

Is That What You Really Mean?

Clarifying Students' Thinking During Discussions



**MATHEMATICAL PROFICIENCY FOR EVERY STUDENT
CONFERENCES**

WAUSAU, WISCONSIN: NOVEMBER 13-14, 2014

OCONOMOWOC, WISCONSIN: DECEMBER 11-12, 2014

LORI WILLIAMS, PH.D.

DR.LORIWILLIAMS@SBCGLOBAL.NET

Why Should We Ask Students to Explain Their Thinking?



Sarah's Story



Sarah was an eight-year-old student in Year 3. While not falling behind the class in mathematics she wasn't thriving and had begun to dislike and fear mathematics lessons. She was usually able to calculate correct answers for 'sums' set out for her to copy and solve.

Sarah's Work Samples



\$873

+ \$216

\$1089 ✓

621

× 3

1863

$128 = 100 + 20 + 8$

Sarah's Work Samples



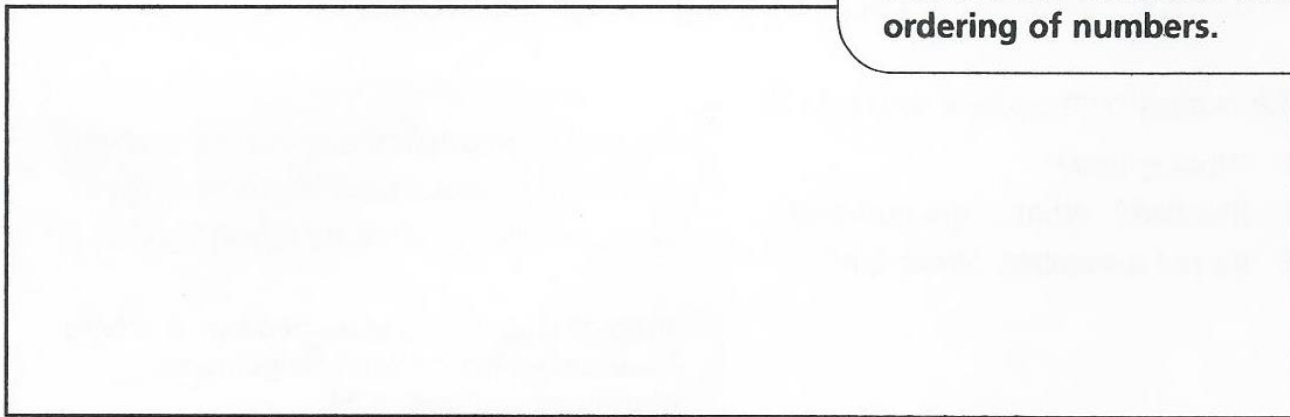
Write these numbers in order. Start with the least.

304, 301, 299, 300, 303, 302, 305, 298,

298, 299, 300, 301, 302, 303, 304, 305

300 301 302 303 304 305 298 299

The teacher corrected Sarah's ordering of numbers.



An Interview with Sarah



1. Take a few minutes to read transcript of the interview with Sarah.
2. Turn to a neighbor to talk about what the teacher learned from talking with Sarah.

What was Sarah thinking when she incorrectly ordered the three digit numbers?

Write these numbers in order. Start with the least.

~~304~~, 301, 299, 300, ~~303~~, 302, 305, 298,

298, 299, 300, 301, 302, 303, 304, 305

300 301 302 303 304 305 298 | 299



*Why
Should We
Ask
Students to
Explain
Their
Thinking
Clearly and
Precisely?*

Erik Palmer asks,

“How often do most students zone out when their classmates are speaking?”

Can you blame them?

How often do *you* have a hard time staying focused when listening to poor speakers?”

Palmer, November 2014
Educational Leadership



*Now
Presenting...*

“Daily, we accept oral communication that’s far below what our students are capable of – and far below what we should accept.”

Palmer, November 2014
Educational Leadership

Where I Started...



TCM Example

Ms. Andrews



Coaching Example



Where I Want to Go...



TCM Article

Coaching Example

Mrs. Carter



What Can I Do To Get There?



1. With the colleagues at your table, use a Venn diagram to compare and contrast the first two vignettes with the second two.



2. Be ready to share some of the teacher behaviors that helped students develop the deeper understandings of mathematics that were becoming apparent in the second set of lessons.

What Can I Do to Get There?



SMP #3 Construct Viable Arguments

- Use definitions
- Use concrete referents
- Listen to arguments of others
- Ask questions to clarify

SMP #6 Attend to Precision

- Use clear definitions in discussions
- State the meaning of symbols they choose
- Specify units of measure

What Can I Do to Get There?



- Predict student responses during preparations and plan the discussion.
 - Open Strategy Sharing
 - Targeted Sharing
 - Using representations
 - Teaching / using vocabulary
 - Precise language vs. pronouns



How Will You Begin?



Fold a paper in thirds:

1. What strategy can you take with you to try next week?
2. What strategy can you share with others before Thanksgiving break?
3. What pieces of the presentation should I keep?
What should I change before Oconomowoc?