I can’t do maths, yet! The impact of process praise on maths mindset and effort

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Introduction

Carol Dweck’s ‘theories of intelligence’ proposes that different core beliefs about intelligence can set up different patterns of response to challenge and setbacks.

Fixed mindset ⟷ Growth mindset

Previous research has shown that even when pupils on both ends of the continuum show equal intellectual ability, their theories of intelligence shape their response to academic challenge (Aronson, Fried and Good, 2002).

Furthermore, a person’s theory of intelligence appears to be unrelated to the value they place on a particular skill set e.g. mathematics. Rattan et al (2012) analysed undergraduates’ sense of belonging, enjoyment and usefulness of maths and revealed maths was equally valued by participants with different theories of maths intelligence.

Impact of praise

According to Haimovitz and Corpus (2011) teachers who use praise which focuses on traits and abilities reinforce intelligence as fixed and unchanging (entity theory). This in turn leads to decreased motivation, engagement and effort. The effects of praise on pupils’ effort and attainment is therefore greater in subjects where pupils regularly experience difficulties and failures such as maths.

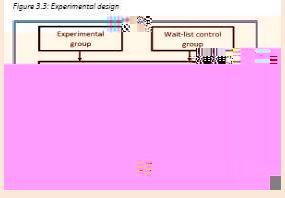
Research questions

RQ1 - Do pupils in Year 4, 5, and 6 who are exposed to daily process praise show a higher growth mindset in maths when compared with a waitlist control?

RQ2 - Do pupils in Year 4, 5, and 6 who are exposed to daily process praise achieve a higher effort grade in maths when compared with a waitlist control?

RQ3 - For pupils in Year 4, 5 and 6 is there a positive relationship between theories of intelligence, as measured by maths mindset scale, and the value placed on maths, as measured by belonging and usefulness scales?

Methods



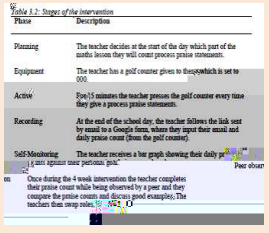
Pre and post measures

Maths mindset B(d)4.39.00(i)3.6Q2.1(r)21 5937.4hs

Effort

Value of maths

Procedure and fidelity



Phase	Description
Planning	The teacher decides at the start of the day which part of the maths lesson they will count process praise statements.
Equipment	The teacher has a golf counter given to them which is set to 000.
Active	For 15 minutes the teacher presses the golf counter every time they give a process praise statements.
Recording	At the end of the school day, the teacher follows the link sent by email to a Google form, where they input their email and daily praise count (from the golf counter).
Self-Monitoring	The teacher receives a bar graph showing their daily pr
on	Once during the 4 week intervention the teacher completes their praise count while being observed by a peer and they compare the praise counts and discuss good examples. The teachers then swap roles.

The fidelity check involved the researcher agreeing with the teacher to come into the maths lesson and complete the process praise count at the same time as the teacher. Further fidelity checks involved the researcher receiving daily praise count data through the Google form for each participating teacher.

For research questions 1 an 2 a mixed analysis of variance (ANOVA) was