

Reflections on Writing ERFP Grant Proposals

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INSPIRING LEARNING
TRANSFORMING TEACHING
ADVANCING RESEARCH

Mapping out my story (through grants)

Phenomenon: early
number word learning
trajectory



Mapping out my story (through grants)

Early Number
Acquisition in Bilingual
Children
(ERFP Tier 1)



Mapping out my story (through grants)

Early Number
Acquisition in Bilingual
Children
(ERFP Tier 1)



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Multi-digit Acquisition
(ERFP Tier 2)

Mapping out my story (through grants)

Early Number
Acquisition in Bilingual
Children
(ERFP Tier 1)



Longitudinal Study to
map developmental
mechanisms
(MOE AcRF Tier 1)

Multi-digit Acquisition
(ERFP Tier 2)

Preschool PD Study
(research-practice gap)
(ERFP Tier 2)

Mapping out my story (through grants)

Early Number Acquisition in Bilingual Children (ERFP Tier 1)

2019



Longitudinal Study to map developmental mechanisms (MOE AcRF Tier 1)

2024

2022

Multi-digit Acquisition (ERFP Tier 2)

Preschool PD Study (research-practice gap) (ERFP Tier 2)

2023

How to conceptualize a project proposal?: My approach

Most of my studies focus on how children learn "symbolic" number, and they're developed based on a **desire** to find out more about X (for me: the learning and development of number concepts) or some **dissatisfaction** with how X (for me: knowledge about number concepts) has been studied/measured.

1. Focus on a **phenomenon**, testing an existing theory / competing theories that explain the phenomenon
2. Something that interests you *deeply*.
3. To start, something that you know best.
4. Base on your prior work

How to conceptualize a project proposal?: Some thoughts

The phenomenon that I have studied has not been explored in Singapore

Locating Problems of practice

- Start with your personal observations and reflections
- Talk to people!
- Find an opportunity to be in a classroom/educational environment and observe
- Then look at the MOE document for a sense of their priorities

Challenges in Writing the Proposal

1. Finding Time.
2. Literature Review

Dealing with the Challenges....

1. Book yourself a "meeting" in your calendar, regularly and/or in bursts. There's no "finding" time. **You make time.**
2. Tell your reader why your proposed studies contribute to the topic of study.
 - What do people need to know?
 - **Work backwards from the research gap.** Identify key concepts/findings from there.

Perspective taking



Writing the Proposal

I will take for granted that you

- Will be reading the grant call in detail A FEW times
- Know the required sections
- Know the required format, length requirements, budget requirements, and all the other administrative details

Writing the Proposal

1. The first paragraph

- Present the problem that motivates your proposed research (Why does this problem matter? What's the problem and why is this important?)
- Does the proposed research answer an important question with practical implications?
- Stating the problem and significance clearly and early

Writing the Proposal

1. Coherence
 - Did you provide readers with all that they need to know to understand your study design? (Motivating the variables and design in the introduction)
 - Does your design and analysis “match” the question?
2. Provide sufficient details about study methods *for evaluation*, but not **exhaustive** (e.g., if your study uses interviews, provide sample interview questions vs. simply “we will conduct an interview on their perspectives on X”; correlational studies, what are you measuring and what are in the measures/instruments?)
3. “Gap language”: Not only that there is a gap, but argue for **why** that gap/gaps are worth filling

Writing the Proposal

Reviewers are busy people, help them!

1. Be explicit about how the study addresses MOE's goals and priorities
2. Use headings (even better if you can use them to tell a story)
3. Use bold, italics for emphasis, but sparingly
4. Use tables and figures to present and summarize study design

Take a step back from the grant proposal and read it again. That is, take a break from it for a few days. Do this a few times. You'll have fresh eyes and see things that you didn't see before

C. Literature Review

Children count early, but lack meanings for number words.

Number word learning is malleable.

Motivate a training study
component in the grant

Bilingual children show the same protracted pattern of number word learning, but evidence is mixed on whether knowledge of number word meanings transfers between languages.

Motivate a need to investigate
bilingual number acquisition

C. Literature Review

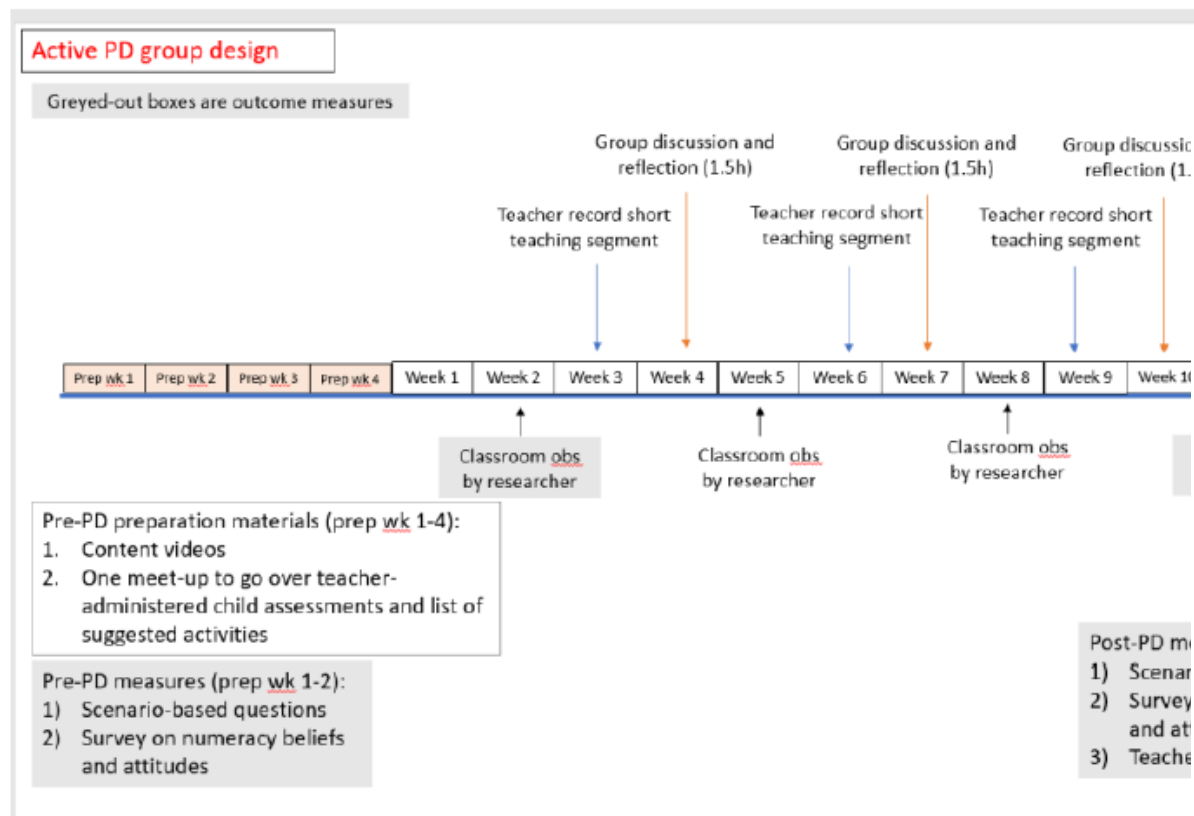
Early exposure to mathematics and individual differences

Teachers' knowledge in early mathematics education

Professional Development as a catalyst for providing rich mathematical interactions

Motivate an entire study to compare different types of PD

Figure 1a: A timeline view of the research design for the active PD group.



Analysis. See Table 2 below for our analysis plan for the different research questions.

Research Questions	Analysis plan
1. Do collaborative learning and teacher reflections improve instructional quality relative to increasing teachers' PCK alone?	Compare instructional quality (quantity) of teachers from active PD against those from passive PD using an independent-samples t-test (1-tailed). Compare the context and complexity of teachers from active PD against those from passive PD by focusing on the context and complexity of the numeracy activities.
2. Does increasing teachers' PCK improve instructional quality relative to those in the no intervention group?	Compare instructional quality (quantity) of teachers from passive PD against those from no intervention using an independent-samples t-test (2-tailed, because existing studies do not unequivocally point to positive effects, see Piasta et al., 2015). Compare the context and complexity of instructional quality (quality) of teachers from passive PD against those from no intervention.
3. Can self-paced learning increase teachers' PCK?	Compare the difference score on the PCK scenario-based questions (post – pre) of teachers from the passive PD group against those from the no intervention group using an independent samples t-test (2-tailed).
4. What are teachers' experiences with using formative assessment in the preschool classroom?	Thematic analysis of teacher interviews across both active and passive groups.

Reflections from Reviewing Grants

1. Lack detail, unfocused goals, too broad
 - Improve learning in STEM for low SES students
 - Support socio-emotional development in children
2. Too ambitious
 - Two-year study, with multiple components
3. Some components in a proposal aren't well motivated
 - Propose an intervention in a study that is about understanding the phenomenon / addressing a problem
 - Analyses do not match the question or design

Reflections from Reviewing Grants

4. Feasibility

- Has this researcher done research in this/adjacent areas before? Can I tell from the grant proposal?
- Recruiting a specific population: What's your strategy for recruitment?
- Can they finish the study on time?
- Are the researchers using new methods? Will piloting be needed? Did they fact that into the timeline and budget?