



Serious games for Geophysics

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Childhood stage is indispensable in the education of human beings and especially critical to arise scientific interest in children. We discuss the participatory design of a didactic videogame, i.e. a "serious" game to teach geophysics and Earth sciences to high and low-school students.

Geophysics is the application of the laws and techniques of physics to uncover knowledge about the earth's dynamic processes and subsurface structure. It explores phenomena such as earthquakes, volcanoes, tsunamis to improve our understanding of the earth's physical processes and our ability to predict reoccurrences. Effective mitigation of risks from catastrophic geologic hazards requires knowledge and understanding of local geology and geologic processes.

Scientific outreach can be defined as discourse activity, whose main objective is to communicate some knowledge previously produced in scientific contexts to a non-expert massive audience. One of the difficulties science educators need to overcome is to explain specific concepts from a given discipline in a language simple and understandable for their audience.

Digital games today play a large role in young people's lives. Games are directly connected to the life of today's adolescents. Therefore, digital games should be included and broached as a subject in the classroom. The ardor and enthusiasm that digital games evoke in teenagers has indeed brought many researchers, school leaders and teachers to the question "how video games" can be used to engage young people and support their learning inside the classroom. Additionally, studies have shown that digital games can enhance various skills such as the ability to concentrate, stamina, tactical aptness, anticipatory thinking, orientation in virtual spaces, and deductive reasoning. Thus, videogames become an effective didactic mechanism and should have a place in the classroom.

The project aims to explore the potentials of entertainment technologies in educational processes; contribute to innovative pedagogies for scientific learning; create a scientific feedback-loop with students and teachers; implement a multi-level video game for scientific outreach.