Abstract

This study seeks to explore primary and secondary students' and teachers' experiences, attitudes and beliefs of learning and teaching programming respectively with robots in a private school in Abu Dhabi.

Specifically the research questions that guided the study were

1. How do primary school students perceive using robots to learn programming?

2. How do secondary school students perceive robotics to get introduced to engineering and programming careers?

3. How do teachers perceive using robots as educational tools to teach programming?

A qualitative method was used to collect and analyse data with student and teacher questionnaires; focus group and teacher interviews and classroom observations. The sample of this study included 53 primary students, 12 secondary students and 6 teachers at a private school in Abu Dhabi following the UK curriculum.

The results of the present study revealed that while most of the primary students are highly motivated and interested in robotics, only very few developed problem solving or critical thinking skills and transferred concepts to other subjects or real life. All the secondary school students who have optionally taken robotics in order to participate in the competitions were motivated, interested and perceived the subject as a stepping stone to STEM careers. While all the teachers perceived robots to be valuable educational tools they also identified difficulties in its successful implementation.

Recommendations, based on the findings of the research, are suggested at the end of this paper and are addressed to educators for improvement in the implementation of robotics in schools and to researchers to develop better teaching and training strategies for teachers and activities to cater to students of all abilities.

KEYWORDS: Robotics, Programming, Perceptions, LEGO MINDSTORMS NXT

DEDICATION

I dedicate this dissertation to my three children and my mother who convince me that life is beautiful in spite of its ups and downs.

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