How adults come together to support the mathematical learning of children making the transition to school

Dr Wendy Goff
wgoff@swin.edu.au
The Journey...

- Family-School Partnership
- Transition to School
- Prior-to-school and First-year-of-school teacher partnership
- Young children and mathematics
- Adult perceptions of young children and their mathematical learning
- Adult perceptions of young children from complex households and mathematics
And what I found was...

- Children start school with mathematical understanding that has been developed and supported in a variety of settings (Knaus, 2013).
- This understanding is embedded within the sociocultural practices of families and communities, and is surrounded by specific meanings, traditions, and ways of doing and knowing (Civil, 2009; Meaney & Lange, 2013).
- Supporting these existing understandings is important but also difficult for educators and families to do, as it demands a significant investment of time (Wager, 2013).
- It also requires a specific form of expertise whereby adults need to be able to recognise and respond to mathematical learning, including what others have to offer about it (Edwards, 2010, p. 13).
And what I found...

- Current research, policy and practice describe adults working together with diverse language, and some of this language can position people, shape interactions, and restrict the recognition of opportunity and possibility (de Carvalho, 2001).

- Examining how individuals come together to identify and support the mathematical understandings of children, what processes they engage in, how such relationships are forged, and what emerges through these relationships, has the potential to guide future ways of working together.

- Observing *how* individuals come together to support children and their mathematical understandings is easy; *understanding* this process is not so easy.

- Understanding involves exploring the spaces that lie between people with an openness to “developing dispositions for not yet contemplated ways of thinking” (Nakata, Nakata, Keech, & Bolt, 2012, p. 130).
The Plan…

• An intervention that would bring the adults in the lives of young children together to focus on supporting the mathematical understandings of children as they made the transition to school.
The Plan…

• To provide time for the teachers to participate in the intervention effectively
• To share some of what I had learned through my engagement with the research literature with teachers and families
• To bring teachers and families together in ways that were not imposing
• To observe and to learn
• To contribute to both theoretical and practical understandings
Methodology

- Design Based Research (DBR) is a methodological approach that provides a way to focus simultaneously on the development of both theory and practice.
- It consists of a series of approaches that emerge and are embedded in real world contexts, are interventionist in nature, and that are guided by, and contribute to, theoretical and practical understandings.
- DBR is research that is conducted with people not to or on people.
The Intervention...

• To create two teams located at two different sites

• Provide each team a design brief:
  ✓ Establish the existing mathematical understandings of children
  ✓ Create a plan to support those mathematical understandings as the children made the transition to school

• To facilitate, guide and observe what took place.
Aims of the Inquiry

There were three broad aims to the inquiry:

1. To determine what processes the adults in children’s lives engage in when establishing and maintaining a relationship that focuses on supporting the mathematics learning of young children.

2. To determine whether bringing adults together to focus on the mathematics learning of children supports this learning as they make the transition to school.

3. To determine whether these processes could provide guidance for future practice.

These aims were used to formulate the research questions and sub-questions:

1. What processes do adults engage in to establish and maintain relationships that focus on the mathematics learning of children as they make the transition to school?

2. What facilitates adult relationships as children make the move to school?

3. How do adult relationships support the mathematical learning of children as they make the transition to school?

4. How could information about the processes identified be used to guide future ways of forging and maintaining adult relationships as children make the move to school?
Methods

• Participant diaries
• Researcher field notes
• Video/audio recordings of team meetings
• Email data.
Theoretical Lens

• Nakata (2007) explains the Cultural Interface as the space between different people who come together in the everyday.

• It is a framework of convergence and (in this study) it provided a way to make sense of how adult relationships that were focused on supporting the mathematical understandings of children emerged in action.

• Analysis was focused on this space of convergence rather than the juxtaposition of ‘us and them’ or ‘difference’.
Analysis

• Data in DBR inquiries are analysed immediately, continuously and retrospectively (Wang & Hannafin, 2005).

• This involves the examination of individual sources in isolation during the different stages of the inquiry, and also the examination of all sources retrospectively at the end of the project.

• A grounded approach to analysis was adopted whereby themes were derived from the data, and then these themes were drawn upon to re-examine the data and develop theoretical constructs.
So....what did I discover?
Themes - Processes

- Self-Positioning
- Engaging in Professional Learning
- Experiencing and Overcoming Challenge and Barrier
- Recognising
- Reflecting
- Sharing
- Investigating, Naming and Noticing Mathematics
- Supporting Children
- Navigating Their Own Transition
- Managing the Everyday
Re-grouped 4 major themes

1. **Locating the Contextual-Self**
   **Processes** - Self-Positioning - Navigating their own transition

2. **Meeting and Understanding Difference**
   **Processes** - Recognising – Reflecting – Experiencing and Overcoming Challenge and Barrier

3. **Compromising and Consolidating**
   **Processes** - Engaging in Professional Learning - Managing the Everyday

4. **Transforming and Transcending**
   **Processes** - Investigating, Naming and Noticing Mathematics - Supporting Children -Sharing
Theoretical Frame of Convergence (Goff, 2016)
Findings..

- **Principle 1** - The transition to school is and should be recognised as a developmental context for adults.
- **Principle 2** - Relationship and partnership is and should be recognised as independent but interconnected concepts.
- **Principle 3** - Adults need to be supported to navigate through their own transition experience.
- **Principle 4** - A specific task to perform will provide a reason for ongoing interaction and facilitate partnership.
- **Principle 5** - Opportunities for ongoing interactions about mathematics should be afforded if supporting mathematics is to be a priority.
- **Principle 6** - Opportunities to reconstruct mathematics in a shared space should be provided.
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Thank you for listening

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References


