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Conceptualizing digital placemaking in nature for wellbeing

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ABSTRACT

Increased urban population has created a disconnection between humans and natural environments that needs to be recognised as a key challenge. This article proposes that disconnection from nature in urban settings can be mitigated by digital placemaking. A conceptual framework which accounts for place attachment and place branding, Social Identity Theory and nature connectedness is presented. The benefit of this approach is that it can help us understand more clearly the different dynamics involved in hybrid place experience as a driver for both social change and consumer wellbeing. This modified hybrid tripartite model creates meaningful places for consumers, fostering their attachment to the space and with others, while simultaneously enhancing their wellbeing. In addition, the model contributes to our understanding of place branding effects on consumers beyond commercial outcomes; explaining the positive effects on wellbeing of nature-based digital placemaking; and providing clarity on the role of technology in nature-based place brand experiences. In synthesising the different dimensions of the framework, potential implications for place managers, marketers and leaders are outlined.

1. Introduction

Despite the demonstrated positive impact of engagement with nature on people's wellbeing, the disconnection from nature that humans have been experiencing has increased in urban environments. A combination of decreased opportunities to access and engage nature and constant engagement with technology have been attributed as causes (Barboza et al., 2021; Kesebir and Kesebir, 2017; McLean et al., 2021). Therefore, scholars have proposed a rethink in the ways people engage and build a relationship with nature, where new technology is embraced (Richardson et al., 2018; Riechers et al., 2021). In this article we will present a conceptual model to support the use of digital placemaking for nature and wellbeing, exploring different theories to reframe the human-nature relationship in urban environments.

The exploration of experiences in nature through technology is supported both by digital nature exposure (e.g., Litleskare et al., 2022; Murphy et al., 2022), and the way in which technology is used as a mediator in daily interactions with our environment and with others. These examples of technology use could be redirected in urban

environments to help communities connect, engage with, and use nature for health and wellbeing (Murphy et al., 2022; Riechers et al., 2021).

As a process that uses digital media to foster individual and communal place attachment (Halegoua and Polson, 2021), digital placemaking is a viable option in urban environments to foster nature connectedness to support wellbeing. However, literature on the concept is fragmented, lacking a deep understanding of the dynamics involved in the process (Fernandez-Osso Fuentes et al., 2023a).

Drawing from literature in the areas of digital placemaking, psychology of nature and wellness, virtual games and place branding, we propose a model meant to broaden the conceptual domain of digital placemaking to reframe the human-nature relationship in cities through an innovative approach. We propose hybrid nature place experiences, understood as the digital extension of the physical place (Hespanhol, 2022), to act as a driver for social change (Foth, 2017) and consumer wellbeing (Wright, 2021). This model provides organisations with a clear path to implement technology for nature and wellbeing, improving climate resilience in cities (Gulsrud et al., 2018) and promoting pro-environmental behaviours (Paraschivoiu and Layer-Wagner, 2021).

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Our study aims to conceptualize the technology-mediated consumer wellbeing and social change benefits of digital placemaking in nature-based place experiences. The conceptual model of Digital Placemaking for Nature and Wellbeing, which proposes a future research agenda, addresses phenomena relevant to contemporary organisations interested in new technological approaches to the current climate crisis concerning communities.

Through this conceptual model we provide a critical dialogue using theories, i) to understand the place branding approach's effects on consumers beyond their commercial outcomes; ii) to address the gap in wellbeing effects of digital placemaking experiences in nature environments; iii) to advance the understanding of digital placemaking to support planners and scholars; iv) to contribute to the debate on the role of technology as a mediator in place experiences.

2. Theoretical foundations

2.1. Digital placemaking

The potential of digital placemaking to create of a sense of attachment within a community is key (Courage, 2021; Halegoua and Polson, 2021). Placemaking practices were first implemented in urbanism as a strategy to foster innovation and knowledge-intensive activities (Abdel-Aziz et al., 2016; Pancholi et al., 2019). Its digital counterpart has emerged to become an increasingly relevant topic for academics and practitioners working collaboratively with local governments and community groups (Hespanhol, 2018). However, digital placemaking suffers from a definitional dilemma (Fernandez-Osso Fuentes et al., 2023a; Główczyński, 2022), and consensus on an operational definition is lacking. The conceptualisation is exacerbated by the complex variety of technologies that can be used (Chen et al., 2022), from social media (Soedarsono et al., 2021) to augmented reality and gamification (Clowater, 2021).

The difference of digital placemaking from other technological dimensions in place resides on the creation of hybrid place experiences that combine online and offline elements while producing a 'sense of place' and belonging through participatory processes (Polson, 2015). Participatory processes and community engagement activities are crucial for digital placemaking.

Gamification processes are commonly used to understand the technological dimension and effects of digital placemaking in communities (e.g., Hjorth and Richardson, 2017; Pang et al., 2020). Digitally gamified experiences have been demonstrated to foster behaviour change and pro-environmental attitudes (Paraschivoiu and Layer-Wagner, 2021). Experience of navigating virtual environments, which are a representation of the physical environments through gamification, could benefit consumers' wellbeing (Clowater, 2021; Hjorth and Richardson, 2017).

Although there are some potential risks such as limited engagement of marginalised or diverse groups (Peacock et al., 2021), benefits include economic growth or cultural wealth (Morrison, 2021), enhanced community place attachment and sense of place (Halegoua and Polson, 2021), inclusion and social cohesion (Najafi et al., 2021; Szaszák and Kecskés, 2020) and enriched experiences of memorable physical places (Her, 2021). Yet, associated implications for urban nature and consumer wellbeing have been overlooked (Fernandez-Osso Fuentes et al., 2023a). Specifically, nature has been broadly described as a context where the experience is developed. Moreover, wellbeing, which is understood as a broad concept that combines several wellness indicators such as positive affective states or social engagement (Shankardass et al., 2019), is mentioned as a result from the dynamics involved in digital placemaking without further clarification.

Recent explanatory frameworks have emerged (e.g., Chen et al., 2022; Główczyński, 2022; Hespanhol, 2022; Özkul, 2021) to explore the complex dynamics involved in digital placemaking. However, to date, research has overlooked both the effects of urban natural environments and the potential wellbeing effects. Razi and Ziminski (2022) mention

social wellbeing as a consequence of place attachment and community identity, without further explanation.

Digital placemaking, in relation to place branding and marketing, has been identified as one of the elements in the place branding trifecta (Keegan, 2021). This can support the development of more meaningful experiences of places (Ellery et al., 2021). The place marketing and branding approach to the concept has been mainly applied to tourism (e.g. Sugangga et al., 2021) from an analogue placemaking perspective (Balsas, 2021; Lew, 2017; Ni and Say, 2022; Richards, 2017), associated with an economic intention. Our proposed model shifts the participant focus from tourists to local residents. This recognised the potential for greater co-creation process of a place image that is part of the identity of the community, fostering belonging to support social wellbeing.

Our conceptual model has been informed by seminal digital placemaking studies (e.g., Halegoua, 2020; Polson, 2015) and a systematic review which identified four key characteristics: sense of place, community engagement, inclusion and hybrid reality (Fernandez-Osso Fuentes et al., 2023a). Many studies were found to apply place attachment or sense of place to understand the feeling of belonging digitally created with a place. Another clear aspect of digital placemaking is the creation of a community engagement activity that sets up a space for co-creation and social relationships, which affects their identity. Furthermore, wellbeing benefits and improved nature relationships through digital means are only briefly described and mainly studied in analogue applications (Kale, 2019; Ng, 2016). Consequently, it is important to more clearly understand how these dynamics are interconnected and how they could be applied in urban nature spaces from a place branding approach to help reframe the human-nature relationship in the current climate crisis.

2.2. Place attachment theory

Place attachment or sense of place is one of the most cited processes involved in a digital placemaking experience (see Breek et al., 2018; Freeman et al., 2019; Halegoua and Polson, 2021; Polson, 2015). Place attachment theory describes how intimate relationships provide people with a safe haven, enabling them to explore their environments and develop an attachment to places, which may provide them with feelings of belonging, relief and psychological and wellbeing benefits (Nisa et al., 2020; Scannell and Gifford, 2017).

Scannell and Gifford's (2010a) place attachment tripartite model aims to explain this multidimensional concept and its effects. The tripartite model proposes three dimensions: person, place and psychological process. The person dimension involves both individual (subjective experiences) and collective (symbolic meaning of place in a community) place attachment; the psychological process of sense of place involves affect (emotional connection), cognition (memories, beliefs, meaning and knowledge) and behaviour (action through proximity-maintaining behaviour and reconstruction of place); and the place dimension is divided between social (facilitation of social relationship and group identity) and physical (features) place attachment.

Lewicka's review (2011) highlighted that the person element has received the most attention in literature. The review identified a lack of research on the process through which people collectively create meaningful relations with places. Our model focuses on communal dynamics that affect the group belonging processes that positively affect consumers.

Moreover, Scannell and Gifford (2017) extend the psychological benefits of place attachment into thirteen categories, including memory support, belonging and connection to nature. The social aspect of place attachment not only is presented as a key element in the person and place dimension of the tripartite, but it also is found as a key psychological benefit. Furthermore, interpersonal relationships in a place provide with belonging and use place attachment as a mediator between social identity and wellbeing (Maricchiolo et al., 2021). Additionally, nature connection is also considered a benefit of this process. Multiple

studies explore the combination of place attachment and nature, describing place attachment as a key factor in human-nature interactions (Jayakody et al., 2024) and alluding to positive associations and effects (e.g., Colley and Craig, 2019; Yoshida et al., 2022). Specifically, place attachment to natural settings is a greater predictor of pro-environmental behaviours compared to civic place attachment (Scannell and Gifford, 2010b). Yet, there is a key gap in literature in urban nature spaces and their combination with digital technologies to enhance place attachment experiences.

The increased use of technology in our daily place interactions has made essential the conception of online place attachment. Defined by Schwartz (2015) as a way to create online-offline personal connections to a place through location-based technology, online place attachment bonds users with physical spaces through digital interactions, also as a setting stone to understanding online consumers' actions and their effect on their local community and identity. However, the exploration of online place attachment is very limited. Few researchers have investigated online engagement and place attachment, with Huang et al. (2022) being the exception in their study with university students. Therefore, the potential implications of online place attachment beyond understanding online consumers' actions are a promising area of research.

Despite using digital devices to explore and engage with surroundings, place attachment's digital dimension is still unclear and underexplored. Specifically looking at fostering a communal place identity and stimulating positive effects of technology in place, consumers online place attachment could be promoted through place branding experiences in urban nature spaces. This could help identify consumers with the place associating it with positive brand outcomes (Pedeliento and Kavaratzis, 2019) such as enhancing their wellbeing.

2.3. Place branding

Highly connected with place attachment, place branding is derived from place marketing, as one of the traditional product marketing mix (McCarthy, 1960). Place marketing refers to a location as both the product and the place, which benefits involve strategic guidance for place development, attracting investment and creating positive place experiences (Kavaratzis et al., 2017). Place branding is the application of branding principles to places (Reitsamer and Brunner-Sperdin, 2021) and aims to create, influence and reinforce the image of the place and its associations (Warnaby and Medway, 2015; Zenker and Braun, 2010), beyond 'selling' places (Graziano and Albanese, 2020).

Place branding theory was at first focused on the country level (Aronczyk, 2013; Hanna and Rowley, 2008) and tourism destination brands (Ma et al., 2019) with different categorisations, mostly based on destination image and country/city branding (see Chan and Marafa, 2013; de San Eugenio Vela et al., 2013; Kavaratzis, 2005; Kavaratzis and Ashworth, 2005). Works on nation branding also include environmental perspectives (Aronczyk, 2013; Aronczyk and Espinoza, 2021), which are important to understand the nature lens of our model. Specifically, the reflections on the role of public relations and environmental communication as a cultural producer in international environmental governance (Aronczyk and Espinoza, 2021) are crucial in today's paradigm of climate crisis and international plans to mitigate it.

Nevertheless, our approach to place branding focuses on the community level. Authors such as Aitken and Campelo (2011) recognised the role of brand-community practices and their ownership, where the brand meaning is constantly co-created and represented. The role of the local community shifts towards an active participant or co-creator in the place brand. This is essential to preserve authentic places that are meaningful to their inhabitants, as it enhances the identity and the local culture of a place with memorable experiences (Aitken and Campelo, 2011; Kavaratzis, 2005). Braun et al. (2013) describe different functions of local consumers in place branding, such as residents as place brand ambassadors. To implement place branding, the power of the brand is

relocated to the residents (Zenker and Erfgen, 2014). To explore success measurements in this context, Zenker and Martin (2011) propose an inclusive approach to understanding target groups' diversity and place complexity.

Similarly to online place attachment and the need to understand place branding in the current digital context, online place branding is first introduced by Florek (2011). Online place branding is defined to have two main directions: promotion and communication channels, and the creation of online communication. Only recently, have studies on online place branding emerged to try to understand how the digital realm affects place branding, such as Briciu et al. (2020) or Graziano and Albanese (2020), who call for place branding to be supported by online and offline actions due to the growth of new technologies. Moreover, limited nature involvement in place branding studies can be found, and usually from a tourism perspective. Graziano and Albanese's case study (2020) on online place branding of a natural space requests to involve locals in place-image building processes for place branding effectiveness. Therefore, we aim to understand how online place branding is applied beyond the communication of a brand, its effect on local consumers for wellbeing and social change through attachment and engagement with nature.

Concerning place attachment, multiple studies have explored their interrelations, specifically the co-creation of place branding and the result of place attachment (Leal et al., 2022), its use with place brand credibility and technology while categorizing the brand as part of the self (Reitsamer and Brunner-Sperdin, 2021), or its disregard in commercial settings (Debenedetti et al., 2014). Pedeliento and Kavaratzis (2019) conceptualize place brand and place branding as the interplay between culture, identity and image, where place attachment is a result of being culturally bonded to a collective and a place while a social identity is also developed.

Thus, place branding and place attachment are interconnected as they both affect consumers on how they feel attached and identify with a place. This connection is understood from a group level as consumers interact with the place and among themselves. This interaction generates group identification and trust, which could impact their relationship with nature and support their wellbeing.

2.4. Social identity theory

The third key theory involved in a digital placemaking experience is Social Identity Theory. The creation of community engagement spaces that offer a forum for co-creation and social interactions is found to affect their identity. Social Identity Theory is one of the most influential approaches to group processes and intergroup relations worldwide (Hornsey, 2008). It refers to a personal sense of belonging to a social group, where individuals identify themselves according to the group they are members (Makri et al., 2021; Tajfel and Turner, 1986). Therefore, it is commonly applied in relation to Self-Categorisation Theory (Turner et al., 1987). Social Identity Theory suggests that group membership is internalised by individuals, becoming part of one's self-concept (Heath et al., 2017; Tajfel, 1978). It enhances self-esteem (Haslam et al., 2009) and residents health and wellbeing (Bowe et al., 2020). Furthermore, in the present climate crisis, the impact of group identification also affects the willingness to contribute to urban regeneration and the development of environmental attitudes (Fielding and Hornsey, 2016; Heath et al., 2017; Maricchiolo et al., 2021).

As described earlier, 'belonging' referring to connecting with others and the influence it has on an individual is one of the psychological benefits of place attachment (Scannell and Gifford, 2017), and it is a key aspect in the place attachment tripartite (Scannell and Gifford, 2010a). Hence, the clear interconnection between these two theories helps shape individuals' relations with a place and with others affecting their own identity creation. However, these theories have not been combined and presented in a similar setting before.

The connection with others and with a place that develops a sense of

belonging is crucial to understanding the Social Identity Theory approach to health (Haslam et al., 2018), which is mediated through a positive relationship with place identity and social relations – both dimensions of place attachment (Maricchiolo et al., 2021). Our model would follow this approach by exploring social identity and wellbeing through place attachment for place brand consumers mediated with technology.

Social Identity Theory has been applied to numerous fields, including several aspects of branding. From understanding group dynamics in brand communities and their self-definition (Kuo and Hou, 2017), to brand relationships in digital global social media networks (Akram et al., 2022), Facebook communities (Zhang et al., 2010), gamers' team dynamics (Liao et al., 2020), and social networking sites (Shih et al., 2021). The branding approach to this theory is focused on brand awareness and consumer behaviour, with studies exploring digital environments. However, the potential impact of participatory dynamics or environmental characteristics has been overlooked.

Studies on Social Identity Theory, place attachment and place branding, demonstrate the benefit from each other, impacting consumers' place image, belonging and group membership. In our proposed model, we redirect these dynamics to enhanced nature-based place experiences using technology. This can potentially support consumers reframe their relationship with nature.

2.5. Nature connectedness

The key aspect we are addressing in the model is to help reframe the human-nature relationship through digital mediation.

Nature has been approached in the above sections, commonly referring to 'connecting to nature' as goals or outcomes. Nature connectedness refers to an individual's subjective sense of connection with nature, which can also be measured as a state (Capaldi et al., 2015). This psychological construct emerged from the biophilia hypothesis (Wilson, 1984), which predicts that people's psychological health is related to their relationship with nature (Howell et al., 2011). Evidence has supported the emotional, psychological and wellbeing benefits of nature connectedness (Nisbet et al., 2011; Pensini et al., 2016; Pritchard et al., 2020).

The sense of community and feeling of belonging with nature is linked to feeling connected to it and being less likely to harm it (Mayer and Frantz, 2004). While the construct suffers from a definitional dilemma with challenges in measurement (MacIntyre et al., 2019), researchers typically agree that it refers to how people think about, feel about, and see themselves as part of nature (Richardson et al., 2020). However, the impact of nature connectedness could be how it may support spill-over behaviours, in terms of pro-environmental behaviour and environmental concern (Richardson et al., 2020). Evidence also suggests that it is trainable and fostered by applying interventions such as the 'pathways to nature connectedness' (Lumber et al., 2017).

Linked to pro-environmental behaviours (Gosling and Williams, 2010), place attachment is found as a positive mediator effect between nature connectedness and wellbeing (Basu et al., 2020). Scannell and Gifford (2017) describe 'connection to nature' as one of the psychological benefits of place attachment, demonstrating the connection among these theories.

As mentioned earlier, group identification affects urban regeneration willingness and pro-environmental attitudes (Fielding and Hornsey, 2016; Heath et al., 2017; Maricchiolo et al., 2021). The need to feel part of a broader natural world and a natural community is crucial to understanding nature connectedness (Mayer et al., 2009). But only Mackay et al. (2021) mention 'nature connection' as a form of collective identification understood from a social identity perspective. Clear connections between social identity and place relationships are described earlier but specific implications of nature have been overlooked.

The potential of simulated and indirect experiences of nature (images or videos) have been explored, demonstrating positive

psychological benefits while experiences in nature have substantially greater benefits (Mayer et al., 2009). Recently, Sheffield et al. (2022) proposed nature connectedness as a useful construct to renew the human-nature relationship, positively affecting our sense of wellbeing. In their review, there is clear evidence of the effect of contact and engagement with nature to increase nature connectedness, "but neither the type of contact (indirect v direct), quality of engagement (passive vs. active) or timing of the intervention were significant predictors of effect size for nature connectedness" (pg. 15). The digital approach to nature experiences has mostly focused on virtual nature, exploring the links among nature connectedness, wellbeing and place attachment in digital experiences (Brambilla et al., 2022; Litleskare et al., 2022). Immersive virtual nature is studied on its similarity with real nature effects through virtual reality (Brambilla et al., 2022), or if seasonality affects immersive virtual nature outcomes (Litleskare and Calogiuri, 2022). However, we propose a broader technological approach in a location, opening opportunities for potential consumers and digital mediums that are part of the interactive physical experience of nature.

Studies have pointed at the interconnections between nature connectedness and place attachment, wellbeing benefits from social identity, or place branding and place attachment impacts. However, research conducted to identify and understand the interconnections and potential wellbeing impact of digital placemaking in nature spaces has not been addressed, which is why we present a conceptual model to understand how to reframe the human-nature relationship through hybrid place experiences.

3. Digital placemaking for nature and wellbeing. Conceptual model development

The previous section presents initial relations between the dynamics involved in digital placemaking for nature and wellbeing as isolated processes. This provides the foundation to understand how they are involved in digital placemaking at an urban nature space supporting wellbeing, as a driver for social change and climate resilience. If we combine these processes in urban nature spaces shifting the way we engage with technology, for it to act as a medium to expand place experiences, branded place experiences could affect consumers' intentions, behaviours and wellbeing using digital placemaking. As a participatory place branding strategy (Zenker and Erfgen, 2014), it can reframe urban nature spaces to foster place attachment (Scannell and Gifford, 2010a), where consumers' nature connectedness and group identification is enhanced (Basu et al., 2020; Bowe et al., 2020), impacting their wellbeing (Haslam et al., 2018; Maricchiolo et al., 2021) (see Fig. 1). This model informs place managers and marketers to ensure their practices benefit local consumers – current place consumers or potential consumers.

Our model is a bottom-up process informed by the described theories and constructs, applying the four key characteristics of digital placemaking identified in our review and following a proposed modification of the place attachment tripartite by Scannell and Gifford (2010a). This directs the conceptualisation of four main propositions for Digital Placemaking for Nature and Wellbeing.

Our modification of the place attachment tripartite adapts it to the hybrid reality experience constructed from digital placemaking in urban nature, to understand how it affects community identity and sense of belonging to physical spaces through technological mediation. Our modification is formed by the community, hybrid place and psychological process dimensions. The community dimension includes the individual and community elements, which overlap and are explored following Social Identity Theory (Haslam et al., 2018; Tajfel and Turner, 1986) to understand its dynamics in building the sense of self and its effects on wellbeing, and participatory place branding (Zenker and Erfgen, 2014). The individual element identifies personal connections that create sense of place, whereas the community element refers to shared meanings and symbols with a place among members. The hybrid

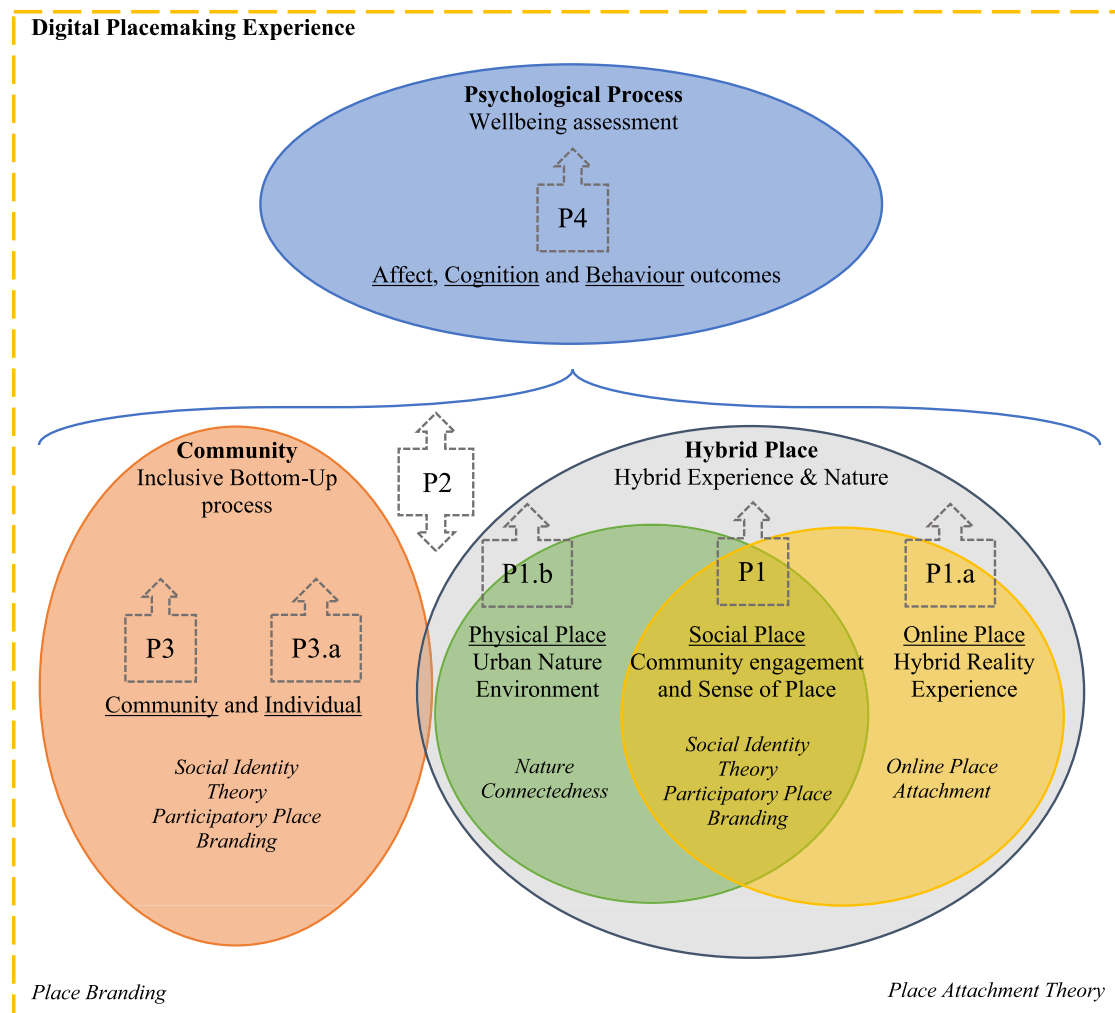


Fig. 1. Digital Placemaking for Nature and Wellbeing Conceptual Model. Developed from the extant literature, such as Scannell and Gifford (2010a), Schwartz (2015), Aitken and Campelo (2011), Bowe et al. (2020), Basu et al. (2020), Zenker and Erfgen (2014), Haslam et al. (2018) and Polson (2015).

place dimension is formed by the social, physical and online place attachment. The social place attachment refers to how the place allows social relationships and group identity, strongly linked to community engagement activities and social identity generation (Haslam et al., 2018; Tajfel and Turner, 1986; Zenker and Erfgen, 2014). The physical place attachment indicates the physical features of the natural place, from a nature connectedness perspective (Basu et al., 2020; Capaldi et al., 2015; Murphy et al., 2022). Finally, the online place attachment (Schwartz, 2015) is approached from hybrid reality experiences, combining physical and online connections to a place through location-based technology (Hespanhol, 2022; Polson, 2015). Lastly, the psychological process dimension is formed by affect (emotional connection), cognition (memories, beliefs, meanings and knowledge) and behaviour (actions), developed through digital placemaking activities and assessed from a wellbeing perspective.

We propose to approach digital placemaking from a participatory place branding perspective (Zenker and Erfgen, 2014), specifically in the community dimension and social place element. This ensures local consumers' opinions, visions and ideas are leading throughout the digital placemaking experience. The development of the digital placemaking experience will be informed by Zenker and Erfgen's (2014) three-stage process and we advise using different tools and measurements suggested by Zenker and Martin (2011), depending on the characteristics of the initiative.

In this context, digital placemaking hybrid place experiences

(Hespanhol, 2022; Polson, 2015) can promote sense of belongingness and authenticity, creating meaningful experiences for consumer communities that impact their vision of a place, and the vision of them within that place. The proven connection between social identity and wellbeing (Haslam et al., 2009) mediated through place attachment (Cole et al., 2021; Maricchiolo et al., 2021), the key role of place attachment in human-nature interactions (Jayakody et al., 2024) including nature connectedness (Basu et al., 2020; Gosling and Williams, 2010), and the value of digitally mediated experiences fostering pro-environmental behaviours (Paraschivoiu and Layer-Wagner, 2021) leads to a number of propositions:

P1. Digital placemaking creates sense of place between the community and the space where it is developed, facilitating group belongingness and identity among members and with the place.

P1.a. Digital placemaking experiences foster community hybrid place attachment, promoting authenticity and differentiating them from others.

P1.b. When applied in urban nature environments, digital placemaking fosters place attachment with the urban nature place but also nature connectedness through community engagement in that place.

We propose an innovative approach to digital placemaking from a participatory place branding perspective, where local consumers are brand ambassadors and co-creators of the place (Aitken and Campelo,

2011; Kalandides et al., 2012; Kavaratzis and Hatch, 2013). In this bottom-up model, local consumers are co-creators in each stage. Placemaking is considered a community of practice (Courage, 2021), where participation is essential to develop identity and mutual recognition, and hybrid place experiences help foster belonging (Polson, 2015). Therefore, Social Identity Theory predicts placemaking practices' effect on the community identity.

P2. Digital placemaking facilitates place brand and consumer interactions through hybrid participation (online and offline) that fosters group identity and belonging.

Digital placemaking approached from participatory place branding fulfils two objectives. First, it promotes internal voices in the community as brand ambassadors (Braun et al., 2013), increasing brand commitment (Hatch and Schultz, 2009) and co-creation of the place brand (Aitken and Campelo, 2011; Kalandides et al., 2012; Kavaratzis and Hatch, 2013). Second, it ensures locals are included in every step of the process for its success (Graziano and Albanese, 2020), specifically underrepresented groups, as an inclusive practice (Foth, 2017).

P3. Community consumers engaged in digital placemaking from a participatory place branding perspective become place brand ambassadors.

P3.a. Excluded or marginalised members have the opportunity to connect with others and with the place through digital placemaking as an inclusive and barrier-free practice.

Place attachment, Social Identity Theory and nature connectedness have been studied and linked to benefit human wellbeing (Basu et al., 2020; Lewicka, 2011; Maricchiolo et al., 2021; Scannell and Gifford, 2017). Nowadays, digital nature interactions are being considered a promoter of nature connections and wellbeing in communities (Litleskare et al., 2022), but they could benefit from implementing a place branding approach through which consumers are attracted to the place experience. Additionally, specific wellbeing benefits could be targeted through the digital placemaking experience and gamification, also promoting pro-environmental behaviours (Paraschivoiu and Layer-Wagner, 2021), and positive environmental experiences (Aronczyk and Espinoza, 2021).

P4. Consumers participating in digital placemaking nature-based place brand experiences can benefit from several wellbeing outcomes, feeling emotionally attached to the place, to the community and to nature.

These propositions address each characteristic of digital placemaking to understand how it can be used to enhance consumer wellbeing through nature-based place brand experiences, promoting social change. They explain how digital placemaking can foster community urban nature connections to benefit consumers' wellbeing and theorize that digital placemaking applied as a place branding strategy can create, change or promote specific consumer community experiences, interactions and identity values.

4. Discussion

This conceptual model aims to produce knowledge and forecast digital placemaking benefits for consumers' wellbeing and social change, using technology as a mediator in nature-based place brand experiences. The place branding approach we propose creates, changes, and/or promotes specific community experiences and belonging (Bowe et al., 2020), place attachment interactions (Scannell and Gifford, 2010a), and identity values for their wellbeing (Maricchiolo et al., 2021), which can affect environmental attitudes (Fielding and Hornsey, 2016; Heath et al., 2017; Maricchiolo et al., 2021).

The present paper aims to conceptualize the technology-mediated consumer wellbeing and social change benefits of digital placemaking

in nature-based place experiences. We explore the broad concept of digital placemaking and present the lack of studies deepening its application to nature environments supporting wellbeing. Then, we adopt a participatory place branding approach (Zenker and Erfgen, 2014) which follows a proposed extension of the place attachment tripartite (Scannell and Gifford, 2010a) used to define the conceptual model of Digital Placemaking for Nature and Wellbeing. We systematically combined developments in the place attachment and place branding literature with developments in Social Identity Theory (Haslam et al., 2018; Tajfel and Turner, 1986) and nature connectedness construct (Basu et al., 2020; Howell et al., 2011; Mayer and Frantz, 2004; Murphy et al., 2022) exploring their wellbeing effects, to create guidelines for digital placemaking.

Our conceptual framework presents a modification of the place attachment tripartite (Scannell and Gifford, 2010a) to hybrid realities applied to urban nature spaces from a participatory place branding perspective. According to the original tripartite (Scannell and Gifford, 2010a), place attachment is created through individual, place and psychological process dimensions. However, this model does not consider the use of technology in our daily interactions. We extend the original tripartite in three ways. First, we re-focus the individual dimension by prioritising the community element which has been overlooked in the past (Lewicka, 2011), applying a Social Identity Theory perspective and its impact on people's wellbeing (Haslam et al., 2018; Tajfel and Turner, 1986). Second, we extend the place dimension by incorporating online place attachment (Schwartz, 2015) towards hybrid place attachment. Finally, we complement the tripartite by addressing the natural space element in the hybrid place dimension to understand how to specifically build hybrid place attachment for nature connectedness (Basu et al., 2020; Capaldi et al., 2015). Furthermore, we introduce participatory place branding (Zenker and Erfgen, 2014) as an approach to the overall model to benefit from these processes and strategies and ensure the community is an active part of the dynamics described, creating attractive and meaningful experiences to provoke social change.

Our propositions are in line with Scannell and Gifford (2010a) and Zenker and Erfgen (2014), and supported by the findings of Maricchiolo et al. (2021) and Basu et al. (2020) that place attachment acts as a mediator for wellbeing and nature connectedness. The propositions are also consistent with the work of Haleboua and Polson (2021) who defined digital placemaking as a process that creates place attachment between a community and a space, Polson's (2015) understanding of hybrid place experiences for belonging, and Foth's (2017) understanding as a tool for social change. We answer the call by Graziano and Albanese (2020) to include locals in place branding strategies for its success and the need to advance online place branding with the growing technological evolution. The innovation of this model resides in the combination of areas of study that are interlinked but were studied in silos in the past.

We propose a digital transformation to be included in future strategies by place professionals such as placemakers or place managers following the effect of technology and digital formats in consumers' behaviours. Therefore, providing them with a guide and explanation of the dynamics involved in hybrid place experiences can inform projects that explore how to implement nature-based solutions in the current technological paradigm, how to help citizens connect with their natural spaces, or explore digital opportunities in cities to positively affect consumers. Digital placemaking is presented as a new and adapted perspective to the current consumer behaviour context. Furthermore, Mao et al. (2020) study indicates a number of benefits from technological innovations for society such as improving cultural diversity and social change. Along these lines, our model approaches digital placemaking as a tool for social change (Foth, 2017) that can potentially benefit urban communities by fostering pro-environmental behaviours through gamification (Paraschivoiu and Layer-Wagner, 2021; Richardson et al., 2020).

Following Pancholi et al. (2019) findings of placemaking outcomes

beyond the physical aspect to holistic economic, cultural, spatial, social and organizational, our model describes a number of dynamics that benefit urban communities' wellbeing, place attachment, group belongingness and nature connectedness. The innovation of including Social Identity Theory in our model is influenced by Akram et al. (2022) study on the effect of consumer engagement and social identity in brand relationships in digital social media networks, the wellbeing approach to the theory by (Haslam et al., 2018), and its connection with place attachment and wellbeing (Maricchiolo et al., 2021).

We argue that the human-nature disconnection (Beery et al., 2023; Kesebir and Kesebir, 2017), specifically in urban environments, could be improved by promoting place branding and place attachment processes through digital placemaking. Moreover, our model extends Jayakody et al.'s (2024) work on place attachment as being essential in human-nature relationships for wellbeing by exploring the impact of hybrid place experiences. These authors show how place interactions and proximity are key for the development of a strong place identity with the natural space and how place attachment contributes to creating meaningful bonding with nature and with others. We extend these results and explore the impact of hybrid place experiences through digital placemaking, where individuals not only interact with a place online and offline but also with other community members which helps to enhance benefits. This brings nature and place experiences to more participants who are not able to physically be in the place or interact with the place as others – also alluding to the inclusion aspect of digital placemaking.

To ensure a collective positive identity and appealing experience is created, we respond to the call for applying place marketing and branding to placemaking (Ellery et al., 2021) while considering digital placemaking a part of the place branding trifecta (Keegan, 2021). We propose the hybrid place attachment tripartite that combines participatory place branding, nature connectedness and Social Identity Theory elements. Our model also responds to Aronczyk and Espinoza's (2021) work on strategic nature and environmentalism from a marketing and branding perspective to present organisations and practitioners of place with a way to reframe the human-nature relationship in cities, fostering social connections, wellbeing and belongingness feelings that also promote pro-environmental behaviours and social change. This positive and community-centred approach to hybrid place experiences ensures this branded and cultural production promotes a valuable approach to our environments.

4.1. Contributions

This study presents four contributions to help reframe the human-nature relationships by predicting and incorporating technology through digital placemaking in natural environments as a place branding strategy that enhances consumers' wellbeing and social change. First, our model goes beyond the generalized commercial outcome of place branding strategies (Graziano and Albanese, 2020) to understand how hybrid place experiences in nature spaces foster place attachment and group identity (Basu et al., 2020; Kuo and Hou, 2017; Maricchiolo et al., 2021), nature connectedness (Capaldi et al., 2015), supporting consumer wellbeing (Huang et al., 2022; Pritchard et al., 2020) and promote social change (Foth, 2017). By unpacking the elements involved in our innovative model we predict digital placemaking strategies as a tool to enhance nature-based place experiences, social change and consumers' wellbeing. Our place branding approach enhances specific values that are transferred to the community (Aitken and Campelo, 2011; Kavaratzis and Hatch, 2013).

Secondly, existing studies and frameworks mention the wellbeing effects of digital placemaking practices but without further understanding of internal mechanisms (e.g., Razi and Ziminski, 2022). We contribute to addressing this gap by engaging in theories and constructs to predict how branded place experiences that improve consumers' wellbeing – through place attachment (Huang et al., 2022), community belongingness (Bowe et al., 2020), social identity (Maricchiolo et al.,

2021) and nature connectedness (Basu et al., 2020). We present a model that specifically looks at wellbeing effects, which should be tested in an empirical scenario.

Our third contribution is to advance the knowledge of digital placemaking and support practitioners with a fundamental understanding and guide of digital placemaking experiences from interdisciplinary perspectives. In unpacking these dynamics, the paper has practical relevance for place managers, environmental psychologists, and place marketers. We have highlighted the relationships between specific digital placemaking applications and consumers' outcomes through our modification of the place attachment tripartite (Scannell and Gifford, 2010a) to include hybrid environments (Hespanhol, 2022; Polson, 2015) and online place attachment (Schwartz, 2015), nature connectedness linked to wellbeing (Basu et al., 2020; Maricchiolo et al., 2021), and participatory place branding (Zenker and Erfgen, 2014). This model informs the current rise of projects and policies that advocate for improving and augmenting nature in cities, specifically nature-based solutions and the increased interest in the use of technology for healthy environments (WHO Regional Office for Europe, 2021).

Finally, our model contributes to the debate about the role of technology in place experiences for consumers. The overarching premise of this paper is that digital placemaking benefits consumers' wellbeing and social change through technology mediation in nature-based place brand experiences. We do not present digital placemaking as a nature replacement, but as an enhancer that aims to reframe the human-nature relationship (Riechers et al., 2021). Since technology is part of our daily routines, we should use it to our benefit and foster relationships that would promote pro-environmental behaviours. The benefits of connecting with nature are supported by evidence from the extant literature (e.g., Bratman et al., 2019; Jimenez et al., 2021), yet consumers are still struggling to create healthy habits that involve nature experiences (Riechers et al., 2021). It is certain that digital placemaking presents several drawbacks for citizens (e.g., Bottero et al., 2022; Foth and Caldwell, 2018), and they will need to be addressed.

5. Limitations and future research

This analysis presents a conceptual framework developed from the extant literature across place branding, place attachment, Social Identity Theory, nature connectedness and digital placemaking. The propositions which form the basis of the conceptual model serve as suggestions for future research. The presented Digital Placemaking for Nature and Wellbeing model is currently being tested through a modified Delphi study (Fernandez-Osso Fuentes et al., 2023b) to obtain consensus and explore the characteristics of digital placemaking as a medium to promote place attachment and place branding processes in urban nature environments, fostering community nature connectedness while impacting consumers' wellbeing and social change.

Plausible limitations include the framework being based on the idea of a hybrid reality experience as the optimum way to approach the connection between the physical and online space in the current global context. We acknowledge technological mediation such as digital placemaking presents a series of challenges that need to be considered. For example, digitally excluded individuals and communities may not benefit from a digital placemaking approach. Further study on the potential drawbacks of digital placemaking for nature and wellbeing and how to minimize their impact is needed. Despite being justified and described as a guideline, our model has to be tested in a real practical case to confirm the assumptions and prepositions defined. Finally, we presented the model in an optimal environment scenario, but we understand its application depends on the characteristics of the community, the place, and the resources.

Further understanding of the best assessment tools depending on the project goal and research aim is also required. Digital placemaking is an interdisciplinary process that can be applied from different perspectives such as organizational management, urbanism, or creative arts.

We have identified new interactions and processes, extending the existing place attachment tripartite by Scannell and Gifford (2010a) into hybrid realities and urban nature environments, applied to digital placemaking practices as part of participatory place branding processes. From a practical perspective, we offer insights into enhancing consumers' wellbeing and social change through digitally mediated urban nature experiences combining place branding and place attachment. Our model guides place managers when implementing digital placemaking experiences to foster community relationships and place attachment through hybrid place experiences to support consumers' wellbeing but also city resilience, pro-environmental behaviours, and economic and cultural growth. Digital Placemaking for Nature and Wellbeing bring numerous benefits to consumers, organisations, and nature.

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CRediT authorship contribution statement

Maria J. Fernandez-Osso Fuentes: Writing – review & editing, Writing – original draft, Visualization, Methodology, Investigation, Formal analysis, Data curation, Conceptualization. **Brendan J. Keegan:** Writing – review & editing, Validation, Supervision, Funding acquisition, Conceptualization. **Marc V. Jones:** Writing – review & editing, Validation, Supervision, Conceptualization. **Tadhg E. MacIntyre:** Writing – review & editing, Validation, Supervision, Project administration, Funding acquisition, Conceptualization.

Declaration of competing interest

None of the authors have a conflict of interest to disclose.

Data availability

No data was used for the research described in the article.

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