

Exploring pupils' attitudes towards mathematics in year 3



1. Project background

Mathematicians have always held a high level of respect amongst their academic peers, yet the subject of mathematics, although revered, remains a source of anxiety and trepidation for a large number of people, especially children. This project aimed to explore the behaviour, attitudes and beliefs of primary school pupils towards mathematics and the impact that this may have on their mathematical ability. Data was collected during eight visits to a local primary school, where the researcher carried out observations in numeracy lessons and conducted several focus groups with pupils.

"That was only hard because I didn't understand it, but now I do understand it, it's sort of not hard." – Year 3 pupil

Self belief and mathematical ability

Anxiety and low confidence were feelings expressed by many of the middle and lower achievers, causing them to give up on tasks without making a concerted effort. A difference in attitudes between genders was also clear, with girls often attributing success and failure to external factors, rather than their own ability.

2. Summary of findings

There were several interesting outcomes of the project, which have real implications for the education community. The research was primarily exploratory, and as such, in many places it has raised more questions than it has answered. In that sense it has been successful – new issues have been identified and some of the previous theories about attitudes towards mathematics have been confirmed. In particular, several recurring themes were identified:

The importance of reflection

Time constraints of the school day were particularly evident, preventing a reflection period at the end of the lesson.

Mathematics and its apparent lack of purpose

Children across the ability range struggled to identify practical uses of mathematics, which may make the subject appear meaningless or boring.

The language of mathematics

Numbers, symbols and the mathematical syntax that combines them cause significant distress for many, often alienating them from the subject.

3. Implications

While the root causes of some of the issues have not been determined, this project has laid considerable foundations on which other projects can build and develop concepts concerning attitudes towards mathematics. The teacher can use the ideas put forth to improve the attitudes and abilities of his/her pupils, and the researcher can establish several new projects to build on this one.

For the teacher

- 1) Explore how the children perceive mathematics and its uses outside of school. By improving the understanding of the uses of mathematics, pupils will hopefully see the benefits of developing strong mathematical skills for more than just academic purposes.
- 2) Consider changing the lesson format to incorporate a new, extended plenary, where the children have the opportunity to discuss and learn from their mistakes as part of the lesson.
- 3) Attempt to increase confidence by showing pupils that mathematics is not a subject restricted to those who are exceptionally gifted.

For the researcher

- 1) Gather information on a larger scale regarding children's perceptions of practical mathematical uses to see how widespread the issue is and if there is any correlation with mathematical ability.
- 2) Investigate the usefulness of a revised plenary, and the impact it has on children's attitudes towards mathematics, as well as their ability.

4. Evaluation of the URSS experience

Carrying out a research project has provided me with a unique experience to pursue an academic interest at a high level, whilst gaining several transferable skills that can be applied to both my degree and future career. The URSS scheme has encouraged me to engage in further research, where hopefully I can build on the findings of this project.

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