Chapter 46
Brazilian Occupational Therapy Perspective about Digital Games as an Inclusive Resource to Disabled People in Schools

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ABSTRACT

This chapter aims at contributing to serious games studies taking into consideration two aspects: "as a tool of social change" and as "applications of serious games: in health care and e-health, education, and other fields." There have been many studies and applications of serious games in the fields of education and health; however, there is still a lack of studies on social inclusion. It is said, based on a wide review of the literature on the subject, that games can help the construction of the inclusive school, showing new applications for serious games. New guidelines for serious game applications are presented, as well as a new interface between the development of serious games and Occupational Therapy; the latter is the area of health specialised in the knowledge of human activities for clinical intervention.

INTRODUCTION

According to Burden (2008), the growing importance of the electronic game industry and the decreasing cost of access to digital technology resources have stimulated the so-called serious games market. These are games whose main purpose is not only entertainment and fun, but they can also be used for purposes such as education and training (in business, governmental, military and also educational contexts – Krotoski, 2010; Burden, 2008); health and rehabilitation services (Sawyer, 2008; Rego, Moreira and Reis, 2010; Burden, 2008); or simulating complex problems, such

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as environmental ones (Prada, Dias, Predinger, Nakasone, 2010).

According to Zyda (2005, p. 30), "applying games and simulation technology to nonentertainment domains [such as healthcare, public policy, strategic communication, defence, training and education] results in serious games". Zyda (2005) proposes a research agenda to make such applications possible: research in infrastructure (such as deployment of free or low-cost engines specially designed for serious game purposes), in cognitive game design (which involves transforming storytelling and entertainment into educational purposes and analysing human performance behaviour) and in immersion (graphics, affective computing and interfaces).

In order to assess the state of current research on serious games, a search was made in the digital library of the IEEE for all publications in Computer Science during the period 2005-2010. A query with the key words "serious games", done in January 2011, displayed few results – only three journals and 105 conference papers. The small number of results indicates that research in this area is still recent, confirming Rego, Moreira and Reis' (2010) observation that this study field is new. Based on the query results, the contents of the abstracts were analysed and classified according to the serious games research lines, following the agenda proposed by Zyda (2005). It was seen that approximately 18% of the papers deal with infrastructure (evaluation and proposal of engines, proposal of AI agents and techniques, inter-operability problems, interface data control, proposal of authoring tools); approximately 60% deal with game design issues (proposal of games specifically built for mastering certain activities, discussions regarding narratives, environment modelling) and the rest is related to immersion (discussions regarding realism and user profile follow up). Regarding the activity domains studied, there is more investment in the aspects referring to the growth of the field of games (modelling principles; methodologies for building Serious games projects), representing almost half of the articles written. These were followed by studies dealing specifically with education (in school as well as in the businesses context), 23 papers, followed by the social area (concern with the cell phone market, application of the games for transferring cultural heritage) with 19 papers. The last 14 articles deal specifically with health.

There are a small number of studies on the application of games in the health area. Most of them deal with rehabilitation processes, and there are no studies on the use of games as a means of promoting social inclusion. It is important to consider that the use of digital technologies in social inclusion is a serious matter. However, it is the subject of relatively few studies in the field of computer sciences – a fact reflected on the studies of digital games. Digital technologies have a great potential for the social and human development processes in the Information Society (Castells, 2003). It remains necessary to face the digital divide, for digital exclusion would increase social exclusion.

Recent studies on digital inclusion in Brazil stress the importance of using electronic games to promote the development of abilities in operating digital resources (Costa, Rocha, 2007). Games are also important for enabling access to the Internet in "lan-houses" (paid Internet access centres offering access to electronic games – Carvalho, 2008; Borges, 2008).

Besides the importance of the access to and the actual use of digital technologies for the promotion of social inclusion, it is also necessary to create the inclusive society. This would be a society in which "all persons, regardless of gender, age, belief, ethnicity, race, sexual orientation or disabilities, are necessarily recognised as citizens and everyone would be entitled to economic, social, civil and cultural rights, with the elimination of all forms of discrimination and segregation" (Chacham & Corrêa, 2008, p. 7). The development of the discourse in favour of the inclusive society seems to have encouraged research in