Chapter 48

Exploring the Educational Power of Serious Games:
A Review of Literature

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ABSTRACT

In this chapter, the authors present a review of the state of the art of research carried out over the last few years aimed at a deeper analysis of the educational uses of serious games. In this endeavour, they examined a sample of the scientific work generated between 2008 and 2010 from three sources: Biblioteca do Conhecimento Online, Google Scholar, and the database Edit Lib belonging to the Association for the Advancement of Computing in Education (ACCE). As a result of this process of analysis and synthesis, the authors present the main lines of research carried out in this field of work and propose a research agenda in order to improve the educational power of edutainment.

INTRODUCTION

Videogames are now part and parcel of every-day life and have become a cultural industry of the highest rank that has acquired an enormous economic importance in many countries. We are currently observing a growing interest for the use and research relative to the educational use of vid-eogames in different contexts and with similarly diverse ends. This trend has led us to undertake a review of research carried out on an international level on serious games between 2008 and 2010.

It is necessary to point out that this work seeks to offer a panoramic vision on those lines of research about serious games, since it has been studied from very diverse disciplinary fields. Although our focus of analysis aims at reviewing those works about the use of serious games, we

also think it is necessary to take into account the research on the use of commercial videogames to develop curricular contents, thus trying to generate a more complex insight on the subject. The decision to include these works in the review of the literature on serious games establishes in our way of understanding the use of technological advances with educational ends given that we consider that the pedagogical use of the same turns out to be more relevant than its constitutive genetic dimension (Romero, 2001). Thus, despite the fact that commercial videogames are not designed expressly with an educational purpose in mind, they can be used in classrooms to make pupils aware of social problems, to explain different concepts, to improve decision-making processes, and so on, fulfilling in this way ends similar to those of serious games. To this we add the fact that we find ourselves in a liquid social and historic moment (Baumann, 2008) in which it is more and more difficult to establish the borders between different subjects and areas of knowledge, making it more and more necessary to implement multi-disciplinary aspects of work.

WORK METHOD

Just as happens in all works of this nature, this proposal of meta-analysis has certain difficulties that have led us to take methodological decisions that we are going to justify. For the purpose of this research, we carried out a bibliographic search in three international sources: Biblioteca do Conhecimento Online[1], Google Scholar and the database EdiTLib Digital Library for Information Technology and Education, from October to November 2010.

The search focused on the scientific bibliography generated during the years 2008, 2009 and 2010 on serious games, both in journals and in proceedings of international congresses published in English or in Portuguese. Just as Papastergiou (2009), we understood that it was

necessary to establish this time limit of three years if we aim to achieve a precise reflection of the rapid changes on this field of research. The search chain used for localizing the works in key words was "videogames" or "serious games" and "education".

We set out to offer a panoramic vision on those lines of work that had been present over the last few years in researchers' agendas. For this reason we consider it wise not to restrict the search process only to papers published in specialist journals or in papers presented in meetings on this specific subject, seeking therefore to build a complex vision that broadens the limits of academic subjects that have tackled this area of study. Thus we followed a "funnel" methodological strategy. At first we deemed it necessary not to limit the initial selection of texts attending to subject areas from which they originated (for example, educational technology, computer science, etc.) if we wished to reflect a polyhedric image of this field of work in order to, at a later time, filter our initial sample and to cast our eye over documents in which there was a much clearer link between the serious games with curricular design and development.

Although we aimed to offer a global vision of the research field, we decided to extract 30 documents from each of the sources consulted (90 documents in all). We believe this number of works is sufficiently representative of the ideas about serious games in education from different perspectives and subjects (curricular studies, computer sciences, graphic design, etc). The documents analyzed were selected taking into account the category ranking of the Biblioteca do Conhecimento Online, choosing works certified as "Excellent" or "Very Good" and considering that the factor of relevance of the EdITLib Digital Library for Information Technology was higher than 75%. The articles obtained via Google Scholar were selected attending the number of references made by other authors. All these indicators allow us to guarantee the quality and representativeness of the works selected.

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