ENGAGING K-2 STUDENTS IN PROBLEM-SOLVING STEM TASKS

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THEME:

Engaging students in STEM Education

BACKGROUND AND AIMS

The type of STEM tasks we provide, and the way we introduce them to students in their first few years of school, can influence their long-term engagement and learning of STEM disciplines (Hannula, 2019). Despite evidence indicating that many teachers are reluctant to use cognitively challenging tasks, research is emerging to indicate that students prefer and enjoy solving such tasks (Russo & Minas, 2020). As part of a large project involving early years teachers and their students implementing sequences of challenging tasks, we aimed to: (1) investigate young students' engagement in, and preferences for challenging, problem-solving mathematics tasks; and (2) explore students' reasons for their engagement and preferences for tasks of different challenge levels.

METHODOLOGY

Data were collected from 27 Kindergarten to Year 2 students (aged 5-7) in a semi-structured individual interview conducted immediately following a lesson involving a challenging problem-solving mathematics task. Students were asked to select their next task. They could choose a task more challenging, less challenging or about the same level as the one they just completed. After selecting their preferred task, they were asked to explain why they selected it.

RESULTS AND CONCLUSIONS

Eighteen (67%) students preferred tasks that were more challenging than the one they had just completed, six (22%) preferred one about the same level of challenge and three (11%) students preferred an easier task. Of those students who preferred a more challenging task, 16 described that more challenging tasks would help them learn and their "brain to grow".

Students' reasons for their preferences have implications for teachers' practices and the design features of the STEM tasks they provide early years students.

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