

Belief about Knowledge	Teacher Role	Valued Critical Thinking	Success in Learning
Everything is	To dispense	Memorization,	Absorbing
known; all	known	information re-	and reciting
legitimate	information	trieval	as much as
questions			possible
can be an-			
swered			

<u>Teacher Tools to Transition from Dualism to Multiplicity:</u> Exposure to Multiple Opinions About a Subject or Issue—Introduce Ambiguity

Example: Escaping Dualism

- Historical examples of beliefs about chemistry that were once considered "truth" that aren't true any more.
- Exposure to consider unsolved contemporary problems, such as whether rain is becoming increasingly acidic, causing environmental change.
- Comparing two points of view using primary resources.

Multiplicity

Belief about	Teacher Role	Valued Critical	Success in
Knowledge		Thinking	Learning
Most questions are answered, although some important questions are not answered	Knows the right answer or the 'right' opinion	 Unbridled speculation, hypothesis posing, debate Form without substance Some use of evidence/one sided 	Figuring out and repeating the teacher's position

Personal Truth—With Two Realities:

- 1. One, where authority provides correct answers
- 2. Second, where, absent such answers, each person's answer is fully valid for him/her

<u>Teacher Tools to Transition from Multiplicity to Contextual Relativism:</u>

Exposure to Multiple Paradigms of Thought — Exposure to Multiple Theories

About a Subject or Issue — Different Methods for Analyzing Arguments—

Introduce to criteria and explain the means to get there

Examples:

- When historical accounts of the same event differ, how can you tell which to believe?
- How does the Newberry committee choose a 'best' novel from among many excellent novels?
- Which solution to the math problem is the efficient? The most interesting?
 The most elegant?

Contextual Relativism

Belief about Knowledge	Teacher Role	Valued Critical Thinking	Success in Learning
Knowledge is contextual and subjective as it is filtered through perception and judgment. Only interpretations of evidence, events, etc. are known	To show how different disciplines approach uncertain questions: The structure of the discipline.	Tools of the discipline: Logical consistency, error analysis, agreement with data Advanced comparisons.	Building defensible arguments using the tools of the discipline.

The fundamental task of sophisticated thinking:

The Comparison of Human Generated Ideas (not memorizing facts.) Students understand the *evidence* and the *criteria* used within a field to select preferable theories—Decisions within disciplines—Determining one method is better than another.

What is the Structure of Your Discipline?

- What are the Essential Questions in your field?
- What are the tools you use to answer the Essential Questions?
- What criteria do you use to judge better/worse answers to the Essential Questions?

Teacher Tools to Transition from Contextual Relativism to Dialectic:

- Teach students structure of the discipline, skills, answers, rules
- Ask for understanding instead of belief—emulate contrasting approaches to achieve understanding
- Help students realize that what works in one discipline doesn't necessarily work in another
- Then, push the envelope.....

Dialectic

Belief about	Teacher Role	Valued Critical	Success in Learning
Knowledge		Thinking	
Wisdom	Mentors and	Comparison and	Flexibility when
requires a	companions in	thoughtful	considering
personal	the search for	selection of par-	problems.
commitment	helpful	adigms.	
to unraveling	paradigms.		Ability to describe
complexity		Question	different
	Models of the	formulation.	perspectives and
Complexity is	personal search		defend one's
preferable	for values	Values in the	personal position
(although not	associated with	discipline	and belief.
easier) than	paradigms of		
simplistic	through		Seeing the
answers.			limitations of
			specific paradigms.

Dialectic: Responsible Knowing

Students know that problems can be approached from diverse frameworks and can describe the advantages of different frameworks, address tradeoffs, and explain why they support (believe in) a particular approach

<u>Dialectic/Commitment: Comparing, Selecting and Integrating</u> <u>Perspectives</u>

- Comparing paradigms and deciding which approach to use
- Cross disciplinary comparisons: What is similar about physics and literature? What does each have to say?
- Discuss the core values of the area you're studying: How selecting a field of study reflects your own values?

Summary

- Each stage represents a QUALITATIVE SHIFT in views of knowledge
- The mismatch between stage and instructional approach can be: frustrating, debilitating, or disillusioning
- Griffith (1985) found that the 'average' stage for 9th grade students was Dualism, and by 12th grade most students had reached multiplicity Encouraging Transitions:
- From Dualism to Multiplicity: Comparing multiple opinions—What do different people think?
- From Multiplicity to Contextual Relativism: Comparing multiple perspectives—How do different people analyze?

Implications for Middle School:

- Middle school is PIVOTAL
- Gifted students are in a QUALITATIVELY DIFFERENT Phase than standard students
- Differentiation should follow this Scheme: 1. Emphasis on moving from opinion to discipline-based reasoning
 - 2. Introducing theories, how they are constructed, compared and defended