

Navigation by GPS-based systems: Engagement with/Disengagement from the Place and the Respective Role of Urban Design

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The physical environment has started to be taken into consideration in mobile human– computer interaction more and more in order to bring humans and computers closer together. These studies focus on merging the aspects of actual situations in real world into the information delivered by mobile devices. These studies have helped to develop the computer-based technologies toward considering more human factors by adopting the principles of the physical environment. There is now a large body of research presenting how urban planning principles are applied to the design of virtual environments. For instance, Kevin Lynch's theories from "Image of the City" (1960) have been widely implemented in designing virtual cities and particularly navigation systems. Navigation systems use the design fundamentals which are initiated and developed by urban planners and environmental psychologist. However, there has to date been little study in the opposite direction; analysing the effects of digital technologies and digital mobile devices on urban places, the way people understand cities through these devices in order to draw out the role of urban planning and urban design towards these effects.

In fact, as a result of the recent emergence of the fluid, responsive, kinetic, data-driven worlds of ICT and its combination with the urban landscape, urban design faces a radical rethink of a number of its principal underpinnings. So, urban planners and urban designers need to understand the effect of ICTs and digital mobile devices on traditional urban principals (city imaging, way-finding, context, comprehensibility, space, neighbourhood boundaries, etc.). In addition, it is important to recognise the way that people interact with their physical environment in order to find ways in which they can fruitfully and desirably combine real urbanity and virtual urbanity. This would lead to the opportunity for creating networked public spaces that can value the traditional physical qualities of cities whilst embracing the digital aspects of the developing ubiquitous world.

In this light, this study attempts to understand the effects of using GPS-based navigation systems on people's navigation in the urban environment and the respective role of urban design and planning. People's tendency for using GPS-based navigation systems is increasing and people movement through the city, in many cases, cannot be separated from their engagement with their smartphone screen. As such, it could be claimed that people are losing their connection to physical place. New Yorker architecture critic, Goldberger (2009) claims that such devices keep people isolated in an "individualistic bubble" and release people from the physical place. Baker (2004) suggests that this is leading to "the dissolution of place" and the decreasing the importance of physical place and physical objects as part of the way-finding process. So, increasing use of GPS-based navigation systems in urban environments is increasingly raising questions over the role of physical places in navigation. These include: How to maintain a connection between people and the physical places they inhabit? and How to retain the value of legibility related to physical objects within our towns and cities?

To answer such questions, it is essential to know how GPS users understand and interpret the physical environments they inhabit. By doing so, it can help in the design of successful places which can work for all types of users, by enabling a better understanding of the interrelation between people and the physical environment. This paper will therefore examine people's understanding of the urban environment and their spatial knowledge through using GPS-based mobile maps to investigate and focus upon people's knowledge of urban places. This research by using both quantitative and qualitative methods analyses the different level of spatial knowledge between people who use GPS-based navigators compared to those who experience the same environment 'non-technology aided. In addition, the study focuses upon which physical features of the place that the GPS users could best remember. These analyses enable a better understanding with regard to what physical objects and features GPS users are able to engage with and remember. This paper presents part of a bigger research project, which has studied different aspects of navigation in an unfamiliar environment by using GPS.

References

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