DEVISING A UNIQUE MODEL FOR SCIENCE OUTREACH PROGRAMMES WITH CRITICAL ENGAGEMENT FROM TEACHERS ACROSS THE 5-19 AGE RANGE

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Abstract

Shanahan et al (2011) argues that science outreach programmes not only aim to support teachers with curriculum engagement and promote scientific literacy, but that they also provide pivotal opportunities to spark scientific interest in students. These notions are widely recognised by the national organisation for science which encourage the partnership between scientists and schools (NSERCC, 2008; NSF, 2008). Outreach work is described as a fun and satisfying venture which can enhance the learning experience (Shanahan et al, 2011); however, Bogue et al (2013) warns that there is little evidence to suggest whether these types of activities achieve their overarching goal; to encourage people to enter and persist within science careers.

The aim of this project was to identify how teachers reflect upon science outreach activities they have encountered and reflect on features of these programmes that may contribute to their success. The project was split into two phases: the first phase involved conducting questionnaires (n=52), interviews (n=8) and analysing the data via quantitative tests and thematic analysis (Bran and Clarke, 2006) to develop a preliminary model for the ‘optimum’ delivery of science outreach. The second phase was designed to modify this model using principles of Modified Grounded Theory via conducting focus groups (n=4) to refine the model.

The model itself is designed to ensure the experience for the young people who access these outreach programmes is more impactful as it provides longevity to engage students post intervention via the inclusion of parents and teachers. Additionally, the model considers how to support formal learning in school and further enthuse and engage learners in science. There is also a focus upon which aspects of the model are the most important to engage those from a lower socioeconomic background, as this still remains an underrepresented demographic in the physical sciences (Alexander et al 2011; Shaw et al, 2010). Thus, developing inclusive learning cultures is a key aim of this model, with is of interest to those of all educational levels.

Keywords: Outreach, science, teachers, model, STEM.