Can we Achieve "Disruptive Innovation" via Rehabilitation Technology?

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Monday, 30th November 2020
10h00-11h00
Online Seminar offered through ZOOM Platform

Abstract:
“Disruptive innovation” leads to technologies that invigorate an existing paradigm and completely shift current consensus and practice. There are many examples of disruptive innovations that have changed society and individual behavior including steam engines, motor vehicles, computers and, more recently, mobile phones and social media. Disruptive innovations in rehabilitation have been more elusive, with many advances (e.g., robotics, smart homes, virtual reality) not yet reaching Gladwell’s (2006) “tipping point” wherein a series of small changes become significant enough to cause larger, more important transformations of practice.

In this talk, I will examine avenues for exploring the impact of virtual reality (VR) technology on clinician and client behavior. First, Gartner’s "Technology Hype Cycle", a well-known tool that tracks the status and progression of emerging technologies and trends will be applied to the emergence of VR in rehabilitation. The Hype Cycle highlights the progression of an emerging technology from market over-enthusiasm through a period of disillusionment to an eventual understanding of the technology's relevance and role in rehabilitation. I will then explore factors that promote and impede disruptive innovation with a focus on issues related to technology usage and under-usage in order to develop strategies that may support disruptive innovation in rehabilitation technology. Finally, I will present several examples from virtual reality to illustrate both the challenges and successes in using technology in rehabilitation: an immersive virtual playground to improve motor abilities of children with developmental coordination disorder and a personalized virtual game to improve the treatment of children with cerebral palsy.

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