Bringing Scratch into Everyday Classroom: Learning, Struggles and Opinions of Turkish Pre-Service Science and Math Teachers

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SHORT SESSION DESCRIPTION

In an attempt to push pre-service teachers to combine their content knowledge with their problem solving skills and creativity to create better learning environments for their prospective digital native students, a series of workshops were conducted during which participants learned basics of computer programming. In the training, a total of 24 participants designed and developed game storyboards, and programmed them using Scratch platform. The analysis of their products includes comparisons of these games as well as participants' own reflections on their learning. The findings indicate a rise in participants' awareness of programming activities on learning; however, they were unable to reflect this awareness to their own projects of learning game design.

FULL SESSION DESCRIPTION

Project Web-page: http://cet.boun.edu.tr/cs4hs
Facebook Group: http://facebook.com/cs4hs.bogazici
Scratch User: http://scratch.mit.edu/users/cs4hsbogazici

This project was conducted as part of a series of workshops funded by Google's Computer Science for High School (CS4HS) initiative. The workshops took place at a state university located in Istanbul, Turkey. The sample of the study was junior and senior students of the following departments:

1. Primary Education Teaching Mathematics (P-Math) -10 students
2. Primary Education Teaching Science (P-Sci)- 7 students
3. Secondary Education Teaching Mathematics (S-Math)- 7 students

The purpose of the project was not to train pre-service teachers as expert computer programmers but to provide them an opportunity to start programming right away. Accordingly, the programming language had to be one of the simplest and least time consuming programming languages. Therefore, we decided to use Scratch.

Throughout the program, the pre-service teachers participated in a total number of six workshops. Two of these workshops focused on learning Scratch language. In one of the workshops, the participants learned about principles of multimedia design. In another workshop they learned about different game types in terms of educational content integration during which they have seen examples of these game types, and discussed over their effects on students' learning. In the other two workshops, they were given time to apply their programming skills developing and implementing a game. On the first day they were given predefined task to practice their programming skills on Scratch. On the second day, they started developing their own projects.

Throughout the study 3 instruments were used to measure the changes in the participants' learning and outlook on usage of video games in educational context. Before beginning the workshops the participants were asked to design an educational game and draw a storyboard on papers. The second instrument used was the final projects of the participants. They were given one week to complete their projects and submit them online. For both of these instruments they were free to choose a topic from the Turkish mathematics and science curriculum.

Finally as the last part of the workshop, the participants were asked to complete Participant Satisfaction Survey in which they were asked how satisfied they have been with the training, and how they would use the skills they have developed in their teaching careers.

In this talk the procedures and the outcomes of the project will be shared along with the survey data and analysis of games developed by the participants.

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