A Collaborative Game-Based Approach for Children’s Learning of Computer Programming

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Abstract

In society today, the idea and concept of computer programming is being introduced into the education system earlier than ever. Both inside and outside of school, children are being given the opportunity to learn the basic programming concepts through a variety of block-based programming platforms. Organisations such as CoderDojo provide children with a place to learn computer programming among their peers in a collaborative environment.

This dissertation project aims to explore the use and benefits of collaborative game-based activities in children’s learning of computer programming. Although block-based programming platforms are very popular among young learners, not everyone benefits from this style of learning. This study particularly focuses on presenting an alternative platform for those who do not engage effectively with the popular block-based platforms. As part of this project, a new game-based application has been created providing an alternative platform for children to learn the programming concepts.

This research study explores the existing block-based platforms used for introducing children to computer programming. Analyses of these platforms as well as external resources have been performed to understand and outline the content categories needed to make an introductory level application teaching computer programming. Investigation into collaborative learning methods is also carried out, identifying suitable ways to include collaborative learning processes within the application.

The resulting game has been evaluated based on the goals outlined at the beginning of the project. The content covered in the application is adjacent to that of the block-based programming platforms. The application is suitable for introducing children to the beginning stages of computer programming in an alternative non-block-based manner.