

# Chapter 11

## Bases for Summative Evaluation of Educational Digital Games and Their Implications in School Scenario

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### **ABSTRACT**

*The theme of this chapter is in accord with the growing discussion proposed by several researchers while investigating games contributions for teaching and learning, particularly in relation to school. Within school environments, parents and teachers perceive that moment with suspicion, thus augmenting their questions about which evidence would point to games as capable of facilitating learning. Therefore, methodologies, procedural field, and evaluation instruments arise in an attempt to evidence the contributions of games for learning. The chapter's main objective is to present the bases of a summative evaluation methodology for educational digital games, having as a guiding tool an instrument ad hoc. The principles which orientate such grounds are based on interaction design and on the learning principles of Paul Gee. The instrument description is also included, as well as its enforceability by means of a pilot study.*

### **INTRODUCTION**

Games production has been the third major worldwide income even surpassing movies and music industries combined<sup>1</sup>. As for Brazilian games industry<sup>2</sup>, it is possible to observe that in 2013, 1417 games were produced and out of that number, almost half was focused on education, that is, 621 (43,8%). Such data seem to evidence an important investment of researchers and developers not only to foment national industry, but also to produce elements that can subsidize educational practices.

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In this emerging scenario, where investments in digital games grow in a comprehensive way, within school environments, parents and teachers perceive that moment suspiciously and questions arise about which evidence points to games as capable of helping children to learn.

As for researchers, they face the challenge of creating, developing and exploring ways to evaluate digital games and, as a consequence, reveal results that so far can be explained differently or even can lead to varied conclusions. That situation in a way demonstrates the wide range of possibilities of investigation.

The evaluation processes become something emerging with the aim of searching for a definition of what to evaluate, why to evaluate, how to evaluate and also the purpose of that evaluation. Thereby, the methodologies field, procedures and evaluation instruments seem to emerge; finally, a new panorama that has been comprising the universe of that complex element which presents *expressive and metamorphic* characteristics of a contemporary means (Nesteriuk, 2009, p. 27).

In this context, this chapter's objective is to present the bases of a methodology of summative evaluation for digital educational games, having an especially developed instrument for that purpose as a guiding tool, the "Instrument of the Quality Evaluation of Educational Digital Games – IAQJEd. an instrument especially developed for that end," Evaluation Instrument for the Quality of Digital Game" – denominated IAQJEd. That tool has the purpose of subsidizing teachers while identifying high quality educational digital games to foment their educational practices.

The aim of the sections compounding the present chapter is: to present a brief panorama on the relation between digital games and learning, starting from the contribution of some scholars; to explain and to discuss the bases in which IAQJEd was built; to describe this instrument in terms of its conception, functionality, implementation and classificatory perspective, concerning educational digital games; to present some results obtained from the practical application of this instrument by a pilot group consisted of three teachers who interacted and evaluated the educational digital game "Gamebook – Guardiões da Floresta"; to discuss limitations and possibilities of such instrument, its possible impact on educational scenarios as well as its future perspectives.

Considering the limitations of extension established for this chapter, the description of the building process of the phases of IAQJEd will be presented in another opportunity.

## **DIGITAL GAMES AND LEARNING: A BRIEF PANORAMA**

Games are not something new. According to Huizinga (2001), games are older than Culture itself. As they're not new, they bring, per se, characteristics of their own in several eras, which were being modified and expanded according to the distinct possibilities between them and the interactive digital means.

In relation to Education, the idea of using games towards learning is also nothing new. Rousseau (2004), by the middle of the eighteenth century, in his work under the title of *Emile or On Education*,

declared that, by means of games, a child happily does something they would not if forced to. Kant, supported by the fundamentals from Duflo (1999), also brought his contribution by affirming that a game helps a young person to behave.

Games, within digital means, constitute themselves as a more recent phenomenon. As a conceptual essence, they mean those games conceived for technological or computational support, formed by algorithms, by a set of computational instructions associated with numeric data mediated by digital processors which execute them and that may be supported by means of gadgets as consoles, computers, smart phones and tablets.

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