Chapter 12
Carnival Play:
eHealth Solution to Evaluate, Rehabilitate, and Monitor Dexterity and Manual Strength

Bruno Giesteira

https://orcid.org/0000-0003-4896-6659

University of Porto, Portugal

Joana Silva

University of Porto, Portugal

Teresa Sarmento

University of Porto, Portugal

Paulo Abreu

https://orcid.org/0000-0002-2745-6951

LAETA-INEGI, Faculdade de Engenharia, Universidade do Porto, Portugal

Maria Teresa Restivo

University of Porto, Faculty of Engineering

ABSTRACT

Developed within the scope of a SciTech research project, this chapter records in a procedural way the design centred on senior users for a set of three serious games for the eHealth field, designated by the authors as "Carnival." The chapter, having as its leitmotif the project aforementioned, looking at its motivation, breaks down the systems augmented feedback interfaces—BodyGrip and SHaRe—to evaluate, rehabilitate, and monitor dexterity and manual strength. Topics related to empathy and well-being in the user experience design process, namely guidelines for empathy in different project phases, participatory design, inclusiveness, and amusement are identified. Withal listed the development phases of three games dynamics inherent to the "Carnival" set —"High Striker," "Claw Machine," "HotDog Sauce"—punctuating with the discussion and contributions to the e-health area describing its potential for Evaluate, rehabilitate, and monitor dexterity and manual strength.

INTRODUCTION

In this chapter, the authors played seriously. Presently, healthcare and well-being demand for Serious Games playing and, since this is no playful matter, there is no problem about how slow the progression is, as long as it continues. Similar to the recovery process that is about evolution, not perfection, side by side, games and technology can engage users in playful, as well as significant experiences, prompting the delight of each human cell. Empathy starts with the ability of one placing himself in another person shoes, seeing with other eyes, feeling with another heart. An echo from another perspective into ourselves, ripping apart the human ego sphere. Belonging to a greater sphere, more inclusive, where everyone feels as equals since every human being has the right to unite to a society. There is a need to optimize technology, to overcome these struggles, as the next step towards a society that will shape different values for the future. Implying that technology is at peoples service, is the same as saying that it is available for them hence it must behave like a respectful, generous and helpful character, that cares for people delight, inclusiveness and amusement.

Framing a work plan for the Interaction and Serious Game design, in an eHealth context, the authors developed "Carnival" a game set comprising three games dynamics: "High Striker", "Claw Machine" and "HotDog Sauce". These were conceived in parallel within two perspectives: (i) the digital Interface Design (UI), as a mediator of game dynamics, and (ii) the User Experience Design (UX). Focusing on promoting the player's engagement in the performance of repetitive tasks, the authors aim to defeat the rehabilitation or training process monotony. "Carnival" intends to ensure good communication, providing stimuli for the players to go forward in their performances. Facing this situation, the authors unfolded the chapter into four main titles. The first defining the Motivation for this design, with a central purpose of evaluating and reformulate the Interaction Design, and User Experience applied to two instrumented systems already conceived and built: BodyGrip and SHaRe (hardware devices and its corresponding interactive software applications), where previously were specified the Social Context. The second defines the State-of-the-Art, prospecting the concept of Empathy for Well-Being, where notions such as Positive Computing and eHealth, Guidelines for Empathy' Stages, Co-Designing Healthcare and Inclusivity and Amusement, were explored aiming to reinforce the contributions of play systems for eHealth, Occupational Therapy and Rehabilitation contexts. The third title declares solution development, step by step, where the game "Carnival" gains life, converging its user experience research to its user interface ideation. Finally, the authors close the chapter offering an overview of this project Discussion and Future Research Directions, aiming to trace the current and future usage of games for health on diagnosis, prediction and monitoring namely in the context of musculoskeletal pathologies describing the potential of the BodyGrip and SHaRe systems to evaluate, rehabilitate and monitor dexterity and manual Strength.

MOTIVATION

Social Context

Technological evolution has transformed human living irreversibly since the XX century, changing how people live, think, perform their daily activities, connect with the world and with others. It is undeniable that these changes have a direct impact on society, being able to bring many social benefits; since man knows how to use them. In parallel with technological development, there are significant changes in the demographic profile of the world population, demonstrating the need to a user-centered approach

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