

# Impact of Service-Learning and Social Justice Education on College Students' Cognitive Development

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*This study used the Measure of Epistemology Reflection to explore the impact of service-learning and social justice education on college students' cognitive development. Six service-learning courses taught with or without a social justice emphasis were studied. Results showed that service-learning courses in general had a positive impact on students' cognitive development, while service-learning courses with a social justice emphasis appeared to have more impact on students' cognitive development than those without a social justice emphasis.*

## Introduction

Service-learning is an area where academic affairs and student affairs cooperate and often jointly sponsor programs. Service-learning intentionally focuses on both service experience and academic learning and makes connections between these two components through reflective activities. Student affairs often administers the program and may help plan reflective activities. Faculty designs classes, sometimes in collab-

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oration with student affairs and service site personnel. Research has shown that student participation in service-learning programs helps meet community needs; facilitates their learning of course content; and enhances their own personal, interpersonal, cognitive, and moral development (for example, Cram, 1998; Eyler, Giles, & Braxton, 1997; Johnson & Bozeman, 1998; Myers-Lipton, 1998; Osborne, Hammerich, & Hensley, 1998; Rhodes, 1999; Payne, 2000). Cognitive development is the focus of this study, because it is a primary goal of most colleges and is an outcome that might be influenced by service-learning courses (for example, Batchelder & Root, 1994; Eyler & Giles, 1999; Markus, Howard, & King, 1993; Shastri, 1999).

This research investigated cognitive development outcome for service-learning courses with various degrees of social justice emphasis using Measure of Epistemological Reflection (MER) (Baxter Magolda & Porterfield, 1985), a measure of cognitive development on the Perry Scheme (1970, 1999). The research questions were as follows: (a) Will service-learning courses have a positive impact on students' cognitive development during the 10 weeks of the course? and (b) Will service-learning courses with a social justice emphasis have more positive impact on students' development of cognitive complexity than those without a social justice emphasis?

### Service-Learning and Cognitive Development

Studies on the cognitive outcomes of service-learning have focused on self-report measures of critical thinking skills and knowledge of course content (Bringle & Kremer, 1993; Cohen & Kinsey, 1994; Nankwe, 1999). Other studies focused on grades as a measure of cognitive development, with some finding that service-learning students had higher grades than nonservice-learning students (Markus, Howard, & King, 1993; Strage, 2000). Others found no differences (Kendrick, 1996; Miller, 1994; Shastri, 1999).

Eyler (2000) believes that grades and self-report on learning and critical thinking are not good measures of cognitive outcomes. Self-report of learning "is not only a weak measure of the complex cognitive outcomes we expect from service-learning; it also confuses satisfaction with learning" (p. 13). Grades may measure memory of content and other skills but not the "ability to recognize ill-structured problems

(Voss & Post, 1988) embedded in messy social contexts, to sort out conflicting information and views, and to resolve an issue while understanding that such resolutions are inherently tentative (Lynch, 1996)" (p. 12). Hence, research on the cognitive outcomes of service-learning needs to use established developmental measures of cognitive theories such as the Perry Scheme, which does account for such capacities.

Only a few studies have attempted to explore the impact of service-learning on student development of cognitive complexities (Batchelder & Root, 1994; Eyler & Giles, 1999; Eyler, Root, & Giles, 1998; Osborne, Hammerich, & Hensley, 1998); and none of them used MER, a reliable production measure of cognitive development (Baxter Magolda & Porterfield, 1985). In this study, MER was chosen to explore the impact of service-learning courses on students' cognitive development described by the Perry Scheme (1970, 1999)

### Cognitive Development and Developmental Education

The Perry Scheme (1970, 1999) and Reflective Judgment (King & Kitchener, 1994) are the most used theoretical frameworks in studying the cognitive development of college students. Both schemes describe levels of complexity with which students make meaning of questions of knowledge and valuation. In order to measure Reflective Judgment, interviews are required; hence, the study of a large number of students is impractical. MER is an established paper-and-pencil measure of the Perry Scheme and is applicable to the study with a larger number of students. Therefore, the Perry Scheme was used in this study.

The Perry Scheme (1970, 1999) conceptualizes cognitive development into nine positions, including five cognitive structural positions and four existential and psychosocial positions (Broughton, 1975; King, 1982; Rodgers, 1980). Among the five cognitive structural positions, the least complex levels (Positions 1, 2, and 3) are called Dualism because they assume absolute answers to questions of knowledge and valuation. Positions 4 and 5 are called Relativism because they view answers to questions of knowledge and valuation to be probabilistic and relative to context. The four psychosocial and existential positions (6 through 9) are descriptions of the use of relativis-

tic structures to make commitments in some content area such as social responsibility. The three positions of Dualism are differentiated by how uncertainty is accounted for: that is, either (a) uncertainty is not legitimate; or (b) uncertainty is accounted for as an error committed by an incompetent authority; or (c) uncertainty is legitimate because experts do not know the answers yet—however, someday they will know for sure. The positions in Relativism are differentiated by how criteria are used in judgment: that is, either (a) the absence of criteria for making judgments or (b) the use of nonabsolute criteria for making judgment in context.

Development through these positions is dependent upon cognitive conflict. If a classroom can create cognitive dissonance or disequilibrium for the learner's current position or way of making meaning by challenging the student with an appropriately more complex way of thinking, cognitive development may be initiated (Widick, Knefelkamp, & Parker, 1975).

The appropriate design criteria for challenging and supporting movement from Dualism to Relativism and from Relativism to Commitment have been conceptualized by Widick, Knefelkamp, and Parker (1975) and Rodgers (1989). Optimal design criteria for the development of dualists are as follows: (a) encounter moderate diversity of viewpoints on course content; (b) use experiential learning whenever possible; (c) use highly structured learning environment designed by authorities; (d) require reflection on the encounter and emphasize differentiation and the partial legitimacy of the options covered; and (e) develop a trusting, personal atmosphere prior to encountering diversity.

The design criteria for relativists are somewhat different: (a) encounter high degrees of diversity in course content and instructional methods; (b) use abstract or experiential learning methods in encountering this diversity; (c) use low degrees of structure and permit students to structure their own experiences; (d) design reflection on the encounter with diversity and emphasize both differentiation and integration toward a commitment; and (e) build a personal atmosphere of trust and collegiality in the learning environment before and during learning experiences.

Both dualists and relativists, therefore, can profit from experiential learning, a personal and trusting atmosphere, and opportunities to reflect on their experiences. They differ on the optimal degree of diversity to be encountered, the use of abstract learning methods, the degree of structure to be used, and whether only differentiation or both differentiation and integration are emphasized in reflection. Service-learning pedagogies may manifest these developmental criteria in different degrees. It is hypothesized that service-learning courses will manifest enough of these criteria to promote cognitive development.

### Social Justice Education and Cognitive Development

Social justice education emerged from the civil rights movements of the 1960s. It is focused on race, ethnicity, gender, sexual orientation, or class; and it emphasizes “the role of oppression and social power play in perpetuating inequitable social arrangement” (O’Grady, 2000, p. 3). Adams and Zhou (1994) believed that social justice courses involved students in the emotional domain and cognitive domain. Because students in these courses were asked to “relinquish outmoded and less complex thinking modes and to question inappropriate and stereotypic beliefs and attitudes” (p. 3), they experienced periods of disequilibrium. Therefore, Adams and Zhou recognized the potential of social justice education in facilitating students’ cognitive development, and they applied cognitive developmental theories to the design of a social justice education course and studied the effects of the course on students’ cognitive development.

Adams and Zhou (1994) used MER to study changes on the Perry Scheme for a class of Resident Assistance ( $N = 68$ ) and a class of students from the general population ( $N = 97$ ). These classes had social justice as the content and were designed based upon Widick, Knefelkamp, and Parker’s (1975) developmental instruction principles derived from the Perry Scheme. The differences between the pretest and posttest means were statistically significant for both classes, indicating more complex reasoning after taking the course. Hence, a social justice focus may promote cognitive development. However, in Adams and Zhou’s study, no control group was available; therefore, it is not clear if students in a similar class without social justice emphasis would have similar improvement in their cognitive complexities. In

this study, students from courses both with and without a social justice emphasis were included and comparison was made between the two groups of students.

### Service-Learning and Social Justice Education

It is controversial whether service-learning courses should incorporate social justice education. Some theorists believed that service-learning courses should not promote one philosophy or pedagogy over others or limit service-learning to one set of values (Deans, 1999; Leeds, 1999). Other theorists argue that social justice education should be part of service-learning, because service-learning students often provide help to social service agencies to meet the social needs created by the social inequalities among different races, ethnicities, genders, sexual orientation (Kahne & Westheimer, 1999; O'Grady, 2000; Sleeter, 1996). Accordingly, a social justice approach to service-learning emphasizes social issues and their underlying possible root causes in social injustice, knowledge of alternative ways to address social justice issues, and commitment to change social situation (Delve, Mintz, & Stewart, 1990; O'Grady, 2000; Reardon, 1994; Seigel & Rockwood, 1993; Sleeter, 1996).

In practice, some service-learning courses incorporate social justice education and some do not (Wang, 2003). Since service-learning pedagogies with a social justice emphasis appear to manifest some of the developmental criteria described above, it is hypothesized that service-learning courses with a social justice emphasis may have more influence on cognitive development than those without a social justice emphasis. This study will compare the cognitive development of students from service-learning courses with and without a social justice emphasis.

## Methodology

### Selection and Classification of Courses

The participants in this study were instructors and students in six service-learning courses offered at a large Midwestern state university. Five of the courses had one section and one had two sections; therefore, seven instructors were invited to participate in the study. These

courses were selected based on the academic level of the students in these courses and whether social justice was an emphasis in the course design. In particular, courses offered to first-year, third-year, fourth-year, and graduate students were chosen in order to cover cognitive development from position 2 to position 5 on the Perry Scheme.

Qualitative methods were used to classify the six courses into a Social Justice group or Nonsocial Justice group, based on whether they have a social justice emphasis in course design or not. Interviews were conducted with instructors about the foci of their courses and their detailed designs for achieving their intended outcomes. Document analyses were done with course syllabi, reading packages, textbooks, handouts, and other materials. Based on the interviews and document analyses, each course was evaluated in four components: course description and objectives, reading assignments, writing and other assignments, and instructor's perception of student achievement.

Criteria for defining a social justice emphasis were as follows: (1) whether social issues such as racism, social class prejudice, and structural prejudice are raised in the course; (2) whether the complexities of the causes of these issues are covered; (3) whether social changes needed to correct social injustice are emphasized; (4) whether invitations to commit to act for social change are given. These criteria were cross-tabulated against the above four components of each course. If all of the social justice criteria are met in each of the course components, the course is classified into the Social Justice group; otherwise, the course is classified into the Nonsocial Justice group.

The degrees of social justice emphasis for each course were analyzed by one researcher through analysis of all the course documents and interview transcripts. A second researcher then read and analyzed all the interview transcripts and syllabi independently and confirmed the classifications of the first researcher. Member checks were then performed with six out of the seven instructors, and they also agreed with the classifications of their courses.

## Participants

The classifications, titles, and student compositions of these courses are shown in Table 1. Numbers of students who were enrolled and

who chose to participate in this study both at the pretest and posttest are also listed for each course in Table 1. The response rates ranged from 30.0% for Leadership in Community Service to 73.3% for English Workshop. The overall response rate for all the courses was 41.1%. A total of 72 students from these six service-learning courses participated in this study. A total of 103 chose not to participate; the sample size of this study may limit the generalizability of the findings from this study. Of the 72 participants, 20 were men and 52 were women; 19 were first-year undergraduate, 3 were second-year undergraduate, 11 were third-year undergraduate, 30 were fourth-year undergraduate, and 9 were first-year master students; and their age ranged from 18 to 33.

**Table 1**  
**Classifications, Titles, Student Class Rank, Enrollment**  
**Numbers, and Response Rates of Studied Courses**

Classification	Code	Title	Class Rank	Enrollment Number	Response Rate
Nonsocial Justice Group	Course 1	Life Span Motor Development	3 <sup>rd</sup> year 4 <sup>th</sup> year	30	12 (40.0%)
	Course 2	Reading Foundation	3 <sup>rd</sup> year 4 <sup>th</sup> year	30	11 (36.7%)
	Course 3	English Workshop	1 <sup>st</sup> year 2 <sup>nd</sup> year	15	11 (73.3%)
Social Justice Group	Course 4 (Two sections)	Leadership in Community Service	1 <sup>st</sup> year 2 <sup>nd</sup> year 3 <sup>rd</sup> year 4 <sup>th</sup> year	70	21 (30.0%)
	Course 5	Consumer Housing in Community	3 <sup>rd</sup> year 4 <sup>th</sup> year	15	8 (53.3%)
	Course 6	Administration of Service Learning	Master Doctoral	15	9 (60%)

## Instrument

This study used MER to measure students' cognitive development (Baxter Magolda & Porterfield, 1985). MER is a written instrument designed to assess Perry's five positions of cognitive structural development. The MER yields a Total Protocol Rating (TPR) both as a categorical score and a continuous score. The TPR scores range from 1 through 5, with 5 being the most complex level. The validity of MER has been shown by conducting analysis of variance by level of education. Significant differences ( $p < 0.001$ ) among first-year, fourth-year, and graduate students were consistently found by Baxter Magolda and Porterfield (1988) in three samples of students. In addition, although studies have shown that "men and women have different qualitative patterns of thinking within those (cognitive) structures" based on the analysis of reasoning structures (Baxter Magolda, 1988, p. 533), MER has been shown to be bias-free in measuring cognitive structures of different gender groups using structural position scores (Baxter Magolda, 1988, 1990). In this study, first-year master students scored significantly higher than undergraduate students both at the pretest and posttest ( $p < 0.01$ ), and no gender differences were found.

The MER asks the respondents to answer a series of questions in each of six domains of a learning environment. The six domains are: (a) the nature of knowledge, (b) the role of instructor, (c) the role of peers, (d) the role of learners, (e) evaluation in the learning process, and (f) educational decision making. Each domain starts with a general question that focuses on the domain content. Then three or four probe questions are used to solicit respondents' justification and reasoning for their initial responses, which are then rated for cognitive level.

A standardized MER rating manual (Baxter Magolda & Porterfield, 1988) was used by trained and certified raters. There are two ways of calculating a TPR: categorical and continuous. The categorical TPR uses modal rating rules to arrive at domains and final categorical representations of the person. The categorical TPR is reported in three formats. For example, 2-2 means that five or six of the domains are at stage 2, 2(3) means that four of the domains are at stage 2 and two of the domains are at stage 3, and 2-3 means that three of the domains are at stage 2 and three of the domains are at stage 3. Nonparametric analyses must be used with categorical TPR data. The continuous TPR

is the arithmetic average of all scores across domains. No scores are omitted and, hence, it is comprehensive and can be used for parametric statistical analyses. Although continuous scoring violates theoretical assumptions that cognitive levels are categorical and not continuous traits, Baxter Magolda and Porterfield (1988) argued that the continuous TPR can give researchers "more perspective than modal TPR in understanding a particular respondent's thinking pattern" (p. 92), regardless of theoretical assumptions. Therefore, both types of TPR scores and both kinds of analyses were used in this study.

### Procedure

The MER instruments were administered to students in all the courses/sections in the first week and tenth week of the class in the spring quarter of 2003. This study used a quasi-experimental pretest-posttest design because students cannot be assigned randomly to different classes. This design may limit the ability to generalize the findings of general population; however, comparison between pretest and posttest can be conducted to explore treatment effect, control of selection and mortality variables are provided, and conclusions can be reached about the differential effects of different kinds of treatments (Issac & Michael, 1995). The effects of maturation on MER appear not to be a concern. Previous studies have shown that usually college students change approximately 1-1/3 stages over the 4 years. However, within 10 weeks of period, changes appear not to be measurable unless the students are involved in a class designed specifically to promote intellectual development (Baxter Magolda & Porterfield, 1988). The pretest effect appears not to be a problem on MER, therefore only one version of the instrument is available for both pretest and posttest (Baxter Magolda & Proterfield, 1988).

The MER were rated by a trained rater who rated all the responses. A second rater rated 20% of all the responses. The interrater reliabilities were as follows: exact agreement, 89%; within 1/3 stages, 95%; and within 2/3 stages, 100%. This is a higher level of agreement than most other studies reported (Baxter Magolda & Proterfield, 1988).

In order to answer each of the research questions, the TPR scores from MER were analyzed in two ways. The categorical data were analyzed using frequency tables as well as histograms. The continuous scores

were analyzed using parametric analysis, and the statistical significance level chosen for each hypothesis test was 0.05. The null hypothesis for the first research question is: there is no significant difference between MER pretest and posttest scores. Students' *t* test was performed to compare MER pretest scores and posttest scores for the whole sample. The null hypothesis for the second research question is: there is no difference in MER posttest scores between students in the Social Justice group and those in the Nonsocial Justice group. Multiple linear regression was used to analyze MER posttest scores in order to see whether students in the Nonsocial Justice group are different from those in the Social Justice group. The selection of multiple regression analysis is to statistically control the potential influence of variables such as gender and age, which were not susceptible to direct control in such a quasi-experimental study (Neter, Kutner, Nachtsheim, & Wasserman, 1996). Therefore, in addition to course classification, other independent variables such as MER pretest scores, age, class rank, and gender were included. MER pretest scores and age are continuous variables; class rank is an interval variable ranging from 1 = first-year undergraduate students through 5 = first-year master students; for the gender variable, female = 1; for the course classification variable, Social Justice group = 1.

## Results

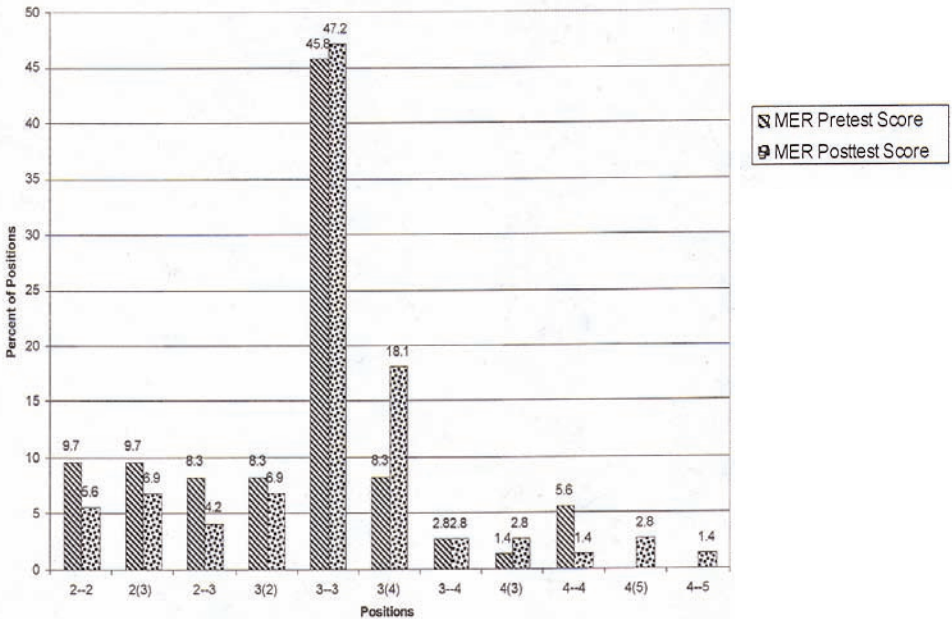
### Influence of Service-Learning Courses on Cognitive Development

According to the hypotheses for the first research question, significant increases on student MER scores from pretest to posttest are expected. Using continuous scores, the results of *t* test for the whole sample show that students' MER scores have statistically significant increase from pretest to posttest,  $t(71) = 5.016$ ,  $p = 0.000$ . The mean MER scores for the pretest and posttest (with standard deviation in parenthesis) are 2.89 (0.47) and 3.02 (0.48) respectively. This result is consistent with the findings from Adams and Zhou's study (1990, 1994).

For categorical scores, the percentage of each stage at pretest and posttest are shown in Figure 1 as well as in Table 2. As shown in Figure 1, from pretest to posttest, there is a shift of MER percentages

from less complex stages to more complex stages. To be specific, as shown in Table 2: percentage of students at stages below 3-3 reduces from 36% to 24% (a decrease of 12%); percentage of students at stage 3-3 increases 1% (from 46% to 47%); and percentage of students at stages above 3-3 increases 11% (from 18% to 29%).

**Figure 1.**  
**Percentage of MER TPR Categorical Stages at Pretest and Posttest**



When MER categorical data are used, the percentages of students who make negative movement, no movement, and positive movement in cognitive development are displayed in Table 3. Among the students in all the courses, 3% of them make 1/3 stage negative movement; 60% do not move; and 38% of the students move upward. To be specific, 26% of the students move upward within 1/3 stage, 6% of the students move up 1/2 stage, 3% move up 2/3 stage, 1% move up 5/6 stage, and 1% move up one stage. These amounts of changes are consistent with previous research on classes designed to improve cognitive development (Widick & Simpson, 1978; Touchton, Wertheimer, Cornfeld, & Harrison, 1978).

Table 2  
 Comparison of Percentage of MER TPR Categorical  
 Stages between Pretest and Posttest

Categorical Stages	MERPRE			MERPOST		
	<i>N</i>	%	Cumulative %	<i>N</i>	%	Cumulative %
2-2	7	10%	10%	4	6%	6%
2(3)	7	10%	19%	5	7%	13%
2-3	6	8%	28%	3	4%	17%
3(2)	6	8%	36%	5	7%	24%
3-3	33	46%	82%	34	47%	71%
3(4)	6	8%	90%	13	18%	89%
3-4	2	3%	93%	2	3%	92%
4(3)	1	1%	94%	2	3%	94%
4-4	4	6%	100%	1	1%	96%
4(5)				2	3%	99%
4-5				1	1%	100%
Total	72	100%		72	100%	

**Table 3**  
**Amount of Stage Movement for Whole Sample**  
**and by Social Justice Group**

Stage Movement	All Students		Nonsocial Justice		Social Justice	
	<i>N</i>	%	<i>N</i>	%	<i>N</i>	%
-1/3 stage	2	3%	2	6%		
No Movement	43	60%	22	65%	21	55%
+1/6 stage	3	4%	2	6%	1	3%
+1/3 stage	16	22%	6	18%	10	26%
+1/2 stage	4	6%	1	3%	3	8%
+2/3 stage	2	3%			2	5%
+5/6 stage	1	1%			1	3%
+1 stage	1	1%	1	3%		
Total	72	100%	34	100%	38	100%

### Influence of Social Justice Emphasis in Course Design on Cognitive Development

In order to answer the second research question, multiple regression is performed using MER posttest scores as the dependent variable and MER pretest scores, age, gender, class rank as well as course classification as independent variables. As shown in Table 4, only the coefficients for MER Pretest Continuous Score and Social Justice Group are statistically significant,  $\beta = 0.913$ ,  $p = 0.000$  and  $\beta = 0.115$ ,  $p = 0.041$  respectively. That is, after controlling for all the other factors, students in the Social Justice group have significantly higher MER posttest scores than students in the Nonsocial Justice group after taking the service-learning courses. There are no significant differences in cognitive development between male and female, among students with different age or at different class ranks.

**Table 4**  
**Summary of Multiple Linear Regression for Variables**  
**Explaining MER Posttest Continuous Score**

Variable	<i>B</i>	<i>SE B</i>	$\beta$	<i>t</i>	<i>p</i>
(Constant)	.062	.302		.206	.837
MER Pretest Continuous Score	.913	.067	.889	13.573	.000***
Age	.018	.017	.094	1.069	.289
Class Rank	-.052	.029	-.151	-1.781	.080
Female	.068	.059	.065	1.144	.257
Social Justice Group	.111	.053	.115	2.081	.041*

Note.  $R^2 = 0.81$ . \*  $p < 0.05$ . \*\*\*  $p < 0.001$ .

When MER categorical data are used, the percentages of students who make negative movement, no movement, and positive movement in cognitive development in each group are displayed in Table 3. Comparison of the two groups shows that the Nonsocial Justice group has less positive movement from pretest to posttest than the Social Justice group. While 29% of the students in the Nonsocial Justice group have positive movement, about 45% of the students in the Social Justice group have positive movements. In addition, while 8% of the students in the Social Justice group move more than 1/2 stage, only 3% of the students in the Nonsocial Justice group do. These findings correspond to the results from parametric analysis of the MER continuous scores.

## Discussion

This study provides evidence that students' thinking and reasoning become more complex after taking service-learning courses. In particular, the parametric analysis of MER continuous scores show that the cognitive development level of all the students in the six courses significantly increases from pretest to posttest. The categorical data also show a clear pattern of a shift from lower levels of cognitive development to higher levels of cognitive development. Among 72 students, 38% of them have made positive stage changes after taking the service-learning courses. Using MER to measure cognitive development for the first time in studying the outcomes of service-learning courses, this study supports the findings from previous studies (Batchelder & Root, 1994; Eyler & Gilers, 1999; Eyler, Root, & Gile, 1998; Osborne, Hammerich, & Hensley, 1998) that service-learning courses will improve students' cognitive development. The amount of development varies from 1/6 to 1 stage, and these amounts of developmental change are consistent with the results of other studies in which courses are deliberately designed to foster cognitive development (e.g., Adams & Zhou, 1990, 1994; Widick, Knefelkamp, & Parker, 1975; Widick & Simpson, 1978).

This study also reveals a significant difference in cognitive development between students who are in the Social Justice group and those who are in the Nonsocial Justice group. The parametric analysis of MER continuous scores show that the cognitive level changes for stu-

dents from the Social Justice group are significantly higher than those from the Nonsocial Justice group when students' age, gender, class rank, and their cognitive levels at the beginning of the courses were controlled. Using categorical data analysis, comparisons of the two groups also show that the courses in the Nonsocial Justice group have less positive impact on students' cognitive development than courses in the Social Justice group do. These results not only are consistent with Adams and Zhou's (1990, 1994) findings about the influence of social justice education on students' cognitive development in non-service-learning courses, but also show that the combination of service-learning and social justice education appears to have greater impact on student cognitive development than service-learning without a social justice emphasis.

The positive findings from this study could be the results of using the principles of developmental instruction to design their courses as reported by some studies (Adams & Zhou, 1990, 1994; Widick, Knepfelkamp, & Parker, 1975; Widick & Simpson, 1978). Although this study does not focus on whether the instructors of these service-learning courses consciously use these principles, the qualitative analysis in this study do reveal that some of the principles are used in the courses in this study. First, alternative interpretations of social issues underlying the need for the service sites are presented and discussed; and alternative ways of examining social change are covered, especially in courses with a social justice emphasis. Hence, cognitive conflicts through diverse points of view are experienced in these classes. Secondly, the service component in all of these classes is experiential; hence, both dualist and relativist students can benefit from this kind of pedagogy. In addition, every service-learning course in this study uses reflection activities and creates a personal and supportive atmosphere for students as they attempt to learn from their experiences on the service sites and in class. Therefore, although the instructors may not be aware of the developmental instruction criteria for class design, there is evidence from the qualitative data that actual class designs, especially in the courses with a social justice emphasis, meet most of the criteria for fostering cognitive development.

## Implication

The results of this study appear to support the proposition that service-learning courses with a social justice emphasis may have more positive influence on student cognitive development than service-learning courses without this emphasis. Faculty members and student affairs educators who value both cognitive development and social justice may want to incorporate both sets of criteria in designing courses or workshops. If instructors of service-learning courses and student affairs educators deliberately incorporate both the principles of developmental instruction and social justice in the designs of their courses, workshop, or retreats—on topics such as respect for diversity, leadership, and social issues—then student cognitive development may be fostered. Service-learning, social justice education, and developmental instruction can be combined; and they appear to promote cognitive development of college students.

## Limitation and Future Study

There are limitations to this study and the interpretations of the results. There are no control groups available in this study, that is, there are no similar nonservice-learning courses or other sections of the same courses without the service component available. In future study, comparison/control groups are needed in order to interpret results with confidence. In addition, only six service-learning classes at one Midwestern university are used in this study. Additional studies of similar design need to be conducted at this and other universities in various sections of the country before the results in this study can be generalized to general population.

Further, social justice courses may attract students interested in social justice issues, and this motivation could interact with the outcome. This motivation and varying levels of engagement of students are difficult to control in quasi-experimental designs. In this study, the titles of the courses do not indicate a social justice emphasis, and students with social justice motivation would not know about the emphasis in these classes from the titles. By informal reputation, however, the social justice emphasis may well be known. Since enrollment cannot be controlled—and statistically control is possible only if motivation and engagement could be made explicit with questions at the begin-

ning and the end of courses—this could be addressed by future studies. At last, gender and age could interact with the outcome and are controlled statistically in this study. Both of these factors could be foci in future research.

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