Design and Development of an Inclusive Learning Videogames Aimed to Promote the Development of Reading and Writing Skills

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ABSTRACT

Inclusive didactics can be defined as the set of strategies, methods and resources that enable the teacher to pay more attention to the personal profile of the student in terms of learning. With reference to the teaching resources applied, technology offers effective opportunities for the implementation of an inclusive approach. The aim of this paper is to illustrate, on the basis of recent literature, how action videogames can foster the development of reading and writing skills in an inclusive way, through the specific types of human-machine interactions on which they are based. In addition, the design and development phases of the game, targeted for pupils attending Italian primary schools, is presented.

KEYWORDS

Action Videogames, Didactics, Dysgraphia, Dyslexia, Reading and Writing Skills, Specific Learning Disorders

INTRODUCTION

The concept underpinning inclusion is the acknowledgement that all students are guaranteed with the possibility of fully participating in school life. Further, inclusion is a theoretical framework aimed at enhancing the potential of all students, regardless of their ability, gender, language, among others (Sibilio, 2013; Sibilio, 2014). Inclusive didactics can be defined as the set of strategies, methods and resources that enable the teacher to pay more attention to the personal profile of the student in terms of learning (Rivoltella, 2015). With reference to the teaching resources applied, technology offers effective opportunities for the implementation of an inclusive approach. The technological development of the past decade presents a series of elements with important, and sometimes unexplored, inclusive implications regarding the potential of new technologies. The diffusion of devices based on different types of human-machine interactions (such as tablets, smartphones, game consoles, etc.), makes it possible to think about how to structure learning activities that are able to capitalize on the peculiarities of interaction for inclusive purposes. In summary, the described technological trend appears as an evolution particularly in line with the concept of inclusion. In fact, the ability to promote the development of the potential of each individual also depends on how teaching is delivered and, as a consequence, by how technology is implemented in schools. In order
to be able to effectively implement these aspects of technological development to promote inclusive processes in schools, some essential factors are:

1. The development of an appropriate digital literacy of students and teachers;
2. Adequate software which is ergonomically designed for school contexts (Calvani, 2007) and can be an effective expression of the methodologies developed in the field of educational research.

Acquiring an adequate level of digital literacy is a *conditio-sine-qua-non* to exploit the educational and inclusive potential of technology for educational purposes. For this to happen it is necessary to overcome the cliché that digital media can be self-taught or, in other words, do not require any educational support to be used. Using technology intuitively and, as a consequence superficially and sketchily, cannot be confused with using technology in a way that fully exploits the potential of the instrument. Unfortunately, research has shown that children and teenagers often stop at the first type of use (Rivoltella, 2013). Hence, the school has a duty to educate the citizens of tomorrow to make sure that they use technology critically, and that they will acquire and master their internal language (Gee, 2013), in order to dominate new technologies and not to be dominated (Calvani, 2007). Meanwhile, the second point refers to the need to give teachers educational tools which are specifically designed to take advantage of the potential that the new technologies have in promoting the processes of learning and inclusion. In full awareness of McLuhan’s slogan (2008), “the medium is the message”, in fact, the opportunity to exploit different types of interaction offered by new technologies makes it possible to design learning activities that can favor the development of important academic skills, such as reading and writing, in a different or vicarious way (Berthoz, 2015) compared to traditional media (such as the paper), generally used for this purpose. Starting from these considerations, the article presents the stages of design and development of an inclusive educational Action Videogame designed to promote indirectly the development of reading and writing skills in students attending Italian primary schools.

**SCREENING ACTIVITY**

As illustrated, the article presents the project phases and the development of digital tools aimed at sustaining reading and writing competencies within Italian primary schools. The choice of such competencies was determined on the basis of a series of research carried out in the region of Campania (South Italy), the data of which is presented below. Among its aims, law 170 of 2012 envisages the monitoring of literacy and numeracy in primary schools in order to identify prematurely potential cases of Specific Learning Disorders.

The Department of Humanities, Philosophy and Education of the University of Salerno has, to this end, initiated a number of monitoring interventions inherent to the degree of competence development in five third year classes in five different schools within the region. The monitoring involved 109 pupils using the MT reading tests, which are one of the most-widely used standardized tools for the measurement of the development of reading skills. The MT tests are based on research conducted over a thirty-year period on a national level and provide extremely precise standards. The tests consist of a series of trials whose contents and levels of difficulty are tared on the basis of the school grade (from the 1st year of primary school to the 2nd year of upper secondary school) and the period of year in which the tests are administered (at the beginning, in the middle and at the end of the year). The tests are further divided in reading comprehension, speed and accuracy. The reading performances are evaluated on the basis of three parameters (each of which is potentially
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