Chapter 15
Influencing Physical Activity and Healthy Behaviors in College Students:
Lessons from an Alternate Reality Game

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ABSTRACT

Physical inactivity is largely preventable through education, individual, and/or community-based interventions. Yet, in the college-age population, traditional interventions (e.g., lecture-based academic courses) may not fully meet their social and learning needs. Here, the authors report on a study regarding the effectiveness of an Alternate Reality Game (ARG) – called The Skeleton Chase – in influencing physical activity and wellness of college-age students. A growing game genre, an ARG is an interactive narrative that uses the real world as a platform and involves multiple media (e.g., game-related web sites, game-related blogs, public web sites, search engines, text/voice messages, video, etc.) to reveal a story. The authors' initial results are extremely promising relative to the impact on physical activity, as well as tangential learning such as teamwork and problem-solving. They also report students' reactions to the game itself, highlighting game design strengths and weaknesses that may inform game designers.

INTRODUCTION

There is growing interest in the use of games to encourage physical activity (Singh & Mathew, 2007; Goran & Reynolds, 2005; Anderson et al., 2007). Examples include physically interactive computer games such as Dance Dance Revolution (DDR) and web-based games such as Fish'n'Steps (Lin, et al., 2006). Early results provide evidence that games such as these have the potential to motivate

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physical activity and influence healthy behaviors (Hoysniemi, 2006; Lieberman, 2001).

In this chapter, we describe a game designed to influence physical activity and wellness in the *college-age population*. In the transition to college, an alarming decrease in the percentage of individuals participating in physical activity has been found. Simultaneously, a significant weight gain during early college years has been shown to increase the risk of obesity and associated diseases later in life such as diabetes and coronary heart disease (National Center for Health Statistics, 2005; CDC, 2007). Despite these realities, college-age students are significantly under-represented in national research studies (Kahn et. al., 2002).

Physical inactivity is largely preventable through education, individual, and/or community-based interventions. Yet, traditional interventions (e.g., lecture-based academic courses) may *not* fully meet the social and learning needs of college-age students. Today's "millennium students" exhibit a learning preference that tends toward teamwork, experiential activities, structure, and the use of technology (Oblinger, 2003; Oblinger, 2004). Their strengths include multi-tasking, goal orientation, and a collaborative style (Raines, 2002; Howe & Strauss, 2000). All these factors must be considered when designing an intervention aimed at college students (Keating, Guan, Pinero, & Bridges, 2005). Characteristics of effective learning paradigms – including experiential learning, social learning, and goal-setting – may be found in games (Bransford, Brown, & Cocking, 2000); thus suggesting a potential role as an intervention with college students.

In this study, we sought to explore the effectiveness of a prototype Alternate Reality Game (ARG) – called *The Skeleton Chase* – in influencing physical activity and wellness of college-age students. A growing game genre, an ARG is an interactive narrative that uses the real world as a platform, often involving multiple media (e.g., game-related web sites, game-related blogs, public web sites, search engines, text/voice messages, video, etc.) to reveal a story (Kim, Allen, & Lee, 2008; Szulborski, 2005; http://www.argn.com).

Over time, players engage in a complicated series of puzzles and challenges that not only involve the players with emerging story, but also with fictional characters, each other, and with the real world. Puzzles and challenges can expose players to new knowledge and ideas, facilitate the development of critical thinking/problem-solving skills, and promote collaboration and cooperation. Many also require players to "get up" from their computers, "move" from one location to another to find clues or other planted assets in the real world, and/or participate in a live event. Influencing physical activity requires that players *"get up and move"*! In designing *The Skeleton Chase*, our goal was *not* to teach students about wellness or force physical activity on them; rather our goal was to enable tangential learning with physical activity as a backdrop to gameplay.

In the following section, we provide background on the context of our efforts, the college population, and associated intervention considerations. We then describe *The Skeleton Chase* and how its design was informed by the learning preferences and strengths of today's college students. Following this, we report on the results of an eight-week pilot study involving 17 competing teams comprised of 58 college freshmen. Here, we examine the effectiveness of the ARG in influencing physical activity. We also report students' reactions to the gameplay experience, highlighting game design strengths and weaknesses. We conclude this chapter with a discussion of our preliminary findings, lessons learned, and directions for future work.

MOTIVATION AND CONTEXT

Despite national recommendations, the incidences of obesity and chronic diseases associated with physical inactivity continue to increase (Must & Anderson, 2003). These changes can be seen