

Kids@Play: from learners to makers

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Abstract

The paper illustrates the experience of the development of the project " Kids @ Play" made by four students attending the second year of the Technical Institute "G.Vallauri" (Fossano – Italy) with the intention of creating apps for Android devices targeted at disabled children . Winner of the regional contest AICA - USR Piemonte titled " The value of digital skills", the project has been realized through the use of App Inventor introduced during computer classes and designed with the help of experts in the field of severe disabilities. The simplicity and directness of App Inventor, combined with its vocation for multimedia and for the management of "mobile features", make it a particularly suitable instrument to motivate students learning the basics of programming of applications for Android tablets and smartphones. With the goal to present the project and make it known on the net, a video was created by the students and posted on YouTube with English subtitles, video that explains the stages of development of the apps and the choices made by their young programmers.

1. The reorganization of the Curriculum

The Italian Government's recent reform and reorganization of the High School Curriculum requires that two new disciplines be introduced during the first two years of high school: Computer Science Technologies in the first year and Applied Computer Science in the second year. These disciplines advance the concepts of logic and basic programming. One of the tools utilized by Vallauri's Computer Science department to achieve this goal was the programming language "AppInventor," created in the 2007 by Google and now managed by M.I.T. AppInventor programming language introduces students to the Android mobile programming world in a very simple way using the same approach as Scratch programming language. Appinventor is a blocks-programming language that allows the user to build scripts by combining blocks of different colors depending on the functionalities and behaviors desired. This allows the students to decide how the app looks and how it functions.

2. The project “Kids@Play”

In March 2013, after the first contact between Professor Alberto Barbero (computer science professor at Vallauri Technical High School in Fossano, Italy) and the special needs educator at the N.P.I. (Childrens’ Neuro Psychiatry Department at the local hospital), a project was established which resulted in applications being designed for Smartphone and Android tablets by four students of the second year. These applications will be used by disabled children who are cared for by the educators at the N.P.I - Fossano.

After a meeting of all of the people involved in the project, it was decided which application was to be created based on the input provided by the future users. The end product was a series of four applications and a video presentation of the making of the apps.

In particular, the students focused on developing games in four categories: puzzle, memory, color and guessing, all with different levels of difficulty. The apps were made with characters from cartoons familiar to children. The apps will be used to entertain the disabled children in an educational and recreational way.

3. The developed apps

In the pictures below (see Figure 1) are presented screenshots of the students projects Andrea Abbate, Vlad Alazaroei, Claudio Bertan and Andrei Ginju of the former class II° B IINF of the I.I.S. "G.Vallauri"- Fossano (CN). All games are very easy and friendly to be used taking into account the users to whom they are addressed.



Figure 1: the apps Colora il personaggio, Memory, Tocca il personaggio, Cartoon puzzle

The apps allow the user to color images through the touch of the characters taken from cartoons, to play with the cards of memory (four, six or eight cards on the basis of the

possibility of the user), to guess the cartoon character and, finally, to complete simple puzzles by tapping the tiles to be inserted in the correct position.

During the project implementation, was also made a self-produced videos to support and illustrate the experience in the creation of these applications. The video is now published and visible at the link: http://www.youtube.com/watch?v=QIznlx_ztWg.

The project “Kids@Play” has participated at the regional contest AICA - USR Piemonte entitled "The value of digital skills" placed first in the region. Additionally, the app produced were shared among health workers of the local health units to be used with disabled kids as had been expected at the beginning of the project.

4. Conclusions

Having studied and experienced Scratch language with students in the first grade of high school, the transition to the study of App Inventor in the second grade was a winner choice for its simplicity and directness , combined with its vocation for multimedia and the management of "mobile features", things that make it a particularly suitable instrument to motivate students learning the basics of programming apps for Android devices.

Motivation that makes students - even teenagers - aware that they have already acquired operational capabilities to be spent in designing and making tools that are not just mere scholastic exercises with the principal aim of "learning something" but to "do something" that can be used to help, as in our case , someone weaker than us. A change in the way of teaching that makes the students the real protagonists of their own education process.