# Participatory research on parental attitudes towards STEM in Ireland

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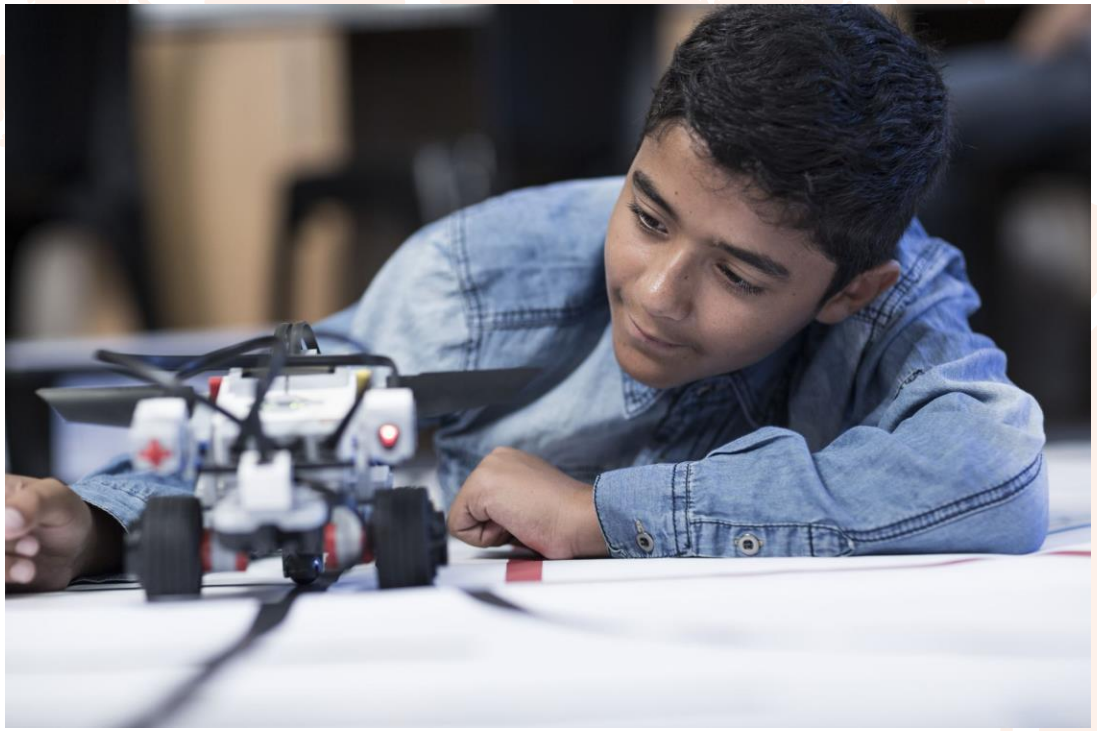
# Introduction

- A child's early learning in science, technology, engineering, and mathematics (STEM), is a strong predictor of future success.

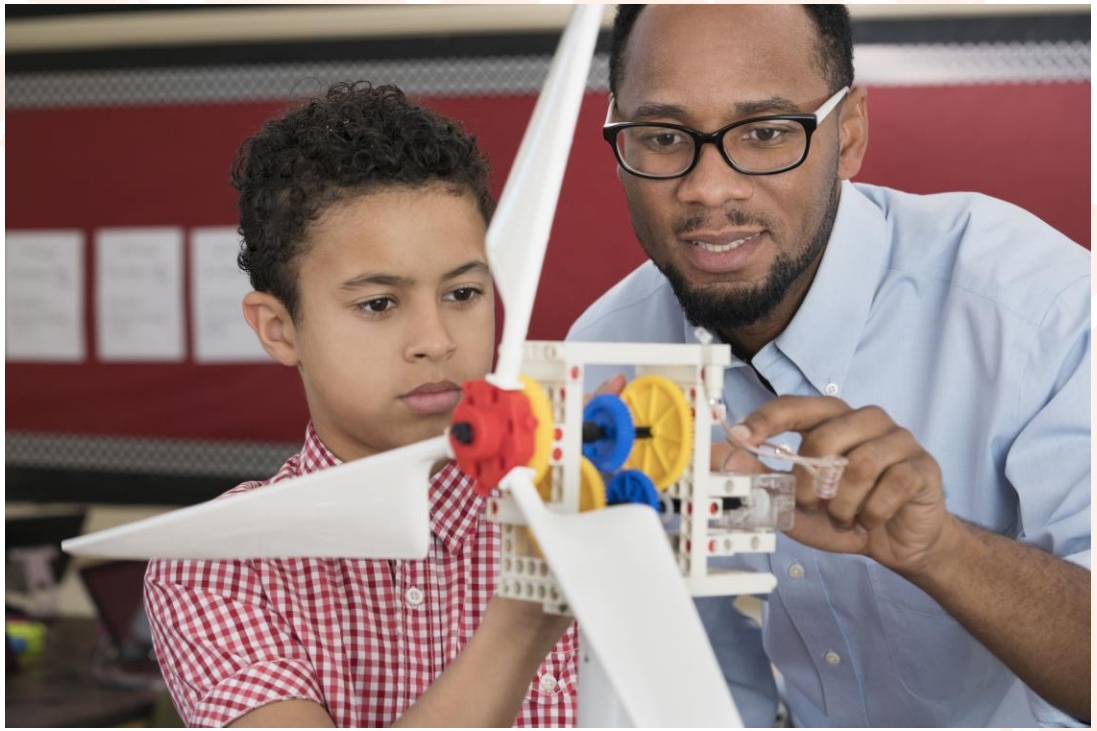
- However, STEM is challenging for many children, requiring motivation and self-efficacy, which has been shown to predict students' level of effort and persistence in learning a new skill, and increases career interest.



# Introduction

- In the early years, an important source of this motivation and self-efficacy comes from parents, whose own knowledge and confidence with science and technology can influence a child's self-efficacy.

- However, a key barrier is that many parents living in disadvantaged communities have low levels of knowledge and self-efficacy in STEM themselves.



# Introduction

- Aim: To develop a more in-depth understanding of parental attitudes and awareness of STEM and digital technologies in Ireland, including Dublin's North East Inner City.

- It is hoped that this will enable us to develop more effective educational programmes in the future to increase access to STEM.

# Qualitative methods

- Semi-structured interviews with parents living in Dublin's North East Inner City were designed based on a theoretical framework known as the parent socialisation model.
- Three pilot interviews were conducted with parents in July 2024, followed by ten interviews.
- Interview transcripts were analysed using thematic analysis, as described by Braun and Clarke (2006).

# Quantitative methods

- A survey was distributed to parents living across Ireland using Microsoft Forms.
- This survey was divided into six sections that asked parents about different aspects of STEM, including artificial intelligence (AI).
- The data presented in the Results section is based on 157 parents.
- Survey data was analysed using descriptive statistics in Microsoft Excel.

# Qualitative results

- Based on 13 interviews with parents living in Dublin's North East Inner City, many parents conveyed that they feel fear when they hear the term STEM, and for some, this is associated with challenges with mathematics in school.

- Parents feel they are not good at using digital technology but reported using it every day.

- Parents acknowledge that there are both benefits and costs to using digital technology.

# Quantitative results

- In contrast to the interviews, survey results indicate that familiarity with STEM subjects is widespread in Ireland more generally, with only 8% of survey respondents finding them challenging and about 5% of survey respondents unable to answer their children's STEM-related questions.

- A significant majority (85%) value early STEM education for children's future, and 89% disagree with stereotypes that STEM is solely for boys or gifted children.

# Artificial Intelligence (AI)

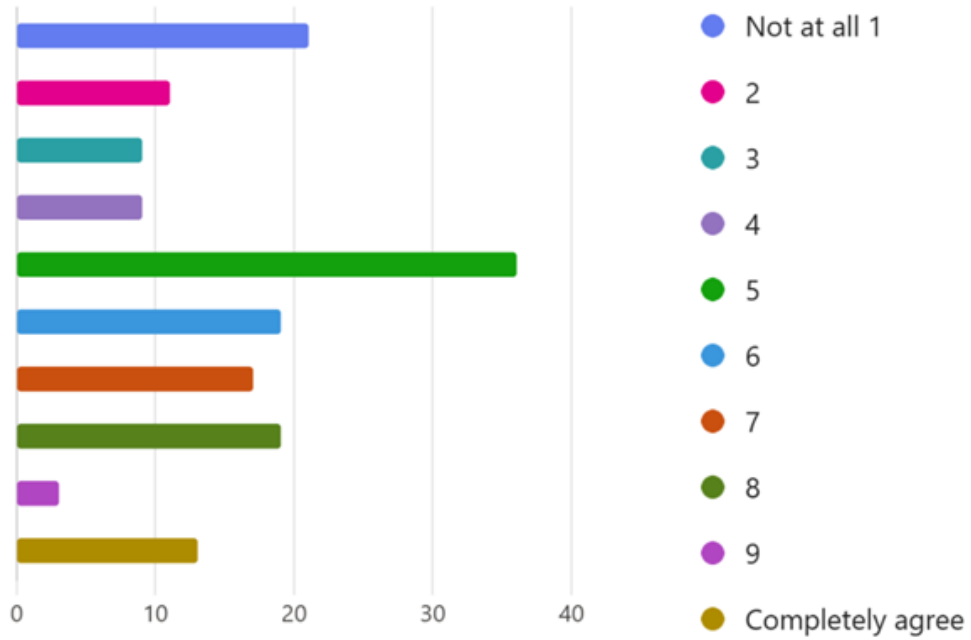



Fig. 1. AI will improve my life

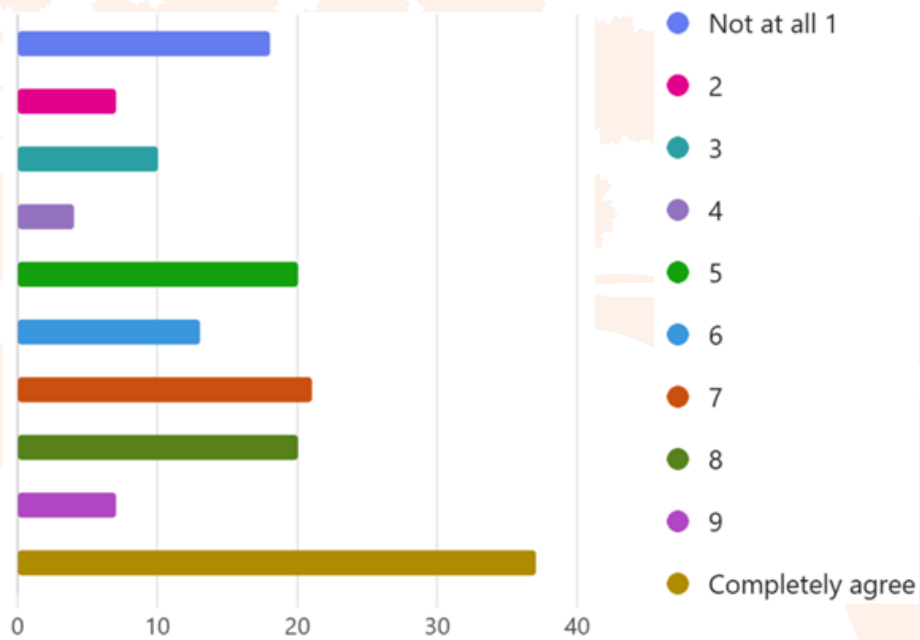



Fig. 2. I will use AI in the future

# Conclusion

- Interviews and survey data show that parents have positive views of STEM education and AI, but mixed feelings about their own confidence in STEM, and need more information on AI.

- In addition, gender stereotypes remain for at least some of the respondents, and examining this topic further will be an important focus of future research.

# Conclusion

- These results are consistent with prior research by this group, which show that many parents lack confidence in their ability to support their children's learning but nonetheless have high aspirations for their child's education and support the initial hypotheses of the study.

- Taken together, these findings strengthen the rationale for designing new learning programmes to increase access to STEM learning for both children and parents living in this community.

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