DIGITAL NAVIGATION TECHNOLOGIES AND THE EXPERIENCE OF URBAN PLACE

Germaine R. Halegoua
University of Kansas

The ways in which urban form is understood and valued, how populations navigate urban environments, and how people experience and understand cities is more reliant on digital media technologies and practices than ever before. Scholars of mobile, locative, or geo-coded social media have considered the role that digital media play in reorganizing public space and place (Gordon and de Souza e Silva, 2011; Humphreys, 2010; Wilken and Goggin, 2012), re-conceptualizing the social structures that define physical spaces (Sheller, 2004; Cranshaw et al., 2012), coordinating activities or face-to-face interactions (Ling and Yttri, 2002), exhibiting geo-coded texts and images as self-presentation (Schwartz and Halegoua, 2014), and encouraging certain types of mobility (Frith, 2013), which are sometimes playful or creative (de Souza e Silva and Sutko, 2009; Cramer et al., 2011; Farman, 2012; Licoppe and Inada, 2010). While mobile communication between users, the utilization of geo-coded texts and GPS coordinates in locative media projects and games, and the disclosure or sharing of location within social media systems tends to be the focus of scholarly and industry research, there is still much to investigate about the lived experiences and practices of utilizing digital navigation technologies to interact with public space and place. In particular, tactics, experiences, and perceptions of wayfinding with mobile, digital navigation technologies are one area of interest that deserves further study by digital media researchers.

One of the most common uses of GPS, particularly among smartphone users, is online mapping tools and mobile navigation technologies (Zickuhr, 2013), yet we know very little about how these technologies are incorporated into everyday life, how they shape spatial relations, influence cognitive mappings of urban space, and how they contribute to the formation of a sense of place. Many scholars and critics have understood digital navigation technologies as enacting processes of alienation, abstraction, and disembedding or distancing of the digital media user from space and place. In contrast to popular assumptions about the distracted perception of space and place encouraged by digital navigation technologies, this study illustrates and analyzes the ways in which the exact opposite processes are observable: that navigation technology users are developing wayfinding strategies that re-embed themselves within urban space, re-

imagine their image of the city, alter perceptions and practices of mobility, and create a sense of place within urban environments. This case study is an example of a process I've described (Halegoua 2012) as "re-placeing" the city: the subjective, everyday practices of assessing and combining physical, social, and digital contexts in order to more fully understand one's embeddedness within urban places, and to produce a unique sense of place.

Through questionnaires with 253 navigation technology (such as GPS, digital maps, and mobile navigation systems) users and interviews with 10 navigation technology users, this paper identifies the ways that users understanding their own spatial relations, conditions of and tactics for mobility, and embeddedness within urban space. Eighty-two questionnaires and 10 interviews were conducted with residents of Madison, WI ages 19-33 in 2010. One hundred seventy-one questionnaires were conducted with residents of Lawrence, KS ages 17-38 in 2015. The pairing of questionnaires and interviews allowed for more in depth explanations of how participants understood the concept of a "sense of place," practices of cognitive mapping, the connections between navigation technologies and placemaking, as well as how personal mobility was experienced, aided and/or altered by navigation technology use. The second round of questionnaires, conducted in 2015, allowed for comparison of mobile, digital navigation practices, shifting relationships with digital navigation products and services, and experiences of wayfinding over time. The findings from this study highlight some of the new spatial practices and perceptions that emerge from everyday use of mobile, digital navigation technologies.

Studies in experimental and environmental psychology have repeatedly shown that digital, mobile map users perform worse than study participants who took more "active" roles in route planning (e.g. using paper maps, studying routes and locations before travel) when tested on spatial learning and memory, route recall, and travel distance and time measurement tasks (Ishikawa et al., 2008; Willis et al., 2009; Münzer et al., 2006). Several of the participants in my study thought that they lacked proficiency in aspects of orientation and legibility traditionally associated with cognitive mapping (such as knowledge of how and where streets intersect, cardinal directions, distance between locations, city boundaries, etc.) and noted a dependency on their mobile, digital navigation technologies for this type of information. While they found these aspects of spatial knowledge important to understanding a city, their lack of proficiency in this realm was not regarded as a detriment. Instead, participants' reliance on digital, mobile navigation technologies for directions, route guidance, and orientation were understood as a means toward developing a deeper sense of urban place. Participants regarded mobile, digital navigation technologies as a way to experience a sense of place "more quickly", "easily", and more comfortably, as well as an apparatus that encouraged exploration of a city in terms of social as well as physical aspects.

The majority of participants in this study regarded a sense of place as feeling at "home", "belonging", "comfort", part of a "community", having an emotional attachment to, and familiarity with social and cultural as well as physical aspects of a city. These

participants also tended to note that knowing routes, directions, and the layout of a city were elements that digital navigation technologies could provide, but that did not directly contribute to their sense of place. Participants explained how mobile, digital navigation technologies play a significant role in cultivating their sense of place by allowing them to focus on characteristics and activities (such as exploration without anxiety, traveling to unfamiliar places, concentrating on social encounters, etc.) that promote a sense of place, rather than directions and orientation. The majority of participants tended to indicate that they readily "offload" their sense of direction or share a joint responsibility for wayfinding with mobile, digital navigation technologies in order to focus on and experience aspects of place beyond the perceived affordances of digital navigation systems. Mobile, digital navigation technologies were regarded as placemaking tools because of their utilization as inanimate collaborators on wayfinding tasks, so that users could explore and experience the city as a rich and meaningful place in ways that were important to them.

Relatedly, the findings from this study tend to support Frith's (2015) suggestion that digital, mobile navigation technologies function as part of "transactive memory networks" for wayfinding rather than primarily detract from or impede spatial knowledge and learning skills. In contrast to previous studies, several participants noted that routine and repeated use of navigation technologies within transactive memory networks, served as a spatial learning aid in terms of legibility of the city and their place within it.

Ultimately, this paper presents empirical analysis of the ways in which digital navigation technology use encourages pedestrians and motor vehicle operators to re-place the unknown, unfamiliar space of the city as an accessible, familiar, bounded place and how this understanding of space allows for a deeper sense of place on the part of digital media users. Although navigation technology non-use is not directly addressed in this paper, I will present some preliminary findings and offer some initial analysis regarding non-use that has been gathered as part of the questionnaire and interview process. The findings presented in this paper asks us to rethink what we know about the use of navigation technologies in urban space and to reconsider how these technologies are integrated into placemaking activities to help users cultivate a sense of place, rather than to diminish one.

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