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Contribution

Knowing Students' Mobile Game Preferences to Improve Teaching

This paper presents data from the first phase of a research project called "From games to mobile-learning interactive activities" (PTDC/CPE-CED/118337/2010). This research intends to contribute to create interactive learning activities based on students mobile game preferences, using their own mobile devices. The idea of BYOD - Bring Your Own Device - is to take advantage and use of the mobile devices students own and are familiar with, and use them in the classroom.

Most of the students have a laptop but they are not bringing it to school (Moura & Carvalho, 2008; Trotter, 2009; Certal & Carvalho, 2011), but they bring their cellphone, smartphone, Play Station Portable, or tablet, because these are easy to carry and are not heavy. These students belong to a generation called the "thumb generation" (Rheingold, 2002), digital natives (Prensky, 2001, 2009), homo zappiens (Veen & Vrakking, 2006), amongst others. They like to play games, to be online, to participate actively in social networks, to do multitasking, to send SMS and MMS, to be connected all the time, and so on. They need challenging computer interactive activities to learn using their mobile devices, just as they have in games (Douch et al., 2010; Gee, 2007; Prensky, 2006,2010; Squire, 2008, 2011; Williamson, 2009).

Mobile games are popular. Players can play their games when and where they want using their handheld devices. Gaming is not a single unified activity but a vast array of practices and activities. A game establishes routines, rules and actions that the player needs to learn in order to succeed (Gee, 2007). Game activities are characterized by spaces to be explored, learning by both success and failure, feedback that players can use to adjust their own understanding, and multiple possible outcomes (Klopfer, 2008). Games enable players to practice problem-solving and decision-making skills, to multi-task by dealing with many different ?inputs? and ?outputs? all at once, to collaborate by teaming up with other players, to take risks and experience failure

in a safe environment, and overall, to develop the skills suited to 21st century living and working (Douch et al., 2010; Williamson, 2009). Players learn to manipulate and control highly complex environments and systems (Prensky, 2006, 2010). Gee (2003) recognizes that ?good video games incorporate good learning principles? (p. 114). Based on these ideas, we propose the creation of interactive learning activities for mobile devices based on students? mobile game preferences.

Three research questions guide this project: (i) Which mobile games do our students prefer?, (ii) Which learning principles are embedded in students? preferred games?, and (iii) Which learning principles can be applied to develop interactive activities running on mobile devices?

Four objectives were defined for this research: 1) Characterize students? game preferences in mobile devices. The preferences should be organized according to age segments corresponding to four levels of the Portuguese educational system: 2nd cycle of elementary school (students aged 10 to 12), 3rd cycle of elementary school (students aged 13 to 15), secondary school students (16 to 18 years of age), undergraduate and master students; 2) Identify the games learning principles embedded in those games; 3) Design and implement interactive activities that involve the use of software running on mobile devices; and 4) Create guidelines for the development of interactive learning activities for mobile devices based on the principles identified.

In this paper we will present data related to the first phase of the research: the games that students from 5th grade to master students like to play and their gaming habits.

Method

The research reported in this paper is concerned with the project's first objective and intends to identify students preferred games in mobile devices. The study was based on a survey (Babbie, 1997) conducted in Portugal from 5th grade students to master students. The instrument developed to collect data was a questionnaire available online on the Google Drive Form. Most of the questions were multiple choice, but some were open ended questions. The questionnaire was structured in four parts: 1) student characterization, 2) Mobile game habits (games played in each mobile device and time spent in gaming), 3) Game preferences (the games most played, reasons to play that game, the impact of some game characteristics in continuing to play, if they like to play alone or with others, and if they would like to use games for learning in class), 4) if they would create a game what kind of characteristics it should have. The questionnaire was evaluated by experts. The questionnaire was adapted for the intended audience, from K5 to master students, and four questionnaires were available online, one for each level of the Portuguese education system: 2nd cycle (5th and 6th grades), 3rd cycle (7th to 9th grades), secondary school (10th to 12th grades) and university students. To ask students from 5th to 12th grades to answer the questionnaire available online we had to get the permission of the Ministry of Education. Data was collected from May to November 2013. We got 3214 respondents but game players were 2303, which constitute our sample. This number is distributed as follows: 626 university students, 614 secondary education students, 555 (3rd cycle) from 7th grade to 9th grade, and 508 (2nd cycle) from 5th and 6th grades.

Expected Outcomes

We were surprised with some results related with the games students play most often. Students between 10 and 16 years old play games for 17+ or 18 years like Grand Theft Auto, Call of Duty and Counter Strike, and they explained that they like the action: killing, evading police, steeling, driving cars. Students from 5th-12th

grades also like football games, particularly boys, such as PES, Football Manager, and FIFA. Subway Surfers, LoL, Minecraft, Pou and The Sims are also in the five top list. Girls from 5th-12th grades prefer: Pou, Subway Surfers, The Sims, Super Mario, and Candy Crush. GTA is played by girls from secondary school. With this exception of a violent game, they prefer to take care of pets or people/family, they also like action and winning some coins or points. The games most played by university students were our second surprise: Candy Crush, Angry Birds, The Sims, Bubbles, Flow, Fruit Ninja and Paciência (a solitaire game), with the exception of The Sims, all others are quick games that they play to relax, particularly female students. Male students prefer games that demand more time. Female students play in average 3 hours per week and males from 5.2hours (university students) to 8.9 hours (secondary students). Females prefer to play alone and males prefer to play online with others, except university males that prefer to play alone. The great majority of students would like to use games to learn in schools. University students prefer strategy and simulation games, secondary students would like action, strategy and adventure, and 5th-9th grades prefer adventure, action and sport. The next step is to design interactive learning activities based on students' preferences. Meanwhile we suggest that teachers select quick games particularly for girls and games to be played in teams that demand cooperation for boys.

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