People like me—Encouraging girls to see themselves in STEM careers

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People Like Me—Encouraging Girls to See Themselves in STEM Careers

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Abstract. People Like Me is an intervention activity for 11- to 16-year-old girls developed by the Women into Science and Engineering (WISE) Campaign and Professor Averil Macdonald. It is part of a long tradition of efforts—in the United Kingdom and globally—to tackle gender inequality in the study of science, technology, engineering and mathematics (STEM) subjects and to encourage more diversity in the scientific, engineering and technology sectors. The core concept of People Like Me is that raising awareness of the range of possible careers and jobs in STEM will encourage girls to continue studying science subjects in school and to aspire to STEM careers. This novel project focuses not on what scientists and engineers do, but on personality traits. People Like Me encourages girls to think about their natural strengths and characteristics, and recognize the same qualities in role models working in STEM who share similar characteristics. This paper explores the intervention’s success in changing attitudes about STEM careers.

BACKGROUND

People Like Me is an intervention activity for 11- to 16-year-old girls developed by the WISE (Women into Science and Engineering) Campaign and Professor Averil Macdonald. The People Like Me workshop activities and materials were developed in 2015 following the recommendations of a report compiled by Professor MacDonald and sponsored by Network Rail [1]. This report synthesized previous research about women’s participation in science, technology, engineering and mathematics (STEM) and advocated a career education model based on personality traits rather than job content. Under this model, the students evaluate their own characteristics and relate them to the characteristics of a range of role models from different STEM jobs.

A further aspect of the strategy is to involve parents who are recognized as being crucial influencers on career decision-making and subject choice. Thus, a variation of the intervention was designed for parents and children (especially mothers and daughters) to attend together.

Researchers have tried for many years to understand why girls and women are so underrepresented in some areas of STEM education, a problem that is particularly intense in the United Kingdom compared with some other Organisation for Economic Co-operation and Development (OECD) countries [2]. It is clearly not about ability. An extensive review of the evidence in the psychological literature concluded that there is no evidence that women’s underrepresentation in mathematics-intensive fields is due to gender differences in ability or motivation [3]. Rather, the so-called math gap is due to social and cultural factors such as stereotype threat whereby women and girls perform less well because they are unconsciously conforming to stereotyped expectations [4].

This study looked at the change of attitudes from girls who undertook the People Like Me workshop. The workshops were run for single-sex groups of girls only (although some from within mixed gender schools).

METHODS

A mixed methods approach was used for the overall project, including semistructured interviews with teachers, parents and industry partners. The data are reported fully elsewhere [7].
The results reported in this paper relate specifically to the activity sheets completed during a series of People Like Me workshops and questionnaires completed by participants after attending the sessions. Two questionnaires were created, one for girls and the other for parents. A total of 229 questionnaires were completed by girls at six parent-child events and one school class event. The ages of the girls ranged from 8 to 16 years, but 79% were in the target age range of 11–14 years, in school years 7–9. Only responses from girls in school years 7–9 have been analyzed here (180 responses).

RESULTS

Questionnaire responses from the girls were overwhelmingly positive, and most said they found the session useful and learned a lot. The quiz and interactions with role models were particularly well received, confirming that the approach is successful in demonstrating to girls that STEM can be for “people like me.” Fifty-seven percent of girls completing questionnaires reported that they were now more interested in studying science and maths at school, and the percentage who were not interested at all decreased from 10% to 4% (Fig. 1).

![Figure 1](image_url)

**FIGURE 1.** Responses to “How do you feel about studying science and maths at school?” (a) before the intervention and (b) after the intervention.

In the questionnaire responses, nearly two-thirds of respondents said they had learned more about different careers in STEM during the workshop. From their comments, it was clear that the session had increased their awareness of the variety of jobs that involve STEM, and their understanding of the value in choosing to study STEM subjects.

Parents and carers who attended parent-child events also found the sessions useful and learned about different careers that might suit their child. Of parents completing questionnaires, 76% were very interested in STEM subjects, and 60% currently or previously worked in jobs that involved science or technology. Ninety-six percent of the parents or carers stated they would be really pleased to support their child if they wanted a STEM career.

In one of the workshop activities, girls were asked to suggest three words from a pre-prepared list that they would now use to describe STEM jobs. We analyzed their responses by grouping words according to their meaning, and the frequency of different responses. The results are shown in Fig. 2. The most common description was “interesting” (mentioned 98 times), followed by “clever” (26), “varied” (25), “useful” (23), “fun” (23), “well-paid” (21) and “exciting” (20).
Another activity asked the girls to choose adjectives from a pre-prepared list to describe themselves, based on their own self-perceptions. These were then mapped onto work-related roles. Most frequently identified roles for the girls who participated were explorer, supporter, and trainer. The lowest responses were for policy maker, entrepreneur and manager.

CONCLUSIONS

The questionnaire responses from girls were overwhelmingly positive, and most said they found the session useful and learned a lot. The quiz and interactions with role models were particularly well received, confirming that the approach is successful in demonstrating to girls that STEM can be for “people like me.”

The questionnaire included an open comments box inviting participants to say whether anything had surprised them during the session. Some girls were surprised by the variety of careers open to them, but others commented on the lack of women in STEM careers. There is a careful balance to be had in how these messages are delivered as they may undermine the central message that STEM is indeed for “people like me.” An important way to change perceptions of gender-appropriate career choices is through role models. Girls were asked on the questionnaires how sessions could be improved, and some suggested they would like more time to talk to each other and to the role models.

Notably, two of the most popular roles chosen in the “preferences” activity were in support rather than leadership roles, and further research could be undertaken to ascertain whether girls and boys are making different choices in their adjectives leading to different outcomes in the subsequent suggested job roles.

RECOMMENDATIONS

Teachers in schools reported that People Like Me sessions were enjoyed by girls and broadened their understanding. However, they were often stand-alone sessions, and the activity might be more beneficial set within a series of STEM or careers interventions, as intended by the author of the original People Like Me resource. The teachers we spoke to referred to the decrease in career advice in schools, which meant providing opportunities for young people to think about their futures are even more valuable than in the past. Schools were also able to post adverts and reports about their sessions on their websites and magazines, to demonstrate their commitment to girls and STEM to parents and the wider community.

Most of the questionnaires analyzed were from sessions held at girls-only schools. It was easy for girls’ schools to organize People Like Me sessions, but we found some mixed-sex schools were reluctant to run girls-only sessions owing to logistical difficulties or ethical issues of inclusivity. However, it could be argued that girls in mixed schools would benefit from this intervention more because their participation rates (particularly in physics) are generally lower.
ACKNOWLEDGMENTS

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REFERENCES