

Towards Improving Reading Comprehension Skills in Third Graders with a Serious Game

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Abstract: The results of different evaluations about reading comprehension in Mexico are not positive. Different methods or techniques have been implemented to counteract such numbers, and the support of information technologies (IT) in reading comprehension, is one of them. During the last years, video games demand increased in Mexico, which indicates that they are already part of the culture, and consequently, those must be harness to obtain better results. The purpose of this research is to improve reading comprehension skills of third graders through a serious game.

Keywords: Reading comprehension, serious games, third graders

Introduction

Reading is a process that each person does by themselves and it allows to examine the content of what is being read, analyze each of its parts to stress the essential and compare already existing knowledge with the one that has been just acquired [1]. A wide range of reading skills, including digital reading, are essential for an individual's personal and social fulfillment. In essence, acquiring the ability to read and understand well is a basic requirement for the social and economic demands in the society. Proficiency in reading literacy is not only one of the principal goals of schooling, but is also one of the principal means of learning [2].

A report made by Entertainment Software Association [3] explains that many children, teenagers and young people, spend part of their free time playing video games, which suggests that most of such groups enjoy using and interacting with such technologies [4]. New generations show the impact of growing inside this digital wave; technologies are an integrated aspect in their lives [5]. Students in this group use technologies to learn, and to communicate in new ways.

1. Theoretical Background

1.1 Reading Comprehension

Reading comprehension evolves due to the social, cultural and economic changes that society experiences day by day. Reading comprehension is not just the mere decoding of meanings of a text, but the construction of meanings that result from the interaction of the reader with the text [6]. Reading competence is defined as the ability of a person to understand, use, reflect and gain interest in texts written with the purpose to achieve their own goals, develop their knowledge and their personal potential, and participate in the society [7]. However, according to Nation, Cocksey, Taylor, and Bishop [8], students at

young age need to be competent in two specific abilities in order for them to become good readers. They need to learn how to recognize and decipher words from a piece of writing, and also understand the message that each word transmits. Reading comprehension is an act that takes time to develop, it is impossible to demonstrate a lack of reading comprehension in children who have not yet learned to read with enough precision and fluency. Therefore, researches with greater load in reading comprehension report that children at the age of 8 and older are the ones that start suffering the lack of such activity.

1.2 Serious Games

One of the ways to support the development of reading and to encourage the reading in general, is through IT. Some authors [4] think that video games help to solve problems as the ones mentioned before, partly, because of the stories of success in the use of video games in the business and military training in some countries. The results of research studies show that video games encourage the acquisition of certain cognitive skills and improve the comprehension of students in the subjects presented [4]. According to Zapušek, Cerar, and Rugelj [9] serious games are video games used for training, publicity, simulation or education and they are designed to be executed in computers. They allow student to simulate and experiment with situations that are impossible or difficult in the real word for different reasons, such as security, cost or time. Results presented about learning show a positive impact in the development of new knowledge. Similarly, serious games are receiving interest from the researchers and the industry because of the advantages that education and formation present [10]. Besides, some pedagogues consider these types of games motivating and attractive, when the characteristics that make them convincing are incorporated, of quality and even addictive sometimes [11].

1.3 Video Games and Education

Brown [12] explains that as the adoption of video games by the military as devices of training and recruiting, the appearance of video games in classrooms represents an important institutional credit to the new media. Second Life, for example, a multiuser virtual environment, is used by many universities and institutions (e.g. Texas University, Hong Kong Polytechnic University, Harvard Law School, among others) as a virtual classroom or virtual campus, where professors and students interact online. Squire [13] states that video games encourage a way of learning that goes beyond the traditional disciplinary limits and emphasize the problem solving. For Brown and Squire, video games encourage achievements that are attained through the competence, cooperation and teamwork. Nowadays, there are new researches like Guillén-Nieto and Aleson-Carbonell [14] that explain advantages of the use of video game as an educational tool.

2. Problem Statement

Currently, there is a huge problem regarding reading comprehension in Mexico. It is been known that people do not have a reading habit, conclusions that emerged based on results which were obtained in the first survey about reading [15], in which it is revealed that the Mexican's reading average is 2.9 books per year. According to report [16], Mexico is in the 48th place among the 66 countries of the Organisation for Economic Co-operation and Development (OECD) in reading comprehension and analysis. This report places Mexico in Level 2 where there is a minimum and insufficient competence for the execution of complex cognitive activities. Meanwhile, in Spanish language in reading comprehension and

reflection on language at a national level, one of every four third graders is on the “*Under basic*” level, while the 56% is on the *Basic* level (See figure 1-A).

3. Niche Opportunities

The video game industry in Mexico had an average annual growth of 18.7% during 2007-2010 [17]. In 2010, the Mexican market was worth \$757 million, placing the country among the top 15 markets worldwide video game being the first in Latin America (See figure 1-B). So, taking into consideration all this to think about the impact that video games will have in the field of reading comprehension, as proved by several studies on how they have been applied for education in different branches [4].

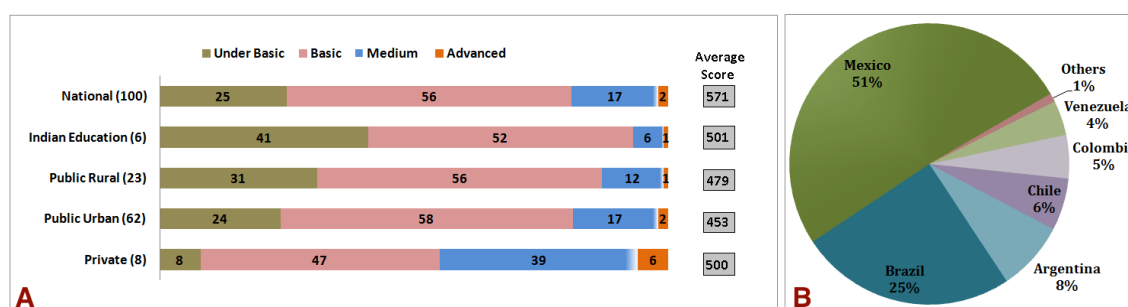


Figure 1. The first graphic (A) shows the percentage of students by level of educational achievement and school stratum in Spanish/Reading Comprehension and Reflection on language [16]. The second graphic (B) shows the distribution of the video game market in Latin America 2009-2013 [17].

Also, it is known that there is correlational evidence that students who read more have higher achievement [18]. An example of this is the correlation between the reading of elementary school students and their score on the Excale test. Excale are tests that measure the school achievement of students from preschool education, primary education and secondary education in different fields. In Gaytán-Lugo and Hernández-Gallardo [19] the results of their study shows that the number of books that an student of elementary school read is directly proportional to the score of Spanish in Excale, inasmuch as the correlation coefficient (r) was 0.608.

Based on the above, two research questions are generated: How to design and implement a methodology in a serious game to raise the level of third graders in reading comprehension? How a serious game promotes reading comprehension of third graders?

4. Method

We are going to use thinking aloud mixed with Solomon experiment. We have to design four groups. Two groups are going to be experimental samples and two groups are going to experience no experiment manipulation. Two groups are going to receive a pretest and posttest, and the other two are going to receive a posttest. This is because the control of the effects of the pretest [20]. In order to collect information and evidence about the progress of reading comprehension that third graders have at a specific moment, during the year they have to play with the serious game, every week we are going to go with the students to apply thinking aloud. This method allows students to speak about what they think and feel at the same time that, in this case, they play with the serious game.

5. Current Progress

Right now we are working in the story that will be fantasy genre as [11] recommended. At the same time, we are looking for techniques that improve reading comprehension. These ones have to be in the script and in the challenges of the serious game in an implicit way.

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