Supporting the Construction of Programs on a Mobile Device: A Scaffolding Framework

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Abstract: Computer programming is a difficult subject for most novice learners. Providing support that complements classroom learning could contribute to tackling the difficulties. Due to the ubiquity of mobile devices, such support can be provided by scaffolding the construction of programs on a mobile device. In order to design such a mobile intervention, learners' needs and limitations of mobile devices need to be placed at the center of the design process. This paper combines learners' needs and limitations of mobile devices to identify scaffolding strategies. Identification of scaffolding strategies is based on a scaffolding framework. Using specific examples, this paper will then show how the scaffolding strategies have been implemented on a mobile device.

Keywords: Computer Programming, Scaffolding, Mobile, Framework

1. Introduction

Computer programming is a difficult subject for most novice learners. Research indicates this to be a universal problem (Apiola et al., 2011) (Maleko et al., 2012). This paper forms part of research that aims to contribute to tackling challenges among novice learners of programming, especially in resource-constrained environments.

Scaffolding refers to support provided so that the learner can engage in activities that would otherwise be beyond their abilities (Jackson et al., 1998). Providing such support, in addition to the learners' classroom learning, could