

# Teaching for Transformation: Five Dimensions for Promoting Critical Thinking

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## Session Goals

- See dimensions in common across disciplines, ways of knowing, and learning styles
- Integrate methods from the entire conference (and from the room)
- Experience jigsaw method firsthand (where students “learn by teaching others”)
- Take away tools (frameworks for content, methods, sample assignment, verbs)

# Shifting How Students Think About Their Thinking

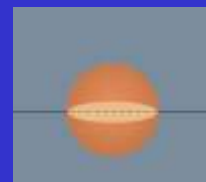
- *Every seed destroys its container* (Scott-Maxwell)
- Chemistry prof.: I want them to see differently
- *Disorienting dilemmas* (Brookfield)



*I'm afraid you've had a paradigm shift.*

## Seeing Other Dimensions Can Sicken

- Flatland (Abbott, 1885/2002): [imagining other dimensions](#)
- Triangles & other two-dimensional things look like lines
- From a 2-D point of view, a sphere passing through a plane looks like a line, but it starts to get longer, then starts to get shorter and shorter until it disappears



## Critical Thinking Lenses

- Lauer (1996-97): Whatever our discipline, we teach Perception, Evaluation, Decision and Action
- How we *use* PEDA is what differs



*(handout p. 1)*

## Teaching integratively = a continuum; and both ends matter

Facts	Relationships, structures
Tell what need to know	Develop thinking beyond any discipline
Singularities	Multiple views, contexts
Grade, assess	Coach, comment
Complete assignment	Ask questions, reflect, create
Do, achieve, results	Be, ask why, enjoy process
Get it right	Make mistakes






*(handout p. 1)*

## Parallels Across Frameworks

Torosyan, Lauer	1-D Sensory: sense, feel, intuit	2-D Categorical: sort and standardize sensations		3-D Relational: research, theorize and test categories		4-D Meta-reflective: transform framework used to research and theorize	
Bloom's taxonomy		Remember: Recall terms and ideas	Understand: Grasp meaning	Apply: Use learning in new situations	Analyze: See patterns; compare and contrast	Evaluate: Assess evidence	Create: form one's own approaches or theories
Piaget's stages	Sensorimotor: see objects	Pre-operations: use symbols and language	Concrete operations:	Formal operations: test hypotheses, think systematically		Post-formal operations: relate reasoning systems to each other	
Perry's positions		Dualism: "Just the facts, ma'am"		Multiplicity: "pick an opinion, any opinion"	Relativism: "bullshit" to play "teachers' games"	Commitment within relativism: choose and mix paradigms	

*(handout p. 2)*

## Not Just Developmental Stages but Dimensions, Styles and Disciplinary Frameworks

Sensory	Categorical	Relational	Meta	Integral
				
Observation, felt sense, free play	Sort, standardize, terms, structure	Research, theorize, relate to practice	Change framework used to research	Overcome separation, unify, be holistic

*(handout p. 3)*

# Sample Assignment: Midterm Portfolio Reflection (Eval. Criteria)

- **Foundations/basics:**
    - represent philosophical principles accurately and consistently (**2-D terms & structure**)
  - **Clearly and compellingly written:**
    - Write about what you care about most (**1-D felt sense**)
    - Give concrete examples (**3-D relating**)
  - **Reflective and integrative:**
    - Question assumptions and points of view (**4-D reflection**)
    - Demonstrate objectives with examples (**3-D relating**)
    - Specify how you'd know you **achieved** the goal you specified a year from now (**5-D holistic**)
- (handout p. 4)**

## Curriculum and Content Across Disciplines

	1-D Sensory	2-D Categorical	3-D Relational,	4-D Meta-reflective	5-D Integrative
Art History	Frivolity; "primitive" anthropomorphic forms	Contrast; juxtaposition	Historical context; modernist revolution	Dadaist break; postmodern turn	Return to beauty; participant art
Philosophy	Play as a virtue; the value of selfishness	Ideals; mind-body dualism; categorical imperative	Empiricism; fact vs. inference; ethic of care	Paradigm shift; language & power; deconstruction	Taoist paradox; Sri Aurobindo; mindfulness
Psychology	Observation; primary impulse	DSM-IV categories of disorders; variable	Data analysis; differential diagnosis	Critical psychology; positive psychology; eclecticism	Integral psychology

Figure 10. Curriculum and Content Across Disciplines

**(handout p. 5)**

## Pedagogical Methods Across *Dimensions*

Pedagogy/ Methods	1-D Sensory	2-D Categorical	3-D Relational,	4-D Meta-reflective	5-D Integrative
Writing	Free writing	Describe a thinker or a problem's elements; compare and contrast	Write-Pair-Share; Pass the sheet; list more than one possible solution	Take a point of view opposing your own; write 100 questions and self-assess	Write haiku; capture spirituality with indirect language
Classroom discussion, group work	Play games, discuss spontaneously	Use ground rules, order ideas, give mini-lectures	Her from as many as possible; divide labor among groups; post-it ideas up on wall chart	Leverage the wildly differing styles in class; move post-its to suggest new patterns	Resonate with the group as a whole; hear not just words, or even intent, but hidden messages
Visual devices	Doodle, scribble, line, shape, to play with visuals	Draw a symbol for a concept, draw chart for contrasting movements or approaches	Illustrate inter-dependent variables with visual displays of information (Tufte, 1990)	Reframe using a different shape; extend boundaries of a chart or illustration	Find the edge of a hole; use perceptual devices that "trick" the eye
Objects and bodily-kinesthetic movement	Feel objects	Sort objects; learn foreign language using total physical response	Relate different ways of sorting objects	Reshape objects; find patterns to ways of relating sortings	Do a gallery walk; use body sculpture to express learning
Virtual reality, augmented reality	Chat freely; move avatars or objects in virtual space	Build virtual molecule	Nursing; see veins better with visual augmentation	Reorient a virtual space or site	Simulate psychedelic experiences

Figure 11. Pedagogical Methods Across the Dimensions






(handout p. 5)

## Jigsaw Breakouts

1. Count off 1,2,3,4,5,1,2,3,4,5,1,2,3...
  2. Move to groups: 1s here, 2s here, 3s here, 4s here, 5s here
  3. Raise hands when ready, and hold them raised until we have everyone
- Next: write or discuss a conference take-away using your group's dimension (*handout p. 5*)

## Jigsaw breakouts: Knowledge base

- **Write or list:** a conference take-away that uses your group's dimension (*handout p. 5*), and what **learning** it achieves (not just an activity)
- **Pair, share, agree on one to post on wallsheet**

1D	2D	3D	4D	5D
Sensory	Categorical	Relational	Meta	Integral
				
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## Put the Jigsaw Back Together

**Draw together the jigsaw pieces:**

- Privately: Teammates select *one* method from your dimension (or 2-3 max.); prepare to report it back in only 30 seconds max.
- Circle share: Teammates report back
- Discuss, notice themes, generate take-aways you'll to shout out re: **uses** or **limits** of the **five dimensions** or the **jigsaw method** itself

## Shout out

- 1-D Sensory: Experiential immersion:
  - Teaching instrument: Sound before sign
  - Start touching, feeling the clarinet, get it to fit together; just make a sound on it before you do anything else
  - First get the pleasure of what it's like
- 2-D Categorical:
  - What comes to mind, Use alphabet A to Z, that relates to cold, cough and throat
  - Instructor then conceptualizes concepts and treatments that capture those associations, or correct those associations

## Shout out

- 3-D Relating:
  - To review at end of class: Toss a ball; each students reports not just what they learned today, but say how they could apply it in their field or previous in course
  - We demonstrate relationality here: By picking up ideas and round robin presenting other people's ideas rather than our own

## Shout out

- 4-D Meta:
  - Kinesthetic: Teaching automotive mechanics: Student must make errors, analyze what they did; given an exhaust system, come up with an error, hypothesize how engine will run, signals or customer complaint that will arise; then do it; then reflect on what did happen vs what they thought would happen
  - Writing: Have them articulate assumptions they're making; when the experiment disconfirms that, they must reflect on what was wrong with their assumptions

## Shout out

- 5-D Unifying:
  - Bring together content from different classes in capstone
  - But even in other classes, you can let students bring material together; Intro Gov't: today political institutions of socialization; but we borrow from sociology, English writing on it, FCC media frequencies and wavelength

## **Shout out: Uses or Limits of Five Dimensions or Jigsaw Method**

- Type here

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- Type here

## In sum

- Make learning goals general enough to be *important*, but specific enough to be *measured*; enduring but able to be evaluated now (“How do I know they’re learning?”)
- Specify criteria: what you physically look for that indicates excellence
- Make students learn by teaching others
- Build in reflection (portfolio) on their own development, and the point of it all
- Mix up your methods: Access multiple learning styles (Visual, Kinesthetic; Introvert, Extrovert; etc.)

(handout p. 1)

## Evaluation

- Please be as specific as you can
- Feedback gets transcribed, reported back, and helps us improve
- Thank you!



As we grow older and more experienced, we overrate the accuracy of our judgments.

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