Chapter 6

The Promise of Gamification in Addressing Health Challenges of the Modern World

Taiki Nishihara
University of California – Berkeley, USA

Yagana Parwak
University of California – Berkeley, USA & University of California – San Francisco, USA

Eghosa Edogun
University of California – Santa Cruz, USA

Gia Park
University of California – Berkeley, USA

Scott Lee
University of California – Berkeley, USA

ABSTRACT

This chapter explores gamification and its potential to address leading health and healthcare issues, to promote healthy behaviors and empower patients to take charge of their own health. It discusses some of the key advantages of gamification over past iterations of technology-based behavioral health interventions, including personal informatics and serious games. The advantages discussed in this chapter include: 1) a greater emphasis on the promotion of intrinsic motivation through quality, intentional game design; 2) broader accessibility to patients through mobile technology and advancing sensor systems; and 3) broader applicability to tackle a variety of health challenges. This chapter is useful for those hoping to gain a deeper understanding of the promise that drives the excitement in gamification as a method for addressing the health challenges of the modern world, as well as the work that is still required to fulfill that promise.

DOI: 10.4018/978-1-7998-0047-7.ch006
INTRODUCTION

One of the defining health challenges facing the world today is maximizing impact of the rapidly evolving field of medical and technological innovations on promoting positive, healthy behaviors in people. According to the World Health Organization (WHO), chronic diseases such as ischemic heart disease, obstructive pulmonary disease, lung cancer, and diabetes, all of which require careful disease management, represent some of the leading causes of morbidity and mortality in the world today. The leading risk factors for these conditions, such as poor diet, physical inactivity, tobacco use, high blood pressure, high glucose level, medication non-adherence, and obesity, are linked to lifestyle choices and individual behaviors (Stevens et al., 2009). Medication non-adherence, which refers to the extent which patients fail to take medications as prescribed by their health care providers, is widely recognized as one of the biggest challenges in the chronic illness management. On average, it is estimated that approximately 30% to 50% of adults in the United States struggle to adhere to long-term medications and that half of these patients discontinue the use of prescribed medications within the first few months of therapy (DiMatteo, et al., 2002). As a consequence, a substantial number of patients do not optimally benefit from the prescribed medication and course of treatment. Effective promotion of healthy behaviors not only has a significant potential to address unmet medical need, it also has significant financial implications as well; it is estimated that nearly three quarters of all healthcare costs in the United States can be attributed to poor health behavior (Woolf, 2001).

Over the past two decades, the body of research on health behavior and promotion has rapidly grown. Within this expansion, the use of gamification as a tool to incentivize healthy decision making has become an emerging trend to reduce the burden of preventable chronic illnesses and increase overall wellbeing. Gamification is defined as the use of game design elements in non-game contexts. In gamification, the game design elements, which are motivational affordances used in entertainment games of other systems, are used to enhance overall enjoyment and engagement with the desired behavior (Deterding, 2011). Intentional and quality game design can be used to target individual health behavior decision-making and empower individuals to make positive behavioral changes.

While several studies have outlined the concept of gamification in the medical field, the current literature lacks an in-depth explanation of the key advantages that gamification possesses over the past iterations of interventions aimed to promote healthy behaviors. This chapter will begin with a brief history of gamification, followed by a discussion on three key advantages, which are fueling the excitement in this field. The chapter will close with a discussion on some of the work that still needs to be done in the field to deliver on its promise.

HISTORY OF GAMIFICATION

Gamification has emerged as a hybrid method for promoting healthy behaviors, drawing from the strengths of both personal informatics and serious games. Personal informatics or “quantified self” refers to the ability to collect and track health metrics such as vitals, movement and specific health behaviors. There are generally two forms of personal informatics: physician-initiated and patient-initiated. Physician-initiated tracking allows for healthcare providers to collect continuous health information and provide health suggestions based on that data. Patient-initiated allows for individuals to self-monitor their health information and make decisions based on their personal data. (Gimpel et al., 2013) Serious games are
Related Content

Empowering Patients Through Digital Technologies: The Case of Mobile Health Applications
Cristina Trocin and Enrica Croda (2020). *Impacts of Information Technology on Patient Care and Empowerment* (pp. 34-57).
[www.igi-global.com/chapter/empowering-patients-through-digital-technologies/235951?camid=4v1a](www.igi-global.com/chapter/empowering-patients-through-digital-technologies/235951?camid=4v1a)

Psycho-Social Health
(2019). *Psycho-Socio-Physical Dimensions of Adolescent Health Management: Emerging Research and Opportunities* (pp. 66-100).
[www.igi-global.com/chapter/psycho-social-health/218314?camid=4v1a](www.igi-global.com/chapter/psycho-social-health/218314?camid=4v1a)

Designing Effective Crowdsourcing Systems for the Healthcare Industry
[www.igi-global.com/article/designing-effective-crowdsourcing-systems-for-the-healthcare-industry/204409?camid=4v1a](www.igi-global.com/article/designing-effective-crowdsourcing-systems-for-the-healthcare-industry/204409?camid=4v1a)

Pharmacy Technology to Better Public Health: An Exploration of New Models of Supply and Use of Technology – A Regional United Kingdom Quantitative Study
[www.igi-global.com/article/pharmacy-technology-to-better-public-health/218865?camid=4v1a](www.igi-global.com/article/pharmacy-technology-to-better-public-health/218865?camid=4v1a)