Chapter 14

Making Exergames Appealing: An Assessment of Commercial Exergames

Emmanuel Agu
Worcester Polytechnic Institute, USA

Bengisu Tulu
Worcester Polytechnic Institute, USA

Amorn Chokchaisiripakdee
Worcester Polytechnic Institute, USA

Nuttaworn Sujumnong
Worcester Polytechnic Institute, USA

Latthapol Khachonkitkosol
Worcester Polytechnic Institute, USA

ABSTRACT

While exergames are becoming mainstream with increasing sales, fewer exergame units are still sold annually than non-exergame video games. For instance, in 2013 there was only one exergame (Just Dance 4) in the list of top 10 games sold. In this chapter, the authors attempt to determine (1) if a gap exists in appeal between exergames and non-exergame video games, (2) the factors that make video games more or less appealing to an audience, and (3) people’s perceptions of whether playing exergames can help them become healthier. The authors reviewed literature, conducted reviews of top 10 video games, analyzed Amazon.com user comments on the top selling exergames, and conducted an online survey to understand gamer perceptions of exergames and non-exergame video games. Through this work, an evaluation tool that could be utilized by other researchers was developed. The recommendations at the end of this chapter could also help game designers in improving the appeal of exergames.

INTRODUCTION

The popularity of video games continues to grow rapidly with sales projected to reach $86 billion worldwide by the year 2016 (Galarneau, 2014). In fact, according to Galarneau (2014) video games sales ($24 billion annually as of 2013) now exceed movie sales ($10 billion), It is estimated that 58% of Americans now play video games (Entertainment Software Association, 2014) and the time spent daily playing video games per capita has also grown from 17.8 minutes in 2008 to 23.2 minutes in 2013, and projected to reach 28.3 minutes by 2018. (Veronis Suhler Stevenson & Borrell Associates, 2014)

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Games are rapidly becoming an important tool for improving health behaviors such as healthy lifestyle habits and behavior modification, self-management of illness and chronic conditions and motivating and supporting physical activity (Ferguson, 2012). An exergame is an activity based on the gamers’ intention to exercise, improve, or maintain physical fitness with a planned, repetitive, and structured format, rather than the content or mechanic of the exergame themselves (Oh & Yang, 2010). While exergames offer entertainment and facilitate socialization, they also have benefits including health and weight management, cardiovascular and physiological conditioning, and improving cognition (The benefits of exergaming (Positive Gaming BV, 2014).

Prior research studies have established that playing exergames can promote good health. Kretschmann (2010) measured physiological benefits of the WiiBoxing game on 15 sports science students. Although participants agreed that exergaming could not substitute for real sports, they believed that the energy expenditure from regular exergaming was adequate for regular video gamers and could motivate them into being more physically active. In a study, researchers measured the energy expenditure of exergaming in college students and found that the average energy expended while playing three test exergames (3-Kick, Jackie Chan Studio Fitness Power Boxing, and Disney’s Cars Piston Cup Race) was 546 kcal/hour in males, which is almost equivalent to 588 kcal/hour expended while bicycling and swimming laps (Siegel, Haddock, Dubois, & Wilkin, 2009). Wang and Perry (2006) noticed significant changes in various metabolic and physiological variables including heart rate, oxygen rate and respiratory rate in 7-10 year olds while playing exergames. However, they concluded that since the observed changes were less than national recommendations and less than changes observed during regular exercise, exergames could not substitute for regular exercise. Researchers have also investigated the use of exergames to mitigate a wide range of ailments including schizophrenia (Leutwyler, Hubbard, Vinogradov, & Dowling, 2012), postpartum weight loss (Tripette et al., 2014), teaching insulin therapy (Diehl et al., 2013) and chronic stroke rehabilitation (Simkins et al., 2012).

As exergames have embraced mainstream activities such as Zumba dancing and are now available on popular gaming console, their sales have also increased significantly. However, while exergames have become more popular, their sales still lag that of non-exergame video games. For instance, only one exergame (Just Dance 4) featured in the list of top 10 games sold in 2013 (IGN Entertainment Inc, 2014). The goal of the research in this chapter is to answer a number of research questions:

**RQ1:** What are the characteristics of popular console-based exergames? How are these characteristics similar or different compared to most popular console based non-exergames?

**RQ2:** What elements in video games appeal to people? Are there gaming elements that exergames are lacking that could be improved upon by learning from non-exergames?

**RQ3:** From a gamer’s perspective, how do exergames compare to non-exergames?

Player experience (of exergames vs non-exergames) is the overarching area related to our game assessments. Several theoretical models have previously been proposed for gameplay experience. Ferrara (Ferrara, 2011) proposed a model in which a player’s motivation to play a game included five frames of motivation, meaningful choices, balance, usability and aesthetics. Fernandez (2008) proposed a gameplay experience model which regards fun as the main component of player experience. Ijsselsteijn et al. (2008) theorized that immersion, tension, competence, flow, negative affect, positive affect and challenge are important elements of gameplay and developed the widely used Game Experience Questionnaire (GEQ).
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