

EQUIPPED to INNOVATE

Developing Skilled Thinkers (Part 1)

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FROM INSPIRED TO EQUIPPED

Think of a time when you were inspired by someone you know, who shared with you the “secrets” to his/her success.

What sparked the desire in you to learn/try something new?

How did your interaction with this person change as you become more proficient? Create a metaphor for this shift:

FROM _____ TO _____.

How does your experience illustrate this sequence: inspired > directed > guided > equipped?

What other experiences illustrate this sequence?

THE CLASSROOM ENVIRONMENT WHERE THINKING FLOURISHES

The skills, knowledge, and values of critical thinking develop within meaningful context.

What do students need?

- ▶ Consistent, observable models—exemplars
- ▶ Of values: “I find that idea interesting. Please say it again.”
 - Of inclinations (e.g., curiosity): “I am thinking...which makes me wonder...which leads to a question...”
- ▶ Consistent expectations
 - Of creative thinking—“looking out and around”
 - Of reflection—“looking in”
 - Of critical thinking—“looking at, through, between”

- ▶ Visual representations of skill processes (i.e., graphic organizers, visual tools, or skill-dedicated concept maps)
 - “...nothing else comes close to concept mapping as a representational and developmental tool for thinking. Human thinking is incredibly sophisticated...Once concept links with many others...Mature thinking is not linear but hyperlinked...The very process of concept mapping challenges your thinking to be clearer and more explicit” (Gray, 94).
 - Visual representations mirror the way the brain thinks and learns; the brain is predominately visual
 - Engagement AND creation foster optimal processing in the brain

▶ Explicit instruction and meaningful practice

“...when you teach a way of thinking, the students are the thinkers and you help them get better at thinking based on what you hear them say and do” (Gray 9).

To develop the dispositions of a critical thinker, **teach students the knowledge, skills, and values of critical thinking** (Hanscomb).

- Explicit instruction teaches a skill thoroughly
 - explains what the skill does: “This skill helps us...”
 - explains what use of the skill produces: “Using this skill generates...”
 - explains the individual steps of the skill process: “To use this skill, we first...and then...”; “We can visually organize these steps this way...”
 - demonstrates the skill (and its visual representation) within the selected discipline through teacher think-aloud
- Explicit instruction engages students in processing the skill
 - students label and sort the steps of the skill
 - students recognize patterns and reference points in the skill
 - students engage in initial, guided, supported practice of the skill

DISCUSS THEN WRITE

How do these principles compare to more typical approaches of engaging students in critical thinking?

What do students need? (continued)

- ▶ Explicit instruction and meaningful practice...
 - happens within a discipline: "...it makes little sense to talk about thinking divorced from context and purpose" (Ritchhart, Church, & Morrison, 7); "Students learn how to think only in the context of a real subject that serves to discipline their thinking" (Gray, 13).
 - can often be sparked: provide the students with enough information to motivate use a skill, pointing out the characteristics of the moment. Then allow students to practice using the skill to discover more about the targeted material. "Teach to the point of opportunity."
 - can often be routinized—e.g., SEE-I: State, Elaborate, Exemplify, Illustrate (Burkhalter):
 - STATE the problem, idea, or definition of what you are working on.
 - EXPLAIN the problem, idea, or definition in more detail.
 - EXAMPLE - provide one.
 - ILLUSTRATE via sketch, diagram, or metaphor
- ▶ A basic approach: awareness > inclination/motivation > application

A DEMONSTRATION: IDENTIFY, CLARIFY, & PHRASE A QUESTION

Why questioning?

- ▶ Questions are one of the brain's primary means of learning.
 - "The reality emerging from cognitive science is that each student must build his own understanding of an idea through a process of logically justifying the idea in his existing conceptual framework. The logical justification is aided by the process of disciplined systematic questioning. Indeed, it has been noted by cognitive scientists that we learn perhaps exclusively through the process of questioning" (Gray, 9).
- ▶ Questions move students to consider more than isolated facts.
 - "Students are transformed by means of their own engagement in thinking through alternative answers and arriving at the best one. The main action in answering a question is to grapple with ideas. This is the arena of conceptualization. Concepts that might help to answer the question at issue have to be actively assimilated by each individual learner. Each learner has to wrestle with an idea to determine its boundaries and how it relates to other ideas the student has previously mastered...Questions are a central feature of a transformative learning environment" (Gray, 6-7).
- ▶ "Many people think getting an education is all about answering questions when it's really all about *asking* them to carry thinking forward...questions invite further investigation" (Burkhalter, 24).

- ▶ Questions stimulate learning by:
 - widening thinking
 - clarifying thoughts
 - exciting curiosity (Burkhalter)

	What the skill does is clearly explained.
	What the skill produces is clearly explained.
	The skill process (its steps) is clearly presented.
	The associated visual tool is explained.
	The relationship of the skill process to the visual tool is clearly explained.
	The skill and use of its associated visual tool is modeled (via thinking aloud) with discipline-related material.

WRITE THEN DISCUSS

In what ways does the demonstration illustrate the principles of a classroom environment where thinking flourishes? How does “teaching to the point of opportunity” compare with more typical approaches? How can you make use of this principle to equip your students as critical thinkers?

CONCLUSION

- ▶ Critical thinking and learning complement one another; instruction should capitalize on each to advance the other.
- ▶ A learning community characterized by respect, a recognition of individual worth, and humility provides a nourishing environment for critical thinking development.
- ▶ Classrooms within such a community should provide thinking exemplars and consistent expectations.
- ▶ To develop the dispositions of a critical thinker, teach students the knowledge, skills, and values of critical thinking.
- ▶ The foundational critical thinking skill is the ability to identify, clarify, and phrase a question.
- ▶ As skills, critical thinking processes should be explicitly taught, including being modeled by the teacher, and followed by meaningful practice within a discipline.
- ▶ To interweave (to roll, wind, or involve, one within another) critical thinking and learning, teach to the “point of opportunity.”

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