Modeling Place: Usage of Mobile Data Services and Applications within Different Places

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ABSTRACT

Recent research has shown how new mobile networked environments have added new complexity to the notion of “place”, now considered as an important concept in the context of technology adoption and the usage of mobile technologies, applications and services. The aim of this paper is to propose a new framework to gain insight into the usage behaviour of mobile data services and applications. A model of place was generated, adopting the humanistic geographical perspective as represented by the four “layers of place” introduced by Tuan’s theory, which can be served as a sensitizing device in order to interpret and analyse the collected data. The model has been applied on an observational field study which tried to explore, understand and highlight the role of place in the decision of the people to use mobile data services. The model assisted researchers to show that the end users’ decision to start using mobile data services has been influenced and triggered by their experience of place. This highlights the value of the proposed new framework of understanding users’ interaction with their surrounding environment when adopting new technologies and using mobile data services.

KEYWORDS

Mobile Applications, Mobile Data Services, Model of Place, Place, Usage

1. INTRODUCTION

Recent technological advancements such as the new smart-phones, mobile Web 2.0 services Yoo et al. (2008), mobile platforms such as IOs¹ and Android², social-networking sites and simple online blogs allow the increasing number of mobile phone users to realize the idea of ubiquitous computing environments (Lyytinen and Yoo, 2002).

Mobility and mobile technologies have generated an ever-increasing interest in how we interact with the physical environment emphasizing on the importance of understanding the connections between places and the use of technology (Moran and Dourish, 2002). For example location based services, such as Foursquare³ and Facebook Places⁴, allow individuals to share their location information to their peers showing others their “social status” in terms of what kind of places they “check-in”.

Mobile technologies transform the place to a hybrid medium of physical and wirelessly co-present context (Ito, 2003). This transformation generates a fluid social topology (Kakihara and Sorensen, 2002), affects the cycles of work and family life (Green and Harvey, 1999; Green, 2001) and distributes activities into space (Eklund and Pessi, 2001; Geser, 2004). Moreover, mobile technologies contribute to a disassociation of place, allowing individuals to personalize space in public settings (Morley, 2003) and to refocus on the experiences of places through the practice of using mobile phone cameras (Wellman, 2001).
A number of general frameworks and models for the study of mobile services and their adoption have been proposed often including variables such as customer mobility (Hong et al., 2008), location awareness (Chang et al., 2007; De Vos et al., 2006) and many others. But according to scholars (Lee et al., 2003; Legris et al., 2003; Venkatesh et al., 2003; Dickinger et al., 2006; Carlsson et al., 2006; Mallat et al., 2006; Dahlberg and Oorni, 2007) the generalizability and the explanatory power of technology acceptance models is questionable across different contexts and places and call for attention to important issues that influence the adoption and use of technology such as place, space and mobility. More specifically the problem is that the space is “fuzzy”, i.e. the solution is not well defined, and therefore the design of mobile applications cannot be completed without understanding how the new mobile artefact or mobile application may fit in a number of possible service use scenarios (Pedersen, 2001; Petrova, 2007).

Therefore there is a need for a better understanding and more detailed study of the relation between usage behaviour of mobile technologies and place attributes. Research to-date, however, has not focused on these new forms of interactions and relations, thus providing limited understanding of individuals’ behaviour when using mobile technologies outside home and office establishments (Dickinger et al., 2006; Mallat et al., 2006).

This paper aims to address the aforementioned issues and to offer a new framework to study, as well as to give some insight into the interaction of the environment, namely the notion of place, with the usage behaviour of individuals who access mobile data services. The paper investigates how the “materials” of place, as defined by Tuan (1977), relate to the use of mobile data services and proposes a model that can be used as a sensitizing device to study and interpret collected data.

A study was carried out in Greece with end users using their smart phones equipped with a range of mobile applications. Tuan model and Brahms language were used as sensitizing device in interpreting and analysing the collected data.

Results from this research strengthen the value of the proposed framework and contribute towards a better theoretical understanding of the relation and the impact of place on the usage process of mobile data services. Moreover, the findings of this research and the understanding of the motivators of customer decision making about using a mobile service may provide useful feedback to both the developers of mobile applications and the mobile business service providers.

The following section presents the theoretical background of this study and the proposed model of place. Section 3 describes the research methodology adopted in the study. Research results are shown in Section 4, followed by a discussion and the conclusions of this research in Section 5.

2. THEORETICAL FRAMEWORK

A research study has been conducted, where Tuan’s four layers of place have been used as a sensitizing device to study how individuals experience different places before deciding to use mobile data services. The model further decomposed the four layers of place into their factors and attributes using the Brahms modelling language (Clancey et al., 1998). This paper draws on Tuan’s “four layers” approach and its factors and attributes as a sensitizing device in interpreting and analysing the collected data.

2.1. Space and Place

Efforts have been made to analyse the constituting elements of the physical environment describing its nature through the concepts of space and place. Many scholars (Altmann, 1975; Harrison and Dourish, 1996; Kostakos and O’Neill, 2004) consider space as the physical world. They argue that there is a need to differentiate between space as physical location and place as social world.

Environmental Psychology (Canter and Singer, 1975) and Humanistic Geography (Crang, 1998) are two disciplines that highlight the fact that space is not limited to its physical variables but it is related to and influenced by human activities. More specifically, Humanistic Geography focuses on individuals and their experience in the world, which is constructed around the notion of place itself (Peet, 1998). Place refers to more than just a location and landscape; it is an entity in which people live,
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