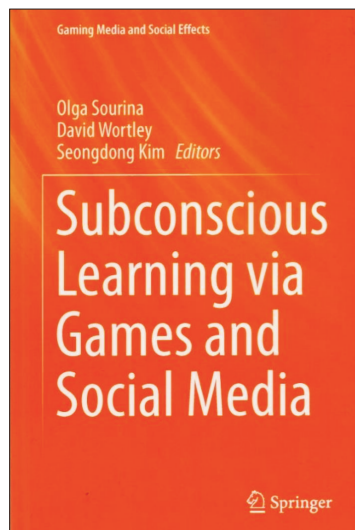# HIR
Healthcare Informatics Research

Subconscious Learning via Games and Social Media

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This book examines the role of serious games applications within healthcare and education to address the interests of both research and industry around the status of current and future developments. Disruptive technologies that have a high impact on business and society especially affect healthcare and education. In addition, the pace of development in these areas is increasing exponentially, driven largely by gamification and social media. It is for these reasons that, in the areas of patient engagement and public expectations, healthcare providers are looking to these applications for solutions to health-related problems.

The new publication "Subconscious Learning via Games and Social Media" published by Springer aims to give an insight into these developments through the words of acknowledged international experts from both commercial and non-commercial sectors. The book shares the opinions of experts covering various aspects of healthcare, and its broad scope covers both general population and specific medical domains [1,2]. For the education sector, consumer technologies, such as mobile phones and tablets, have had a major impact on learning for both adults and children. The potential of immersive technologies and serious games to engage and motivate within learning environments is increasingly widely accepted. This book seeks to explain the importance of understanding how to design serious games that can create long-term and lasting effects in both learning progress and the development of behavioral change [3]. This book also explains the best practice guidelines for the application of serious games to both adults and children.

Among the chapters of this book, this review will focus on the chapter of "The Future of Immersive Technologies and Serious Games", written by David Wortley, who is one of the editors of this book and Founder & CEO of Gamification and Enabling Technologies Strategic Solutions (GAETSS), UK.

The Future of Immersive Technologies and Serious Games

This chapter of the book focuses primarily on current and future developments in immersive technologies. These technologies seem to be the most effective in engaging our time, attention, and spending power; therefore, they are finally influential in shaping both our behaviors and our development. The chapter presents the proposition that serious games and gamification have the potential to address some of the critical challenges faced by business and society. The chapter also uses an analysis of the changes that have taken place in both business and society within the last 50 years as a result of the impact of these disruptive technologies on our lives. It also aims to show the positive potential of these technologies for building a more sustainable and equitable future. The following section contains extracts from the book.

1. Our Changing Society – 1950s vs. 2010s

1) 1950s – The Way We Were

In the aftermath of World War II, the generation of so-called baby boomers entered a world that was shaped by the *Industrial Revolution* and the power of machines to augment the strength, speed, and efficiency of human beings. In this world, there were no computers and very few cars, televisions or telephones in the majority of households. Society and business were structured on a hierarchical basis in which 'knowledge was power' and daily life was quite structured such that:

- Teachers transferred knowledge
- We knew all our neighbors
- We rarely travelled outside our community
- Banks were banks, grocers were grocers
- We built a career in the same company

- We dated and married within our community
- Individual choice and power was limited

Children's games shaped our personalities, interests and perceptions of our role (Figure 1).

Games and simulations always played a very important role in our development as children, stimulating our interests, helping us to understand our capabilities and shaping our relationships with others. In this society, knowledge and understanding were passed down from those whose years of experience and training empowered them with the necessary wisdom and skills. The only 'on demand' access to information was found in libraries, so self-directed learning opportunities were extremely limited.

2) 2010s – The Way We Are Today

The globalization of the Internet in 1989 is generally described as the starting point for a whole new generation of human beings known as 'digital natives' because they were born into a world unlike any previous era. Because of the availability of and access to digital communications technologies, they could empower and develop their capabilities by themselves in new ways that were less dependent on knowledge professionals, such as teachers, professors, and doctors (Figure 2).

Motivated, challenged, and inspired by these technologies, which quickly became part of the everyday lives of young people, the structure of society began to change slowly at first but with growing momentum to the situation today in which:

- Teachers are coaches and mentors
- We know none of our neighbors
- We travel and live outside our community
- Record companies become airlines, Grocers become banks

Figure 1. Children's games simulating adult roles.

Figure 2. Digital native multitasking.

- We change jobs and companies often
- We date via the Internet and do not marry
- Individual choice and power is unlimited

2. Internet of Things, Gamification, and the Future of Serious Games and Immersive Technologies

This section has charted developments in technologies that have shaped the world we live in today and has illustrated how the relationships and structures that have formed the bedrock of our learning and development and the sustainability of society have been impacted by technology. Today, we face serious global challenges to the sustainability of services we have taken for granted in the developed world, and it is the author's belief that we need to develop strategies to address those challenges. The conclusion is that the ubiquitous sensor, visualization, and cloud technologies that are rapidly maturing will provide society with an opportunity to reconnect itself by linking citizen empowerment with responsibility for self-management. This can be achieved through sensor technologies that form part of the *Internet of Things* and allow us to measure and feed-back critical in-

formation and understanding that could shape our learning, development, and capacity to take greater responsibility in the key areas of global challenges.

Instead of a world that is essentially structured and managed by silos of expertise with responsibility for specific sectors or disciplines, these technologies have the potential to build new structures with collaborative development and management in which individuals are motivated to take individual responsibility for managing their own lives as well as collective responsibility for contributing to sustainable models for society as a whole.

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