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EXPLORING THE INTERSECTION OF DIGITAL PLACEMAKING AND INFORMATION SCIENCE IN SMART CITIES (PAPER)

Abstract

This paper reviews the literature conceptualizing digital placemaking as an information practice, examining the intersection of digital technologies and information practices in reshaping interactions within urban environments. We address the complex interplay between technology, information, and urban living to advance the field's theoretical and practical understanding of rapidly evolving digital landscapes. By highlighting the role of information research in smart city development, we argue for human-centered, inclusive, and sustainable approaches, ensuring that technological advancements align with the needs and aspirations of urban communities.

1. Introduction

Urbanization is reshaping our world, with more than half of the global population now living in urban areas—a figure that is only increasing (The World Bank, n.d.). In Canada, urban residency is projected to rise from a little over 80% in 2020 to nearly 90% by 2050 (United Nations 2018). This surge in urban living, coupled with increased mobility (Sheller and Urry 2006) and social isolation (Putnam 2000), is weakening what is termed place attachment, the psychological connection between people and their urban environments (Lewicka 2011).

Place attachment, originating from work in anthropology, architecture, and sociology, refers to the emotional bond that forms between people and specific locations over time (Low and Altman 1992). Similar terms, such as sense of place and place identity, are often used in reference to this phenomenon, reflecting the sense of belonging or fond familiarity humans form with specific environments (Hidalgo and Hernández 2001). A strong sense of place has been linked to improved quality of life in urban settings (Firouzmakan and Daneshpour 2015; Theodori 2001), and to higher levels of environmentally responsible behaviors (Scannell and Gifford 2010). The COVID-19 pandemic, with its restrictions on physical movement, has raised awareness of the importance of sense of place for many people, including in promoting pro-social behavior (Ramkissoon 2000).

The emergence of "smart cities" is driving an integration of Information and Communication Technologies (ICTs) in urban environments (Forlano 2013; Stokols 2018) and redefining how people interact within local and remote spaces. This complex interplay between digital and physical environments creates new forms of space which affect people's experiences of place. Understanding the evolving dynamics of these relationships in urban contexts challenges information scholars to extend models of information behavior and use beyond typical human-computer interactions or socio-technical engagements.

Digital placemaking, which focuses directly on using digital media to cultivate a sense of place (Halegoua 2020b), is particularly relevant in this context. Such work explores how digital innovations might enhance urban living by creating more inclusive, connected, and responsive

communities. Examining digital placemaking strategies provides useful insights into leveraging technology within smart cities, addressing the challenges and opportunities of these rapidly changing landscapes (Halegoua 2020b).

By conceptualizing digital placemaking as an information practice, we acknowledge the intricate ways in which individuals engage with and are influenced by both physical and virtual information. By considering the role of social practices in shaping the interaction between people and the informational aspects of their surroundings, we can deepen our understanding of information behaviors, revealing how information intricately integrates into and reshapes the social and spatial aspects of urban life. Examining how digital technologies and information practices coalesce to reshape our interactions with the urban environment, we seek to advance the information field's theoretical and practical dimensions in the context of rapidly evolving digital landscapes.

2. Literature Review

The concept of place in urban settings and its development as a social construct emerged from the work of influential geographers such as Yi-Fu Tuan (1977) and Edward Relph (1976), who employed philosophical approaches, such as phenomenology, to understand place experientially. Relph's notion of "placelessness" critiques the loss of unique identities in places due to modernization, emphasizing the importance of distinctiveness for humans in an increasingly homogenized world.

Place, however, has a fluid definition, and concepts such as place attachment and identity draw on theoretical concepts beyond geography to address emotional, psychological, and cultural aspects of the human experience (Lewicka 2008; Nelson, Ahn, and Corley 2020; Curry 2002). Further, technology adoption in urban environments has an extensive legacy, e.g., from the 1939 New York World's Fair (Halegoua 2020a) to the rise of interest in smart cities (Albino, Berardi, and Dangelico 2015). This literature makes us consider the transformative influence of software on society, space, and time (Kitchin and Dodge 2011), and the emergence of hybrid digital/physical spaces, especially highlighted by the advent of social media and the fusion of the virtual and the physical (Gordon 2007; Hardey 2007).

A second theme in the literature addresses the interplay between digital media and placemaking, highlighting how mobile technology and location-based services transform interactions with urban environments (de Souza e Silva and Frith 2010; Frith and Kalin 2016; Humphreys and Liao 2011). Geotagging, mapping, and social networking are fundamental in shaping users' interactions and understandings associated with places (Schmitz Weiss 2015). Digital placemaking, at the intersection of urban development and technology, can enhance traditional placemaking by integrating mobile and location-based technologies (Halegoua 2020b). This work highlights the potential to deepen the connection to places and strengthen community ties in a digital context (Halegoua and Polson 2021). The theme is analyzed here through three dimensions: the blending of digital and physical spaces, personalized experiences of places, and identity representation through location.

Lastly, drawing on work in Science and Technology Studies (STS), our review highlights the integration of human values in urban development, and underscores the need to embed these principles in smart city planning and execution. The European 'living lab' model exemplifies value sensitivity, emphasizing user needs, co-creation, and civic innovation, thereby promoting trust and inclusivity (Baykurt and Raetzsch 2020). However, critiques of smart city discourse suggest it

often prioritizes market and technological interests, neglecting social and ethical impacts (Nagenborg 2020). We advocate for a shift toward a Value Sensitive Design (VSD) approach, to align technology with human and environmental well-being (Friedman et al. 2006; Helbing et al. 2021; Stone 2021). The present review concludes with a call for VSD methods that are adaptable and responsive to evolving societal values, increasing the probability of sustainable and inclusive urban development.

3. Digital Placemaking as a New Frontier for Information Studies

The literature suggests several potential research directions for our field. One interesting direction involves exploring the concept of "placelessness" as articulated by Relph, particularly in relation to how global connectivity and the blending of physical and virtual spaces facilitated by technology impact this phenomenon. Work of this kind could have significant implications for both information science and smart city planning. First, it explores both digital placemaking in urban environments, revealing how people interact with physical and virtual information, and the role of social practices in these interactions. These dynamics emphasize connections between people and environments to create more relatable and comfortable urban spaces. Second, examining social constructivism in digital placemaking can reveal how communities and individuals collaboratively shape digital spaces. Lastly, such work emphasizes the role of a VSD approach in smart city development, promoting inclusivity and sustainability in urban development and encouraging alignment between technological advancements and societal values.

Ultimately, we believe the information field should embrace and promote a deeper understanding of the complex relationships among people, technology, and urban spaces beyond the traditional conception of information contexts such as work, home, or organizations. Information research might provide valuable insights for policymakers, urban planners, and technologists in designing smart cities that are not only technologically advanced but also more human-centered and socially responsible.

4. Conclusion

We believe an exploration of digital placemaking in the context of urban environments, with a particular focus on the intersections between physical and virtual spaces and social practices, is an exciting new frontier for information scholars. This approach underscores the critical role of sense of place in urban settings and examines how the rise of smart cities can redefine the information-rich interactions between people and their environments. This work reviews and highlights the evolution of the concept of place and the emergence of digital placemaking. It also foregrounds the need for a VSD approach in smart city planning, ensuring that technological developments align with human and environmental well-being.

By addressing the complex interplay between technology, information, and urban living, we argue that information research can not only extend its disciplinary reach but pave the way for more human-centered, inclusive, and sustainable approaches to smart city development, ensuring that technological advancements serve the needs and aspirations of urban communities.

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