Learning From and About Students: 
Attending to 
Students’ Mathematical Thinking

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How do teachers benefit from engaging with video of children’s mathematical thinking?
How do teachers benefit from video of children’s mathematical thinking?

(A list from teachers and professional developers)

1. Objective viewpoint—one can stand back and see differently;
2. Confronts perceived notions/expectations of what children can do (for practicing and prospective teachers);
3. Raises teachers’ expectations of what students can do;
4. Video may be stopped, rewatched, edited, and so on;
5. Provides opportunities to be critically reflective—helps us see our actions in others, without watching ourselves;
6. Allows us to see that children approach things and think differently from adults;
7. Enables us to watch the same person over time;
8. Allows for articulation/collaboration and discussion of next steps;
9. Is less threatening than entering one another’s classrooms;
10. Enables us to model questioning techniques in a safe way;
11. Video is efficient; it can be used after school; it can provide opportunities to quickly raise complex issues.
At the time of this interview, Javier had been in the United States about one year, and he did not speak English before coming to this country.
(Javier, IMAP Searchable CD, #158, 0:00–1:10; Select Clip # 6)
One Representation of Javier’s Thinking

\[
6 \times 12 \\
= (5 \times 12) + (1 \times 12) \\
= [(\frac{1}{2} \times 10) \times 12] + 12 \\
= [\frac{1}{2} \times (10 \times 12)] + 12 \\
= [\frac{1}{2} \times (120)] + 12 \\
= 60 + 12 \\
= 72
\]
One Representation of Javier’s Thinking

\[ 6 \times 12 \]

\[ = (5 \times 12) + (1 \times 12) \quad \text{\small (Distributive prop. of x over +)} \]

\[ = [(\frac{1}{2} \times 10) \times 12] + 12 \quad \text{\small (Substitution property)} \]

\[ = [\frac{1}{2} \times (10 \times 12)] + 12 \quad \text{\small (Associative property of x)} \]

\[ = [\frac{1}{2} \times (120)] + 12 \quad \text{\small Place value} \]

\[ = 60 + 12 \]

\[ = 72 \]

What would a teacher need to know to understand Javier’s thinking, and where do teachers learn this?
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Felisha, end of 4th grade

This is a cookie that four children at a party want to share. Show how the four children might share the cookie. How much does each person get?

What might you conclude now about her reasoning?

One child leaves without eating or taking her piece. How could the three share what is left?

(Felisha, Searchable Clip #325: 0:35–1:37)
“Each person would get one fourth and they would get one twelfth, and added together they would each get one third.”

What might you conclude now about her reasoning?
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Donna and Megan

Circle the larger or write =.
4.7       4.70

0:00–0:21  Donna and Megan, IMAP Select CD, Clip #9

What might you conclude now about their reasoning?

0:20–0:46

What might you conclude now about their reasoning?
Rachel
June & Rachel, IMAP Select CD, Clip #13, 0:50–1:54
IMAP: Select Videos of Children's Reasoning

Amazon
Barnes and Noble

- Mac or PC Platforms
- 25 video clips with transcripts (full or synchronized)
- Video guide, including descriptions & questions
- Interviews that teachers or prospective teachers can use when working with children

Soon to appear from Pearson:
Searchable Set of 229 Video Clips
Thank you.

Questions or Comments?

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