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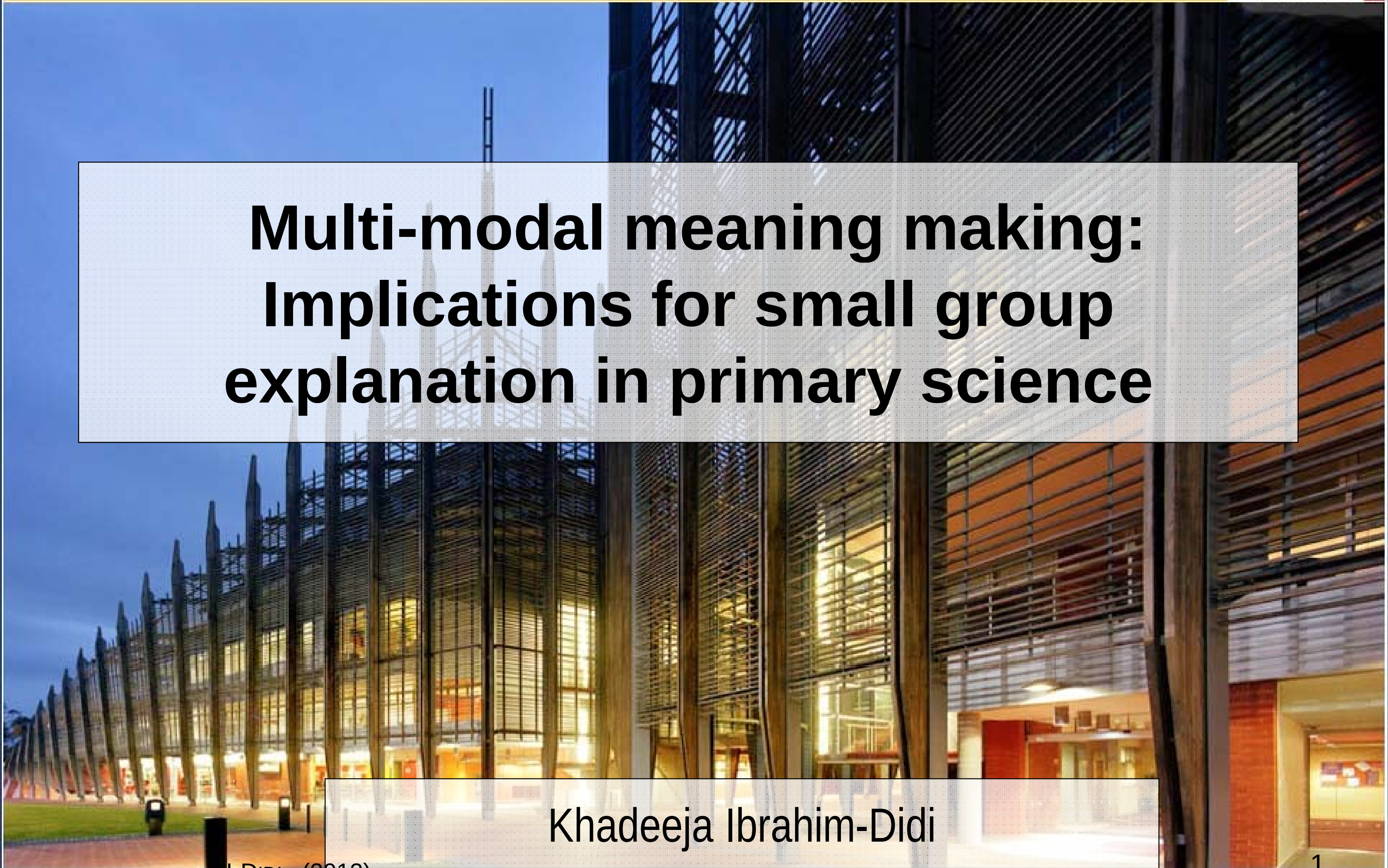
Multi-modal meaning making: Implications for small group explanation in primary science

Khadeeja Ibrahim-Didi



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Research Questions

1. How do multi-modal opportunities to make meaning influence explanation in primary science classrooms?

2. In what ways are multi-modal scientific explanations justified in small group settings?

Methodology

- Video ethnographic Case study
  - A Year 4 classroom in Western Australian Independent Public School
  - Topic: Spinning in Space – 9 weeks taught by specialist teacher (Year 6)

- Multi-theoretic lens (Clarke, 2011)

  - Social constructivism (constructivist and social)
  - Semiotics (representation)
  - Enactivism (interaction)
  - Socio-cultural theory (cultural mediation)

Methodology contd.

- **Data collected-** Video and audio data (Student focus group)
  - Videos of lesson sequence
  - Written pre and post tests
  - Post lesson debriefs (video)
  - Samples of work
  - Video-stimulated multi-modally facilitated interviews

- **Analysis** - Ethnographic microanalysis of video
  - Software - (Studiocode)
  - Viewed and identified video clips that showed students understanding of how day and night are caused
  - Identifying modes used to communicate meaning and how they helped the explanation to develop
  - Documented moments when explanation was agreed upon and how.

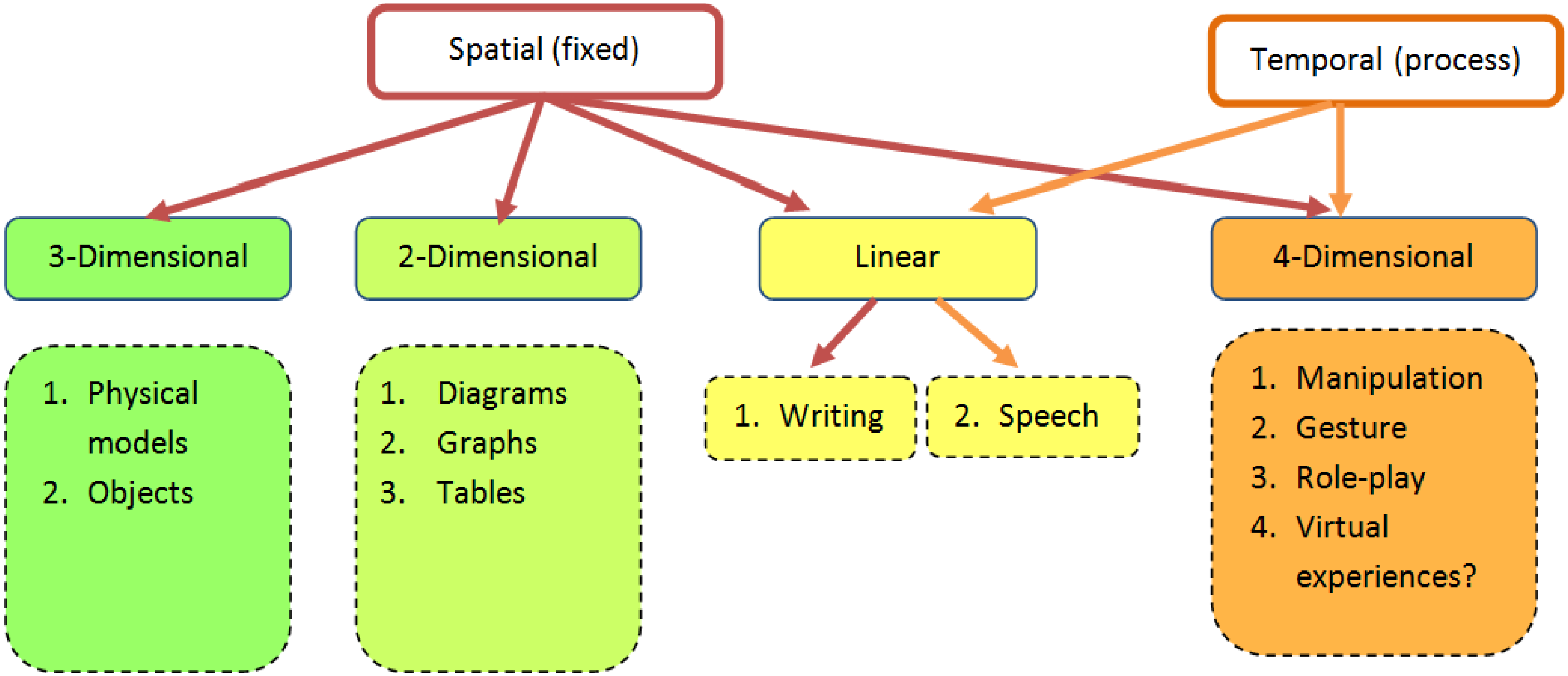
Problem

- How do students explain the process by which night and day are caused?
- [Explanations are] built from observations and evidence gathered in finding [causal] answers to the questions we ask

(Acara, 2011)

I-DIDI, (2012)

Semiotic Affordances



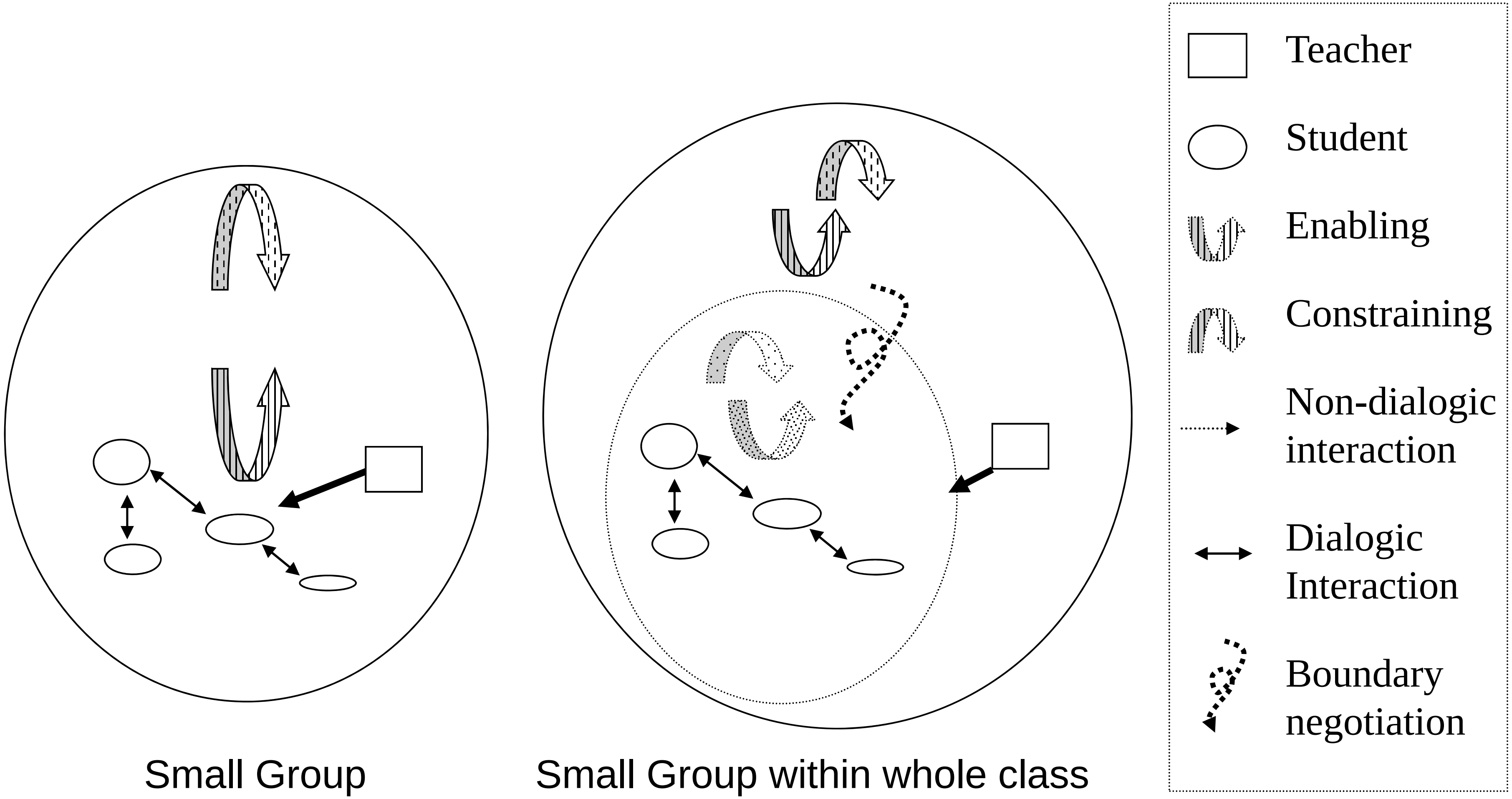
I-DIDI, (2012)

Constructing explanation

Turn	Time	Speaker	Verbal Transcription	Semiotic Resources	Analytic commentary
008	00:00:16.25	C	So.. the sun (gesture- emphasis of position) would be on this side (intonation and gaze to Kane-questioning)	Gesture Intonation Gaze	Seeking confirmation to locate position of sun
009	00:00:20.24	B	Yep (Chelsea starts to draw the sun)	Drawing	Agreement – relative position of sun
010	00:00:23.29	E	We need a big sun...		
011	00:00:24.13	B	The sun is...(Draws - Elisha reaches over and rubs out the sun)	Drawing	Emphasizing contestation
012	00:00:26.10	E	Bigger! (Draws - a bigger sun)	Drawing	Clarification – Size of sun
013	00:00:29.06	E	Yeah (Kane and Brady look on). And it looks like an oval.	Gaze	Agreement – Size of sun, noticing representational fit
014	00:00:31.29	K	Who cares? Its (unclear) look like the sun (Chelsea finishes drawing sun). Well. It doesn't have to look like a sun	Drawing	Clarification – Establishing relevance of shape of sun to emerging explanation

I-DIDI, (2012)

Validation-in-action



I-DIDI, (2012)

Tentative Claims

1. The partial and semiotic distribution of modal affordances in multi-modal communication in small group settings suggests:

   Multi-modal explanation is enacted

   (Gordon Calvert, 2001)

2. Such explanation involves a less regulated, more dynamic, responsive, and non-reductive form of justification:

   Validation-in-action

   (Ibrahim-Didi, 2007)

Implications for practice

- Pedagogical implications:
  - ❖ How does the concept of validation-in action inform teaching?
    - Teacher awareness – for preparation
  - ❖ What can be done to ensure access to the often veiled instances of small group meaning making that may constrain as much as they enable?
    - Explicitly checking in on group discussions
    - Enabling group summaries to be made public
    - Using professional vision to 'notice' how groups explain
    - Set up ways to "fix" and mark the multi-modal developments in groups (technology)

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Questions?

Contact: k.ibrahim-didi@ecu.edu.au