Beginning Teacher Development: A Cognitive-Developmental Approach

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There is increasing interest in applying cognitive-developmental theory to teacher professional development. Work begun by Ralph Mosher in the 1970s set the stage for more recent developmental education and programming. Cognitive-developmental theory and research has yielded a well- established understanding of the cognitive aspects of intellectual, social/emotional, and moral development. Refined measures of structural development across a variety of domains have been developed, and evidence illustrates a strong relationship between cognitive-development and behaviors associated with the more universal descriptions of mature professional judgment (e.g., flexible problem solving, high tolerance for ambiguity, ethical sensitivity, compassion, careful weighing of competing alternative solutions). This study focuses on changes in beginning teachers' teaching effectiveness and moral and conceptual judgment during a one-year support program involving mentor teachers. The results suggest that the social roletaking/ reflection approach is an effective means of promoting conceptual and moral judgment in beginning teachers, while revitalizing experienced teachers in new roles as mentors.

In 1963, Harvard President Emeritus James Conant called for a new model of the teacher professional. Using the medical model as his template, he proposed that "teaching hospitals" be developed. Of special interest to Conant were complex new roles for clinical teachers, clinical supervisors, and clinical professors; educators specially prepared to work side-by-side as they coach and assist future educators. A focus on supervision and new forms of teacher education emerged from Conant's treatise (1963) including the work of Ralph Mosher and David Purpel (1972).

In their classic work entitled. *Supervision: The Reluctant Profession* (1972), Mosher and Purpel acknowledged the critical importance of supervision in advancing more effective and responsible teaching. Yet Mosher and Purpel also recognized that supervision was rarely done well, and often did harm, a conclusion shared by Cogan (1973) and Goldhammer (1969), architects of the clinical supervision model. Mosher and Purpel's thesis was that persons often view supervision as a difficult and burdensome practice. "Though lip service is routinely paid to the importance of supervision, the most widespread attitude is probably suspicion — suspicion that supervision is at best ineffectual and at worst a harmful form of interference with the work of the teacher" (1972, p.2). However Mosher and Purpel had a deep respect for competence in the classroom, and were committed to developing a system of supervision that might adequately embrace the complexities of teacher preparation. Supervision was a critical process for altering and improving professional judgment and practice.

Mosher and Purpel also anticipated the need for guiding theory of the developing person. In their view, theoretical bases for a new model of supervision were at least as important as the accompanying recommendations for practice. Mosher's theoretical frame increasingly adhered to the Deweyan concept of development as the aim of education.

"The aim of education is development of individuals to the utmost of their potentialities...What then is education when we find actual satisfactory experiences of it in existence? In the first place it is a process of development, of growth, and it is the process and not merely the results that is important...an educated person is the person who has the power to go on and get more education" (Dewey, in Archambault, 1964, p.6).

Dewey (1934) went on to make the point that Rousseau's notion of natural development (i.e., human beings, analogous to seeds, have latent capacities which, if left to themselves, will ultimately flower and bear fruit) has two fallacies. The first is that people are vastly more complex than plants; and second is that development is a kind of interaction that occurs between the organism and the environment. Nature and nurture promote development. What Dewey didn't know was what characterized development, whether it be the intellectual, social/emotional, or moral, at a particular stage or plateau in a person's life. Dewey's philosophy outran his psychology, as did his analysis of class, race, and

gender. Mosher, Kohlberg, and others began the arduous task of investigating interventions which had potential to promote learning and development. In their minds and hearts, developmental education was born.

Developmental Education

A generation of research in genetic epistemology and developmental psychology by Piaget (1954, 1972), Erikson (1982), Kohlberg (1969), Selman (1980), Loevinger (1976), King and Kitchener (1994), and others now offers educators clearer models of developmental plateaus in persons' lives. Yet developmental psychologists have not been as concerned about what methods and materials evoke truly educative development. Mosher dedicated his professional life to better understanding the psychology of cognitive, social, and moral development, and creating an educational system to promote those human competencies, first in the field of supervision and teacher education, and later in his work at Brookline High School with democratic schooling. Such work in developmental education requires interrelated focuses: devising and testing the curricula (i.e., those systematic educational experiences that help persons grow); learning the appropriate pedagogy; and altering the school as an institution. It is a mission that guided Mosher's research and scholarship on democracy, democratic schools, and democratic teacher education.

Cognitive-Developmental Approaches to Teacher Development

The cognitive-developmental approach to teacher professional development involves preservice students and teachers working in increasingly collaborative ways to promote more effective teaching and more responsible professional practice. It is characterized by a relatively elaborate approach to coaching, supervision, and assistance that provides new experiences that first match and then gradually mismatch according to the colleague's current developmental level. The pedagogy is organized to be just beyond, but within reach of, the novice teacher's comprehension and current functioning or "zone of next development" (Vygotsky, 1978).

Dewey (1938) learned that we have to pay more, not less, attention to the subject matter and the pedagogy of education for development. Devising and validating the experiences that genuinely affect intellectual, social, or moral development are far more complex than rewriting curriculum in mathematics or English literature. Two additional points are made by Dewey (1938) that have important implications for developmental education. He observes that development is a continuous process and the experiences, actions, or reflections that stimulate development will have a quality of consecutiveness. He warned that "it is comparatively easy to improvise, to try a little of this today and this week and then something else tomorrow and next week...without care and thought. This results all too readily in a detailed multiplicity of isolated short time activities or projects and the continuity necessary for growth is lost" (Dewey, in Archambault, 1964, p.10).

Considerable research suggests that promoting psychological development is a more enduring contribution to subsequent life success. Sprinthall, Bertin, and Whiteley (1986) conclude:

> Traditional measures of academic achievement in college including grade point average are not associated with accomplishment in adulthood. This basic finding has been replicated so often and with such diverse samples that it appears fruitless to further pursue this line of inquiry. Psychological maturity has been found to have a significant relationship to post-college accomplishment. Promoting psychological maturity as a component of the college experience is a very feasible way for colleges and universities to contribute to the capacity of the graduates for accomplishment in adulthood. The rationale for promoting psychological maturity during the college years is simple: it provides an advantage in adulthood. The skills and knowledge acquired in college can have an increased impact in adulthood when accompanied by personal maturity" (in Loxley & Whiteley, 1986, pp. 42-43).

Likewise, Heath (1994) summarizes his extensive longitudinal studies that validate why psychological maturity contributes far more to success in life than grades or standardized measures of intelligence. Goleman's popular work on emotional intelligence (1995) documents how knowledge of one's own emotions and the emotions of others leads to greater social deftness, character, altruism, and flourishing relationships.

Applying Cognitive-Developmental Theory to Teacher Education

Proponents of a cognitive-developmental approach to teacher education have only recently begun to examine how curriculum, instruction, and teacher education policy and programming can be more effectively structured and sequenced to promote new knowledge, new skills, and cognitive development. For example, Sprinthall and Thies-Sprinthall (1983) identified five principles that promote adult development, and which could guide teacher education program development. The principles include new social roletaking, guided reflection, balance between the experience and reflection, support and challenge, and continuity.

Kroll and Black (1993) report on a developmental approach to teacher education at the Graduate School of Education at the University of California, Berkeley. The program was designed to evaluate the hypothesis that classroom teaching and learning could be improved through the application of developmental theory and research to the education of teachers (Black & Ammon, 1992). Murray (1996) has explored cognitive-developmental theory and its appli-

cations to teacher reasoning, and Okeefe and Johnston (1989) have applied developmental theory and literature to teacher education. The synthesis of O'Keefe and Johnston has implications for how teacher educators think about teacher effectiveness — particularly teacher responsiveness to students.

Witherell (1978) examines the relation between teachers' understandings and practice and their levels of ego development (Loevinger, 1976). She finds significant correlations between teachers' "constructs" of teaching practice and their ego developmental levels. She also found that teachers with higher ego levels had more complex understanding of the teaching process, paid more attention to students' feelings and emotional needs, and placed greater value on children's social interactions as part of the learning process.

Oja and Smulyan (1989) have studied the relationship between conceptual, moral, and ego development levels and teachers' approaches to collaborative inquiry. Once again, they find that teachers at more complex levels were more collaborative and were more tolerant of ambiguity during the action research process. These same teachers tended to maintain an interpersonal deftness during their collaborative work.

Reiman (1999) reports summaries of a number of intervention studies of teacher professional development. Using cognitive-developmental theory as the conceptual model for the research, he examines a structured curriculum and developmental pedagogy that relies on new roletaking with carefully guided collaborative analysis and reflection. On average, the interventions promoted both conceptual and moral development in preservice teachers and experienced teachers. However, no studies were conducted with beginning teachers.

King and Kitchener (1994) report results of their longitudinal and cross-sectional studies of reflective judgment in adolescents and adults. Reflective judgment — persons' epistemic assumptions about ill-structured problems. They found that reflective judgment develops from less complex to more complex stages. Also in the conceptual development arena, Hunt and Joyce (1967) found a significant relationship between teacher trainees' conceptual level and the degree of reflectiveness. In further work, Hunt identified two general components of the adaptation process (Hunt, 1976). First, a teacher must "read" cues presented by the learner, and second, the teacher must then "flex" the communication approach to the learners perspective (p. 271). Joyce and Showers (1994) and Hopkins (1990) have found positive correlations between teachers' developmental levels ("growth states") and ability to adapt and transfer complex new models of instruction to the classroom. Those teachers at more complex levels more easily learn and adapt new models of teaching.

Oser, Dick, and Patry-Luc (1994) have applied the Kohlbergian framework to how Swiss teachers understand the ethical dilemmas in their classroom. Based on his research, Oser now advocates for a new synthesis of teacher education practice that links teaching effectiveness research with research on responsibility (i.e., principled judgment, truthfulness, professional ethics). In their studies, teachers at more complex stages of moral reasoning employed more interactive teaching methods, maintained a reduced security orientation, and practiced a "less single-handed conflict resolution." Rulon (1992) found a similar relationship between moral judgment and the ability of teachers to use a dialogue teacher-learner mode of discourse in democratically organized schools.

Likewise, Rest and Narvaez (1994) summarize research that examines relationships between moral development and more ethical practice across a variety of professions. One chapter is dedicated to teachers and shows strong positive correlations between moral development levels and teachers' understandings of curriculum, teacher/student roles, and management issues. Teachers at more complex moral reasoning levels are more empowering to student learning and healthy social development than teachers with less complex moral reasoning (Chang, 1994).

Sprinthall, Reiman, and Thies-Sprinthall summarize research on teacher professional development including cognitive-developmental approaches to teacher education (Sprinthall, Reiman, & Thies-Sprinthall, 1996), showing important relationships between development and teacher behavior, concluding that cognitive-developmental theory can illuminate both the aims of education and a theory of instruction. Along a similar track, Clark and Peterson (1986) review research on teachers' reasoning, and its relationship to classroom instruction, finding that more conceptually complex teachers employed higher-order teaching skills such as problem posing, active listening, ongoing assessment, and continuous adaptation, whereas as less cognitively-based teachers utilized fact-based, rote approaches to instruction .

Recently, some teacher educators and educational psychologists have attempted to integrate adult lifespan perspectives with the post-formal perspective. Arlin (1993) is most notable in this area. Her research suggests that post-formal stages may be predictive of wisdom of teaching practice. One study asked students and university supervisors to respond to ill-structured questions such as: what is your definition of teaching? What is your view of teaching and what is the best way to teach? Arlin found nine different levels of teacher ability to take the student's point-of-view. These levels of perspective taking formed a continuum, with the two ends of the continuum being heteronomy and autonomy of perspective taking. This is similar to work by Kamii (1985). Drawing on the work of Baltes and Smith (1990, p.5) Arlin argues for general criteria to judge teaching wisdom including: (1) richness of factual knowledge about life; (2) richness in procedural knowledge about life; (3) lifespan contextualixm; (4) awareness of relativism associated with variations in values and life priorities, and (5) uncertainty of life; its recognition and management.

Finally, more systemic approaches to developmental teacher education that involve a large number of schools systems and state policymakers are reported by Reiman and

Thies-Sprinthall (1998) and Thies- Sprinthall (1984). Thies-Sprinthall reports her research in promoting the conceptual and moral development of school-based teacher educators. The Thies-Sprinthall program explicitly draws of cognitive-developmental theory to guide her mentor/beginning teacher curriculum and pedagogy.

Although many theorists, scientists, and teacher educators have been working independently, they have come to remarkably similar conclusions. Namely, that adult professionals such as teachers have an intrinsic potential for growth through stages or plateaus from lower order to higher order content knowledge, pedagogical skill acquisition, and intellectual, social, and moral maturity. Basic research has provided developmental educators with an important set of directing constructs. However, as my friend and colleague, Norman Sprinthall, has remarked on numerous occasions, there is a major difference between pointing out new directions for practice and the successful implementation of those ideas. His work with Mosher at Harvard represented the "first generation" of research to explore whether psychological development could be promoted.

The Roletaking/Reflection Model in Teacher Education

In the 1970s Kohlberg encouraged Mosher and Sprinthall to explore applications of cognitive-developmental psychology to adults. As well, they were introduced to the work of George Herbert Mead (1934) and the theory of role taking. By placing students, or novice educators, or adults in important and real roles that require empathy, the "iron discipline" of listening, and with opportunities for analysis and reflection, development was bolstered. It also was a reminder of Dewey's conclusion (1938) that experience by itself could be educative or miseducative. Without opportunities for sustained analysis and guided reflection, experiential learning could be as arid as classroom lectures.

The present study is based on the roletaking/guided reflection framework first described by Sprinthall and Thies-Sprinthall (1983) and measured the moral and conceptual development of a single group of beginning teachers who were being assisted and coached by experienced mentor teachers. The mentor teachers were participating in a reflective practicum during a year of support they provided for beginning teachers.

Method

Participants

The original sample consisted of 19 beginning teachers that were randomly selected from twenty-three school sites. The sample of 19 beginning teachers were assigned to an experimental or comparison group. The beginning teachers in the treatment group ($N = 9$) were assigned mentor teachers who received intensive coaching and assistance (45 contact hours) as they supported their beginning teacher. The beginning teachers in the comparison group ($N = 10$) were assigned to experienced buddy teachers with no formal training. However, buddy teachers and their beginning teachers participated in four support sessions that were designed to address personal and professional concerns. Nine of the beginning teachers in the experimental group were in their early twenties with no prior teaching experience. Two beginning teachers were entering teaching for the first time, after having careers in other areas. The ten teachers in the comparison group were first-year teachers with no prior career experiences. In addition to formal or informal support from mentors or buddy teachers, all beginning teachers participated in monthly support meetings to address professional and personal concerns. Due to contextual constraints, posttest data was only gathered for the experimental group. Thus statistical analysis and results are reported for this group only.

Purpose

The intervention study was one of the first to assess both professional learning and cognitive-development of beginning teachers working with trained mentor teachers. The study also monitored mentor teachers' changes in clinical supervision. In addition to developmental growth, the study examined retention patterns for first-year beginning teachers participating in the intensive coaching program. Four questions were identified:

(1) Would beginning teachers demonstrate significant gains in instructional excellence as assessed by the Flanders Interaction Analysis System?
(2) Would beginning teachers show significant gains in moral and conceptual development?
(3) Does educational programming for mentor teachers improve practice (e.g., style of support to beginning teachers during clinical pre- and post-observation conferences)?
(4) Does intentional programming of support for beginning teachers alter retention patterns in the school district?

Design

Beginning teachers in the treatment were pretested before beginning the school year and post-tested in May. Measures of cognitive development included the Defining Issues Test (Rest, 1986), and the Paragraph Completion Test (Hunt, 1976). Both tests have been used extensively to respectively assess moral judgment reasoning and conceptual complexity. Beginning teacher effectiveness was measured by the Flanders Interaction Analysis System. Audiotapes of beginning teacher instruction were gathered at the beginning and the end of the school year. Audiotapes were scored by trained raters. Interrater reliability was established at .95, which is excellent for the Flanders instrument. As well, audiotapes of mentor teachers' supervision (pre-and post-observation conferences) were gathered at the beginning of the school year (August) and in December. As well, retention patterns for the beginning teachers were assessed.

Theoretical Framework

Cognitive-developmental theory serves as the conceptual framework for the study. The teaching profession claims that the central disposition of the professional teacher is sound professional judgment, proficiency in technical knowledge and skills, flexible clinical or reflective thinking, and compassion and ethical sensitivity. Cognitive-developmental researchers have conducted longitudinal and cross-sectional research in the areas of intellectual reasoning and judgment, problem solving and reflective judgment, and ethical judgment (reviewed earlier).

The intervention study raises questions about whether beginning teachers learn and develop (conceptually and morally) during the induction phase of their professional career. Ultimately, these questions have to do with how mentor teachers and the school culture cultivate or constrain the acquisition of psychological maturity and professional judgment. The general criteria for judging the acquisition of professional judgment during the induction phase might include: (1) richness of knowledge about profession; (2) richness of procedural knowledge about professional practice; (3) professional contextualism; (4) awareness of relativism and principled commitment associated with variations in values, profession, and life, and (5) awareness and effective management of uncertainty (Baltes & Smith, 1990, p.95).

The last three criteria: contextualism, relativism and commitment, and uncertainty have been identified as aspects of optimal adult thought in a post-formal cognitive-developmental framework (Arlin, 1993). The cognitive-developmental framework characterizes adult cognition as evolving toward dialectical (Baseeches, 1984) and relativistic thinking, reasoning about uncertainty (King & Kitchener, 1994), principled commitments (Rest & Narvaez, 1994), and problem finding (Arlin, 1993).

Some examples of applications of cognitive-developmental theory to professional judgment and action might be instructive. The ability of students in professional preparation programs to increasingly take the client's point of view is thought to be strongly related to the quality of their formulation of a clinical approach, and to their personal definitions of effective practice (Bebeau, 1994). The ability to take the client's or student's point of view has been extensively studied by cognitive-developmentalist Selman (1980). Another example is the problem formulations of students (e.g., design problem, lesson plan, patient or family problem, or ill-structured problem in business or engineering). Typically, the problem formulations follow a type of continuum from the absence of a problem statement to a realization that many problems are ill-structured and ill-defined, for which there are no simple solutions available. Reflection and clinical analysis are crucial considerations in trying to study the development of expertise within a profession like teaching, and longitudinal and cross-sectional research suggests that both processes are evolutionary — that is the adequacy of the problem formulation slowly develops from less adequate and less complex formulations to more adequate and more complex formulations (King & Kitchener, 1994). Examination of professional judgment in the teacher induction phase where problems are ill-defined, but require action, might be ideal for capturing the declarative, procedural, and conditional knowledge.

The principles of the social roletaking and reflection framework first proposed by Sprinthall and Thies-Sprinthall (1983) were used to design and implement the intervention. The roletaking and reflection framework has been applied in the professions with some success. The five principles include (1) complex new roletaking, (2) guided reflection and analysis, (3) balance between the new role and the analysis/reflection process, (4) provisions for sustained support and challenge as the person undertakes the new role, and (5) continuity of conditions over at least six months to one year.

In summary, cognitive-developmental theory and research has yielded a well- established understanding of the cognitive aspects of intellectual, social/emotional, and moral development. Refined measures of stage development across a variety of domains have been developed, and evidence illustrates a strong relationship between cognitive-developmental stage and behaviors associated with the more universal descriptions of mature professional judgment (e.g., flexible problem solving, high tolerance for ambiguity, ethical sensitivity, compassion, careful weighing of competing alternative solutions).

Results

Table 1 summarizes changes in pretest/posttest mean scores of beginning teachers. Pretest and posttest audiotapes of instruction were analyzed using the Flanders' Interaction Analysis System. The analysis yields a percentage of direct instruction, indirect instruction, teacher talk, and student talk. Indirect instruction includes accepting feelings, praise or encouragement, accepting ideas, and asking questions. Direct instruction includes lecture, giving directions, and criticizing student behavior. Flanders argued that indirect instruction is less controlling, and encourages more democratic-style classrooms. Increases in the percentage of student talk also are associated with more interactive classrooms. The percentage of beginning teacher direct instruction increased from 65.69 percent of instruction in September to 71.73 percent of instruction in May. Based on pretest/posttest assessment, it would appear that beginning teachers moved toward more teacher-directed instruction as the school year progressed. However, Table 1 also shows the percentage of student talk increasing from a pretest mean of 18.68 percent of instruction to a posttest mean of 20.66 percent of student/teacher interaction. This is a small but important positive change. Thus, although beginning teachers appear to have shifted to more teacher-directed instruction as the school year progressed, these same beginning teachers provided slightly more opportunities for students to contribute as the school year progressed.

Table 2 reports the pretest/posttest mean gain scores

Table 1
Change in Pretest/Posttest Means on Flanders' Interactional Analysis System for Beginning Teachers in the Experimental Group

	Pretest Mean	*S.D.*	Posttest Mean	*S.D.*
Percentage of Indirect Instruction	34.31	7.36	28.27	11.88
Direct Instruction	65.69	7.36	71.73	11.88
Percentage of Teacher Talk	81.33	4.90	79.34	6.72
Student Talk	18.68	4.90	20.66	6.72

Table 2
Change in Mean Gain Score of Moral Judgment Reasoning for Beginning Teachers

	Pretest Mean	Posttest Mean	Mean Gain	*S.D.*
Treatment Group	32.84	40.0	7.16	8.66
				t value .827

df = 8, not significant, $p < .01$, one tailed (Effect Size - +.82)

from the assessment of moral judgment reasoning. The Defining Issues Test (Rest, 1986) was utilized. As well, Table 2 reports level of significance and the effect size. Pretest/posttest means for beginning teachers in the experimental group were reported. Due to confounding variables, this single group was statistically analyzed for significance and effect size. The mean gain for the sample was 7.16. This gain was not significant but represented a strong trend. The calculated effect size was +.82. Typically, highly effective one-year interventions have shown mean gain scores of approximately 8.00 - 10.00 on the Defining Issues Test (Rest, 1986).

Table 3 reports pretest/posttest means and the mean gain score from the Paragraph Completion Test. This semi-projective assessment generates scores from 0.00 - 3.00. Generally, a score of 1.8 - 2.2 would be categorized as representing moderate conceptual complexity and interpersonal maturity. Table 3 summarized beginning teachers' mean gain score on the Paragraph Completion Test. A mean gain of 0.35 was reported, which is statistically significant. As well, the effect size was calculated at +1.12. Although effect sizes are typically reported for studies that include a control group, Light and Pillmer (1984, p.56) suggest that effect sizes can be computed for studies without control groups. Positive increases in conceptual complexity are associated with comparable increases in tolerance for ambiguity, and less need for structure in ill-structured contexts.

Table 4 reports changes in mentor teachers' conferencing style with beginning teachers. Audiotapes of mentor/beginning teacher clinical supervision conferences were

Table 3
Change in Mean Gain Score of Conceptual Reasoning for Beginning Teachers

	Pretest Mean	Posttest Mean	Mean Gain	*SD*
Treatment Group	1.55	1.9	0.35	0.31
				t value 2.605
df = 8, significant, p<.01, one tailed	(Effect Size +1.12)			

Table 4
Change in Mentor Conferencing Interactions with Beginning Teachers

	Pretest Mean	*SD*	Posttest Mean	*SD*
Indirect Conferencing	39.3	15.88	49.8	13.91
Direct Conferencing	61.7	15.88	50.2	13.91
Mentor-Controlled Talk	63.55	15.04	52.2	17.9
Beginning Teacher-Controlled Talk	36.5	15.04	47.8	17.9

audiotaped and analyzed utilizing the same Flanders Interaction Analysis System. Two trained raters assessed the tapes. Rater agreement was high (.85 - 90 range). Table 4 summarizes mean scores for indirect conferencing, direct conferencing, and percentage of mentor teacher talk and beginning teacher talk. Indirect conferencing includes accepting beginning teachers' feelings and ideas, providing encouragement, and asking open-ended questions that are designed to encourage beginning teacher reflection and deeper analysis of the teaching/learning process. Direct conferencing includes providing information, giving directions, and sending "I" messages. The pretest mean for mentor direct conferencing was 61.7. The posttest mean was 50.2.

This decline in direct conferencing is significant. A decline of over 10.0 points on the Flanders system suggests that major changes occurred in the mentor teachers' conduct of conferences. The shift is away from lecturing, advice-giving, and directions, toward a more indirect approach to conferencing that is more inquiry-based and beginning-teacher centered. The mean percentage of mentor indirect conferencing increased from 39.3 percent of the conferences (pretest) to 49.8 percent of the conferences (posttest), and is a significant change.

As well, the percentage of talk during mentor/beginning teacher conferences changed. Mentor talk decreased from a mean pretest percentage of 63.55 to a mean posttest percentage of 52.2. Naturally, the percentage of beginning teacher talk during clinical conferences changed from a pretest mean of 36.5 to a posttest mean of 47.8 percent of a clinical conference. Such changes do not occur without intensive coaching and assistance. In fact, the percentage of direct mentor talk tends to increase without treatment. The findings indicate that the mentor practicum is highly effective at altering the conferencing style of mentor teachers. The positive changes are toward more inquiry-based, col-

laborative, and facilitative mentoring and conferencing.

The final question in the study related to retention. All the beginning teachers assigned to trained mentor teachers signed letters indicating they would return for their second year of teaching.

In summary, the findings include the following:

(1) Beginning teachers' instruction became slightly more direct during the school year, and there was a slight but important trend toward instruction supporting more student talk by the end of the school year;

(2) Beginning teachers showed non-significant gains on a measure of moral judgment reason ing (Defining Issues Test);

(3) Beginning teachers showed significant gains ($p < .01$) of a measure of conceptual reasoning (Paragraph Completion Test);

(4) Mentors participating in a 30 contact-hour practicum showed significant changes in supervisory style. Coaching and clinical supervision conferences became progressively less controlling (direct) and progressively more democratic(indirect); and

(5) All beginning teachers assigned to trained mentors expected to return to the school system for the second year.

Discussion

The intervention study was framed by cognitive-developmental theory and five principles for adult (and teacher) development, most recently reviewed by Sprinthall, Reiman, and Thies-Sprinthall (1996). As such, the study represents a deliberate professional and psychological development intervention in the public school sector.

The aim of the intervention was three-fold: to develop more effective, thoughtful/empathic, principled, and flexible novice teacher dispositions to student learning and schooling dilemmas, to promote the "far transfer" of more effective coaching and mentoring skills through a social roletaking/reflection curriculum, and to retain more first-year teachers. The aim of promoting principled, flexible, and thoughtful/empathic dispositions has been noted as fundamental to good teaching and effective schooling by a number of prominent scholars (Berliner, 1992; Darling-Hammond, 1994; Goodlad, Soder, & Sirotnik, 1990; Oser, 1994). The second aim to promote "far transfer" of mentoring and clinical supervision skills has been underscored as a crucial need by Joyce and Showers (1995). The third aim, to retain more first-year teachers has been mentioned as important to all successful induction programs for beginning teachers (Commission on Teaching and America's Future, 1996).

Although the sample of this study was small, it does provide evidence that developmental approaches to mentoring novice teachers can promote growth in moral judgment reasoning, conceptual complexity, and flexibility when the school organization supports intensive developmentally-based approaches. The results of the study were less clear regarding changes in beginning teacher instructional effectiveness. Although increased flexibility (conceptual complexity) and increased principled reasoning should be seen as key dispositions for subsequent instructional effectiveness, analysis of beginning teachers' teaching during the first month of the school year and then again in the final month of the school year indicated that beginning teachers became more direct in their instruction. This change might have been predicted given the scores of studies that have described the lack of personal control felt by beginning teachers. Becoming more direct in instruction is one way of gaining control. One might predict that gains in moral and conceptual development are necessary but not sufficient precursors to changes in teaching practice. It is important to note that beginning teachers did provide more time for student talk as the school year progressed. This positive change was small but important, and might suggest that beginning teachers were preparing to shift to more inquiry-based and student-centered approaches to instruction.

Further, the study suggests that new mentors can learn to apply increasingly democratic and progressively collaborative styles of clinical supervision and instructional inquiry. However, such skilled practice does not come cheaply. The guided practicum experience may be a noteworthy exemplar to be duplicated by school systems interested in solving the dual challenges of supporting beginning teachers while revitalizing experienced teachers.

In one of Mosher's final contributions (1994), he and his colleagues argued that educators must continue to refine prototypic curriculum that promote those competencies often neglected: specifically "adolescent growth to moral stages that consider caring for others and community order, ego conformity, and the beginnings of formal operations for all students. All of these competencies are necessary for citizens to fully participate in a democratic society" (1994, p. 170). Likewise, the quality of the adults who make up the staff of a school or of a teacher education program are always crucial to their effectiveness, and there is a concomitant need to study developmental interventions within schools and other professional contexts.

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