Pervasive and Mobile Computing 9 (2013) 722–737

Contents lists available at ScienceDirect

Pervasive and Mobile Computing

journal homepage: www.elsevier.com/locate/pmc

My neighbourhood: Studying perceptions of urban space and neighbourhood with moblogging

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ARTICLE INFO

Article history:
Available online 1 August 2012

Keywords:
Urban space
Neighbourhoods
Spatial maps
Moblogging

ABSTRACT

We describe a novel methodology that examines perceptions of urban space, and present a study using this methodology that explores people's perceptions of their neighbourhood. Previous studies of spatial cues have involved a variety of tasks such as pointing and sketching to externalise participants' internal spatial maps. Our methodology extends these approaches by introducing mobile technologies alongside traditional materials and tasks. Participants use mobile phones to carry out self-guided neighbourhood tours. We collected rich qualitative data from 15 participants during two workshops and a self-directed neighbourhood tour. Our study highlights the use of public and private landmarks, differences in spatial maps of rural versus urban dwellers, and individual variance in orientation strategies. These themes suggest guidelines for the design of technologies with personalised spatial profiles.

1. Introduction

The Cityware project was an interdisciplinary research project with a goal of developing theory, principles, tools and techniques for the design, implementation and evaluation of pervasive systems as integral facets of the urban landscape. Within the project, a combination of computer scientists, psychologists, architects and urban designers explored pervasive and mobile technology use and implementation within the urban environment. We developed and deployed new tools and techniques for studying people's interactions with the city using a combination of methods including space syntax analysis [1] and Bluetooth monitoring [2]. Here, we report on a study carried out within the project that focused on people's perception of space; in particular their local environment. In the following section we introduce "moblogging" as part of a methodology for exploring people's perceptions of space. We present some background on conceptions of neighbourhood and the use of landmarks. We then describe traditional methods used to study people's spatial relationships with their environment. Finally, we present our study of neighbourhoods using mobile user-generated content, and describe what we have learned about the relationship between local spaces and technologies.

1.1. Previous studies of local space

There is a wealth of literature relating to how people use landmarks within their environment [3,4] and how these aid in the development of people's internal spatial maps of their environment [5,6]. Most of these studies take a fairly traditional

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doi:10.1016/j.pmcj.2012.07.002

view of landmarks as "key characteristics that make them recognizable and memorable in the environment" [7]. Within a neighbourhood there have been distinctions made in the literature between traditional landmarks such as a parish church, in comparison to what are termed "neighbourhood hubs" (which might include schools, nurseries and post offices) [8].

Presson and Montello [6] draw a distinction between symbolic known landmarks (such as the Eiffel Tower) and spatial reference points (such as signposting and common features designed to support navigation). They define landmarks as features that represent singularity and prominence. However, they state that there is also a category of local landmarks which are peculiar to long term residents. Sorrows and Hirtle [9] define this distinction further by proposing three types of landmark: visual, cognitive and structural, suggesting that the cognitive category may be a more personal type of landmark. Understanding the use of landmarks and the importance of particular locations could be crucial when developing systems that will thrive on tailored and useful personalisation in order to be of individual use and thus ensure take-up.

Previous research has debated the precise constitution of the concept of neighbourhood. Some authors define neighbourhood in terms of physical and geographical boundaries whereas others try to integrate social aspects with the ecological, aiming to account for people's relationships within, as well as with the space; however it is argued that most definitions do not capture important aspects of the local residential environment (see [10] for an overview). One problem that remains unsolved is clearly but meaningfully to bound urban neighbourhoods. Some authors [11] have proposed a multi-level spatial view of neighbourhood which consists of levels ranging from the area in which you would allow your children to be unsupervised, through to locality, and finally entire sections of the city. It is strongly argued that the concept of neighbourhood needs to be viewed as a dynamic entity [10] and thus it is important to explore perceptions over time to provide a realistic portrayal [8]. Kearns and Parkinson emphasise the scale of variation because "People function in different social networks, at different scales, across different times and spaces" [11].

A neighbourhood can be very much a part of one's social and personal identity; for example, "People over 70 know twice as many of their neighbours as people under 30" [8]. In relation to the personal aspect of neighbourhood, Burdett (ibid.) also states that the issue of beauty is important to cultivate in a neighbourhood. Research by Kim and Penn [12] found that perceptions of neighbourhood extend related to the degree of 'intelligibility' of the spatial environment. Using space syntax metrics to measure intelligibility as the degree of correlation between local and global properties of the spatial network, they revealed that individual map drawing exercises produced a significantly reduced spatial scale and memory for named features in neighbourhoods with low intelligibility compared to those with higher intelligibility. The frequency of citation of local features, such as specific streets, depended directly upon the spatial accessibility of these features. More recently these results have been extended by Dalton [13] who worked with surveys of local residents to elicit their perceptions of the boundary of their neighbourhood. He developed a measure of the consensus boundary for a local population, which he found to be related to measures of local intelligibility. This research suggests that when designing pervasive systems on a city-wide basis it is important to tap into people's perceptions of their space in order to tailor technologies to enable people to be provided with information that is of value to them.

1.2. Moblogging

Mobile blogging or "moblogging" involves using a mobile device, which increasingly means a phone, to record a variety of media that is then uploaded to the web in the form of a diary or document of a pattern of events. Moblogging may be viewed as an example of situated or context aware computing. Dey and Abowd [14] proposed three main categories of context aware services: presentation of information and services to a user; automatic execution of a service driven by context; tagging of captured data with relevant contextual information. This last category has a strong relation with moblogging as used in the studies reported here.

While authors have reported experiences of moblogging on a range of activities including youth inclusion [15], sharing of photos [16] and new directions in recording and sharing one's life experiences [17], we present moblogging as part of a methodology to obtain data about people's perception of their environments. We suggest that this approach provides a novel take on previous methodologies for examining spatial relationships, because moblogging is used in a variety of ways. For example, moblogging can be used to capture data, as a tool for reflection, and as an aid to indicate how we might implement future designs within the environment, by taking account of features of importance to individuals as they move around these spaces. It enables a direct method of data collection that can be used alongside traditional methods of sketching maps and diary documentation in order to provide a new perspective on spatial relationships.

Girardin et al. [18] argue for the complementarity of more traditional data collection methods and more novel methods that draw on user generated content enabled by pervasive and mobile technologies. In contrast to our approach here, they focus on the analysis of large datasets that have not been generated explicitly for the purposes of the analysis, such as cell phone network data and georeferenced photo databases, noting that methods "that require people to carry a separate GPS-enabled device not only remind users that their movements are being followed … but also generate fatigue effects". It is also possible that the explicit generation of data through moblogging may affect the very concepts that are the object of research, a point we take up in Section 3.2. Notwithstanding these *caveats*, we suggest that the first person, real-time perspective provided by moblogging can enable different forms of reflection on features of the environment that emphasise personal significance. It can therefore be a useful complement both to more traditional research methods and to other more recent technology-based methods that exploit data generated by users but for purposes other than the research.