10 The Role of Augmented Elements to Support Aesthetic and Entertaining Aspects of Interactive Maps on the Web and Mobile Phones

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Abstract

Maps have become commonplace tools within mobile phones, as indicated by recent developments in commercial markets. Wayfinding and various location-based services have become one of the primary purposes for their everyday use. At the same time, multimedia phones are becoming personal, ubiquitous entertainment centres. As a consequence, not only technical and functional elements are important for a user, but also the overall user-experience, including issues such as aesthetic elements and characteristics that serve pleasure. There is very little reason to believe that maps on mobile phones are an exception in this respect. The chapter studies some aspects related to this. Such factors as graphical design, the use of screen dynamics, animation and video as well as the use of sound landscapes and icons are studied. The fundamental role of a map as a cartographic language for communicating information and its relationship with respect to aesthetic and entertaining aspects are also discussed.

10.1 Introduction

10.1.1 Background

Over the last centuries, maps have been based on surveys and scientific measurements. They have been produced by professional cartographers, who have turned space into representations through various means. Since ancient times wayfinding
has been the core goal for creating maps (Akerman and Karrow 2007). Maps are the foundation of work for many occupations, and indispensable for many others. More recently, with the Web and mobile phones becoming ubiquitous, maps have become commonplace tools. Wayfinding and various location-based services are the primary purposes for their use today. At the same time, multimedia phones are becoming personal, ubiquitous entertainment centres.

As a consequence, not only technical and functional elements are important for the user, but also the overall user-experience, including issues such as aesthetic elements and characteristics that serve hedonic rather than rational faculties. There is very little reason to believe that maps on mobile phones are an exception in this respect. In fact, this is the case: they have many features that go beyond functionality, aiming primarily at augmenting user experience.

This chapter studies some of these techniques that enhance user experience. Such factors as graphical design, the use of screen dynamics, animation and video as well as the use of sound landscapes and icons are studied. The fundamental role of a map as a cartographic language for communicating information and its relationship with respect to aesthetic and entertaining aspects are also discussed.

We limit this paper to interactive maps that consumers can use either on the Web or on mobile phones. Our focus is primarily on two-dimensional maps, and we discuss three-dimensional maps only when 3D effects are used to enhance user experience. We do not deal with games that integrate sound, 3D space, and a set of characters into a story line.

### 10.1.2 Cartographic Communication and Previous Research

Spatial communication in cartography has a long tradition of research on how people perceive their environment. The cartographic communication model theory (Board 1967, Keates 1964, Kolacny 1969) has its roots in information and communication theory (Shannon & Weaver 1946) and semiology (Bertin 1967) (Figure 10.1). According to cartographic principles, a map is an abstraction of the real world (Mackaness 2007), and throughout civilization, maps have been used as a powerful means of communication. Some of the earliest records of maps (using clay tablets) date back to 2300 BC (Turnbull 1989). Since we are by nature spatial thinkers (Kaiser 1993), our efforts to develop theories and models often revolve around visual forms and metaphors (Mackaness 2007).

The development of Geographic Information Systems (GIS), mobile interactive terminals, positioning systems and the integration of ubiquitous services enable new possibilities for exploiting location-related information. Instead of presenting geospatial information by only two-dimensional graphical map symbols, future interactive maps may be integrated into multimedia tools for communication, taking, for