Chapter 3
Videogames as Therapy: A Review of the Medical and Psychological Literature

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ABSTRACT
There is a long history of using videogames in a therapeutic capacity, including rehabilitation for stroke patients, people with traumatic brain injuries, burns victims, wheelchair users, Erb’s palsy sufferers, children undergoing chemotherapy, children with muscular dystrophy, and autistic children. This chapter briefly examines a number of areas including: (1) videogames as physiotherapy and occupational therapy, (2) videogames as distractors in the role of pain management, (3) videogames and cognitive rehabilitation, (4) videogames and the development of social and communication skills among the learning disabled, (5) videogames and impulsivity/attention deficit disorders, (6) videogames and therapeutic benefits in the elderly, (7) videogames in psychotherapeutic settings, (8) videogames and health care, and (9) videogames and anxiety disorders. It is concluded that there has been considerable success when games are designed to address a specific problem or to teach a certain skill. However, generalizability outside the game-playing situation remains an important consideration.

INTRODUCTION
The most reported effects of videogames typically the alleged negative consequences. These include video game addiction (e.g., Griffiths, 2008a, 2008b; Kuss & Griffiths, 2011), increased aggressiveness (e.g., Anderson & Bushman, 2001), and the various medical and psychosocial effects (Griffiths, 2005). However, there are abundant references to the positive benefits of videogames in the literature including various review papers (e.g., Griffiths, 2004; Kato, 2010; Lawrence, 1986; Rauterberg, 2004; Wiemeyer, 2010). Despite studies into the more negative

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effects, for over 25 years, researchers have been using videogames as a means of researching individuals. Videogames may be useful in therapy in different ways including:

- **Videogame as a Therapeutic Setting:** Videogames allow participants to experience novelty and challenge when engaging in fictional activities without real life consequences (Washburn & Gulledge, 1995). For instance, through game immersion, anxious patients can be presented with aversive stimuli via a videogame to progressively eliminate their anxiety. Adopting fictional roles have also been used for encouraging the practice of healthy behaviors and developing social skills (Brown, Lieberman, German, Fan, Wilson, & Pasta, 1997; Lieberman, 2001). Furthermore, psychotherapy has been conducted exclusively in videogame settings (Coyle, Matthews, Sharry, et al. 2005).

- **Videogame as a Therapeutic or Intervention Tool:** Playing videogames makes it easier to achieve and maintain a person’s undivided attention for long periods of time (Donchin, 1995). For this reason, videogames can be used as a cognitive distractor task helping patients in pain to learn relaxation techniques and/or to achieve the relaxation and ease that can be essential for successful experimentation. Furthermore, the immersive nature of videogames may facilitate the suspension of reality that can be used in order to access different states of consciousness helping people regress to childhood play.

- **Videogame as a Measurement Tool:** Videogames can allow measuring of performance on a very wide variety of tasks, and they can be easily changed adapted, standardized and understood. Also, videogames can be used to observe individual behavior or performance and examine individual characteristics such as self-esteem, self-concept, goal-setting, and individual differences.

- **Videogame as a Motivating Tool:** Videogames are fun and stimulating, so they can be used to assist patients in setting goals, ensuring goal rehearsal, providing feedback, reinforcement, and maintaining records of behavioral change.

- **Videogame as a Clinical Research Tool:** Videogames can provide a large spectrum of people’s profiles and diversity in study cases since diversity of videogames can attract participation of individuals across many demographic boundaries (e.g., age, gender, ethnicity, educational status) (Washburn & Gulledge, 1995); especially with the implementations of online videogame in clinical settings that may facilitate access to individuals situated in different physical locations and/or to provide therapy to the ones that have difficulties to attend health care services.

Research dating right back to the early 1980s has consistently shown that playing computer games (irrespective of genre) produces increases in reaction times, improved hand-eye co-ordination and raises players’ self-esteem. What’s more, curiosity, fun and the nature of the challenge also appear to add to a game’s therapeutic potential. Commonly, videogames developed specifically for therapeutic interventions or health care (often referred to as ‘good games’ or ‘serious games’) have been used in therapy. However, some commercial videogames have also been adapted and used for therapeutic purposes.

This chapter focuses on some of the reported therapeutic benefits of videogame playing. Some evidence suggests that important skills may be built or reinforced by videogames. For example, spatial visualization ability (i.e., mentally rotating and manipulating two- and three-dimensional objects) can be improved through videogame