Empirical findings: The use of robotics to engage the youth from lower socio-economic areas

# Details

## Year

2015

## DOI

10.1109/istas.2015.7439427

## Issued

2015

## Language

English

## Authors

Asinobi O.;Allison J.;McKinney M.;Flynn S.;Black M.;Moore A.

## Type

Conference proceeding

## Journal

2015 IEEE International Symposium on Technology and Society (ISTAS)

## Publisher

IEEE

## Topics

Learning

## Sample

134 participants aged 14 -21+

## Implications For Educators About

STEM Education

## Implications For Policy Makers About

Other

## Other PolicyMaker Implication

Developing ICT curricula

# Abstract

Neighbourhood Renewal Areas (NRAs) are among the most deprived 10% of wards across Northern Ireland. The IM HAPPY (Improving Hopes, Aspirations, Potential Prospects in the Youth) project seeks to raise aspirations and provide confidence to residents of two NRAs through the promotion of educational engagement and formalised attainment. As part of the initial stages of the project, four bite-sized computing modules (Multimedia Web Development, Introduction to Mobile App Development, Robotics and Effective Social Media) were delivered to classes in approved secondary schools and community centres within the NRAs. A range of teaching methods were employed to encourage the participants to engage with their learning and these methods were adapted to accommodate groups from different age ranges and with different existing computing skills. This paper reflects on the relative success of these four modules in engaging the participants and attempts to identify influencing factors on performances to help shape future policy and direction. Particular focus is given to the Robotics module and the use of LEGO Mindstorms, with additional observations highlighting differences in participant engagement using age and gender as discriminators.

# Outcome

"Overall, participants engaged well with the majority providing positive excellent feedback. The Robotics module had the highest uptake of all modules and also had a high completion rate (78%).
Robotics was the most popular module with females particularly within the 16-17 age range. Most of these females were enrolled through the schools. Although these pupils attended co-educational schools it was observed that females had a tendency to form all-female groups whereas males
seemed happy to work in mixed groups. The majority of the all-female groups opted to build the puppy robot which suggests that females prefer to have an emotional connection with the object being constructed. The IM HAPPY team has identified the use of Robotics as a potentially suitable vehicle for encouraging female participation in STEM subjects. As a result of this a more advanced and in-depth module (Robotics II) was created. This has already proved popular with participants and further investigation will take place to establish why females appear to engage better with Robotics as opposed to other areas." (Asinobi et al, 2015: 6)