Chapter 6
Between Games and Simulation: Gamification and Convergence in Creative Computing

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ABSTRACT

The chapter focuses on convergence in creative computing between simulation and gaming. It examines the collapse of categorical differences between games, play and simulation, categories that were rarely used concurrently. The chapter uses a media archaeology – the study of historical conditions enabling emerging technology – to explore gamification, or the design practice of embedding game mechanics into everyday applications and activities. Gamification is employed as a prominent design tactic for motivating users to perform contextual tasks based on strategically deployed game dynamics. This analysis highlights convergence and creative technologies as a historical process.

INTRODUCTION

Scholars have identified gamification, serious games and educational games as legitimate research areas and components of the bourgeoning creative economy (Bayart, Bertezene, Vallat, & Martin, 2014; Braitmaier & Kyriazis, 2011; Broin, 2011; Byrne, 2012; Chapin, 2011; Crookall, 2010; Deterding, 2012; Elizabeth, 2007; Harteveld, Guimarães, Mayer, & Bidarra, 2010; Huang Ling, 2011; Marsh, 2011; Moreno-Ger, Torrente, Hsieh, & Lester, 2012; Petridis et al., 2011; Swan, 2012; Tolentino, Battaglini, Pereira, de Oliveria, & de Paula, 2011). The creative economy is also based on the idea of effective information management (White, Gunasekaran, & Roy, 2014), including simulations that contextualize and use 'big data' to fuel major social and scientific simulations. While big data has been commonly linked to simulation and modelling (Boyd & Crawford, 2012; Pias, 2011), games have thus far remained separate categories, or "terminological ambiguities" (Klabbers, 2009). Increasingly, gaming and simulation have been combined for a variety of purposes.

Both gamification and serious games contain content that uses and references real-world events; however, they still fall under the category of 'digital games', which necessarily utilize simulative tactics

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to create intrinsic and self-referential worlds geared towards playful, or *ludic*, outcomes (Bayart et al., 2014; Crookall, 2010; Deterding, 2012; Roth, 2015). For example, gamification uses game mechanics for the purposes of behaviorally influencing players while collecting and contextualizing their data (Hulsey & Reeves, 2014; Whitson, 2013). Additionally, online multiplayer games have been used for social scientific research, economic research and usability testing (Castronova & Falk, 2009; Hassenzahl, Diefenbach, & Göritz, 2010; Jørgensen, 2012; Moreno-Ger et al., 2012; N. T. Taylor, 2008). A collapse of boundary lines between games and simulation follows a recent historical trend in which media and content—and, more fundamentally, life, space and time—are disrupted as computational code replaces early formats and disrupts formerly entrenched epistemic and ontological contexts (Castells, 2002, 2009; Levy, 1997). This chapter, by looking at the collapsing boundaries between simulation and gaming, seeks to place the development and use of creative technologies into the context of this trend.

Simulations, specifically, are linked to processes of computational and mathematic modelling based on probable outcomes, or contingencies that mirror possibility (Pias, 2011). Games, on the other hand, are referred to as a unique form that employs simulation, but does not seek to model any reality; rather, games aim to create new worlds, possibilities and behavioral outcomes (Giddings, 2007a, 2007b). Games utilize rules to create gamespaces, which are self-referential in terms of "gameplay"—the cybernetic loop between player, technology and gamespace that creates meaningful ludic experiences (Crogan & Kennedy, 2009; Malaby, 2007; Pearce, 2006; T. L. Taylor, 2009). On the other hand, simulations utilize game-like rules devoid of gameplay to produce and analyze data in service of modelling social and scientific phenomena (Pias, 2011). However, creative technologies and media are undergoing a process of "convergence" (Jenkins, 2008), where formerly separate technologies, processes and mediums collapse into one another. This process fuels economic, cultural and scientific breakthroughs that defy former categorizations. A key aspect of determining the routes that convergence takes is identifying and analyzing historical processes (Bolter & Grusin, 2000; Gitelman, 2008; Jenkins, 2008; Parikka, 2012). All new media processes are "remediated" (Bolter & Grusin, 2000), meaning present technologies hold within them the elements, or signatures, of past media. Despite remediation, which is itself a cultural process that eases human transitions between technologies, computational code has replaced all former analogue formats (Kittler, 1986, 2010). Exploring and analyzing past media, including games and simulation, in light of current instantiations gives a clearer picture of how new media processes emerge and where they may go in the future.

Convergence affects more than just media and content; it also results in the collapse of former categorical separations in technological practices (Jenkins, 2008). One example, and the focus of this analysis, is gamification: the practice of embedding game mechanics in everyday applications and services, combines the design practices of gaming with the quantitative output of simulations (Burke, 2014; Deterding, 2012; Fuchs, Fizek, Ruffino, & Schrape, 2014; Kumar & Herger, 2013; Paharia, 2014; Swan, 2012; Zicherman & Cunningham, 2011). Gamification represents a shift in the creative application of design. It collapses games, play and simulation into a single category and works towards outcomes that embrace all categories but is partial to none. This analysis examines the historical roots behind this convergence and trace experimental gamified applications back to the application of creative technologies in service of convergence. The purpose of this analysis is two-fold; the first is to demonstrate the use of historical analyses in studying creative technologies and the second is to examine two distinct but interlinked occurrences where creative technologies converged two formerly separate categories. When examining convergence and creative technologies, it is important to realize they are not "new,"