

How to Play with Maps

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Introduction: Cartographic design guidelines are traditionally grounded in the concept of work, striving for optimal efficiency and effectiveness when accomplishing tasks (Roth 2013a). Much like traditional maps, video game maps help players navigate through and make sense of complex and often realistic virtual geographies. While maps in video games have evolved with similar technology to traditional cartography (Ahlqvist 2011), these playful maps deviate from real-world maps in that they are designed to facilitate play and adhere to game design principles to create a challenging yet satisfying experience. My research investigates how the playful purpose of video game maps informs unique design choices in cartographic representation and interaction. Specifically, I examined how video game maps exhibit interactivity, immersiveness, incompleteness, and inclusiveness characteristics of playful maps through traditional cartographic frameworks and how video game maps utilize elements of interaction and representation as cartographic tools for play.

Background: Playful maps are included in video games to achieve successful gameplay. These maps exhibit consistent characteristics of interactivity, immersiveness, incompleteness, and inclusiveness (Table 1). While playful maps can be considered unique due to these characteristics, they are still bound by traditional cartographic interaction and representation.

Interactivity	A defining trait of video games and a pillar of cartography. can be broken down into primitives that outline all possible interactions between a human and map through a computing device (Juul 2003, Roth 2012)
Immersiveness	A key characteristic of entertainment. cartographic design choices support immersion in the act of playing the game or using the map and in the story/setting of the game and its virtual world (Gee 2003, Dorman et al. 2006, Gekker 2016)
Incompleteness	The greatest deviation from traditional cartography, which focuses on including as much information without compromising the map; lack of map information in playful maps provides challenge and motivates gameplay to complete the map and explore the virtual world (Brewer 2015, Fraser and Wilmott 2016)
Inclusiveness	Relates to the socially communicative nature of play itself. Playful maps are utilized as tools of communication and strategy during collaborative and competitive gameplay (Sutton-Smith 1972, MacEachren and Brewer 2004)

Table 1. The characteristics of playful maps.

Methods: I conducted a quantitative content analysis (QCA) of video game maps to highlight areas where video game maps conform to and diverge from cartographic conventions, as well as over- and underrepresented strategies for interaction and representation design. I included 71 maps from 50 popular video games released from 2012-2016. I applied 153 codes divided into four categories based on the interactive, immersive, incomplete, and inclusive characteristics of playful games and maps, drawing from cartography and game design. Each of these categories was further divided based on the cartographic tenets of interaction and representation, utilizing Roth’s (2013b) interaction primitives and Bertin’s (1983) visual variables as they apply to representation design in cartography (DiBiase et al. 1992, MacEachren 1992).

Results/Conclusion: My research outlines areas where modern playful cartography conforms to and deviates from traditional cartography and where the latter could potentially gain new insight from the former. The unique interaction and representation strategies employed to foster the interactive, immersive, incomplete, and inclusive nature of video

game maps could influence many disciplines such as traditional cartographic design, UI/UX design, gamification, and video game design.

Interactivity in playful maps adds a player-controlled entity to the classic cartographic interaction dialogue between a human and a map, allowing the user to change the map display through a secondary interaction without a primary interaction with the map itself. This distinction between levels of interaction holds significance for designing interaction strategies in traditional cartography, particularly in mobile contexts. Immersiveness in playful maps manifests through on-screen maps of varying saliency and usability. Additionally, specific design choices for representation and interaction, such as color palette or metaphoric interaction, support different levels of immersion in maps, which can lead to increased memorability and user satisfaction (Alavesa et al. 2017). Incompleteness motivates exploration of the map and virtual world through cartographic representation and interaction, highlighting new design conventions for interactive map use. Inclusiveness of playful maps can occur across space and time, highlighting unique representation and interaction strategies for collaboration that can apply to traditional cartography through geocollaboration. If my abstract is accepted, I will discuss how the QCA highlighted these areas, the interconnectedness of these characteristics, and potential directions for future research and directions.

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