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

Khadeeja Ibrahim-Didi
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Implications for small group explanation in primary science

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(2012)
Acknowledgements

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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)

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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)
## Constructing explanation

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

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Validation-in-action

Small Group

Small Group within whole class

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)

I-Didi, (2012)


I-DIDI, (2012)


Perkins & Grotzer, 2000;


Questions?

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