

# Researching out-of-school learning in mathematics: Breaking out of the boundaries.

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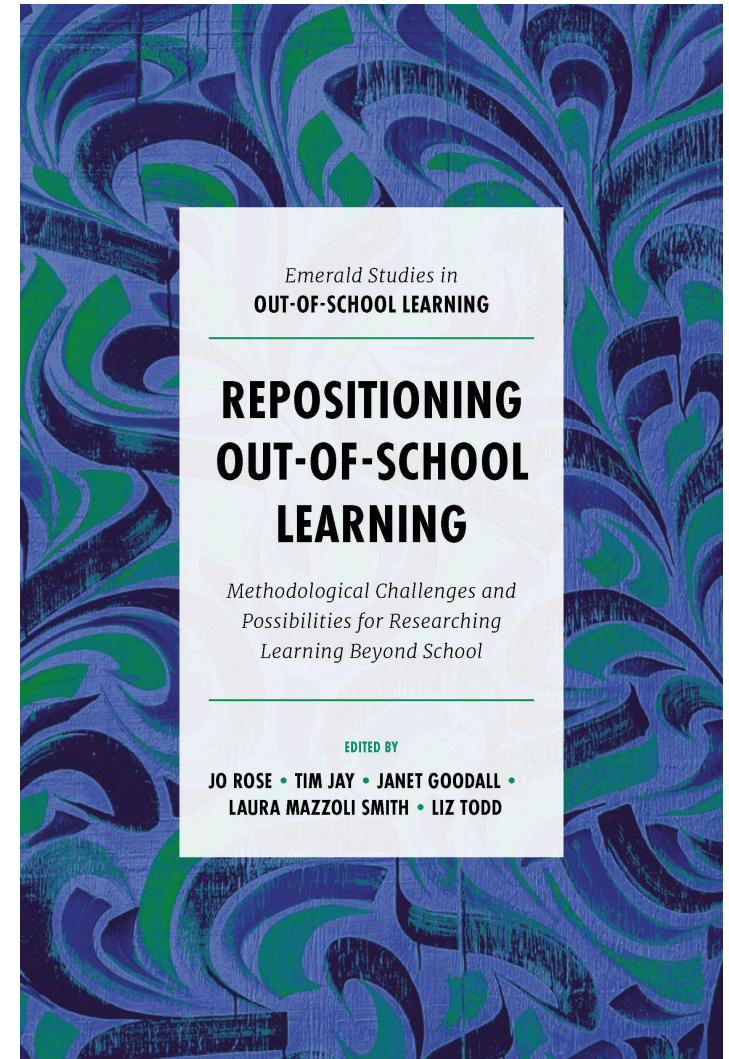
Bristol Conversations in Education

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# Overview

- Family/School dynamics
- Two projects: Economic Activity; and Everyday Maths
- Different agendas – who were we trying to help, and who had agency?
- What did we achieve? What did we learn?
- Translational research
- Research into practice
- The impact agenda: How to achieve sustained change?

- Looking beyond school - why is it difficult?
- Parental engagement: Is it always "A Good Thing"?
- Considering family/school dynamics
- Introducing new ways of doing things into schools – it's complex!



# The Economic Activity Project

- Understanding children's out-of-school mathematical thinking and activity
- Survey with 484 children in Years 5, 7, and 9, to understand (eg) favourite possessions, pocket money practices, as well as monetary and non-monetary activity
- Children in Year 5 (2 schools) and Year 9 (1 school) documenting their out-of-school mathematical activity (diaries, parent questionnaire, photos, etc) and discussing in group interviews
- "Finding the maths" - making learning explicit. Children in Year 6 (2 schools) shared documentation of activity and recorded learning about maths

# The Everyday Maths Project

- Aimed to empower parents to support their children's informal maths learning
- Primary schools, mainly parents of Y3 and Y4 children
- Questionnaire and focus groups (16 schools) to help understand existing practices and challenges
- Series of workshops with parents (4 schools) to
  - Discuss family activity
  - Recognise the maths
  - Develop conversations with their children
  - Reflect on the project

# Whose agendas?

Children

Parents

Teachers

Us, as  
researchers

Funders

How did the projects meet those agendas?

How did we get people to "buy in"?

# Shifting Agendas

- How did the projects shift those agendas?
- Akkerman & Bakker (2011) on boundary crossing
- What did the projects *reveal* about those agendas?
- Can the different agendas be aligned? *Should* they be aligned?

# Whose learning is it?

- Allowing participants to own their agendas
- Supporting thinking about how to pursue their agendas (is this "empowerment"?)
- Our learning – as researchers – about unpredictability, agility, and flexibility
- What is needed to effect change?



# Translational research in education

- Lost opportunities for research to have impact
- Uninformative large-scale evaluations (Lortie-Forgues & Inglis, 2019)
- Loss of trust in ‘evidence-based’, ‘research-informed’, within teaching profession
  
- Analysis of high-scoring impact case studies in UK – generally low level of real sustained change due to research
- Concepts from the research on learning do not translate unproblematically from research to practice

# The gap between research and practice

- Controlled v Uncontrolled environment – do we see the same effects?
- Characteristics of research participants v that of intended participants
  - Age
  - Ethnicity
  - SES
  - SEN
  - Attitudes/experience
- Group size – individual v small group v large group
- Knowledge/expertise of facilitator – can *anyone* do this?

# Methodological background

- Implementation Science (e.g. Kelly & Perkins, 2012)
  - Longer history of research in this area in medicine / public health
- Design Research (e.g. Design-Based Research Collective, 2003)
- Change Management (e.g. Stanley, 2006)

But!

- Very little that addresses all aspects of that gap between research and practice

# Key foundations for implementation with teachers

- Trust and communication – e.g. recognition of competing pressures
- Transparent shared goals
- Teacher ownership/autonomy/expertise – teachers as agents of change
- Sustainability – e.g. “minimum effective dose” / just change 1 thing

# Replicate model/cycle from previous phases

- Share background in both research and teaching
  - Assessment of current situation and approaches
  - Co-design of intervention
  - Evaluation of outcomes
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- Repeat cycle with aim of sustainable change through reflective practice
  - Incremental innovation

# Conclusions

- Positive outcomes in schools – further work required to replicate, build and share evidence base
- Impact can't be rushed
- Challenges in scaling up
- More focus on achieving sustained change
- Translational research before impact
- Can draw on useful research and guidance from outside education

Thanks for listening!

Any questions?

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