Diversity, equity and inclusion in the sport metaverse
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Abstract
Purpose – The purpose of this paper is to examine the relationships among diversity, equity and inclusion (DEI), sport and the metaverse.
Design/methodology/approach – The authors overview the metaverse, sport applications and ways multilevel theory can help explain the influence of DEI.
Findings – Drawing from multilevel theory, the authors identify parallels between the sport metaverse and traditional sport as well as unique DEI opportunities in the sport metaverse.
Originality/value – The manuscript contributes to the nascent body of research regarding sport and the metaverse, with a specific focus on social issues and the importance of considering unique DEI opportunities.
Keywords DEI, Physical activity, Esports, Sports, AI, Non-fungible tokens
Paper type Research paper

Introduction
Diversity, equity and inclusion (DEI) remain at the forefront for sport managers, and for good reason. Decades of research paint a mixed picture when it comes to DEI in sport. On the one hand, people from minoritized backgrounds face less access to and have poorer experiences in sport than do their counterparts (Evans et al., 2020; Hindman and Walker, 2020; Hussain and Cunningham, 2022; Thedinga et al., 2021). Abuse and mistreatment of athletes and employees are also prevalent, including at the youth levels of sport (Fortier et al., 2020; Nite and Nauright, 2020). Not surprisingly, given these patterns, minoritized people are underrepresented in leadership positions (Cooper et al., 2020; Sotiriadou and de Haan, 2019; Spaaij et al., 2020). On the other hand, diverse, equitable and inclusive sport organizations routinely reap benefits. They frequently ground their work in a social justice mindset that promotes fairness and equity (Singer and Cunningham, 2012). They attract a more talented pool of applicants (Wicker et al., 2020), and employees feel more authentic and report working at high levels (Melton and MacCharles, 2021). At the group level, decision-making is improved, as is the creativity of the solutions generated (Lee and Cunningham, 2019; Tuan, 2020). Finally, sport organizations that couple employee diversity with an equitable, inclusive work environment frequently outperform their peers in objective measures of performance (Cunningham and Nite, 2020).

A common thread among this scholarship is a focus on people engaging in sport, whether as athletes or employees, in face-to-face environments. Increasingly, though, athletes, supporters and employees connect with sport virtually. As we outline in greater depth in subsequent sections, examples include sport consumption, gaming, engaging in work and purchasing merchandise and related sports goods, among others. Though virtual
engagement in sport has increased, the scholarship related to DEI in that space has not kept pace, though we note exceptions with respect to e-sport (Parshakov *et al.*, 2018; Rogstad, 2022). Recognizing this gap, the purpose of this paper is to overview DEI topics germane to the sport metaverse. We first overview the metaverse and sport applications in that space. We then highlight parallels in the ways DEI functions in traditional sport spaces relative to those in the sport metaverse and then summarize ways in which the sport metaverse offers unique DEI opportunities.

**The metaverse and sport**

The term metaverse, a compound word for transcendence meta and universe, was first used in the novel, *Snow Crash* (Stephenson, 1992). The metaverse is “a three-dimensional virtual world where avatars engage in political, economic, social, and cultural activities” (Park and Kim, 2022, p. 4211). Similarly, Kim defined the metaverse as “an interoperated persistent network of shared reality environments where people can interact synchronously through their avatars with other agents and objects” (Kim, 2021, p. 142). In a series of interconnected virtual worlds, digital copy of the physical world, users can navigate different spaces of interest using personal avatars (Hollensen *et al.*, 2023).

Recently, more people began to immerse themselves in the metaverse. For example, Roblox, an Internet gaming platform, has over 67 million daily active users and around 214 million monthly active users with annual revenue of $2.2bn in 2022 (expected to grow to $4bn in 2023). About 80% of Roblox users are under the age of 16 (Ruby, 2023). The younger generation, particularly Generation Z, considers the social meaning of the virtual world to be important, as they often associate their identity in virtual space with the self in reality (Park and Kim, 2022).

Kim described common features of the metaverse by focusing on the persistence of identity and objects, a shared environment, embodied self (avatars), interoperability, interactive, immersive and social user experience (Kim, 2021). Interactivity function and social user experience are also important features (Park and Kim, 2022). Comparing augmented reality (AR) and virtual reality (VR) metaverse can be characterized by more sustainable content and social meaning which accommodate many social agents (Park and Kim, 2022). Beyond simply creating virtual space, the metaverse provides users with unique immersive experience through user interaction (Park and Kim, 2022).

**Metaverse applications**

The metaverse is the newest virtual environment that offers many new experiences, such as game experiences (Demir *et al.*, 2023), but it will revolutionize nearly every industry including sports and entertainment (Hollensen *et al.*, 2023). Beyond the composition of the virtual world itself (i.e. game), the metaverse offers many vivid experiences to its users in the forms of game experiences, spectatorship and merchandise purchase. It is often expressed as a medium for exchanging interests on content (e.g. events, games and education) (Park and Kim, 2022). Virtual experiences offer interaction, flow, pleasure and community relations (Kim and Ko, 2019; Luo *et al.*, 2011). Collaboration and sharing create important values for the metaverse. At the same time, conversation in the virtual world can be further exacerbated, and user expressions could include violent words (Dwivedi *et al.*, 2022).

The metaverse can also create an ecosystem through which consumers purchase clothes and virtual objects and sell them to other users (Metaverse commerce) (Lee *et al.*, 2021). Business-to-user and user-to-user trade takes place in the virtual world. In this platform, the users can carry their possession across different virtual worlds to gain different immersive experiences, named interoperability (Lee *et al.*, 2021). Currently, trading platforms
(e.g. OpenSea, Swords of Blood) for non-fungible tokens (NFT) allow people to trade their virtual collectible items with one another at ease. Metaverse owners can adapt these platforms as a marketplace where users exchange their virtual collectables. Although NFTs share similar characteristics of traditional collectibles (e.g. rarity, originality, emotional connection and nostalgia and investment opportunity), the unique digital identifiers are digitally owned and recorded in a blockchain. Such intangible digital assets are easily traded globally through online platforms (Conti and Curry, 2023). Some of the rare NFTs in the virtual world are more associated with social status, rather than utilitarian functions (Dholakia et al., 2004; Lee et al., 2021).

**Sport metaverse**
In the sports context, the metaverse can be considered a digital copy of what exists in our reality such as stadiums, teams and millions of spectators. A virtual stadium is a new phenomenon that emerged in 2022 when Atlanta Braves, a Major League Baseball team, launched the Digital Truist Park (Baker, 2022). Then, NBA lane, MonteCarlo F1 (motorsport), and WimbleWorld (Wimbledon) were launched to offer new fan experiences (Baker, 2022). Baker summarized the economic and non-economic impact of virtual stadiums. Virtual stadiums can accommodate many more visitors than traditional stadiums with no capacity restrictions. Virtual stadiums have the potential to generate new revenue through digital merchandise sales such as NFTs of game highlights and virtual apparel (e.g. branded jerseys) for fans’ avatars. At the same time, virtual stadiums offer numerous intangible benefits such as immersive environments and enhanced social interactions among fans in the virtual stadium.

Demir et al. conducted semi-structured interviews to explore consumers’ experiences in Nikeland sports game (Demir et al., 2023). As a result of analyzing responses from 15 experienced participants, seven themes emerged, including positive consumer experiences (i.e. flow, atmosphere, feelings and innovative brand), negative or neutral experiences (i.e. chaotic structure in access and perception of reality) and adapting a new trend (i.e. age beyond sports). Unlike Kim and Ko’s finding of enhanced telepresence in virtual sports spectatorship (Kim and Ko, 2019), participants in the Nikeland did not feel disconnected from the real environment. This indicates that Nikeland has not reached co-existence of physical–virtual reality yet.

**Diversity, equity and inclusion in the sport metaverse**
Given this background, we move to a discussion of DEI in the sport metaverse. We first offer a theoretical grounding and then highlight parallels with traditional sport spaces and unique opportunities the sport metaverse affords. See Figure 1.

**Theoretical grounding**
Much of the scholarship around DEI in sport follows multilevel thinking (Cunningham, 2023; Hartmann-Tews et al., 2020; Sotiriadou and de Haan, 2019). From this perspective, factors at multiple levels of analysis are likely to influence people’s opportunities and experiences, as well as organizational processes and outcomes. In addition to capturing the factors that might influence DEI outcomes, a multilevel perspective allows researchers to draw from varied theoretical lenses, including social psychology, managerial and sociological theories (Cunningham, 2023).

Macro-level factors are those operating at the societal level. Examples include societal norms and values, the political environment and constituent expectations, among others. Meso-level factors operate at the group and organizational levels. Leaders, organizational
policies, and the culture of the workplace, among others, can all exert influence. Finally, micro-level factors function at the individual level. Examples include people’s previous experiences, their demographics and identities, and their behaviors. Importantly, factors at any one level of analysis are likely to interact with one another and with factors at other levels (Klein et al., 1999; Klein and Kozlowski, 2000). Consider, for example, gender differences in intentions to leave sport professions (Cunningham et al., 2019). There are no inherent differences among women and men that would prompt such variations. Instead, people’s previous experiences in the profession, the biases they have faced, cultures that privilege men over women and societal expectations for women and men at home and in the workplace can all shape women’s and men’s behaviors and their decision to remain in or leave sport.

Parallels
A review of the literature suggests many DEI issues in the sport metaverse mirror those in traditional sport spaces. We draw from the multilevel perspective to inform our review.

**Macro-Level Factors.** Macro-level factors can limit the access people have to sport and their opportunities to participate fully, including institutional forms of classism. Financial constraints are prevalent. Data from the Aspen Institute’s Project Play illustrate the problem in the USA (Aspen Institute Project Play, 2022). Most children stop playing organized sport around age 11, and the costs meaningfully contribute to this decision, especially among children whose families earn less than $50,000 a year. In 2019, American families spent nearly $700 per child for each sport in which they participated. Thus, the typical American family with two children would spend 2% of their gross family income for the children to play one sport a year. It is hardly surprising, then, that children in families earning $25,000 or less per year were half as likely to play organized sport, relative to those in families with $100,000 or more a year in earnings.
Social class background also influences access to the sport metaverse. Meaningfully engaging in the metaverse requires resources, including quality Internet, VR headsets and the like. These are items not accessible for many in rural communities, people living in underserved communities and for people from poor social class backgrounds. Previous researchers have shown how these differences can impact people’s access to quality healthcare, access to financial technologies and education, among others (Benda et al., 2020; Friedline et al., 2020; Lee et al., 2020). Walker (2023) recognized similar constraints for sport consumers. He noted that VR, AR and the metaverse all had the potential to meaningfully change the experience of watching soccer. However, he also noted the prohibitive nature of technology costs for most people, something that will be a barrier for at least the next decade. Thus, as with other industries, the sport metaverse has the potential to exacerbate existing structural inequalities based on social class.

**Meso-Level Factors.** Intergroup bias is one of the more salient meso-level factors affecting DEI in sport. Bias is an umbrella term capturing stereotypes (in the cognitive domain), prejudice (in the affective domain) and discrimination (in the behavioral domain) (Dovidio et al., 2010). These biases can limit participation and employment opportunities and negatively affect the quality of experiences for people from minoritized backgrounds. Consider, for example, women’s involvement in sport. With respect to stereotypes, Burton and colleagues showed that people think of a man when considering who is best suited for leadership roles in sport (Burton et al., 2011). Others have shown that women routinely encounter sexism and other forms of mistreatment, all of which can psychologically harm the targets (Wells et al., 2020). Women also encounter discrimination in sport. They are frequently passed over for leadership roles, and the positions they do earn are likely for organizations with a history of underperformance or that are in crisis (Cunningham, 2021; Wicker et al., 2019). Finally, Nite and Nauright have shown how many of the aforementioned abuses are deeply entrenched in sport, with structures and systems set up to maintain the biased status quo (Nite and Nauright, 2020).

Just as biases are prevalent in face-to-face sport contexts, recent research has pointed to their prevalence in the sport metaverse, too (Dwivedi et al., 2022; Pauketat, 2022; Pizzo et al., 2022). Frenkel and Browning chronicled as much with several examples (Frenkel and Browning, 2021). In one instance, a woman logged on to play a game, and while waiting in the lobby, another avatar groped and ejaculated on hers. When she asked the player to stop, she recounted: “He shrugged as if to say: ‘I don’t know what to tell you. It’s the metaverse — I’ll do what I want.’” As another example relayed by Frenkel and Browning, over an 11-hour period, researchers counted over 100 concerning incidents involving VR chat, many of which included sexual and violent threats against minors (Frenkel and Browning, 2021). The authors further noted that “Bad behavior in the metaverse can be more severe than today’s online harassment and bullying. That’s because virtual reality plunges people into an all-encompassing digital environment where unwanted touches in the digital world can be made to feel real and the sensory experience is heightened.” Relatedly, Shariff et al., in their review of the literature, noted that violence is widespread in online communities, negatively impacting targets and especially people from otherwise marginalized groups (Shariff et al., 2023). Finally, Hayday and Collison found a similar pattern in their study of key stakeholders of eSports in the USA and the UK. Results from their focus groups and individual interviews showed that although efforts were made to make that space more inclusive, it was still marked by toxic masculinity and discrimination against women (Hayday and Collison, 2020).

**Micro-Level Factors.** Micro-level factors can also influence DEI in sport, including self-limiting behaviors. When people experience bias in a particular domain or see people like them encounter such negativity, they will frequently leave that setting or not pursue advancement opportunities (Lent et al., 1994). For example, women leave sport earlier and at higher rates than men do (LaVoi and Silva-Breen, 2022). These differences are not due to
inherent differences among women and men; instead, they are a function of the differences in opportunities and treatment the coaches experience (LaVoi and Silva-Breen, 2022). Similarly, when students, athletes, and professionals in lower-level positions observe discrimination, they express reticence to enter sport or pursue higher-level roles (Cunningham et al., 2007; Cunningham and Singer, 2010; Wells and Kerwin, 2017). In still other cases, continued abuse can impede the performance among people working in sport, even when their skills and abilities are on par with their peers (Sartore, 2006).

Similarly, micro-level factors can affect DEI in the sport metaverse. For example, women are underrepresented in many metaverse domains, including gaming. They point to several factors that influence their choices not to engage fully, including toxic forms of masculinity and hostile sport environments (meso-level factors) (Darvin et al., 2021). Other researchers have focused on whether people will use the metaverse in their daily lives or to learn new skills. These studies routinely show that people from minoritized backgrounds are less likely to demonstrate such adoption intentions. For example, Yang et al. examined whether students would use the metaverse to practice basketball and develop their skills (Yang et al., 2022). Several facilitating conditions prompted them to do so, but those conditions were more important for men than they were for women. They wrote, “boys find metaverse technology more convenient for learning basketball lessons, and this is reflected in their positive attitudes” (p. 12).

Collectively, this evidence suggests that many of the factors limit people’s opportunities and quality experiences in physical sport settings are also evident in the sport metaverse. As we demonstrate in the following section, though, the sport metaverse offers several unique DEI opportunities.

Opportunities
Consistent with the theoretical framework, we outline multilevel factors that could serve as opportunities in the DEI space.

Macro-Level Factors. Several societal factors have the potential to make the metaverse more accessible. As previously noted, people from underrepresented communities sometimes lack quality Internet, thereby limiting their potential to engage meaningfully in the metaverse. However, recognizing the importance of high-speed Internet in growing the economy and promoting health, education, and quality of life, lawmakers in the US invested $65 billion in 2021 to provide greater access to affordable, high-speed Internet, with a particular focus on rural communities. The US Department of Agriculture developed a grant and loan program designed to support “infrastructure improvements; business development; housing; community facilities such as schools, public safety and health care; and high-speed Internet access in rural, tribal and high-poverty areas” (US Department of Agriculture, 2022). These legislative actions, and others like them, have the potential to make the metaverse more accessible for all.

When the infrastructure is in place, the sport metaverse has the potential to reduce social inequalities that have otherwise plagued sport consumption. Consider, for example, sport events and the use of digital twins. Glebova et al. (2023) relayed how the “technology can reduce the need for physical presence and travel, lowering carbon emissions while also providing new avenues for fan engagement” (p. 1). Further, “events accessed through digital twins allow remote fans to immerse themselves in compelling digital environments and interact with other attendees from around the world” (p. 1). Given the costs associated with attending sport events (Cunningham, 2023), new technologies, like digital twins, have the potential to make sport consumption available for people across social classes.

Meso-Level Factors. Various meso-level factors have the potential to shape DEI-related outcomes. First, the characteristics of the metaverse potentially lend themselves to
collaboration and cooperation (Dwivedi et al., 2022). According to the contact hypothesis (Allport, 1954), prejudice and intergroup anxiety are likely to be reduced the more people interact with one another. Several conditions of contact can impact these processes, including cooperation, having a common goal and institutional support for convivial interactions, among others. Note that these facilitating conditions are emblematic of the metaverse. As such, several authors have espoused that the metaverse has the potential to make work more accessible and equitable, allowing people from around the world to access work and social events (Fernandez and Hui, 2022). The same dynamics might occur at digital sport events, where sport consumers might be more likely to engage with a variety of other people they might not otherwise interact with. Just as being around dissimilar others while playing sport can reduce biases, the same possibility exists for sport consumers.

The metaverse might also allow people to be more authentic at work. People use physical cues to categorize themselves and others almost instantaneously (Liu et al., 2009), and they generally have more positive attitudes toward people like them than they do people who are different (Turner et al., 1987). But with the use of avatars in the metaverse, these processes which undergird people’s biases have the potential of being moot (Fernandez and Hui, 2022). Hussain and colleagues observed as much in their study of Pakistani women participating in eSports (Hussain et al., 2021a, b). Through observations and personal interviews, they found that women sometimes experienced mistreatment in their everyday lives but, because they could choose whatever avatar they wished, they were able to obfuscate their identities when engaging in eSports. For many, this option was liberating and allowed them to “be whom I am” and gave them “the benefits of being like 100% genuine” (p. 987). Thus, the use of avatars that might differ from how a person looks outside the metaverse has the potential (somewhat paradoxically) to allow for greater authenticity.

The metaverse’s unique elements mean that other bias reduction techniques are possible. In their review of the literature and meta-analysis, Paluck and colleagues overviewed several approaches to reducing intergroup bias (Paluck et al., 2021). Movies, television programs, music and other forms of media were among the most effective, especially when reinforced over time. The authors explain that these interventions allow people to get carried away through narrative or artistic transformation. These represent a “psychological phenomenon whereby individuals are carried away by a story, causing them to let down their tendency to question, critique, or counterargue” (p. 546). The metaverse captures these very characteristics. Through innovative, immersive design features, users have the potential to lose themselves in the stories and experience (Hussain et al., 2021a, b). Researchers and human resource professionals can join with computer science professionals to design such experiences, incorporating messages of diversity, equity and inclusion into the experience, ultimately decreasing the bias among users.

Micro-Level Factors. Finally, if some of the macro-level factors are leveraged and the metaverse becomes more widely accessible, we see opportunities for social mobility. One of the more common promises espoused by researchers and metaverse proponents is the possibility for economic gain among its users (Dwivedi et al., 2022; Fernandez and Hui, 2022). If this potential is realized, then people from poorer social class backgrounds have the chance for upward mobility. There are certainly cases where sport in the physical domain has allowed for such advancements, but only under limited circumstances (Coakley, 2020). The sport metaverse has the potential to expand these opportunities.

Social mobility might also arise through acquisition of unique human capital. Becker (1993) suggested that people are likely to gain disproportionate returns for their human capital investments, such as education, skills, work experiences and the like. Research across contexts, including college sports, professional coaches and event management staff, has shown that human capital investments are related to improved career outcomes.
Digital literacy is one source of human capital that is vital in the new economy (Chang et al., 2023). Experience and immersion in the sport metaverse has the potential to increase people’s digital literacy, thereby increasing their career prospects.

Conclusions

The metaverse continues to grow in terms of users, functions and opportunities. The application of sport to this context is no exception. As a result, numerous authors have written about the potential of sport and the metaverse, emphasizing financial and economic gains and the possibilities of attracting new customers. These are important considerations, but so too are the social aspects of sport and the metaverse, including those related to diversity, equity and inclusion.

Building from this contention and multilevel theory, we highlighted DEI-related parallels and opportunities. Both warrant consideration from sport management practitioners and scholars. The sport metaverse has been a space where inequalities are perpetuated, people from underrepresented and minoritized groups face persistent biases, and consequently, many choose to forego adopting the new technology. But the sport metaverse can be so much more. We identified opportunities for greater access, to engage with others in new and authentic ways, to reduce biases and for potential social mobility. These are exciting advancements that have not been fully realized in the traditional sport space and that warrant additional attention, scrutiny and theorizing.

Finally, we close by offering potential strategies for sport managers and people working in sport to make the sport metaverse more inclusive. Zallio and Clarkson (2022, p. 9) suggested that a “good” metaverse is marked by accessibility and openness; honesty and logic; safety and security for all; an undergirding of principles of social equity and inclusion; sustainability; a premium on privacy, ethical behavior and integrity; has safeguards for to protect people’s data; enables people to express themselves; is characterized by responsible innovation and is complementary to the physical world. Though there are technology-specific elements to these principles, many of the recommendations correspond with those of good practice in physical sport organizations. That is, sport organizations promote diversity, equity and inclusion when they have a heterogeneous group of people represented throughout the organization, including in decision making roles; when people can express their unique identities while still feeling a sense of belonging; when people feel physically and psychologically safe and when principles of justice and equity are firmly enmeshed throughout the organizational system (Cunningham, 2023). Together, these principles provide a foundation upon which to build and sustain a diverse, inclusive and equitable sport metaverse.

References

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