

Models of College Students' Epistemological Development

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<http://www.indiana.edu/~I506/theoryframe/506Model.htm>

As they mature, individuals' notions of what constitutes knowledge and how one gets it change, a process referred to as "epistemological development," or development of ways of knowing. During the past half century, several researchers have looked at how students' conceptions of knowledge develop during the course of a university education. The models resulting from such research have provided maps that may be useful to post-secondary teachers and providers of academic support.

Perry's Scheme

In the fifties and sixties, William Perry Jr., an educational psychologist and student counselor at Harvard, conducted open-ended interviews with undergraduates at the end of every year, opening with the question, "what stands out for you this year?" In this way he hoped to capture the students' own perceptions of their learning and development, not so much in terms of academic achievement as in overall changes they experienced within themselves. From full transcriptions of these data, Perry came up with his "scheme," in which he attempted to capture what he called positions (avoiding the connotations of sequential stages) that characterized the development he perceived in the interviews over a four year period.

Perry himself was circumspect in claims made for the scheme beyond a useful descriptiveness, and he was especially uncertain about applications to instruction and assessment, though he was interested and often supportive of attempts by other scholars to develop such applications. It should be noted too that Perry based the essential features of his scheme on interviews with Harvard students at a time when the population was overwhelmingly white, privileged, and male. Many researchers who have attempted to apply his model have found little evidence of his higher levels in the undergraduate populations of less elite institutions. Nevertheless, Perry's analysis of the undergraduate "journey" has not really been challenged as the American university's view of itself and ideal experience for students. For that reason, the scheme is of interest as a cultural description of the institution and its educational aims, a kind of modern "idea of a university." Following is a representation of how Perry conceptualized his scheme along with my own extrapolation of metaphors for the student's experience and operational concept of knowledge:

Perry's Scheme of Intellectual and Ethical Development in the College Years⁽¹⁾

Position as Conceptualized by Perry

Dualism

1. **Basic Duality:** Assumption of dualistic structure of world taken for granted, unexamined. Right vs. wrong, we vs. others, good vs. bad, what They want vs. what They don't want. Will power and work should bring congruence of action and reward. Multiplicity not perceived. Self defined primarily by membership in

Metaphor

In port

Operational Concept of Knowledge

Knowledge is an objective, definite, and organized body of facts that constitute the truth about a subject, to be distinguished from opinion, which is subject and cannot be proven as true.

the right and traditional.

2. Multiplicity: Pre-legitimate:
Truth exists, but not all authorities are knowledgeable. Multiplicity perceived, but only as alien or unreal. As alien it assimilates easily to error and otherness: "others are wrong and confused." Assimilated to authority, it leads to opposition: "I am right; They (Authority) are needlessly confused."

As unreal, M is a mere appearance, e.g.: "They want us to work on these things to learn how to find the answer. Here Opposition sees Authority not as wrong but simply as failing in its mediational role.

In either case M is perceived, but it is not viewed as a signal of legitimate, epistemological uncertainty.

3. Multiplicity Subordinate:
Absolute truth has not been discovered, yet. Multiplicity perceived with some of its implications. Authority may not have the answers yet on some of it, perhaps because the relevant Absolutes are not yet in view. But trust in Authority, at least in the ideal, is not threatened. Exercises in M may be enjoyed or disliked. authority is presumed to evaluate them on skill of presentation (not on structural properties). Students may fear they are judged on glibness, influence, or pull.

Multiplicity

4a. Multiplicity Correlate: If authorities don't know the answer then any opinion is as good as another (and/or - see 4b) Duality restructured in complex terms: right-wrong vs. M. Absolutes may be doubted in M area or considered so inaccessible as to be impossible to bring to bear on human affairs in any reasonably foreseeable future. In M, therefore, "anyone has a right to his own opinions." M is acknowledged as relevant to self, by being confusing, liberating, intriguing, etc.

4b. Relativism Subordinate: There is more than one approach to a

In safe harbor

Knowledge consists of facts, principles, axioms, etc. that can be proved, although it may be difficult to carry out the proof. Overcoming this difficulty is the expert's challenge, and some are more expert than others.

Crossing the bar

Knowledge consists of facts, principles, axioms, etc. that can be proved, although it may be difficult to carry out the proof. The coherence and completeness of the system may vary across disciplines, some being more advanced than others.

Entering the open sea

Knowledge is not secure but is any person's organization and interpretation of available information. One interpretation is as good as another.

Losing sight of shore

(But people with power can assert their interpretations)

problem. Relativism perceived in M and assimilated to Authority: That is, Authority can make judgments in M on discernible relations of propositions to each other (coherence) or to data (congruence). However, this is still "how they want us to think" rather than a consequence of the nature of all knowledge.

over those of others.)

Relativism

5. Relativism Correlate, Competing, or Diffuse: Relativism perceived as way of perceiving, analyzing and evaluating, not because "They want us to think this way," be intrinsically. Authority perceived as (lower case) authority in R. In R Correlate, world divided into those areas where Authority has the answers (e.g. physics or morals) and those in which R must be used (e.g. English papers). In R Competing, R perceived as applying to whole world (with binary answers a sub-class), but this world view alternates with a previous one. In R Diffuse, the most fully developed of these structures, R is accepted generally but without implications for Commitment

Encountering rough waters

Knowledge is always changing or subject to change. It can be shared but not "measured" or counted upon to remain the same

Commitments in Relativism

6. Commitment Foreseen: Subjectively choose among alternatives R accepted for all secular purposes including binary judgment and action. Commitment may be perceived as a logical necessity for action in an R world and/or "felt" as needed (with or without explicit statement of a logical necessity). The realization may bring various reactions: eagerness, ambivalence, dismay, sturdiness, turmoil, simple acceptance.

Weathering storms; losing bearings

Knowledge is not something that is external and definite but something that each individual constructs according to his/her experience, background, etc.

7. Initial Commitment: First commitment(s) or affirmation(s). Acceptance of their origins in self's experience and choices, some intimations of implications.

Getting back one's bearings; navigating successfully

Knowledge is the world view one has constructed from learning and experience, along with the ethical implications of this view, synthesized into a consistent philosophy.

8. Orientations in Implications of

Progressing into

Knowledge is a creative

Commitment: Some implications of commitment realized: tensions between feelings of tentativeness and finality, expansion and narrowing, freedom and constraint, action and reflection. Prospect of (or even experience of) membership with authority in areas of Commitment (values, address to others, occupation, etc.) Identity in both content of Commitment and in personal style of address to Commitment.

new regions

resolution between uncertainty and the need to act, which makes it a dynamic means of transaction between the self the environment, requiring both stability and flexibility.

9. Developing Commitment: Reassessment of commitments with new priorities. Commitments expended or remade in new terms as growth. Balances are developing in the tensions of qualitative polarities of style, especially alternation of reflection and action. Acceptance of changes of mood and outlook within continuity of identity. Sense of being "in" one's life.

Discovering anticipated and unforeseen destinations or destinies

Knowledge is the evolution of awareness, best expressed as ascending levels of consciousness, in which the individual must break through to new perspectives and discard those no longer useful.

At this point, we should pause to consider what the legacy of this model is and what it may lack in a contemporary university setting. The legacy is significant. Perry's model has provided the paradigm for other models based on more recent research and with different populations (remember that Perry's students were Harvard males in the 1950s). Another important outcome of this model is that it provides a picture of how the American university tends to view itself. It reflects the value the university places upon critical thinking, intellectual sophistication, and multiple viewpoints. Many if not most academics, when they first encounter this model, believe that it accurately themselves as undergraduates. In short, it reinforces a traditional, liberal view of higher learning.

Its "fit" for today's students may or may not be as accurate as in the sixties and early seventies, when the scheme was published. One major development that Perry probably had no way of foreseeing was the infusion of computer technology into virtually every aspect of the academy, with its potential for changing not only student epistemological development but the nature of the institution itself into a global entity with virtually unlimited capacities for immediate communications and information exchange. In this context, "information literacy" is as necessary to acquire as any of the traditional literacies associated with reading and writing. Is it possible, we might ask, that lifelong internet users, accustomed to having a virtually unlimited supply of information and multiple perspectives at their fingertips, be less likely than learners in earlier decades to conceive knowledge as static and in the hands of particular experts? Or will they only seem to do so in circumstances that coerce them into privileging the views of authorities with immediate control over their lives? In light of these questions, we may see the Perry Scheme as especially relevant in its later positions, which emphasize critical thinking, personal management of learning and knowledge, and ethical commitment.

Other questions to consider are these:

1. (Borrowing Perry's own lead question): What stands out for you when you look at this scheme?

2. What parts seem clear to you, and which seem fuzzy? Which can you think of your own concrete examples for? Are Perry's levels of commitment clear to you? Does everyone who has completed college reach these levels?
3. Have you known students who would not fit anywhere in Perry's scheme?

Baxter-Magolda's Model

This model was developed from data on students of both genders at Miami University of Ohio in the eighties, a less elite setting than Perry's Harvard of the fifties and sixties, though it should be noted that this student population was predominantly white and of traditional college age. Baxter-Magolda focuses on the college student's viewpoint, and its features are expressed in terms of learner processes. The model may be critiqued on the grounds that it is definitely embedded in American school culture (e.g. its view of evaluation as collaborative between student and instructor); that it is heavily influenced by its predecessors, which are similarly culturally grounded; and that it provides a matrix of abstractions that may be difficult to apply in the concrete. Such a matrix also tends to separate elements that in reality work together, so that, for example, evaluation probably always serves the functions attributed to all levels, though a particular function may be more *emphasized* at a given level.

Within three of the four major categories (*absolute, transitional, independent, and contextual* knowing), a gender-related distinction is drawn.

Baxter-Magolda's Epistemological Reflection Model⁽²⁾

	Absolute Knowing	Transitional Knowing	Independent Knowing	Contextual Knowing
Nature of knowledge	Is certain or absolute	Is partially certain and partially uncertain	Is uncertain -- everyone has own beliefs	Is contextual; judge on basis of evidence in context
Role of learner	Obtains knowledge from instructor	Understands knowledge	Thinks for self Shares views with others Creates own perspective	Exchanges and compares perspectives Thinks through problems Integrates and applies knowledge
Role of peers	Share Materials Explain what they have learned to each other	Provide active exchanges	Share views Serve as a source of knowledge	Enhance learning via quality contributions
Role of instructor	Communicates knowledge appropriately Ensures that student	Uses methods aimed at understanding Employs methods that help apply	Promotes independent thinking Promotes exchange of	Promotes application of knowledge in context Promotes

	understands knowledge	knowledge	opinions	evaluative discussion of perspectives
				Student and teacher critique each other
Evaluation	Provides vehicle to show instructor what was learned	Measures students' understanding of the material	Rewards independent thinking	Accurately measures competence
				Student and teacher work toward goal and measure progress

Domains

The gender distinctions included in this model are captured in "patterns" distinguished at three of four levels, with no distinguishing patterns evident at the contextual level, though Baxter-Magolda speculates on how earlier patterns contribute to this level of development. The patterns with their gender connotations are as follows:

Way of Knowing	Pattern w/ Feminine Connotations	Pattern w/ Masculine Connotations
Absolute	Receiving: Private Listening & recording	Mastering: Public Demonstrating, being challenged
Transitional	Interpersonal: Discussion Resolve uncertainty by personal judgment	Impersonal: Debate Resolve uncertainty by logic
Independent	Inter-individual	Individual
Contextual	Speculation that "receiving-, interpersonal-, and interindividual-pattern knowers' focus on connection to others is a central feature of contextual knowing when integrating other valid views." (189)	Speculation that "mastery-, impersonal-, and individual-pattern students' individual approach is a basic feature of contextual knowing, because students are ultimately responsible for their own judgments and constructed perspectives." (189)

Belenky et. al.'s model

Reacting to the neglect of women's voices in the better known models of development, including Perry's and Kohlberg's model of moral reasoning (not included in this discussion), Mary Belenky and her colleagues interviewed non college as well as college women, so their analysis includes the perspectives of disenfranchised women such as welfare mothers. Their model, which also draws from insights offered by Carol Gilligan in her analysis of moral reasoning, is based on the metaphor of "voice," which they

determined was more useful than the usual metaphor of "seeing" to describe the cognitive characteristics associated with learning and understanding.

It is perhaps useful to pause for a moment to reflect on the implications of NOT separating college learners from others in considering the nature of epistemological development. The following questions seem germane:

1. Do students in four-year institutions undergo essentially different development from those who do not attend such institutions?
2. Assuming that development from received ways of knowing toward actively constructing one's knowledge is the essence of college learning, is it also the essence of non-college learning, e.g. on the job, through experiences such as travel, in non-baccalaureate postsecondary schools?
3. Are gender and class differences, or differences of political empowerment, important to consider in these epistemologies? If so, how can they be included without overgeneralizing or stereotyping?

Women's Ways of Knowing⁽³⁾

Way of Knowing	Metaphor	Stance	Characteristics
Silence	Feeling deaf and dumb	Acquiescence to authority without even attempting to find meaning, ascribed to extremely subjected and passive women	<ul style="list-style-type: none"> • Economic, social, and educational deprivation. • Dim sense of self with no interior voice • Thought tied to immediate present and concrete phenomena • Short attention span • Polarized views: win-lose, right-wrong • Obedience to authority with fear of punishment • Difficulty making connections with others
Received Knowing	Listening to the voices of others	Ability to hear though still not to speak in one's own voice. Received knowers are open to what others have to offer but don't see themselves as on an equal level.	<ul style="list-style-type: none"> • Faith that others can provide valuable information and direction • Confidence in ability to store information but reluctance to do anything transformative or original with it • Dualistic thinking & intolerance of ambiguity • Reliance on authority • Search for ways to adapt and conform; tendency to leave

			<ul style="list-style-type: none"> challenging environments. • Concern for others not self • Difficulty with communications
Subjective Knowing	The inner voice	A sense of self that overcomes reliance on outside authority and replaces it with intuition. These knowers often reject outright the influence of others and refer all decisions to inner or "gut" feelings.	<ul style="list-style-type: none"> • Belief that individual (never authoritarian) interpretations are valid • Value placed on feelings over ideas and on intuition over reason • Skepticism toward rational thought and procedural approaches • Centrality of personal experience • Self talk as a way of developing a voice
Procedural Knowing I	Separate knowing	Abandonment of subjective knowing to assume a skeptical stance and using procedural means for evaluating any situation or making a decision. Gaining use of procedures empowers a learner to go beyond subjectivism.	<ul style="list-style-type: none"> • Preference for argument and a critical stance emphasizing doubt • Need to be prepared and confident before speaking • Strategic approach to dealing with tasks and people • Acceptance of established standards • Emphasis on procedure, methodology, objectivity • Value on knowing how, means over ends, form over content, pragmatism in solving problems
Procedural Knowing II	Connected knowing	Retention of subjective knowing while developing procedures for gaining access to others' knowledge and perspectives	<ul style="list-style-type: none"> • Effort to emphasize, trust and connect • Adherence to multiple perspectives without necessarily being converted to alternative points of view. • Preference for being non-competitive and

			<ul style="list-style-type: none"> • non-judgmental • Preference for coming to groups with partly formed ideas to be negotiated and developed with others
Constructed Knowing	Integrating the voices	Integration of received, subjective, and procedural ways of knowing in order to construct knowledge. Rather than choosing, blending of polarities as objective/subjective, rational/emotional, etc.	<ul style="list-style-type: none"> • Reflectiveness resulting in efforts to articulate understanding in an exploratory way. • Self-awareness combined with sensitivity to others • Tolerance for conflict, ambiguity, stress, internal contradiction • Contextualization of problems resulting in flexibility • Preference (or need) for environments that value diverse perspectives and ideas

Questions for discussion:

1. Look again at the "vision" statements written by faculty and student groups at IU. How do you relate what these groups have proposed as outcomes for an undergraduate education to the models provided above?
2. Which model seems best to describe your experience as an undergraduate?
3. What kind of experiences do you think would help a student develop toward greater complexity and multiplicity in knowing?
4. Do these models essentially overlap each other, or are there notable differences?

In his report of how he uses the Perry Model to move students away from dualism, Kloss⁽⁴⁾ suggests the following:

1. Provide ample experience dealing with differing viewpoints, conflicts, and paradoxes.
2. Find the structure of each point of view, breaking it up into smaller parts, perhaps for example using an argument structure like IPSO (Issue, Position, Support, Outcome).
3. Constantly reinforce the legitimacy of alternative viewpoints, and the unlikelihood of one "right" answer to any complex problem.
4. Require students to explain their value judgments explicitly and clearly.
5. Challenge over-generalizations, appeals to authority, etc.
6. Support the legitimacy and relevance of students' own experiences and views.
7. Support changes of views when evidence supports such change -- remember Emerson's dictum, "A foolish consistency is the hobgoblin of little minds."

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1. William G. Perry Jr. (1968). *Forms of Intellectual and Ethical Development In the College Years: A Scheme*. New York: Holt, Rinehart and Winston.
 2. Marcia B. Baxter Magolda (1992). *Knowing and Reasoning in College: Gender-Related Patterns in Students' Intellectual Development*. San Francisco: Jossey Bass Publishers.
 3. Mary F. Belenky, Blythe Clinchy, Nancy Goldberger, and Jill Tarule (1986). *Women's Ways of Knowing*. New York: Basic Books.
 4. Robert Kloss (1994). "A Nudge is Best: Helping Students through the Perry Scheme of Intellectual Development." *College Teaching*, Vol 42, No. 4 pp. 151-158.
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