Chapter 8
Get in the GROOVE:
Using a Virtual World to Promote Health

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ABSTRACT

Over the last few decades there has been a rise in the prevalence of overweight and obesity in American youth. This chapter describes the rationale for the virtual world features of an obesity prevention project that engaged middle-school-aged girls in a 3-week summer science enrichment program. The Get in the GROOVE! program was designed to promote self-efficacy for health behavior change, increase health knowledge, facilitate healthy behaviors related to physical activity and nutrition, encourage a healthy body image, and promote the development and consolidation of a health self-identity. The virtual world, which was explored by the girls via realistic and healthy avatars, supplemented experiences and reinforced curriculum and concepts learned in the physical world component of the program. Findings suggest that a virtual world is a promising platform to promote a health self-identity and healthy lifestyle in children.

INTRODUCTION

While the prevalence of adult obesity has nearly doubled since 1980, the prevalence of childhood obesity has nearly tripled (Ogden, Carroll, Kit, & Flegal, 2014). Overweight and obesity prevalence is 33.4% among children and adolescents age 2-19 years and 69% among adults (Benjamin et al., 2017). The high prevalence of excess weight in youth is not unique to the United States but is also observed in many other countries contributing to a global epidemic (Friedrich, 2017; Wang & Lim, 2012). This situation is of considerable public health concern due to the well-documented health and psychosocial conse-quences associated with excess body weight together with the fact that overweight and obesity during childhood is likely to persist into adulthood (Haslam & James, 2005; Poirier & Eckel, 2002; Pulgaron, 2013; Thompson et al., 2007; Ward et al., 2017; Williams, Mesidor, Winter, Dubbert, & Wyatt, 2015).

The determinants of excess body weight are multifactorial and overweight and obesity have been linked to a number of lifestyle factors. Among children and adolescents, overweight and obesity have been associated with the consumption of sugar sweetened beverages, refined grains and high-calorie foods, and other poor nutrition choices, physical inactivity, and high levels of sedentary behavior (Bourke, Whittaker, & Verma, 2014; Drewnowski, 2004; Maher, Mire, Harrington, Staiano, & Katzmarzyk, 2013; Mitchell, Pate, Beets, & Nader, 2013). While data indicate engaging in healthy lifestyle behaviors such as improving diet, increasing physical activity, and decreasing sedentary behavior may contribute to a more optimal weight status and decreased cardiometabolic risk (Hagobian & Phelan, 2013), most American children and adolescents do not meet dietary (Banfield, Liu, Davis, Chang, & Frazier-Wood, 2016) or physical activity recommendations (Olvera, Kellam, Menefee, Lee, & Smith, 2010) and spend up to 8 hours each day in various sedentary pursuits (Lou, 2014; Tremblay et al., 2011).

Virtual reality technologies have the potential to improve eating habits, increase physical activity, and promote healthy lifestyle choices. A decade ago, experts identified several research and education priorities involving virtual world technologies to prevent and treat obesity and type 2 diabetes. These priorities include but are not limited to "making smarter food choices," "improving self-efficacy by virtual reality-guided practice of desired behaviors," and "using virtual reality to make behavior change more reinforcing and participatory" (Ershow, Peterson, Riley, Rizzo, & Wansink, 2011, p. 217). Virtual reality technologies, in general, and virtual world technologies, in particular, have the potential to aug-ment learning experiences as they can immerse users in social learning environments (Johnson & Levine, 2008). Additionally, children of all ages enjoy engaging in virtual activities and are often familiar with virtual worlds and similar technologies (Coles, Strickland, Padgett, & Bellmoff, 2007; Prensky, 2001).

This chapter describes the virtual world features used in our obesity prevention randomized con-trolled trial, *Get in the GROOVE* (*Girls Realizing Options through OpenSim Virtual Experiences*)! The project compared two summer science enrichment program curricula that had similar health-related content addressing physical activity and nutrition but differed in the use of virtual world technology to reinforce health science concepts. *Get in the GROOVE!* was designed to investigate the extent to which a 3-Dimensional virtual world environment engaged and immersed middle school aged girls in a unique learning environment that promoted self-efficacy for healthy behavior change, increased health knowledge, facilitated healthy behaviors related to physical activity and nutrition, and encouraged a healthy, realistic body image. The *Get in the GROOVE!* virtual world environment, GROOVE Island, was explored in the context of 3-week summer programs held at the Phillip and Patricia Frost Museum

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