Adult Education Research Conference

2006 Conference Proceedings (Minneapolis, MN)

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Keywords: Ways of knowing, Perry, Belenky, epistemology, teaching

Abstract: This quantitative study looks at the intersection between two epistemological theories: (1) the Women's Ways of Knowing Model and (2) Perry's Scheme of Intellectual Development. Findings confirm the existence of ways of knowing structures and show that the theories largely address different meaning making constructs. Some demographic differences were found.

Introduction

How do we know what we know? Our concepts of how we know what we know, our ways of meaning making, or our epistemological perspectives "affect our views of teaching and learning" (Belenky, Clinchy, Goldberger, & Tarule, 1997, p. 1). Throughout the ages, philosophers have debated epistemological issues. In recent times, educators have looked at ways of knowing issues as they relate to college students. Several theorists and researchers (Baxter Magolda & Porterfield, 1988; Belenky, Clinchy, Goldberger, & Tarule, 1997; King & Kitchner, 1974; Perry, 1970, 1999; Stanton, 1996) considered how students know what they know and how to apply this understanding to facilitating learning.

Two key ways of knowing theories are the Perry Scheme of Intellectual Development (Perry's Scheme) and the Women's Ways of Knowing (WWK) Model. Perry observed that over the course of their college experience students move through a series of epistemological positions. Perry's Scheme, originally based on interviews with 109 male Harvard undergraduate students in the 1950s and 1960s, places students on an explicit dualism to relativism continuum that is described in the context of Authority and Absolute Truth. Students move from absolute dualism (Position One, Basic Dualism) to dualism with some confusion (Position Two, Multiplicity Pre-Legitimate) to dualism with some uncertainty (Position Three, Multiplicity Subordinate) to relativism with some exceptions (Position Four, Multiplicity Correlate and Relativism Subordinate) and finally to "absolute" relativism (Position Five, Relativism Correlate, Competing, or Diffuse) (Perry, 1999).

Perry's work set the stage for close to forty years of ways of knowing research and theory building. Other researchers explored the dynamics of Perry's Scheme. Some developed scales (Erwin, 1983; Moore, 1989). Some proposed their own theories or made adjustments to his theory. King and Kitchner (1994) included epistemic assumptions in their work on reflective judgment. Baxter Magolda (1992) made some adjustments to Perry's labels and category definitions because "the flavor of [her] students' stories [were] not entirely captured by" (p. 12) Perry's category labels.

Feminists, like Carol Gilligan, questioned the accuracy of the assumption that findings, such as Perry's, based on male subjects, generalized to the whole adult population

(Gilligan, 1993). The Women's Ways of Knowing (WWK) collaborative, Mary Field Belenky, Blyth McVicker Clinchy, Nancy Goldberger, and Jill Tarule, interviewed 135 women college students to "explore whether there were certain conceptions of knowing that were more easily heard in the voices of women" (Belenky, Bond, & Weinstock, 1997, p.55). The WWK collaborative noted that, "The Perry scheme was very important in our work as it stimulated our interest in modes of knowing and provided us with our first images of the paths women might take as they developed an understanding of their intellectual potential, as well as describing the routes most often taken by men" (Belenky, Clinchy, Goldberger, & Tarule, 1997, p. 10). The WWK interview questions covered issues of how the respondents learn, who they rely on, their definition of an expert, if they know someone who is an expert, whether experts can disagree, and how they know something is true. In short, the questions were "devised for assigning Perry's (1970) epistemological positions . . . " (Belenky, Clinchy, Goldberger, & Tarule, 1997, p. 11 However, when the collaborative began "analysis by classifying the women's data using Perry's scheme, [they] found that the women's thinking did not fit so neatly into his categories" (Belenky, Clinchy, Goldberger, & Tarule, 1997, p. 14). Thus, emerged the WWK perspectives:

- *Silence*, where women experience themselves as mindless and voiceless and subject to the whims of external authority.
- *Received Knowing*, where women see themselves as capable of receiving, even reproducing, knowledge from the all-knowing external authorities, but not capable of creating knowledge on their own.
- *Subjective Knowing*, where women see truth and knowledge as personal, private, and subjectively known or intuited.
- *Procedural Knowing* (including both separate and connected procedural knowing), where women are invested in learning and applying objective procedures for obtaining and communicating knowledge.
- *Separate procedural knowing* uses critical thinking to play what Elbow (1973) calls the "doubting game" – where women look for loopholes, a factual error, a logical contradiction, omissions, or contrary evidence.
- *Connected procedural knowing* plays what Elbow (1973) calls the "believing game," learning is through empathy, and taking a nonjudgmental stance.
- *Constructed Knowing,* where women view all knowledge as contextual, experience themselves as creators of knowledge, and value both subjective and objective strategies for knowing. (Belenky, Clinchy, Goldberger, & Tarule, 1997)

The WWK collaborative's work spawned hundreds of qualitative studies. As Hayes and Flannery (2001) note, *Women's ways of knowing* "became perhaps the most influential publication about women's learning in the last two decades" (p. 37). As Stanton (1996) states, "[s]tudents call it 'eye-opening" and "it affirms and energizes students and encourages reflection about themselves as learners" (p. 25).

This current study asks: (1) what components emerge from Principal Component Analysis (PCA) of items designed to reflect the five Perry Scheme positions and the seven WWK perspectives; (2) what is the relationship between the components and the semantic differential dualism to relativism scale; and (3) are there demographic differences for the ways of knowing structures.

Methodology

The current study is based on a convenience sample of 492 students from the Virginia Commonwealth University (VCU) and the J. Sargeant Reynolds Community College located in Richmond, Virginia. About three-fifths of the respondents were undergraduates and two-fifths were graduate students. Respondents represent thirteen program areas, including such diverse disciplines as Business, Humanities and Social Sciences, Physical Therapy, Art, and Medical Science. Respondents represent age groups from "Under 21" to "56 Plus" and they reflect the diverse racial composition of the VCU and J. Sargeant Reynolds student bodies. About two-thirds classified themselves as "White" and one-third selected a nonwhite category.

The survey instrument consisted of four parts: (1) an initial paragraph introducing the ways of knowing construct and giving instructions; (2) 53 Likert items with 4 to 5 items covering each of the five ways of knowing in the Perry's Scheme and the seven perspectives in the WWK Model; (3) semantic differential statements covering other dimensions potentially related to ways of knowing; and (4) key demographic factors.

PCA of the Likert items was conducted to explore the existence of ways of knowing structures and the relationship between the Perry Scheme and the WWK meaning-making structures. Correlational analysis was conducted to explore the relationship between the dualism to relativism scale, as measured by the semantic differential items, and the ways of knowing components. Comparative analysis was conducted to test for demographic differences.

Results

PCA with the set of 53 Likert-type items designed to represent the ways of knowing perspectives in Perry's Scheme and the WWK Model yielded eight components: Dualist, Relativist, Silenced Knower, Fact Seeker, Subjective Knower, Connected Knower, Debater, and Analyst. These components reflect, but do not mimic, the two underlying theories. For the Perry Scheme, three components emerged – Dualist, Fact Seeker, and Relativist – not the original five positions. The Dualist and Relativist components represent the two end points of the continuum. The Fact Seeker component lies between these two end points and is the primary link to the ways of knowing structures described in the WWK Model. Items representing the Perry Scheme Position Two (dualism with confusion) and Position Three (dualism with uncertainty) as well as the WWK Received Knowing perspective loaded on the Fact Seeker component.

There were six, not seven, perspectives identified by the items designed to reflect the WWK Model – Silenced Knower, Fact Seeker, Subjective Knower, Connected Knower, Debater, and Analyst. The Silenced Knower and Subjective Knower reflected their respective perspectives in the WWK Model. The Fact Seeker component was the one point of intersection with the Perry Scheme. The Connected Knower reflected the WWK Procedural Knowing Connected perspective, but it also pulled in items designed to reflect the WWK Constructed Knowing perspective. There was no separate component for the WWK Constructed Knowing. The items representing the WWK Procedural Knowing Separate perspective loaded on two components, Analyst and Debater.

The set of eight components included 25 items and explained 61.822 percent of the variance. The Dualist Component explained close to 17 percent of the variance, with Chronbach's alpha = .82. Items in this component reflect the no "ands," "ifs," and "buts" view that things are either right or wrong. The Relativist Component explained close to 11 percent of the variance, with Chronbach's alpha = .74. Items in this component assert that there is no one right answer or one truth and that everything is relative. The Fact Seeker Component explained

close to 7 percent of the variance, with Chronbach's alpha = .63. The items refer to the reliance on experts, the avoidance of opinions, and the search for the real answers. The Silenced Knower Component explained close to 8 percent of the variance, with Chronbach's alpha = .74. The items refer to issues of not having a voice, not being listened to, not speaking, not doing the thinking, or being talked over. The Subjective Knower Component explained close to 5.5 percent of the variance, with Chronbach's alpha = .70. Items refer to the reliance on one's own gut feelings, intuition, and a basic trust of one's own feelings. The Connected Knower Component explained close to 5 percent of the variance, with Chronbach's alpha =.63. The items refer to the sharing and understanding of other people's perspectives and the concepts of analyzing and reflecting on these perspectives. The Debater Component explained close to 4 percent of the variance, with Chronbach's alpha = .55. Items refer to making meaning by finding errors in other people's thinking. The Analyst Component explained close to 4 percent of the variance, with Chronbach's alpha=.50. Items refer to the need to figure out how to find one's own facts and to study and analyze before deciding what one thinks.

Table 1. Total Variance Explained by Eight Components Derived from Principal Component Analysis with all 53 Ways of Knowing Likert Items

Component Number	Component Name	Mean Score	Eigenvalue	Percent of Total Variance Explained	Cumulative Percent of Total Variance Explained
1	Dualist	M=4.30	4.382	16.856%	16.856%
2	Relativist	M=2.52	2.892	11.123	27.978
3	Silenced Knower	M=4.96	2.149	8.264	36.242
4	Fact Seeker	M=3.28	1.747	6.721	42.963
5	Subjective Knower	M=3.05	1.417	5.451	48.414
6	Connected Knower	M=2.07	1.356	5.215	53.629
7	Debater	M=3.43	1.128	4.340	57.969
8	Analyst	M=2.63	1.002	3.853	61.822

Correlational analysis with the derived components and the dualism to relativism semantic differential scale (1 = Dualism, 7 = Relativism) addressed the second research question of how all of the derived ways of knowing components are related to the dualism to relativism dimension. The correlation between the Dualism component and the scale was .570, p<.01 and the correlation between the Relativism component and the scale was -.504, p<.01. The intersection component, Fact Seeker, had a moderate positive correlation (.327, p<.01), suggesting that it lies closer to the dualist perspective. The Connected Knower component had a weak negative correlation (-.176, p<.01) with the scale placing it closer to the relativism end.

The third research question asked whether there were significant differences for the ways of knowing components across gender, age, educational level, and race groups. Factorial ANOVA was used to address these questions. There were four demographic factors considered: gender (male and female), race (white and nonwhite), educational level (Freshmen/Sophomore,

Junior/Senior/Master's, and Doctoral); and age group (under age 21, age 21 to 25, and over age 25.) Table 2 gives an overview of significant main and interaction effects.

Table 2. Overview of Significant Main and Interaction Effects for Demographic Factors and Ways of Knowing Components in 2 x 2 x 3 x 3 ANOVA

PCA Components	Demographic Factors Main and Interaction Effects			
	Gender	Race	Educational Level	Age Group
Dualist	NO	Nonwhite (M = 4.30)*	Fresh/Soph(M = 3.84)* Doctoral(M = 4.67)	NO
Relativist	NO	NO	NO	NO
Fact Seeker	NO	NO	Fresh/Soph(M = 2.96)* Jun/Senior/Masters(M =	NO
Silenced Knower [1]	NO	Nonwhite(M = 4.96)*	NO	NO
Subjective Knower	NO	NO	Fresh/Soph(M=2.86)*** Doctoral(M=3.36)	NO
Debater	Males(M=3,17)***	NO	NO	NO
Analyst	NO	NO	Fresh/Soph(M=2.46)* Doctoral(M=2.73)	NO
Connected Knower	White Females (M=1.93)* White Males (M=2.09)	NO	NO	NO

Note: Lower mean scores indicate a greater tendency to agree with the position.
[1] Included the covariates of the Powerful/Insecure and Separate/Connected semantic differential scales.
* $p<.05$, ** $p<.01$, *** p<.001

Thus, there are subgroup differences, but they are not pervasive. Gender differences are limited to the Debater and Connected Knower perspectives. Males are more likely to agree with the Debater perspectives and White Females are somewhat more likely than White Males to agree with the Connected Knower perspective. Increasing age, at least within the context of the three age groups (under 21, 21 to 25, and 25 plus) was not related to any of the components. Thus, changes in perspective do not appear to be related to growing older. Educational level had the dominant subgroup effect. Differences across educational levels were found for the Dualist, Fact Seeker, Subjective Knower, and Analyst components. In all cases the lower educational level respondents were more likely to agree with the component. There were also some differences across race groups for the Dualist and Silenced Knower components. Nonwhite respondents were more likely than White respondents to agree with the Dualist and Silenced Knower perspectives.

The germinating idea for the WWK Model came from the Perry Scheme. However, when the WWK collaborative tried to fit women's voices into the Perry Scheme they found they did not fit. This current study found that the WWK collaborative took the "ways of knowing" discussion in an almost entirely different direction from the Perry Scheme, but it is not gender

essential. Both the Perry Scheme and the WWK Model are relevant for men and women. They are primarily different constructs in the broader ways of knowing field. The Perry Scheme is about the dualism to relativism dimension. The WWK Model and the modifications to this model based on results from this study are a matrix of different ways individuals get their "ah ha" moment. They identify the way individuals arrive at the point at which they are satisfied that they understand, the way the "light bulb" turns on for them, the way they are open to seeing, hearing, and learning. It is the type of proof a person needs to know that they know and the proof needed is not dependent on belief in absolute or relative truth or the dualism to relativism dimension described in the Perry Scheme. Learners find the WWK ways of knowing structures "eye-opening" and "ringing true" because they recognize their own ways of making meaning in the matrix suggested by the WWK work and modified by this study. As educators of adults, exercises in exploring our own ways of knowing as well as our students' ways of knowing can facilitate the design of teaching to facilitate and transform the learning process. The clue to understanding our ways of knowing lies in the description of the items that loaded on the components in this study.

Refernces

Baxter Magolda, M. B. (1992). *Knowledge and reasoning in college.* San Francisco: Jossey-Bass.

Baxter Magolda, M. B. & Porterfield, W. D. (1988). *Assessing intellectual development: The link between theory and practice.* Alexandria, Va: American College Personal Association

Belenky, M. F., Bond, L. A., Weinstock, J. S.. (1997). *A tradition that has no name: Nurturing the development of people, families, and communities.* NY:

Belenky, M. F., Clinchy, B. H., Goldberger, N. R., and Tarule, J. M. (1997). *Women's ways of knowing: The development of self, voice, and mind.* NY: Basic Books, Inc. Basic Books.

Erwin, T. D. (1983). The scale of intellectual development: Measuring Perry's Scheme. *Journal of College Student Personnel.* January, 6-11.

Gilligan, C. (1993). *In a different voice: Psychological theory and women's development.* Cambridge, MA: Harvard University Press.

Hayes, E., and Flannery, D. D. (2000). *Women as learners.* Jossey-Bass Publishers: San Francisco

King, P.M. & Kitchener, K. S. (1994). *Developing reflective judgment.* San Francisco: Jossey-Bass.

Knefelkamp, L. L. (1999). Introduction. In Perry, *Forms of ethical and intellectual development in the college years: A scheme.* San Francisco: Jossey-Bass.

Moore, W. S. (1989). The learning environment preferences: exploring the construct validity of an objective measure of the Perry Scheme of intellectual development. *Journal of College Student Development*, 30, 504-514.

Perry, W. G., Jr. (1970). *Forms of intellectual and ethical development in college years.* NY: Holt and Rinehart.

Perry, W. G., Jr. (1999). *Forms of intellectual and ethical development in college years: A scheme.* San Francisco: Jossey-Bass.

Stanton, A.V. (1996). Reconfiguring teaching and knowing in the college classroom. In Goldberger, N., Tarule, J., Clinchy, B., & Belenky, M. (Eds.) *Knowledge, difference, and power.* NY: Basic Books