Collaborative virtual marketplaces, coupled with inclusive economic participation tools, can significantly incentivize user agency by enabling equitable and autonomous interactions on IPs (Tapscott & Tapscott, 2017). Such marketplaces – where users trade goods and services directly without corporate intermediaries – foster autonomy and intentionality, critical components of agency (Scholz & Schneider, 2016). Inclusive features, such as localized pricing, ensure that economic opportunities are accessible to diverse user groups, addressing systemic inequalities (Ante, 2021; Calefato et al., 2016). These designs actively combat barriers that marginalize economically disadvantaged users, as outlined in Oppressive Feature 4, allowing users not only to participate but to influence and benefit from the virtual economies they help create.

However, as outlined in Oppressive Feature 1, high barriers to access can prevent well-crafted incentive structures from materializing user agency. For instance, many IPs are tailored to limited cultural contexts (e.g., Western culture), excluding disadvantaged individuals from contributing with their diverse cultural identities (Kotliar, 2020). EPIPs should foster ease of use to help overcome such barriers. A notable example is the implementation of multilingual support, which allows users to interact in their preferred language. This can include real-time translation services, multilingual user interfaces, and support for different cultural contexts in virtual environments (Calefato et al., 2016). Beyond lingual adaptation, adaptive interfaces can accommodate users with visual, auditory, motor, and cognitive impairments, enhancing accessibility and usability (Apostolidou & Fokaides, 2023). They include

Table 1
Overview of Design Recommendations.

Emancipatory Tools	Design Principles	Application of PD Modifications	Emancipation of IPs' Oppressive Features
Design for Agency	*Promoting Agency:* An EPIP should empower users to participate by ensuring their ability to interact with social and economic opportunities.	M1 enables all users, current and prospective, to participate. M2 empowers users to benefit from their participation in social and economic interactions. M3 amends IPs' interfaces to be accessible and easy to use for all users.	OF1: Overcoming high barriers to access by making tools affordable and accessible, ensuring disadvantaged users can participate. OF4: Overcoming economic and social barriers by enabling equitable participation, breaking cycles of marginalization, and addressing stratified virtual economies.
	Protecting Agency: An EPIP should empower users to maintain ownership of their data and content.	M1 allows all prospective users to create content sustainably. M2 distributes ownership of data and information among its users.	OF2: Overcoming surveillance capitalism by mitigating commodification of user data, decentralizing ownership, and giving users control, ultimately reducing exploitation. OF3: Overcoming corporate overreach through manipulative practices by restoring user ownership and autonomy. OF4: Overcoming exploitation of digital labor by securing equitable ownership.
Design for Dialogue	*Promoting Dialogue:* An EPIP should empower users to express their unique identities authentically and partake in ideal speech.	M1 empowers all users to become co-creators of the tools necessary to represent their identities. M3 mandates that tools to create representations remain accessible and relevant amidst the everchanging social spectrum of identities. M3 reconciles authentic self-expression with dispassionate, rational dialogue.	OF3: Overcoming cultural erasure by providing tools for diverse identity representation, challenging dominant norms. OF3: Overcoming ideological biases by encouraging diverse self-expression and dialogue, dismantling echo chambers. OF3: Overcoming irrational dialogue through enabling ideal speech situations, mitigating biases and manipulation.
	Protecting Dialogue: An EPIP should empower users to define, detect, and limit socially abusive behavior, misinformation, and manipulation.	M1 empowers users to co-create and co-enforce the moderation systems against abusive behavior, misinformation, and manipulation. M2 distributes the definition of abusive behavior, misinformation, and manipulation among users. M3 mandates that all voices need equitable access to user-driven moderation guidelines.	OF2: Overcoming behavioral manipulation by enabling users to resist manipulative algorithms through co-created rules that involve users in moderation systems. OF3: Overcoming oppressive expression by empowering users to hold IPs accountable for executing participatory moderation standards.
Design for Inclusion	*Promoting Inclusion*: An EPIP should enable users to construct an environment where they can belong.	M1 empowers users to co-create their own virtual spaces and content. M2 empowers content owners to engage with their own creations authentically. M3 provides access to social systems and communities.	OF1: Overcoming social exclusion by equipping marginalized users with tools to access virtual communities. OF4: Overcoming social exclusion by democratizing access to resources by decentralizing control and encouraging collective empowerment. OF4: Overcoming hierarchical digital society by facilitating collaboration, co-creation, and co-governance to establish a sense of community.
	Protecting Inclusion: An EPIP should ensure that an individual's belonging does not impede another's.	M1 empowers users to co-manage conflict resolution as a community. M2 prescribes process ownership for constructive conflict resolutions. M3 offers users access to social support networks and safe spaces.	OF3: Overcoming oppressive voices by constructive participatory conflict resolution. OF3: Overcoming oppressive voices by seeking community support. OF3: Overcoming exploitation of vulnerabilities by offering users access to social support networks and digital safe spaces.
Design for Rationality	*Promoting Rationality*: An EPIP should encourage users' curiosity through open-ended exploration of and active engagement with content.	M1 encourages users to (co-)create content to aid critical evaluation of creation realities. M3 enables user access to novel content beyond their cultural and social circles.	OF3: Overcoming echo chambers by fostering reflexivity to actively engagement with alternative viewpoints, reducing ideological control. OF4: Overcoming exploitation of vulnerabilities by involving users in co-creation processes to make established curiosity meaningful.
	Protecting Rationality: An EPIP should mitigate irrationality by allowing user audits to access and purposefully interpret information.	M1 supports users in co-interpreting information and co-governing to realize community goals. M3 provides users access to information necessary for emancipated decision-making.	OF3: Overcoming opaque practices by introducing transparent auditing tools that allow users to scrutinize the underlying forces shaping the IP. OF4: Overcoming exploitation of user vulnerability by assisting users to purposefully interpret auditing information, fostering critical engagement with platform governance.

(*continued on next page*)

Table 1 (*continued*)

Emancipatory Tools	Design Principles	Application of PD Modifications	Emancipation of IPs' Oppressive Features
			OF4: Overcoming exploitation of user vulnerability by establishing co-creation of governance information that reflects communities' needs and preferences.

M1: An EPIP enables all members of society to become co-creators.
M2: An EPIP employs structures that distribute ownership among stakeholders to ensure societal and economic equity.
M3: An EPIP and all its contents are accessible to all stakeholders.
OF1: Immersive platforms accelerate the digital divide.
OF2: Immersive platforms collect and analyze user data, leading to behavioral modification and surveillance-based exploitation.
OF3: Immersive platforms employ algorithms that perpetuate bias and manipulation.
OF4: Immersive platforms utilize social and economic systems that replicate inequalities of the physical in the virtual world.

adjustable text sizes, contrast settings, and input methods (e.g., voice, gesture, text) – all maximizing digital accessibility. Thus, such systems additionally promote mitigating digital inequality and enabling equitable participation across socio-economic strata.

Design Principle 2: Protecting agency – An EPIP should empower users to maintain ownership of their data and content

As outlined in Oppressive Feature 2, IPs' business models rely on placing users into a surveillance society to collect and profit from users' personal data. This forms the basis for several manipulative practices (e.g., engagement maximization algorithms) to exacerbate the commodification of personal data, as established in Oppressive Feature 3. In this way, corporate control oppresses user agency through self-censorship and behavioral manipulation (Zuboff, 2023). EPIPs should deploy decentralized data storage to protect users' freedom to act by ensuring that users maintain control over their data, enhancing privacy and security (Zyskind & Nathan, 2015). By leveraging decentralized ledger technologies, data can be distributed across multiple nodes, eliminating reliance on centralized servers prone to single points of failure and data breaches (Crosby et al., 2016). Moreover, data encryption also addresses data privacy and security issues by limiting unauthorized access and manipulation – that is, by other users and platform providers (Bernal et al., 2019). Thereby, users' agency can be protected from self-censorship and behavioral manipulation.

Beyond personal data, user agency is also threatened by the commodification of their participation by IP providers, leading to user exploitation (Fuchs, 2014). On IPs, users are alienated from the outcomes of their participation, removing agency as outlined in Oppressive Feature 4. EPIPs should deploy decentralized ledgers to ensure users retain ownership and reinstate their autonomy (Narayanan & Clark, 2017). In this way, users can regain control and get fair compensation for their contributions, protecting more equitable economic dynamics in virtual spaces. Ultimately, while a participatory digital ecosystem promotes users' agency, enabling users to create emancipation through equitable ownership is necessary to protect their agency sustainably.

Emancipatory tool 2: Design for dialogue

Dialogue is an essential component that promotes the freedom to express and fosters a participatory and emancipatory approach to communication and knowledge construction. Dialogue in this context is seen as a means to challenge and disrupt power structures by facilitating open, inclusive, and critical expressions among individuals (Habermas, 1984). This process helps co-create knowledge and develop critical consciousness, empowering individuals to articulate their thoughts, question dominant ideologies, and, in turn, dismantle oppression (Freire, 2020). Reaching an optimal level of dialogue for EPIPs entails balancing promoting the expression of individual voices and perspectives (Design Principle 3) with protecting the dialogue space from becoming harmful or divisive (Design Principle 4), thereby ensuring meaningful and equitable participation.

Design Principle 3: Promoting dialogue – An EPIP should empower users to express their unique identities authentically and partake in ideal speech

The social anonymity provided by virtual environments allows users to overcome oppression and explore and express different facets of their identities (Liu et al., 2023). IPs help users create and embody avatars that reflect their identities, which fosters a sense of presence and engagement (Davis et al., 2009). However, IPs often marginalize diverse identities by privileging dominant narratives, reinforcing ideological biases, and fostering echo chambers – thereby undermining open and inclusive dialogue (see Oppressive Feature 3). Compounding these challenges, meaningful dialogue often necessitates prioritizing the intrinsic merits of arguments over the perceived status, background, or identity of speakers (Hansen et al., 2009). This idea, captured by Habermas' concept of 'ideal speech situations' (Habermas, 1984, 1985), presents IP design with an inherent tension between authentic self-expression via identity affirmation and dispassionate, rational dialogue.

To reconcile this tension, EPIPs must adopt a dual approach to dialogue. First, platforms should establish clearly defined *high-identity* spaces. In these identity-affirming environments, marginalized or historically underrepresented users can safely explore, articulate, and celebrate cultural, social, or personal markers typically rendered invisible within mainstream digital contexts (Costanza-Chock, 2020; Davis et al., 2009). These spaces facilitate authentic self-expression by providing extensive tools for avatar customization and personalized representation, reducing self-censorship and fostering creative, empowered participation (Alahuhta et al., 2014). To maximize inclusivity, these identity-focused tools should support diverse user abilities through intuitive tutorials and

advanced assistive technologies (e.g., text-to-speech and speech-to-text functionalities), ensuring accessibility regardless of skill level or personal resources (Costanza-Chock, 2020). Furthermore, empowering users as active co-designers of identity representations ensures that evolving societal spectra remain dynamically reflected, thereby avoiding rigid or exclusionary norms.

Second, EPIPs must create complementary *low-identity* or semi-anonymous spaces purposefully designed to minimize explicit indicators of identity, status, or authority. Here, users interact primarily on the substantive merit of the ideas presented rather than on personal identifiers or assumptions about the speaker (Hansen et al., 2009). These spaces embody the Habermasian ideal of 'rational-critical discourse,' encouraging participants to critically evaluate arguments, propositions, and knowledge claims in a neutral context devoid of preconceived biases. These forums nurture reasoned debate through anonymity or reduced social cues, promoting a genuine exchange of ideas and fostering consensus-oriented outcomes.

Critically, these identity-affirming and identity-minimizing spaces must not remain isolated. Instead, EPIPs should deliberately integrate both modalities through structured cross-community bridging mechanisms. By establishing policy-level dialogues, platform-wide forums, or structured rotating workshops, users from distinct identity and discourse contexts can interact, share perspectives, and collaboratively address issues of mutual relevance (Miranda et al., 2016; Myers & Klein, 2011). Such intentional integration is an antidote to both the echo-chamber risks of high-identity spaces and the potential detachment from lived realities associated with overly abstract low-identity discussions. Embedding explicit user education that articulates the purpose and benefits of each type of dialogue space cultivates reflexivity, critical awareness, and mutual understanding across platform participants.

Design Principle 4: Protecting dialogue – An EPIP should empower users to define, detect, and limit socially abusive behavior, misinformation, and manipulation

Proper moderation can protect users from socially abusive behavior, misinformation, and manipulation in digital environments (Myers West, 2018). Yet, IPs often employ opaque moderation practices, as outlined in Oppressive Feature 2. Such practices undermine individuals' participation in defining what they perceive as oppressive expression and, thus, strip away their ability to protect themselves from unjust moderation (Fuchs, 2021). Consequently, EPIPs must not take a top-down approach to define abusive behavior, misinformation, and manipulation because they are ideologically laden (Gillespie, 2018). Instead, they have the duty to facilitate the co-creation of such definitions and ensure this process centers around transparency and the equitability of voices. If they do not, the process is endangered of being hijacked by those with the loudest voices, propagating their oppressive powers (Marwick & Lewis, 2017). Thus, participatory, user-driven moderation guidelines are necessary to protect users' capacity for authentic expressions.

Beyond co-developing moderation systems, properly enforcing these moderation practices is crucial to protect emancipatory dialogue spaces shaped by either one's self-expression or dispassionate, rational dialogue. As interactions on IPs are entirely executed digitally, content moderation is mainly executed through algorithms, which, in turn, have the capacity to exploit dialogue spaces, as outlined in Oppressive Feature 3. Once communities decide what constitutes oppressive expression, EPIPs must emancipate users to detect potential instances and enforce co-created moderation. To detect oppressive expressions, EPIPs can incorporate advancements in algorithmic technologies (such as graph embeddings) to help capture conversations' structural and dynamic aspects through conversational graphs (Cécillon et al., 2021). Implementing unified deep learning architectures that consider multiple types of abusive behaviors can further improve detection accuracy and efficiency (Founta et al., 2019). Moreover, clear labeling of contents helps users understand moderation by providing an overview to aid interpretation of the contents they face when interacting on IPs. Using these insights, users gain the transparency and knowledge that emancipates them to hold IPs accountable for executing participatory moderation standards.

Emancipatory tool 3: Design for inclusion

The concept of inclusion emphasizes the freedom to belong, advocating for the integration of diverse individuals into social and economic contexts without discrimination or prejudice. This idea is rooted in the belief that a sense of belonging is essential for personal and collective well-being, enhancing both individual development and societal cohesion (Baumeister & Leary, 2017). Reaching an optimal level of inclusion for EPIPs entails balancing promoting the inclusion of diverse voices and perspectives (Design Principle 5) with protecting their freedom to belong from the inclusion of oppressive users (Design Principle 6) – thereby ensuring meaningful and equitable inclusion.

Design Principle 5: Promoting inclusion – An EPIP should enable users to construct an environment where they can belong

To promote inclusion, users need access to IPs, access to resources to participate within IPs, and empowerment to meaningfully deploy those resources to construct environments of authentic belonging (Verdegem, 2011). However, as discussed in Oppressive Feature 4, IPs often foster social exclusion as they transfer existing power imbalances into the virtual space. These structures mean that IPs are designed to benefit the dominant ideologies, creating socio-economic access barriers across all three of these levels, as outlined in Oppressive Feature 1.

First, diverse inclusion is often limited by high hardware costs. Thus, EPIPs must be participatively designed to function across various devices, from high-end VR/AR equipment to basic mobile devices. This ensures users are not excluded due to the prohibitive costs of cutting-edge technology, emancipating them from socio-economic privilege. This can be further advanced using lightweight cloud-based solutions that reduce hardware dependency, allowing users to access immersive experiences via lower-cost devices with minimal local processing power (Odeh et al., 2017). This ensures equitable participation regardless of individual resource availability.

Second, besides enabling pure IP access, EPIPs must empower users to access and use resources to participate within these platforms. As IPs frequently mirror real-world limitations (like artificial scarcity of digital resources), many social interactions are bound

by economic oppression (see Oppressive Feature 4). One primary advantage of IPs is overcoming the physical limitations of time and space (Dolata & Schwabe, 2023). Thus, as EPIPs can uniquely reconstruct social and economic dynamics that ordinarily oppress inclusion, they must emancipate users from oppressive access barriers. Community-shared virtual workspaces and pooled resources enable users to collaboratively access and utilize digital tools without requiring individual ownership. This democratizes access by decentralizing control and encouraging collective empowerment (Benkler, 2006). Here, users can collaboratively interact using shared resources effectively through community-led access programs, such as support sponsorships and promoting inclusive participation through community encouragement (Shaffer, 2011).

Third, EPIPs must enable users to deploy resources to construct environments where they feel belonging meaningfully. Encouraging users to create and develop virtual content that aligns with their real-world values and self-perception helps build a strong sense of belonging and authenticity (Koehne et al., 2013). Based on the affordances of VR/AR interfaces, EPIPs provide users with improved spatial perception and understanding of virtual models. This benefits design practices by enabling users to better appreciate and interact with their virtual creations (Paes et al., 2017). Furthermore, providing real-time feedback and allowing users to interact with virtual objects and environments enhances their sense of control and participation, making the experience more authentic and aligned with their real-world actions (Villegas et al., 2020). Offering users the tools to design, test, and iterate their own creations within EPIPs can empower them to take control of their experiences and contribute actively to their sense of belonging (Neroni et al., 2021).

Moreover, users' *complete* feeling of belonging depends on experiencing meaningful social connections for authentic inclusion into communities (Greenwald et al., 2017). Providing tools that facilitate collaboration – such as shared workspaces, co-creation features, and real-time interaction capabilities – can enhance the sense of community and joint purpose (Inamura & Mizuchi, 2020). Combining shared spaces with group activities, such as virtual events, games, and collaborative projects, further strengthens social bonds (Maloney & Freeman, 2020). Ultimately, connecting users fosters serendipity, prevents the materialization of echo chambers, and creates authentic belonging among users.

Design Principle 6: Protecting inclusion – An EPIP should ensure that an individual's belonging does not impede another's

Inclusion is often framed as shared values like equity, fairness, and social justice – all essential for social cohesion (Durkheim, 2018). However, it may face limits when conflicting values emerge (Rawls, 1971). For instance, including groups or perspectives that promote harm (e.g., extremist ideologies) can destabilize systems designed to prioritize equity and justice. This results in the "paradox of tolerance," explaining that tolerance must not extend to intolerant ideologies that threaten the principle itself (Popper et al., 2012, p. 226).

As outlined in Oppressive Feature 3, IPs necessitate algorithms to function through the entire platform, not only denying users a safe space to shelter from but also amplifying intolerant ideologies. Thus, EPIPs must protect users from the harmful effects of including oppressive voices to uphold their freedom to belong. To do so, EPIPs should support users with conflict resolution mechanisms, including mediation services and reporting tools, to address disputes and foster understanding among users. This encourages users to resolve conflicts constructively, promoting coexistence and mutual respect within the platform (Kraut & Resnick, 2012).

If individuals cannot overcome oppressive voices, EPIPs should also establish channels that empower users to seek support from the community, such as suggestion boxes, surveys, and town hall meetings (Bodker et al., 2009). Moreover, virtual safe zones and community spaces can support users by providing opportunities to interact with like-minded individuals and find support networks. Such spaces not only support users in coping with the stress of conflict but also serve as a means for de-escalation, which can promote inclusivity without segregation (Dibbell, 1998). Empowering individuals and connecting them with the community protects their authentic belonging through balancing the inclusion of various ideologies.

Emancipatory tool 4: Design for rationality

Rationality, understood as the freedom to think, is pivotal in fostering autonomous and critical reflection among individuals. This concept emphasizes the importance of independent reasoning and the capacity to challenge prevailing ideologies and power structures (Young et al., 2021b). This metacognitive process, characterized by purposeful and reflective judgment, is increasingly important in IPs, where individuals must navigate vast amounts of rich information and complex issues (Dwyer et al., 2014). Reaching an optimal level of rationality for EPIPs entails balancing promoting rationality through reflexivity (Design Principle 7) with protecting it through overcoming IP-driven irrationality (Design Principle 8).

Design Principle 7: Promoting rationality – An EPIP should encourage user curiosity through open-ended exploration of and active engagement with content

Individuals naturally tend to interact with like-minded people (Feld, 1982). Through content curation algorithms, online platforms exploit such behavior by luring users into ideological echo chambers to maximize engagement and retention (Vosoughi et al., 2018). This creates reinforced biases, increased spread of misinformation, and polarization (Guess et al., 2018; Zuboff, 2023). Echo chambers on IPs are particularly dangerous, as the immersive nature of the content and the respective unique interaction mechanisms amplify the oppression of users' freedom to think (see Oppressive Feature 3). Thus, EPIPs must foster reflexivity to include active engagement with alternative viewpoints and a deliberate questioning of one's informational environment (Bail, 2022; Bourdieu, 1990).

Thus, EPIPs must enable users to actively seek information beyond their cultural and social circles, actively fostering curiosity. Encountering novel information allows individuals to recontextualize their beliefs, thereby overcoming the constraints of their existing ideologies and achieving freedom to think (Mezirow, 1997). On EPIPs, exploration zones with dynamic content can expose users to ideas beyond their social circles and echo chambers, offering open-world discovery and encouraging users to explore beyond their

boundaries (Fischer, 2011). This can be complemented with serendipity engines that introduce users to random, unexpected content related to their interests. This could be in the form of suggested readings, videos or interactive experiences. Helping users stumble upon new ideas and perspectives they might not actively seek out fosters a spirit of discovery and openness to new thoughts (Anderson, 2006).

Reflexivity also entails a critical evaluation of the exposed content. Yet, through commodification, IPs transform content into abstract exchangeable entities, detaching them from their ethical and social origins (see Oppressive Feature 4). This fosters a system where consumers are systematically prevented from critically engaging with creation realities, bounding their rationality (Horkheimer et al., 2002). Hence, EPIPs should involve users in co-creation processes, empowering them to promote rationality by making established curiosity meaningful. Developing content, such as virtual art galleries, story spaces, or game maps, empowers users to understand creations, thereby fostering mutual learning (Jenkins, 2009).

Design Principle 8: Protecting rationality – An EPIP should mitigate irrationality by allowing user audits to access and purposefully interpret information

As outlined, IPs use Oppressive Features (i.e., 3 and 4), such as algorithmic manipulation and commodification of information, to profit from their users. This means IPs inherently aim to oppress their users' formal rationality, which is their "purposeful calculation of the most efficient means and procedures to realize goals" (Cockerham, 2015, p. 124). Hence, such oppression inhibits rationality, which, in turn, undermines all four freedoms. This occurs as users are prohibited from accessing and purposefully interpreting the information that is essential to making decisions that emancipate.

Thus, EPIPs must protect users' rationality by first providing access to information necessary for emancipated decision-making. To understand the system users are operating in, they require transparent information access to the underlying forces shaping the IP (McIntyre & Srinivasan, 2017). Consequently, EPIPs must implement reliable audit tools adhering to principles of transparency and accountability (Gay et al., 2019).

While access to this information is critical for overcoming formal irrationality, rationality can only be reestablished through purposeful interpretation (Weber & Kalberg, 2013). Hence, EPIPs should assist users in understanding auditing information through interactive tools that allow them to explore different aspects of platform operations. Such tools – for instance, data flow diagrams, policy impact simulations, and governance models – can support users in understanding the complexities of platform management and enhance transparency through interactive learning (Gillespie, 2018). Purposeful interpretation can be further advanced by establishing open forums where users can participate in policy changes and platform governance (Noveck, 2015). On these open forums, impact statements can detail how major changes affect different user groups, including potential benefits, drawbacks, and mitigation

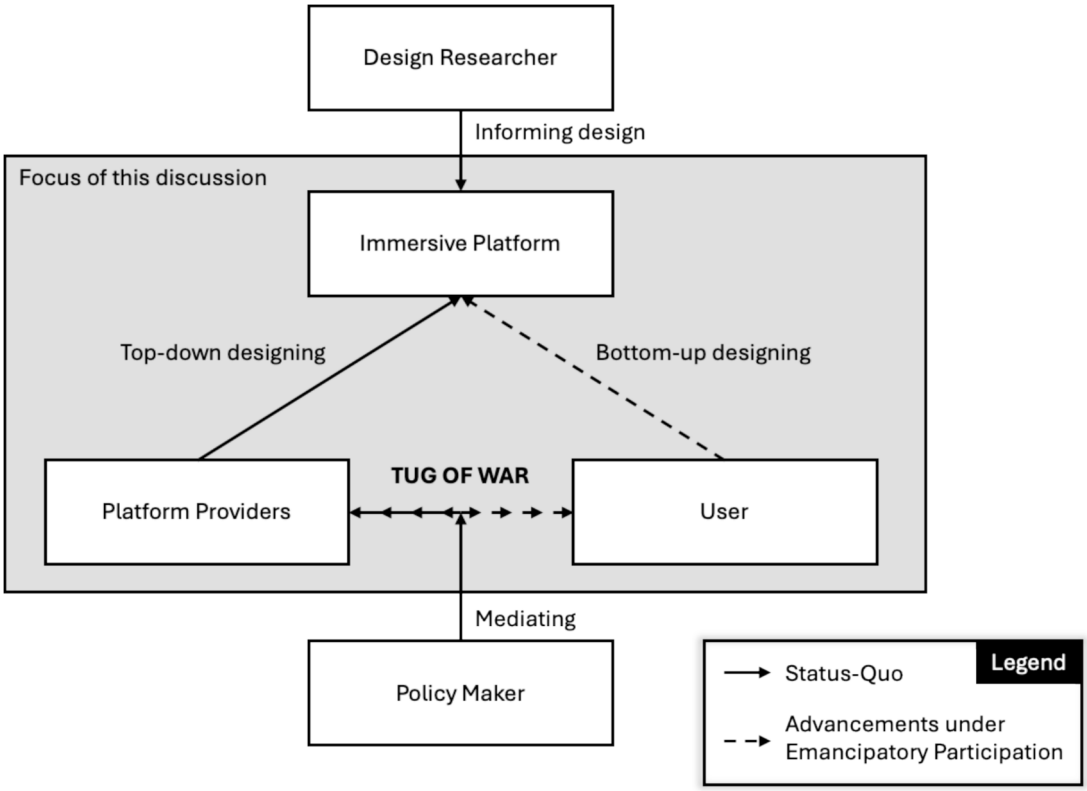

Fig. 3. Ecosystem Framework of the Design Relations of IPs.

strategies for any negative impacts. Since we advocate participatory platform design, such statements would ultimately be written by users themselves, encouraging critical thinking about how their changes affect others. This approach ensures that users are informed about how changes will affect them in a manner that they can understand, ensuring that decisions reflect the community's needs and preferences (Fischer & Ostwald, 2002). Once users can access and interpret relevant information, they will overcome the formal irrationality posed by IPs. Yet, users only materialize their freedom to think by applying their insights to realize their as well as the community's goals.

Materializing emancipatory potential through realizing EPIP design

Throughout our paper, we have demonstrated that EPIPs have a high potential to emancipate users and break IP oppression. Subsequently, we now must critically assess how our design recommendations can advance the *materialization* of user emancipation – in other words, moving from insight to impact. It is essential for design research to uncover new theories and for policymakers to provide the infrastructure to inform an emancipated, participatory IP design. However, the real impact of theories and policies is contingent on the *practical realization* of EPIP design.

As established throughout our paper, the key stakeholders who could push the realization of EPIPs are platform providers through top-down design and users through bottom-up design. However, it is often in the best interest of platform providers to sustain the prevailing system as it aligns best with the underlying ideologies of their current IP business models (Srnicek, 2017b). Consequently, they exercise control to oppress users' ability to execute bottom-up design (Srnicek, 2017a). Maximizing this dynamic, platform providers are currently incentivized to keep 'tugging away' power from users, which they execute using IPs' four Oppressive Features that we outlined in this study. This creates, as we argue, an increasingly uneven distribution of power, destabilizing IP ecosystems. We provide a framework that visualizes the current IP stakeholders and their relations in IP design in Fig. 3.

Given all the Oppressive Features of IPs, it is imperative to identify and map how our proposed emancipation could benefit the IP ecosystems. The group benefiting the most from their own emancipation is users. However, they are often unaware that they are severely oppressed (Thompson, 2015). This makes them under-emphasize the costs of their oppression and, hence, internalize a lack of perceived benefit from their emancipation (Pheterson, 1986). Simultaneously, they tend to over-emphasize the costs of emancipation (Jost et al., 2004).

Once they become aware of their oppression, users have levers to act, for instance, by forcefully taking back the power of the platform provider or moving to a competitor's ecosystem. With digital oppression ubiquitous and increasing, this user-led tug of power is more frequently occurring across various digital platforms: excessive API pricing on Reddit led to users opting to demonetize their created content (Forbes, 2023); OnlyFans banning sexually explicit content alienated and marginalized a large part of their user group – leading to a great migration of users to competitors and forcing them to reverse their policy (Forbes, 2021); Meta's aggressive push for monetization features on Instagram, similarly to YouTube's shift towards exploitative content commodification, resulted in a mass exit to their respective competition (i.e., TikTok; Twitch) (Forbes, 2022a, 2022b).

User conflict is particularly worrisome for IP providers. As no current IP ecosystem has yet reached a dominant status among users and complementors (Tingelhoff & Marga, 2023), individuals and organizations have little lock-in effects and can choose to join and exit IPs freely (Tingelhoff et al., 2024; Tingelhoff et al., 2025b). Through this dynamic, we can already see the first instances of users tugging back power via conflict, particularly mass user exits, occurring in some oppressive IP ecosystems: Meta's decision to cut creator earnings by 47.5 % on Horizon Worlds (CNBC, 2022); Decentraland's decentralized governance model being taken over by corporate interest (Goldberg & Schär, 2023); SecondLife's high fees for virtual land and transaction cuts on user-created content (Second Life Community Forum, 2023). In all examples, platform providers pushed their users into the arms of competitors (Business Insider, 2023).

These power tugs are catalysts revealing latent forms of oppression, hinting at users' emancipation desires. They can spur deeper reflection, prompting both users and providers to question established business models (Freire, 2020; Hirschheim & Klein, 1994). Thus, to mitigate and navigate user calls toward emancipation constructively, it is in the IP providers' best interest to eventually reduce user oppression by yielding power back to them, releasing the tension in their "tug of war." Strategically executing the power release "based on academic research offer[s] significantly better effect rates than any intuitive or experience-based approach" (Siponen & Baskerville, 2018, p. 251). Research shows that PD has historically benefited platforms. For instance, user participation raises loyalty to the platform (Tyler & Blader, 2003), fosters innovation through diversity and inclusion (Page, 2007), and drives engagement usage rates – all of which, in turn, generate more data and feedback for platform improvements via personalization (Nambisan & Baron, 2007).

Altogether, users naturally benefit from their emancipation, while platforms benefit from users' emancipation through participation. Hence, IP providers strategically yielding power targeted at enabling bottom-up design (i.e., EPIPs) can materialize platform ecosystem value.

Strategizing EPIPs: A Strategy-as-Practice perspective

Based on critical theory, we developed a strategic alternative to current IP design: *Emancipatory Participatory Immersive Platforms* (EPIPs). We substantiate and illustrate its design principles through specific implementations and features. However, organizations must also be enabled "to realize the strategic intent of implemented, available system capabilities" (Arvidsson et al., 2014, p. 45). From a *Strategy-as-Practice (SAP)* perspective (Jarzabkowski & Spee, 2009; Whittington, 2006, 2014, 2018), all knowledge contributions arise through practice (Schatzki et al., 2001). This necessitates a pragmatic view on strategizing, that is, the 'doing of strategy' (Jarzabkowski, 2004; Marabelli & Galliers, 2017; Peppard et al., 2014). Thus, future research on *strategizing* EPIPs can further enhance

EPIPs' practical relevance (Galliers et al., 2012; Henfridsson & Lind, 2014; Peppard et al., 2014).

While the SAP perspective often focuses on immediate acting of individuals *in situ*, ensuring actions are connected to overarching processes and outcomes is crucial (Kouamé & Langley, 2018). Hence, a multi-level perspective should inform the future of SAP-based EPIP research (Hughes & McDonagh, 2021). First, on a micro level, action-oriented ethnographic work and process analyses help capture the nuanced dynamics of PD (Tacchi et al., 2003). These studies can clarify how EPIP principles become enacted through daily praxis, illuminating whether they genuinely reshape power structures or reproduce existing hierarchies under the cover of participation (Cecez-Kecmanovic, 2011). Future micro-level investigations, thus, help overcome "strategy blindness", where technical success confounds entrenched power relations (Arvidsson et al., 2014).

Second, on a meso level, investigations adopting longitudinal methods can reveal how emancipatory practices interact with, and are reshaped by, organizational structures and industry ecosystems. Such research would offer critical insights into strategic trade-offs faced by EPIP implementers, illuminating how platforms balance value capture, regulatory legitimacy, and authentic user empowerment (Marabelli & Newell, 2023). Moreover, future research could investigate new organizational processes and outcomes of EPIPs (Morton et al., 2020). For instance, scholars might hypothesize how EPIPs catalyze new practitioner or AI agent roles, such as immersion facilitators or decentralized-governance stewards, and how these roles become institutionalized within evolving organizational fields.

Third, on a macro level, future research should investigate tensions between emancipatory ideals and economic logics, providing insights into reconciling ethical responsibilities with market-driven objectives. Prior research underscores that seemingly inclusive technological designs may mask subtle, yet potent, forms of domination if underlying distributions of voice and value remain unchanged (Cecez-Kecmanovic, 2011; Newell & Marabelli, 2015). Therefore, future studies employing participatory and action-oriented methodologies should explicitly examine political dynamics around data monetization, algorithmic transparency, and governance processes (Hevner et al., 2004). Such inquiries would refine EPIP's theoretical boundaries by surfacing actors' discursive strategies to assert or resist power shifts.

In addition, EPIPs introduce distinct socio-technical elements (e.g., haptic interfaces, avatar marketplaces, and virtual serendipity engines) that necessitate methodological innovation. Future researchers should combine multimodal ethnographic data (e.g., interaction logs, conversational analytics) with process-tracing techniques, such as temporal bracketing, to capture embodied and textual dimensions of immersive interactions (Barley, 1990; Pentland, 1999; Pink et al., 2015). Methodological tools like EDGE (Young et al., 2024) can assist in evaluating whether observed practices move platforms towards or away from their emancipatory ideals. Additionally, design-science experiments could systematically test alternative governance arrangements, assessing their influence on perceived empowerment and strategic effectiveness.

EPIP design contributions to materialize emancipatory potential

Theoretical contributions

Our research informs a continuum of academic discourse, moving from phenomenon-specific to enriching interdisciplinary dialogues, by contributing across four key dimensions: design, methodology, theoretical framework, and paradigmatic advancement. For individual IP researchers, we offer a new way of thinking about the future of IP design along two avenues. First, our design principles open pathways for studying IP impacts on user cognition and behavior, fostering deeper insights into human-technology interaction. Second, design researchers can use our design principles to contextualize and improve IP design in diverse, real-world settings.

While empirical design research focuses on finding actionable solutions to real-world problems (Hevner et al., 2004), it is not equipped to critically reflect on the *implicit* ideology it employs to develop said solutions (Benjamin, 2019). For the design research community, our work extends its methodological toolkit by advancing current design paradigms to consider the need for emancipatory-driven design *explicitly* (Kane et al., 2021; Young et al., 2024).

For the IS discipline, we extend the dialogue on critical IS theory (e.g., Cecez-Kecmanovic, 2011; Young, 2023) and its application (e.g., Kane et al., 2021; Myers & Klein, 2011). Specifically, we reviewed critical theories across disciplines, assessed their relevance to IS contexts, and translated them into the logic of IS research. Thereby, we introduce relevant nuances and perspectives that can guide future discourse.

For interdisciplinary DEI research, we advance the paradigm of participation toward one of *emancipated* participation. DEI research across disciplines frequently relies on a participatory paradigm to create theories on diverse equitable access and inclusion (Freire, 2020). However, as currently practiced, participation often replicates and perpetuates existing power structures, failing to dismantle underlying oppression (Cooke & Kothari, 2001; Hickey, 2004). Our critical theory lens uncovers and addresses this oppression.

Practical implications

Beyond academics, this study contributes to IP stakeholders with various degrees of power to influence the future of IP design: users, platform providers, and policymakers. We support the emancipation of users in two ways. First, by explicitly outlining how IPs can perpetuate oppression, this work empowers users to recognize and critically evaluate their position within these systems (i.e., reveal the true costs of their oppression). Second, introducing EPIPs equips users with a framework to understand their emancipation potential and, thus, makes it easier for them to advocate for transformative change (i.e., reduce the true costs of their emancipation).

For IP providers, we give detailed guidance on designing IPs aligned with emancipatory and participatory goals. This supports them to match broader societal and ethical expectations strategically. Specifically, we offer platform providers a meaningful alternative to

reconcile the conflict between platform objectives and user needs. Instead of an unguided power release, we advocate for collaborative user emancipation through participatory design.

For policymakers, we provide an is-ought analysis of IP system design and identify the conditions necessary for EPIPs to materialize. This guidance makes policymakers more aware of how users are currently oppressed within IPs. Moreover, EPIP design helps to inform regulations to secure the infrastructure and legal basis for user participation and co-creation (e.g., laws securing and enabling decentralized ownership). This allows policies to regulate and force IP providers to soften their grip on user oppression. Thus, we support policymakers in eventually shifting the underlying ideologies behind the IP ecosystem for authentic emancipation.

Conclusion

We introduce EPIP, a design framework integrating participatory design with critical theory to address structural oppression within immersive digital environments. By explicitly embedding emancipatory principles into immersive technology design, EPIPs transcend procedural user participation, aiming instead for substantive empowerment that confronts digital divides (Aissaoui, 2022), surveillance practices (Zuboff, 2023), algorithmic biases (Noble, 2018), and exploitative socio-economic dynamics (Costanza-Chock, 2020). The design principles articulated in this study offer strategic guidance for developing immersive systems that ethically mediate the increasingly digitalized interactions shaping current social and economic developments.

Organizations prioritizing profit maximization and centralized control risk inciting user resistance, undermining the stability of the IP ecosystem. Conversely, firms adopting EPIPs' inclusive and emancipatory design can strategically differentiate themselves by fostering long-term user loyalty, innovation, and engagement. Thus, EPIPs illuminate strategic pathways toward competitive advantage anchored in authentic user empowerment, rather than conventional hierarchical governance. This allows organizations to differentiate themselves through enhanced trust, regulatory alignment, and sustainable engagement, making EPIPs a genuine *digital business strategy* (Bharadwaj et al., 2013).

Ultimately, the implications of our research reach beyond IP design to broader issues related to the digitalization of society. As immersive technologies are poised to reshape how individuals interact with one another and with information, the design choices made today will have far-reaching effects on social equity and individual freedoms (Young et al., 2024). Our contributions highlight the importance of embedding emancipatory values within the technological systems that are increasingly mediating our social and economic lives. Thereby, we catalyze meaningful emancipative participation to avoid a virtual dystopia.

CRediT authorship contribution statement

Fabian Tingelhoff: Writing – review & editing, Writing – original draft, Visualization, Supervision, Software, Resources, Project administration, Methodology, Investigation, Funding acquisition, Formal analysis, Conceptualization. **Jens Joachim Marga:** Writing – review & editing, Writing – original draft, Visualization, Supervision, Software, Resources, Project administration, Methodology, Investigation, Formal analysis, Conceptualization.

Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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Appendix

Evaluating design principles of EPIP through the EDGE method.

Evaluating whether IS design is ethical inherently involves subjective interpretations based on the individual value systems of the assessor (Sarker et al., 2018a, 2018b). To provide a systematic and replicable process, we apply the EDGE framework, a potent tool for researchers to evaluate "whether design choices move a socio-technical system closer to or further from an ethically grounded state" (Young et al., 2024, p. 2). For this, EDGE builds on reconstruction, which dissects statements to identify tacit moral values and meanings (Martin, 1990). EDGE applies reconstruction through two steps: (1) writing condition statements that describe the experiences of the main stakeholders in a system and (2) substituting key terms to challenge their validity in a different ethical environment.

Following EDGE, we initially constructed condition statements that describe user experiences under each design principle in the old (i.e., IP) and new (i.e., EPIP) information systems. We followed the advice of Young et al. (2024) and wrote the condition statements in a way that aids their reconstruction by making the user the primary reference point of every sentence. Subsequently, we substituted "user" with terms that describe people in severely oppressive contexts, such as "minority," "victim," "prisoner," and "slave," to understand whether our design principles truly serve to emancipate users. If the substitution creates a sentence that "seems unnatural or absurd" (Young et al., 2024, p. 9) stemming from its semantic or logical incongruity (Levinson, 2000), it indicates that the respective design principle is not bound by our context's ethical assumptions and, hence, authentically emancipatory. We report all condition

statements and their respective degree of emancipation in Table 2.

Across all design principles, condition statements of the proposed system design (i.e., EPIP) surpass their respective counterparts from the initial system design (i.e., IP). This indicates that our proposed design principles move EPIPs away from current oppressive IPs closer to an ethically grounded state throughout all four emancipatory tools.

Table 2
Condition statements and their assessment under EDGE.

Design Principle	Condition Statement	Degree of Emancipation
Initial System Design of IPs		
DP1: Promoting Agency	Users have limited means to act within platforms due to high hardware costs, high-speed internet requirements, and few accessibility features, such as multilingual support.	◔
DP2: Protecting Agency	Users feel surveilled and powerless to stop the commodification and exploitation of their data and content.	○
DP3: Promoting Dialogue	Users partially express their unique identities through avatars as they are limited by a lack of diverse modes of self-expression often constrained by Western-centric norms.	◔
DP4: Protecting Dialogue	Users are defenselessly subjected to unjust moderation due to the intransparencies of moderation algorithms and power discrepancies between them and the content moderation systems. Moreover, users' authentic expression is undermined as algorithms prioritize sensationalism and polarization.	○
DP5: Promoting Inclusion	Users have limited access to the platform due to high hardware costs, high-speed internet requirements, and few accessibility features that overcome disability. Moreover, users experience many real-world socio-economic limitations, such as high retail prices, also on the platform.	◔
DP6: Protecting Inclusion	Users feel marginalized when participating, as platforms lack mechanisms to prevent dominant users from excluding others.	◔
DP7: Promoting Rationality	Users access content primarily through algorithmic curation that reinforces echo chambers, amplifies sensationalism, and limits exposure to diverse and critical perspectives.	○
DP8: Protecting Rationality	Users have little ability to assess the accuracy of information due to opaque algorithms, which manipulate them to not rationally consider what is in their or the community's best interest.	◔
Proposed System Design of EPIPs		
DP1: Promoting Agency	Users access tools and features, such as localized pricing, that allow them to engage with and benefit from social and economic opportunities. Moreover, users participate more intuitively on the platform through easy-to-use interfaces.	◕
DP2: Protecting Agency	Users retain full ownership of their data and content, with mechanisms to control its usage, storage, and dissemination, lessening their perception of surveillance. Moreover, users receive the option to commodify their data and content themselves.	●
DP3: Promoting Dialogue	Users authentically and freely express their unique identities, establishing their voice against algorithmically homogenized representation to co-create a diverse digital society.	●
DP4: Protecting Dialogue	Users have clear, actionable tools to define, detect, and moderate abusive behavior, misinformation, or manipulation, quieting yet not silencing the presence of oppressive voices on immersive platforms.	◑
DP5: Promoting Inclusion	Users access the platform with a variety of affordable hardware. Moreover, users access resources and knowledge about them for free or through the community.	●
DP6: Protecting Inclusion	Users access social support networks and community help to overcome conflicts with other users constructively. Moreover, users can constrain their platform usage via safe spaces to avoid exposure to oppressive others.	◑
DP7: Promoting Rationality	Users advance their horizons through open-ended exploration tools, such as exploration zones and serendipity engines, leaving their cultural and social circles. Moreover, through creating content themselves, users understand the creation realities of exposed content.	◕
DP8: Protecting Rationality	Users gain access to information about the functioning of the platform. Moreover, through critical engagement with the community on the implications of government decisions, users learn to interpret such data and use them for emancipatory decision-making.	●

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