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Intellectual Foundations for Teaching Ethical Decision-Making to College Students

by

Margaret Cooney, Bernita Quoss, and Karen Williams

Introduction

This article reports on part one of a three part study exploring aspects of teaching pre-professional ethical decision-making to college students across disciplines (Child Development, Family Studies, and Early Childhood Education). The goal of the study is to strengthen the ethical decision-making component in these programs in order that students leaving the university and entering professions are prepared to make ethical decisions. Part one of the study addressed the following research question: What is important for college instructors to know about their students in order to design a systematic approach to teaching professional ethical decision-making? Five findings about teaching and learning ethical decision-making emerged. Most significantly, the researchers found that the students had different developmental levels of intellectual reasoning that in turn affected their approaches to ethical decision making. Furthermore, an inconsistency between traditional professional models and transformational professional models of best practices was problematic for teaching pre-professional ethical decision-making. Another barrier that emerged was the female college students' reactions to emotionally charged course content. Finally, the researchers identified effective teaching strategies to help students advance to higher levels of intellectual reasoning in order to successfully resolve complex ethical dilemmas in their professional lives.

Theoretical Framework

The study draws on the theories of Perry, Kuhn, and Vygotsky to provide frameworks for thinking about intellectual reasoning, ethical decision-making, and effective teaching strategies. Perry's (1968) nine stage scheme and Kuhn's (1990) three stage theory were utilized in this study to develop a four stage model of intellectual development. This integrative model then was used to identify students' levels of intellectual reasoning. Perry's Stage Theory (1968) describes nine positions of intellectual development including basic duality, multiplicity pre-legitimate, multiplicity subordinate, multiplicity correlate, relativism correlate, commitment foreseen, initial commitment, orientation in implications of commitment, and developing commitment. A strong aspect of Perry's model is its identification of the in-between stages present in intellectual development. In contrast, Kuhn's Epistemological Theories (1990) delineate three paradigms for thinking about knowledge including the absolutist, multiplist, and evaluative stages.

The stage model utilized for the present study describes four levels of intellectual reasoning found in college student populations (Kloss, 1994) (see Figure 1). The dualistic stage is characterized by a view of the professor as the authority whose role is to pass on the facts and to provide correct answers and right theories to the students. As students' intellectual reasoning advances, we found that they enter the multiplicity stage. Knowledge becomes a matter of opinion and issues are explored from a variety of perspectives. However, all opinions and perspectives are considered to be equal in value. The third stage, relativism, is characterized by critical thinking about differing perspectives and the ability to judge points of view according to supporting evidence.

Knowledge is seen as contextual. The final stage, commitment in relativism, is characterized by integration of knowledge and the creation of a personal world view. Students in this stage bring together the relatively objective aspects of knowledge with their own experiences to demonstrate a consistent approach to learning inside and outside of the college classroom.

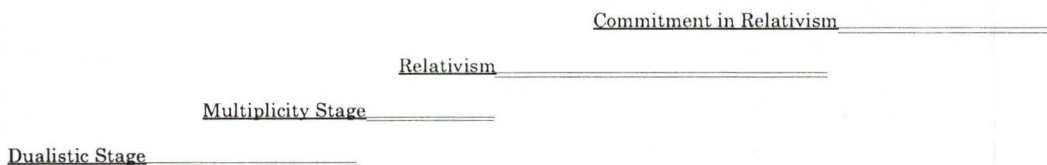


Figure 1. Overlapping stages of intellectual reasoning with lowest level at bottom.

Vygotsky’s Theory of the Zone of Proximal Development (1978) was used as a theoretical framework for exploring effective strategies for teaching in the college classroom in order to promote development across the four levels of intellectual reasoning. It is based on the assumption that college students’ intellectual development is not static, but dynamic and capable of maturing toward more advanced stages with appropriate scaffolding. If teaching strategies are considered as potential tools to assist students to think in ways that go beyond their current paradigms, then they can serve as scaffolds for the process of intellectual development.

Modes of Inquiry and Data Sources

The three researcher instructors used a qualitative approach to observe in six college classrooms during the 1997-1998 academic year. Two field observations in each class (for a total of twelve observations) were recorded using a field note form designed by the researchers to document targeted aspects of the teaching and learning process during the college classes (see Figure 2). Artifacts from each of the six classes were collected including the course syllabus and readings, handouts for the observed sessions, and student work completed during the observed sessions.

Course:
Observer:
Date:
Time:

Code:
In=Intellectual Development
E=Ethical Reasoning
Id=Identity Development

Running Time	Ethical/ Intellectual Issue	Initiator	Context	Instructor Actions Process	Student Reasoning	Other
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Figure 2. Observation form used for documenting teaching and learning process.

Five students were interviewed at the end of the fall semester and four students were interviewed at the end of the spring semester classes. The students who were interviewed were chosen for their willingness to participate, their balance between traditional and non-traditional age groupings, and their lower and higher levels of intellectual reasoning according to researcher reports. A profile of the nine students describing demographic data is shown in Figure 3.

Student's Pseudonym & Interview Date	Student's Discipline	Student's Trad/Nontrad Status	Student's Standing & Ethnicity	Student's Career Goal
*Ruth	Child Development	Traditional	Sophomore Caucasian	Elementary Teacher
Grace	Family Studies	Traditional	Junior Caucasian	Family Services/Law
Melissa	Child Development	Nontraditional	Senior Caucasian	Elementary Teacher
Vera	Early Childhood Ed	Nontraditional	Junior Caucasian	Elementary Teacher
Sarah	Child Development	Nontraditional	Senior Caucasian	Early Childhood Teacher/Director
Lacey	Family Studies	Nontraditional	Sophomore Hispanic	Family Services
Brandy	Family Studies	Traditional	Sophomore Caucasian	Family Services
Kendra	Child Development	Traditional	Junior Caucasian	Family Services
*Ruth	Early Childhood Ed	Traditional	Sophomore Caucasian	Elementary Teacher

*Interviewed once each semester to track growth.

Figure 3. Students interviewed with their demographic information.

Interviews were semi-structured with five questions (see Figure 4). The interviews were audiotaped and transcribed. Data were analyzed in bi-weekly sessions using a grounded theory approach (Glaser & Strauss, 1967). The three researchers came together with their coded field notes and interview transcriptions. Themes were identified as the data were being collected and analyzed. Memos were written to describe working hypotheses. The working hypotheses were then tested against the data, using constant comparative analysis. Five conclusions were drawn.

1. What do you feel you are learning in this class?
2. Do you remember _____ (cite incident or discussion that took place in a class you observed)? What was going on in your mind during that activity/discussion? What was the most important point? What did the instructor do/say that was helpful to you? What do you wish had happened?
3. What topic in class was the most intriguing to you/caused you to think most deeply? What was challenging about it for you? Are you satisfied at this point with what you've learned yet regarding that issue? What have you been doing to address the issue?
4. Describe a situation that came up in class or outside of class this semester that you consider to be an ethical issue. Can you identify any changes in how you approach ethical reasoning that are a result of what you've learned in this course?
5. Is there anything else you can tell me about the class and how it has changed your thinking or developed your ethical reasoning?

Figure 4. Interview questions for selected students at the end of the semester.

Results and Discussion

This section will expand upon the findings. Data from college classroom discussions and from student interview responses will provide illustrations for each finding (Geertz, 1973). Five conclusions emerged from the data analysis: 1) As instructors, it is important that we identify our assumptions about teaching and learning. 2) College students routinely are exposed to strategies that encourage movement from the *dualistic stage* to the *multiplist stage*. They can learn to address uncomplicated ethical issues in the two earlier stages. The *relativism stage* and the *committed in relativism stage* are more challenging for them to enter. Since people think more complexly in the later stages, they are capable of perceiving and resolving more complex ethical dilemmas. 3) Students in the three professions are faced with a traditional model of best practices and will need to resolve the discrepancies between this traditional model and the newer transformational model. 4) Students have difficulty with emotional/affective issues related to classroom content. As a result, they often resist, withdraw, or show anger because they perceive them as value conflicts and/or because they were socialized to suppress affect in educational contexts. Their reactions may become barriers to intellectual development. Therefore, teaching strategies must address the affective as well as cognitive domain. 5) Teaching strategies that scaffold/stretch the students into the second, third, and fourth stages can be identified. At the higher levels of intellectual reasoning, students utilize critical thinking and evaluation to process ethical issues. Each of the study's conclusions is discussed below with an illustrative example drawn from the data.

Our Assumptions about Teaching and Learning

As we began the data collection process, it became clear in one of the bi-weekly analysis sessions that we held certain assumptions about learners, ethics, and critical thinking. These assumptions needed to be discussed and documented. We all shared an assumption that learning is a social phenomenon. That is, the student learner is part of a community of learners who can support and challenge one another throughout the semester. This requires that the students are exposed to course content through common assigned readings and that they experience mutual learning activities. A second, related assumption was that students in the "Sesame Street" generation are resistant to reading and synthesizing because they grew up being exposed to information broken down and interpreted for them. This impacts our first assumption that students will complete assigned reading prior to the class session and will be prepared to process their varied reactions to the content. A third assumption was that students come with a wide range of developmental levels and learning styles. Therefore, teaching strategies and learning activities must be planned to accommodate the various developmental levels. Fourth learning takes place in a context and references to the context need to be made for learning to occur. Fifth, learning is more meaningful when the teacher or peers make connections to related concepts the learner was exposed to in other settings. This assumption can be visualized as a spiral in which the learner's understandings about a concept reach deeper levels with successive learning opportunities. Finally, we assumed that students have difficulty differentiating among ethics, morals, and values. They tend to view all three subjectively, based on personal perspectives. This concerned us because our goal was to prepare them for ethical decision-making in the workplace where professional codes of ethics are often used.

Influence of Stage Levels on Ethical Decision-Making

All three of us were attuned to considering developmental levels of students because our training emphasized this aspect of teaching and learning. Therefore, we found early in the

classroom observations that the majority of the students were in the overlapping stage of intellectual reasoning in which they passed back and forth between dualism and multiplicity (see Figure 1). Ethical issues that were addressed in classes where these students were enrolled needed to be less complex and to be resolved using either students' personal guiding principles or absolutist principles established by the profession. For example, the family studies students were given an ethical dilemma about a college student who lied about some stolen skis and whose roommate knew them to be stolen. The students used their personal guiding principles to decide how they would respond if they were the roommate. In a second class, early childhood education students were asked to brainstorm multiple solutions to an ethical dilemma in a child care center about a child whose parents did not want her to nap. Then they chose the solution that was most aligned with the profession's code of ethics. The principles in the code of ethics were stated in absolutist terms so that the students engaged in a kind of inductive matching exercise. From classroom observations, we also found that if students were asked to resolve issues that required deductive analysis, their levels of intellectual reasoning inhibited success. For example, the family studies students were presented with a set of ethical frameworks to use in resolving ethical issues and struggled throughout the semester with this assignment. We discovered that it was important to assess the students' levels of intellectual development in order to plan ethical decision making activities that were developmentally appropriate for each class. Types of teaching strategies that can scaffold the students for higher levels of development will be discussed later in this paper.

Two Inconsistent Models of Best Practice

Students in our study often experienced a significant discrepancy, in interpretation of best practice, between the college programs and the community field sites. This occurred in the three disciplines under study: child development, family services, and early childhood education. It was problematic for students in all four stages of intellectual reasoning but particularly difficult for those in the relativism stage. Deciding how to resolve an ethical issue requires thinking critically about the various solutions and evaluating which one most closely meets the profession's principles of best practice. There are many times when the model of best practice for a traditional practitioner and that of a transformational practitioner are contradictory. The traditional model is often based upon a behaviorist philosophy that encourages the professional to interact as the expert, and the client or student to respond in a passive, obedient way. In contrast, the transformational model typically promotes a constructivist approach to teaching and learning (DeVries & Kohlberg, 1987) and an emancipatory approach to family services (Coates & McKay, 1995). These transformational models rely on social interaction that promotes co-construction of understanding about the task to be learned or the problem to be solved.

We found that students in the dualistic stage chose between the two models and often aligned themselves with the traditional model since this was what they experienced in their own schooling. Students in the multiplist stage viewed both models as acceptable. The relativism stage, however, required that the students consider the context and begin to evaluate the models, choosing the most ethical one for each specific situation. One of the early childhood education students in our study who was interviewed had an experience where she was confronted with both models and had to resolve the conflict. Vera was studying best practices in motivating children to engage in classroom learning activities. In her college classroom, she advocated for intrinsic motivation, including giving children choices as a best practice. In her field site, the mentor teacher told her that the children for Vera's activity had already been chosen, and they had been told they would get a prize for completing the activity. Vera was very upset by this extrinsic motivational tool. She expected the children to choose the activity in which they wanted to participate from a group of

activities. Vera felt she had to accept the teacher's decision to choose for the children. While Vera facilitated the activity, she documented the children's thinking and behavior related to it. Her final report documented the children's focus on their prize rather than their pride in the process of the activity. She wrote a reflection about what she learned from using extrinsic motivation.

If I had to teach this lesson again, I would change a couple of things. I think that the size of the group and the anticipation about the prize hindered this lesson. Therefore, if I had to teach this lesson again, I do not think that I would offer a prize. I will choose to implement intrinsic rather than extrinsic motivators. (Artifact, 3/13/98)

Vera's writing provided evidence that she had reached the fourth stage, committed in relativism, on this particular issue. Thus, Vera experienced and evaluated the traditional model in order to commit to the transformational model.

This study identifies the conflict between the two models and only begins to look at how students resolve this problem. We would like to continue gathering data on the various paths students take toward resolution and the outcomes they choose.

Affective Issues in Teaching and Learning

We found that ethical issues tended to be emotionally charged and that female students had difficulty addressing course content requiring an affective approach. Our classes had a majority of women in them because the professions we represent are female dominated. We discovered that most of the young women viewed "being emotional" as a weakness and as inappropriate in a classroom setting. In fact, the tendency to separate cognitive and affective responses was common. This presented a problem when ethical issues were discussed. The inability to accurately identify and genuinely express emotional reactions to the issue resulted in intellectual blocks (Adams, 1980). For example, the early childhood education instructor used a teaching strategy, described in an earlier article (Cooney, Williams, & Nelson, in press), that required the students to act out their own stories of children's classroom experiences. When observed for the present study, the students appeared to be very engaged in the dramatic component but they also complained about it and considered it "just fun." It was as if the drama drew forth an affect that they found difficult to handle and it blocked their intellectual analysis of the dramatized event. We also found that female students valued peer relationships and that their participation in class discussions reflected a need to maintain "social harmony." This behavior was linked to the discomfort exhibited when emotional issues were raised within the college classroom setting. It seemed as though the women were socialized to be relationship oriented. Perhaps they viewed strong emotions and disagreements as a threat to the goal of harmony. One of our most advanced students in early childhood education, capable of the fourth stage of intellectual reasoning, demonstrated how a need for social harmony could block her from staying in the fourth stage. At one point in the interview, Vera stated that her peers' views tended to be very narrow and rigid and they seemed to be "closed-minded" to new ideas. Later in the interview, Vera seemed to feel so uncomfortable criticizing her peers' narrow views that she retreated all the way back to the multiplist stage during a 1:1 interview with the researcher:

Going back to the discussion, I joked that I feel bad for the children in those other people's classes. I don't. I don't. Because I do think that those teachers will offer those children something else that's valuable. What's valuable to me may not be what's valuable to you. (Interview with Vera, 5/11/98, p. 14)

In order to overcome this resistance, we used a variety of teaching strategies to help students become comfortable expressing affect in a college classroom. We consider the implications of this finding to be significant. Unless students feel comfortable expressing their feelings about the content without fear of hurting their peers' feelings, the resistant behavior will continue to undermine their learning and development.

Effective Teaching Strategies

Eight teaching strategies that supported the students' development through the stages of intellectual reasoning were identified (see Figure 5). The first strategy, formative assessment, is the process of asking the students what they already know about the topic under study. This type of assessment informed the instructor about the students' developmental stages of intellectual reasoning. It also helped the instructor find out how complete and accurate their information was and something about their ability to apply the concepts to practices in the field. Based on the results of the formative assessment, the teacher could make adjustments in the content and its delivery so that the students were challenged to stretch their thinking into the next stages of intellectual reasoning. Field notes from a classroom observation (9/24/97) provide an example of formative assessment. The early childhood education students were given an assignment to talk in cooperative groups about their understandings of a concept called developmentally appropriate practice. After each group reported to the whole class, the instructor addressed an emergent misconception held by one group and then added more information about the concept that none of the groups reported. Based upon observation of small group discussions and listening to their reports, the instructor also found out that a majority of the students in this introductory course were in the dualistic stage when thinking about developmentally appropriate practices with young children. That is, they believed that there was one right answer to the assignment rather than different answers depending upon the perspective taken.

Teaching Strategy	Description
Engaging in formative assessment	When beginning a new topic of study, find out what students already know about the topic in order to adjust accordingly.
Uncovering student perceptions	Design activities to find out what perceptions the students hold that could block their intellectual development.
Reframing	Help students broaden or shift their perspectives by looking at the issue or problem in a new way.
Provoking for deeper thought	Use questioning probes to help students extend and stretch their thinking in order to achieve deeper understandings.
Providing models	Give students practice experiences using new skills, models for new assignments, concrete examples, and grading rubrics.
Debriefing	Engage students in discussions on emotionally charged course content or learning activities before the end of the class session.
Creating an affective classroom climate	Establish a safe climate for affective expression of students, including the use of humor, in order to link intellectual growth with emotional expression.
1:1 Interviewing	Interview students about their understandings of the class content and activities using reflective practices that offer opportunities for students to make new connections.

Figure 5. Effective teaching strategies to scaffold students to higher stages of intellectual reasoning.

A second effective teaching strategy was the process of uncovering student perceptions. A memo (3/12/98) based on an observation in an upper level child development class session revealed a perception by many of the female students that men were better role models for ethical conduct than women. Furthermore, a group of female students perceived that when confronted with a peer who was not taking responsibility for doing the assigned group work, it was better to maintain social harmony than to confront the peer. Discovering these perceptions helped the teacher understand where the students were in their thinking and the blocks students had against committing to take action on an ethical dilemma.

The female student perception described above (i.e., that it was better to maintain social harmony than to confront a peer) clearly needed to be addressed. A third strategy, reframing, was a teaching strategy that we implemented after the students' perceptions were uncovered. Reframing seemed to be effective in two ways. It scaffolded students' ability to separate the act of criticizing an idea or concept from the perception of criticizing a peer for thinking that way. Reframing also helped students expand their options for resolving ethical dilemmas by looking at the dilemma differently. The example that illustrates this teaching strategy was taken from an observation in a child development classroom (3/12/98). The instructor of the students who reported their reluctance to confront a peer not doing her part in the group project helped the students reframe their ideas about the role of social harmony in a group process. The instructor taught the "critical friend" approach of providing feedback in a form that would be both heard and accepted by peers. As a result, the students began to see that social processes can become stronger when constructive feedback for improved work is provided. The new critical friend perspective helped the students reframe the nature of feedback as a vehicle to promote professional growth.

Provocation was a fourth teaching strategy used to stretch students to higher levels of intellectual reasoning. Provocation is a questioning strategy to extend the students' thinking about the content under study. It often requires the students to make connections between past experiences with the content and new information about the content. It is based upon the belief that concepts must be visited and revisited in order to reach deeper understandings. An example of provocation occurred in the field notes (9/24/97) from an observation in an early childhood class. The students were working in small groups to review and interpret a vignette illustrating the three dimensions of developmentally appropriate practice. This assignment required that students consider multiple perspectives to fully address the question. After interacting for five minutes, one of the groups stopped and began talking about something unrelated to the assignment. The instructor approached the group and asked where they were in the assignment. When they announced that they were finished, the instructor noticed they had used one perspective to identify one of the dimensions present in the vignette. The instructor asked a question requiring them to consider other perspectives. As they reengaged in the assignment, they discovered that the vignette did contain evidence of all three dimensions of developmentally appropriate practice if they looked at it from multiple perspectives of the teacher, the student, and the classroom climate. These students seemed to move from the dualistic stage of intellectual reasoning (one right answer) to the multiplist stage (more than one answer) as a result of the instructor's provocation.

Providing models was another effective strategy. Rubrics of criteria for completing and grading an assignment are one form of model. For example, a researcher's observation in an early childhood education class (3/10/98) stated that the students were given a set of field notes to serve as a model for constructing their own field notes at their observation sites. In small groups they read and graded the model using the rubric of criteria. This group of students had never

engaged in writing field notes and therefore benefited from seeing a model. Their first set of field notes followed the model's format and was of surprisingly high quality for a first experience with this type of recording. Most of the students successfully conveyed the perspective of the child observed as well as their own perspective. Their subsequent field notes became more creative and complex because of the security of having a framework for the assignment.

Debriefing was a strategy used by all three instructors to help students process course content and class activities that were emotionally charged. As mentioned earlier in this article, failure to address emotions elicited by the content can result in intellectual blocks. Debriefing is often used after a particularly powerful learning experience and before they leave the classroom. For example, the field notes from a family crisis spring class (3/12/98) described a learning activity in which the students dealt with the issue of death. The students engaged in a light bulb exercise. The exercise required that each student first imagine a beloved person shining inside a light bulb and then to imagine all the light bulbs going out. After the activity, the instructor used debriefing questions to help students explore the implications of the experience. A second debriefing strategy engaged the students in a reflective writing activity while the instructor circulated among the students, checking their emotional states. If the issue had not been debriefed, some students may have left the class feeling very upset with unresolved emotions possibly leading to learning blocks. An affective classroom climate was another effective teaching strategy used by all three researcher-instructors. A classroom that has an affective climate is one in which feelings are freely expressed and considered to have important connections to cognitive processing. In order for students and instructor to genuinely express affect, the classroom has to feel like a safe place. Vera discussed this concept in her interview when she talked about the small class size that contributed to a safe climate and a comfortable feeling the students had for taking the necessary risks to share their issues:

Even in huge classes I've been in like physical anthropology you don't feel safe. You don't even feel comfortable asking a question in front of the whole class. So I do think that class size makes a difference. It was just getting through. You just go and take notes and just get through the class. But this one I actually enjoyed. I actually learned. For example in this class if someone had a problem in one of their observations it was a comfortable setting and they were able to bring it up. If someone felt that something was going really well they were able to approach that. So I guess it just reinforced the idea for me that you need to have a comfortable class setting. (Interview, 5/11/98, p. 18)

We found that many students had affective blocks holding them back from development toward higher levels of intellectual reasoning. For example, one of the family studies students, Lacey, described in her 1:1 interview how her narrow view of teenage pregnancy blocked her emotionally:

I chose teenage pregnancy. I chose that and went and got the three alternatives to the dilemma. I was having a hard time with that and it was hard for me not to take it personal and try to put it in the paper personal. It's just so emotional all the way around [the abortion alternative]. I just couldn't see it, but you know, if it was for a person and that was their choice, that's their choice and I have no say in it. (Interview, 12/11/97, p. 3)

We believe that classroom climate scaffolded Lacey's ability to be reflective in the 1:1 interview about her emotional block that prevented her professional growth.

The final teaching strategy that emerged from the study was interviewing students at the end of the semester in a 1:1 thirty minute session. We felt that this strategy had surprising results. All nine of the students interviewed responded positively to the interviewer's probes that raised them to higher levels of thinking. For example, Sarah, one of the child development students, stated that she didn't learn a lot in the research class beyond learning to write grant proposals.

I can't really say that I learned a whole lot more than that. There was lots of issues within the class that I felt I had covered previously and were repeated. Or issues that I felt by a senior you really needed to know already—ethical issues, paper writing, those kinds of things. (Interview, 5/4/98, p. 1)

However, when the researcher probed the perception, Sarah began to see it differently and expressed a multiplist perspective about her experiences in relationship to the experiences of the other students in the class. Sarah began to see a new role for herself in the classroom.

I guess my perspective is a little different where I've already been out in the quote unquote real world. And maybe that's why I felt that things were kind of repetitive and things that I thought you needed to know already. Because there were things that I had to know to be in a professional setting before I had gone back to school. So I guess I am unique in that way ... And so I guess I felt like I could interject into the discussion because I'd actually had those experiences. Maybe my comments were something that were helpful to other students who didn't have that experience before. (Interview, 5/4/98, p. 3)

The various teaching strategies that were applied in the college classroom setting seemed to be effective in encouraging students to stretch to higher levels of intellectual reasoning. Their higher levels of intellectual reasoning would then make it possible for the students to resolve more complex ethical issues relative to their profession.

Importance of Study

The goal of our three-year study is to more effectively teach college students so they will enter their professions prepared to recognize and deal with job related ethical issues. Year one of the study, reported in this article, revealed significant information about how students' intellectual reasoning affected their ethical decision-making. Students who have not reached the fourth stage of intellectual reasoning may be limited in their capacity to recognize and resolve complex ethical dilemmas within their professional contexts of early childhood education, family services, and child care programs. According to our findings, college instructors can utilize specific teaching and learning strategies in their pre-professional college courses to identify which stages their students are in, to scaffold students into the next stages, and to help students go beyond the traditional professional model. We also found evidence that when professors have an understanding of where their students are developmentally, they can be more effective in their teaching.

During the second year of the study, 1998-1999, we have been planning developmentally appropriate ethical decision-making activities for each of the six classes representing the three disciplines. The notion of intentionally designing courses to give students experiences in ethical decision-making and to simultaneously help them build the requisite intellectual reasoning skills is important in reconceptualizing the role of college instructors. Phase three of the study will be an evaluation of the effectiveness of the newly designed courses.

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