Videogames as Therapy: 
An Updated Selective 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, autistic children and individuals looking to overcome real-life challenges (including symptoms of depression) and boost their wellbeing (including boosting life satisfaction, self-efficacy and social support). This paper briefly and selectively 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, (9) videogames and anxiety disorders, and (10) videogames and psychological wellbeing. It is concluded that there has been considerable success when games are specifically designed to address a specific problem or to teach a certain skill. However, generalizability outside the game-playing situation remains an important consideration.

KEYWORDS
Health Care, Occupational Therapy, Physiotherapy, Videogames

INTRODUCTION
The most reported effects of videogames typically report the alleged negative consequences. These include videogame addiction (e.g., Griffiths, 2008a, 2008b), 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 (Griffiths, 2004; Kato, 2010; Lawrence, 1986; Rauterberg, 2004; Wiemeyer, 2010). Despite research into the more negative 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:

• Videogames as a Therapeutic Setting: Videogames allow participants to experience novelty and challenge when engaging in fictional activities without real life consequences (Washburn &
Gulledge, 1995). Playing videogames has also been used to establish an effective patient-therapist relationship, particularly with young people (Ceranoglu, 2010b). Furthermore, psychotherapy has been conducted exclusively in videogame settings (Coyle, Matthews, Sharry, Nisbet, & Doherty, 2005). For instance, through game immersion, anxious patients can be presented with aversive stimuli via a videogame to progressively eliminate their anxiety. Adopting fictional roles has also been used for encouraging the practice of healthy behaviors and developing social skills (Brown et al., 1997; Lieberman, 2001).

- **Videogames 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, videogames’ immersive nature may facilitate the suspension of reality that can be used in order to access different states of consciousness helping people regress to childhood play. Moreover, videogame playing has been proposed as a visuospatial task for interfering with the elaboration of sensory imagery that leads to the indulgence of cravings crucial to addictions, or sensory imagery from traumatic events that are stressful (Holmes, James, Coode-Bate, & Deeprose, 2009; Skorka-Brown, Andrade, Whalley, & May, 2015).

- **Videogames as a Measurement Tool:** Videogames can allow measuring of performance on a very wide variety of tasks, and they can be easily 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.

- **Videogames 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 (Ceranoglu, 2010b).

- **Videogames as a Clinical Research Tool:** Videogames can provide a large spectrum of people’s profiles and diversity in study cases since videogames’ diversity 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 videogames 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.

- **Videogames to Increase Knowledge:** Videogames have been successfully used to increase knowledge regarding academia, health and society (Donohue, 2015). A meta-analysis (Wouters, van Nimwegen, van Oostendorp, & van der Spek, 2013) revealed that videogames using student-centered learning were significantly better than more conventional learning in terms of learning and retention. However, it has been suggested that guidelines for using videogames in the school context need to be developed to ensure that all learners benefit from using videogames in educational contexts (Baranowski et al., 2016).

- **Videogames to Change Behavior:** Videogames have been used in order to change the players’ behavior regarding health in a positive way (Baranowski, et al., 2016). A meta-analysis (DeSmet et al., 2014) using research on 64 different videogames targeting improvements in lifestyle indicated that using games had beneficial consequences for health. These beneficial outcomes include effects on diabetes (DeShazo, Harris, & Pratt, 2010), obesity prevention (Lu, Kharrazi, Gharghabi, & Thompson, 2013), as well as health and safety behaviors in young individuals aged 18 years and under (Hieftje, Edelman, Camenga, & Fiellin, 2013).

- **Videogames as Physical Activity:** Videogames are also used in the context of exergaming – using games as physical exercise (Baranowski, et al., 2016). Research regarding exergaming is mixed, with some naturalistic research (Baranowski et al., 2012) suggesting little effects on physical activity intensity and duration, whereas other research shows that exergaming can decrease body mass index (BMI) and weight (Trost, Sundal, Foster, Lent, & Vojta, 2014). It has been suggested that exergaming should be implemented in everyday school routines of children and adolescents given the primarily sedentary nature of school education (Baranowski, et al., 2016).
Web 2.0 Teacher Community in a National Health E-learning Network
[www.igi-global.com/article/web-teacher-community-national-health/43916?camid=4v1a](www.igi-global.com/article/web-teacher-community-national-health/43916?camid=4v1a)

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