



Teaching Math Classically with Andrew Elizalde

Lesson 8: Teaching Math with Socratic Dialogue – Part 1

Outline:

To play the role of Socrates in your classroom, think of yourself as a midwife attending to the labor of your students' souls.

- Socrates: "I am barren of theories. My business is attending to you in your labor...till I succeed in assisting you to bring your own belief forth into the light. When it has been born, I will consider whether it is fertile or a wind egg. But you must have courage and patience. Answer like a man whatever appears to you about the things I ask you."

In Plato's Theaetetus, Socrates draws out from the geometry student Theaetetus his definition of knowledge.

- Socrates initiates with a challenging question, or as Grant Wiggins and Jay McTighe put it in Understanding by Design—an essential question: "What is knowledge?" An essential question also establishes the lesson objective.
- Socrates expects Theaetetus's studies of geometry will have equipped Theaetetus with an ability to think logically and articulate his ideas clearly even outside the context of mathematics proper.
 - It is critical that our math classrooms prepare our students to engage in Socratic dialogue in other disciplines.
- Socrates patiently prompts Theaetetus to bring forth his fully born definition of knowledge as perception before he tests its validity.
- Theaetetus realizes Socrates himself won't give a clear answer to the question and allows Socrates to lead him.

Critical examination of the idea is the next phase of this Socratic dialogue.

- Theaetetus must bravely submit his "child"—or idea—to this test.
- Theaetetus soon realizes his idea relativizes truth and leads to the idea of conflicting truth. Theaetetus's idea cannot stand.
- Socrates then lifts Theaetetus up again and challenges him to either revise or come up with a new idea.
 - This makes is a discussion rather than a controversy. Discussion helps the opponent to his feet again rather than tripping him up as often as possible.
- As a teacher, take great care to completely understand the student's proposition.
 - Do not immediately accept or dismiss it, but first examine it for flaws.



- Then when flaws are found, point them out and pursue adjustments to build the argument up again (repeating as necessary) until it can be evaluated as true or false.

Socrates agrees that knowledge is not perception. So they must now move in a slightly different direction to pursue a different, positive definition.

- Theaetetus suggests that true judgment could be knowledge. After further dialogue, Theaetetus's second proposal is again proven to be false.
- But Theaetetus, rather than being discouraged, acknowledges Socrates's statement that he has learned from the experience how to evaluate more closely whether his ideas, as he labors, will bring forth "a child" or a "wind egg," and that Socrates has brought more ideas out of him than he would ever have thought of on his own.
 - Theaetetus's character too will be improved, as he will also learn gentleness and modesty from the experience.

To cultivate resilience and commitment to and appreciation of Socratic dialogue in students, begin by pointing out:

- Students are invited to participate in the learning experience itself, while also
 - gaining clarity about their own ideas
 - shedding false opinions or beliefs
 - reinforcing their convictions
 - constructing original ideas
- As teachers, we might share how our own experiences in Socratic dialogue - even the defeating and refining of our own propositions - has shaped and strengthened our character. We might also confess to students our hope that their experiences in Socratic dialogue would also shape their character and strengthen their understanding of truth.