Chapter 67

Change through Experience:
How Experiential Play and Emotional Engagement Drive Health Game Success

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ABSTRACT

The following chapter presents an overview of the research and practice related to the application of theories in games for health. In particular, theoretical frameworks that embrace experiential play and emotional involvement are discussed, and their ability to dictate game design and evaluation are explored. A series of evidence-based games for health are presented as examples of interventions that have applied theory during game design and have shown success. By embracing theoretical concepts in health games, the present chapter will advance one's understanding with respect to how health games contribute to behavior change, patients' self management of care, or adherence to care. The chapter concludes with some potential implications for future research in the context of health game design and evaluation.

INTRODUCTION

In the past decade, health digital games and gamified interventions have drastically evolved, embodying Sir Arthur C. Clarke's maxim: "Any sufficiently advanced technology is indistinguishable from magic." Close to magic, game-based applications have led to vast opportunities for health communication and health behavior change. With the immergence of games through personal computers and mobile devices, researchers and designers have begun to design, test, and implement game-based interventions for health promotion and disease prevention.

Digital games have become successful vehicles for health promotion, therapy, and disease prevention (Ritterfeld & Weber, 2006). In fact, in the context of a wide variety of health issues, digital games and gamified interventions have shown several positive outcomes. Evaluation studies have highlighted the success of such interventions as they improved physical activity (Baranowski, Baranowski, O'Connor, Lu, & Thompson, 2012; Lyons, Tate, Komoski, Carr, & Ward, 2012), diet (Baranowski, 2013), medica-

tion adherence (Kato, Cole, Bradlyn, & Pollock, 2008), psychological and mental health (Mert et al., 2013; Procci, Bowers, Wong, & Andrews, 2013), and smoking prevention and cessation (Buller et al., 2008; Prokhorov et al., 2008).

Despite the vast evidence of the positive effect of health games on health promotion and behavior change (Noar & Harrington, 2012), conceptual frameworks that explicate their success deserve attention. One can easily wonder, how does fighting cancer cells with a nano-robot in a cancer patients' body improve medication adherence? Also, how does collecting fruits and vegetables to save a kingdom governed by a ruthless unhealthy king encourage fruit and vegetable intake? The answer lies in the psychosocial frameworks that connect in-game behavior to real-life improvement in health knowledge, attitude, and practice. In fact, several health game scientists have stressed on the role of psychosocial concepts that explicate changes in health outcomes (Baranowski, Buday, Thompson, & Baranowski, 2008; Kharrazi, Lu, Gharghabi, & Coleman, 2012; Lu, Baranowski, Thompson, & Buday, 2012).

A handful number of organizations such as the Robert Wood Johnson Foundation, Games for Change, and Games for Health have worked successfully to promote health promotion among gaming designers and developers. However, several games that incorporate a health-related topic or tackle a particular health issue are not necessarily designed and disseminated based on behavioral science and psychosocial influence. In a thorough review of the literature on games for health, Kharrazi and colleagues (Kharrazi et al., 2012) systematically identified 149 peer-reviewed publications involving a gaming intervention for health. Of all publications, only 18.8 percent applied a behavioral change theory that drives the design of the game. Looking specifically at the exercise and rehab games, only 5 percent were theory-driven.

Considering the important role of theory in driving health game design, the present chapter will advance one's understanding with respect to how health games contribute to behavior change, patients' self management of care, or adherence to care. First, a thorough definition of games for health is provided to account for all its potential applications, and a distinction is made between health games and gamified health interventions. Then, several behavior change theories are inspected, highlighting four main concepts that drive the success of health games: experiential play, social modeling, effectance, and emotional involvement. These concepts' ability to drive health outcomes is thoroughly outlined through a series of evidence-based and theory-driven studies. In particular, their ability to mediate between game elements and health outcomes is presented, allowing a wide theoretical framework in games for health research. By embracing such concepts in health games, game designers, social scientists, and public health professionals can find common grounds that would allow them to successfully collaborate in order to bring about the design, development, and implementation of successful games for health.

BACKGROUND

Most researchers and game designers would agree that a game is a problem-solving activity (i.e., including a goal and a set of rules) that is approached with a playful attitude (i.e., with curiosity, creativity, and enjoyment; Ferguson, 2012; McGonigal, 2011; Schell, 2008). However, this simple definition does not highlight several specific characteristics that form games. Based on a series of conceptualizations presented by several researchers and game designers, a game can be defined as a physically and/or psychologically engaging, self-rewarded activity that uses only means permitted by specific rules and obstacles in order to uncover riddles and apply strategies that move players toward intrinsically motivated objectives (Ferguson, 2012; Suits, 1967; Wixon, 2006). This definition highlights several key elements

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