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The Shadowed Realms of the Metaverse: Exploring Mental Health and Well-beingDimensions

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Abstract

The Metaverse holds the promise of becoming the next dominant paradigm in pervasive computing, capable of reshaping numerous facets of both work and societal life. While there are numerous anticipated benefits attributed to the Metaverse, its potential negative consequences have received limited exploration. The prevailing viewpoints often rely on logical considerations drawn from historical data associated with comparable technologies, indicating a somewhat limited exploration from academic and expert perspectives. Present study delves into the multifaceted aspects of the metaverse, shedding light on both its evident benefits and obscured challenges, particularly concerning mental health and well-being. Whilethe metaverse offers significant economic and social advantages, it also harbors a dark side thatdemands thorough exploration. This study emphasizes the necessity of understanding and addressing the potential adverse effects on individuals, organizations, nations, and societies as the metaverse continues to evolve. The evolving nature of the metaverse necessitates ongoing attention to minimize psychological, physiological, and social consequences. To protect the mental health and wellbeing of users navigating the shadowed realms of the metaverse, the abstract calls for a range of comprehensive measures, such as the development of national technological capabilities, the enactment of laws specific to the metaverse, increased industry-government collaboration, and international coordination.

Keywords: Mental Health, Wellbeing, MetaverseIntroduction

A decade ago, the metaverse existed primarily in the realm of science fiction but has now materialized as a result of technological advancements (Dwivedi et al., 2022a). It is frequently linked to depicting the internet's situation in the future and providing a fresh, engaging user experience (Dwivedi et al., 2023a). The term "metaverse" refers to a virtual environment that combines enhanced versions of the real and virtual worlds. (Ball, 2022; Dwivedi et al., 2022a, a). The metaverse has the potential to have an impact on a number of industries, including gaming, social media, and business (Wiederhold, 2022a, b; Sharma & Jain, 2023). Even thoughthe metaverse is expected to bring about positive experiences and benefits, its drawbacks are still mostly unknown (Dwivedi et al., 2022a). Building the metaverse entails combining a variety of technologies, including blockchain, cloud computing, virtual reality, augmented reality, 3D modeling, animation, and next-generation internet apps. (Dwivedi et al., 2022a, a). Although past research has suggested that these technologies could impact human existence in many ways, there isn't much talk on the negative effects of these technologies in the context of the immersive metaverse. What are the drawbacks for users and the general public now that these technologies have been combined into a single domain? An extensive investigation into this question is still pending. In contrast to many other technological developments, the metaverse offers the ability to augment and even replace in-person interaction with a fully immersive virtual environment. Threats to privacy, ethics, legality, societal ramifications, andpersonal security could all arise in the metaverse.

The amount of research on the metaverse is growing, although many of the studies seem to be somewhat obsessed on a good metaverse narrative, possibly ignoring the unfavourable effects of widespread adoption (Belk et al., 2022). This highlights the necessity of providing a thorough grasp of the negative aspects that can appear in the metaverse. Previous study has noted the limitations of these technologies on an individual basis. The metaverse is created and operates through the integration of multiple technologies classified at peripheral and functional levels. Tian et al. (2018) clarified that using wearable technology or extended reality (XR) for lengthy periods of time may have negative health effects. Additional research has shown that artificial intelligence (AI)-based simulated environments may progressively affect users' cognitive processing abilities (Dwivedi et al., 2021b). Dwivedi et al. (2023b) underline that depending on the network,

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data ownership in the blockchain could be dangerous. Hashizume et al. (2013) listed the potential security flaws in cloud computing technologies. Weingartner (2021) examines the potential emergence of social inequality in the next generation of internet. Dwivedi et al. (2021a) calls attention to how social networking sites lack social security and privacy. By incorporating these technologies inside a specific ecosystem, the metaverse has the potential to develop into a single, cohesive platform. But the issue remains: Will compromises be made in order to maintain the benefits and overall experience that each technology offers, or will developers and companies building the metaverse effectively manage the challenges posed by each technology? While scholarly scholars have not yet thoroughly investigated the negative aspects of the metaverse, reputable sources and technological specialists have started offering their insights. (Analyticsinsight.net, 2022; Forbes, 2022; PewResearchCenter, 2022).

The majority of viewpoints are supported by rational arguments that are drawn from historical data points connected to related technology. Two perspectives are used to explore the dark side of the metaverse: technological and user. Technologically speaking, the features and design of the system may give rise to a number of problems relating to users, and user conduct may have unfavorable effects on the metaverse. Although there is proof that players in the metaverse have experienced racism and abuse (IndiaTimes, 2022), many experts believe that the metaverse may bring about a new society free from user-imposed laws or beliefs (PewResearchCenter, 2022). In addition to the effects technology has on the metaverse, users can create a distinct persona with little moral or legal ramifications, which could put other users in danger.

Even with all of the excitement and positive spin surrounding the metaverse's growth potential, decision-makers must be careful not to ignore the negative effects on users and society at large. Certain susceptible users could find it difficult to distinguish between the real world and the virtual one, where the trauma and mistreatment they encounter in metaverse situations may result in negative consequences and genuine bodily injury. Many topics remain unsolved, opening up possibilities for metaverse research in the future to harmonize viewpoints for the good of all parties involved. This paper's implications will benefit both academia and practice by providing a framework for identifying and resolving the different negative features of the metaverse. This research addresses several obstacles and hurdles in the metaverse concerningmental health and well being.

Review of literature on Potential drawbacks of the Metaverse

It is imperative for research to delve into the potential darker aspects of the metaverse, particularly concerning consumer mental well-being. By utilizing our knowledge of earlier media sources and the technologies integrated into the metaverse, we can begin investigating any potential negative aspects. For example, earlier studies have already issued a warning about the metaverse's addictive potential (Barreda-Angeles & Hartmann, 2022); these studies highlight motivation and psychological reward as the key variables influencing the severity of addiction (Barreda-Angeles & Hartmann, 2022; Hussain et al., 2018). Regrettably, society tends to minimize the seriousness of technology addiction, which results in the disregard of its aftermath (Grajek et al., 2022). Addiction can cause detrimental mood changes if it is not addressed (Barreda-Angeles & Hartmann, 2022).

Motivating oneself is also important in determining whether one is in a favorable or bad mood (Javornik et al., 2022). This is especially important for people who utilize self-indulgent escapism because it can lead to real-life anxiety, despair, and aggressiveness (Grajek et al., 2022; Panova & Lleras, 2016). More research demonstrates how virtual reality (VR) causes depersonalization and derealization (DPDR), which is consistent with clinical health (Aardema et al., 2010; Peckmann et al., 2022). Users report feeling disengaged from their body, thoughts, and behaviors, which breeds skepticism about reality. Persistent DPDR frequently coexists with anxiety and depression and can have a negative impact on a person's functioning (Michal et al., 2016; Peckmann et al., 2022). This demonstrates once more how a user's objective mental health can be impacted by the metaverse. Because the metaverse is a highly social environment, it makes sense to look at how its users behave as well. Studies reveal a rise in anti-social conduct, including harassment and cyberbullying (Henz, 2022; Qasem et al., 2022; Wiederhold, 2022a, b). Wiederhold (2022a, b) contends that because VR can elicit genuine grief and rage that subsequently spills over into the actual world, the impacts are analogous to situations that occur in real life (Kothgassner et al., 2017).

Impact on Mental Health and Wellbeing

Children are anticipated to be disproportionately affected by the long-term effects of the metaverse because of their rapidly developing brains (Grajek et al., 2022; Kaimara et al., 2021). These issues mostly pertain to the psycho-social

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dimensions of health, which include addiction, antisocial behavior, loneliness, and emotional growth (Kaimara et al., 2021). The metaverse has an impact on children's development, as seen by the increased emergence of ADHD (Attention Deficit Hyperactivity Disorder)-like behaviors in young metaverse users (Steve & Grubb, 2018). Concerns over a possible rise in isolative behaviors are also raised by the overuse of these technologies (Kaimara et al., 2021). There will be a change in the type of connections made between humans and artificial intelligence (AI) as the metaverse grows (Henz, 2022). Due to the possibility of consumer alienation resulting from the integration of AI, this phenomena creates a new kind of loneliness (Putoni et al., 2020). Concurrently, the integration of AI in the metaverse will simplify the retrieval of user-related data (Henz, 2022).

Customers are more susceptible to manipulation by companies that obtain their information the more information they can acquire using AI (Henz, 2022). Such manipulations will limit one's ability to regulate their thoughts and actions, which will have an impact on their wellbeing (Yaden et al., 2018). Although VR has made some services more accessible, the technology itself is still costly to develop and acquire (Yaden et al., 2018). As a result, wealthy people have greater access to the metaverse than do people who are experiencing economic inequality (Riches et al., 2021; Usmani et al., 2022a, b). This makes the socioeconomic digital divide worse and makes some demographics, including the elderly, more vulnerable to discrimination and social exclusion (Yaden et al., 2018). Therefore, any advantages the metaverse may have for well-being may be lost on these groups (Usmani et al., 2022a, b).

Extenuation-Strategies

It is critical that academics and stakeholders recognize the risks and benefits that come with the metaverse's expansion (Wiederhold, 2022a, b; Yaden et al., 2018). Healthcare experts may provide valuable insights and recommendations to guarantee that policies and guidelines are designed ethically and in line with the well-being of consumers (Wiederhold, 2022a, b; Yaden et al., 2018). Taking on professional viewpoints will also benefit the metaverse's governance and, by extension, its users' welfare. Anti-social behaviors like racism, prejudice, and bullying will be lessened in part by governance measures (Dwivedi et al., 2022a). The governance of the metaverse will ensure compliance with the terms of service, thereby enforcing user accountability and promoting constructive socialization among users (2022a).

According to preliminary data, negative addictive behaviors are predicted by the length of usage and emotions of embodiment (Barreda-Angeles & Hartmann, 2022). Thus, time restrictions should be suggested by legislation in order to protect consumer mental health and reduce the likelihood of addiction, derealization, and social isolation. Additionally, by standardizing technology pricing and availability, developers should work to lessen the effects of the digital divide. The metaverse should be viewed in the same light as current resources when it comes to well-being services (Yaden et al., 2018).

Moreover, educational virtual reality sessions that target usage and knowledge gaps in order to minimize technology prejudice could be beneficial for vulnerable populations, including the elderly (Li et al., 2021).

Future Research

To strengthen the validity of the new insights that are currently available on the dark side of the metaverse, more research is necessary (Wiederhold, 2022a, b). Prior study (Wiederhold, 2022a, b; Yaden et al., 2018) highlighted the advantages of including user, researcher, and professional viewpoints to guarantee ethical growth; this may be accomplished through a human-centered design (Fernandez & Hui, 2022). However, there isn't enough data to support this strategy at the moment, therefore further research is needed to determine whether or not it can be used to create a metaverse that is morally sound and supports the well-being of users.

Because the metaverse is new, there isn't much research yet accessible illustrating the possibility of unfavorable hazards when using it. Therefore, by extending the body of information about the negative effects of excessive use of current media, such as internet addiction, sadness, anxiety, and social isolation, there is motivation for more research into the shadowy side of the metaverse (Dwivedi et al., 2022a). Policymakers will be able to prioritize guidance by using the findings to determine which risk variables are most frequently linked tothe well-being of users.

As demonstrated before, misbehavior in virtual environments can have an adverse effect on the psychological health of individuals who are the target (Kothgassner et al., 2017; Wiederhold, 2022a, b). As Dwivedi et al. (2022a) imply, this increases the necessity for appropriate control and governance of the metaverse. But immediate study is required to determine whether regulating the metaverse is feasible and how various local laws would impact this (Fernandez & Hui,

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2022).

Conclusion

Despite numerous economic and social benefits associated with the metaverse, as detailed in this article, it is essential to acknowledge its dark side. Understanding and being aware of the potential drawbacks of the metaverse is crucial to harnessing this innovation for the improvement of work, living, learning, and social interactions. Currently, the well-being of consumers is not fully addressed by the evolving metaverse. The risks and challenges that the metaverse poses to people, companies, countries, and society are expected to change over time due to its dynamic nature. Adequate interventions implemented at different levels can help lessen the negative effects of the metaverse on psychology, physiology, and society. In order to effectively combat the dark side of the metaverse, this involves building up national technological and human resource capacities, passing new laws that specifically govern the metaverse, encouraging increased levels of industry-government collaboration, and promotinginternational coordination.

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