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Effects of an undergraduate program to integrate academic learning and service: cognitive, prosocial cognitive, and identity outcomes

THOMAS H. BATCHELDER AND SUSAN ROOT

The present study investigated the effects of key characteristics of service-learning experiences (such as autonomy, instructional support for the experience, and so on) on the cognitive, moral, and ego identity development of undergraduates. Participants in service-learning courses and control students wrote pre- and post-responses to social problems. Service-learning students also completed weekly journals and an evaluation of their experiences. Results revealed significant gains for the service-learning participants on certain cognitive dimensions, such as awareness of multidimensionality. Aspects of the experience predicted cognitive gains as well as gains in prosocial reasoning. Paired t-tests revealed significant increases in prosocial decision-making, prosocial reasoning and identity processing.

INTRODUCTION

The purpose of this paper is to describe the effects on students of a program to integrate academic learning and service. In 1991, Alma College initiated a program of curricular reform to stimulate the development of public responsibility, social conscience, and civic participation among students. Staff developed service-learning courses in a variety of disciplines including Education, Environmental Science, English, Exercise and Health Science, Gerontology, Political Science, Psychology, and Religion. Service work with community placements or individuals typically accounted for one-third to one-half of the credits in the service-learning courses; each of these courses also included opportunities for individual reflection and group discussions concerning the service experiences. Students engaged in such activities as assisting in Head Start classes,  

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literacy tutoring, leading poetry workshops for seniors and prisoners, designing and implementing alcohol abuse prevention programs, and investigating environmental issues.

Research on service-learning indicates that it has generally positive but modest effects on students' psychological, social, and cognitive development. Participants in service-learning programs demonstrate gains in self-esteem (Conrad and Hedin, 1982; Luchs, 1981). They show greater increases in social responsibility and moral reasoning than their counterparts in traditional school programs (Cognetta and Sprinthall, 1978; Conrad and Hedin, 1982; Newmann and Rutter, 1983; Hamilton and Fenzel, 1988). Involvement in service-learning leads to more positive attitudes toward adults and groups with whom participants interact (Conrad and Hedin, 1982; Luchs, 1981). While the results of studies of service-learning impacts on cognitive development are mixed, some studies report a relationship between community service participation and increases in subject matter knowledge and self-reported learning, as well as multiple perspective-taking and social problem-solving (Hursh and Borzak, 1979; Conrad and Hedin, 1982; Hamilton and Zeldin, 1987).

Despite these sorts of findings, the recent "Research Agenda" for service-learning (Giles et al., 1991) contrasts the substantial "anecdotal evidence" of service-learning benefits with the relative scarcity of empirical research documenting such benefits. In a review of the outcome literature, Conrad and Hedin (1991) similarly report a gap between the significant gains suggested by qualitative and observational studies and the outcomes reported in the quantitative research.

As the Research Agenda report indicates, methodological problems are probably a major cause of the gap between the oft-noted promise and the empirically demonstrated results of service-learning. The report's authors point to the difficulties in such studies of identifying and defining relevant variables, controlling confounds, and finding suitable instruments. The overarching purpose of the various parts of the present study is to explore ways of addressing some of these methodological problems. The study is guided especially by Conrad and Hedin's (1989) suggestion that service-learning researchers attempt to integrate qualitative and quantitative procedures. Such an integration, in the form of new instruments applied to qualitative data, might allow measurement of some of the more complex variables described in the qualitative and observational literature.

One reason for the relatively small effects reported in many of the previous studies may be that various factors mediate the influence of service-learning experiences. In their review of 27 experiential learning programs, Conrad and Hedin (1982) found that a number of program characteristics affected student outcomes; for instance, the presence of a seminar allowing reflection on the service experience, a collaborative relationship between students and on-site supervisors, and students' autonomy at the service site. The present study, therefore, includes as independent variables not just service-learning per se, but also some of these potentially mediating variables.

Controlling potential confounds is, indeed, a thorny issue, as Giles et al. (1991) suggest. Random assignment of subjects to different courses or experiences was not possible in the present study. Instead, following the example of Hamilton and Zeldin (1987), subjects' pre-service-learning standing on each dependent measure was controlled statistically by the use of hierarchical multiple regression procedures. To attempt to control for the influence of student maturation and instructors' influence, students in service-learning courses were compared with students in similar courses taught by the same instructors.

Thus, guided by the previous literature, we attempted in the present study to use relevant variables, to control some of the potential confounds, and to develop useful new instruments. Three types of outcomes were selected as dependent variables: cognitive approaches to social problems; prosocial moral development; and identity development.

Some of the previous research on cognitive outcomes has had methodological problems, such as the lack of a control group (e.g. Keen, 1990). In addition, the instruments used in the research to date do not seem to capture all of the dimensions of complex thinking that experts (e.g. Morse, 1989; Newmann, 1990; Stanton, 1990b) suggest are influenced by service-learning. Hamilton and Zeldin (1987), for example, used an objective test of knowledge of specific facts about local government as an outcome measure. Such measures are, of course, important, but for the present study an attempt was made to construct a measure that could reflect some of the hypothesized changes in the quality of thought about social issues.

In their review of the research, Conrad and Hedin (1991) point out that participation in community service programs is typically linked to gains on Kohlbergian measures of moral reasoning (e.g. Cognetta and Sprinthall, 1978; Conrad and Hedin, 1982). However, a number of researchers (Gilligan, 1977; Eisenberg-Berg, 1979) have criticized Kohlberg's stage typology and methodology. In particular, Eisenberg (Eisenberg-Berg, 1979; Eisenberg et al., 1983) has noted that, in focusing on "prohibition-oriented" reasoning (i.e. reasoning in response to conflicts in which law or societal authority predominate), Kohlberg's approach neglects the development of more "positive" aspects of morality, such as cognitions related to issues of altruism or responsibility. Furthermore, Eisenberg's (1986) research indicates that these two dimensions of moral reasoning are relatively independent. Since it seems probable that
involvement in community service would have an impact on prosocial reasoning or reasoning concerning another’s needs, one purpose of the present study was to examine the influence of service-learning and of particular characteristics of service-learning experiences on students' positive moral cognitions. Two specific areas of prosocial cognition were evaluated in students' written journals: decision-making in response to another's need and level of reasoning utilized in prosocial decision-making.

Eisenberg (1986) has developed a model which delineates the role of altruistic emotion, cognition, and other factors and their interactions in prosocial decision-making. The model addresses one particular type of prosocial decision: the decision to aid another in need. In Eisenberg's model, deciding to assist another begins with conscious attention to another's need. In most situations of need, motivational processes follow the attention phase and are then weighted in light of the individual's hierarchy of personal goals for that situation. The outcome of this analysis then determines whether the individual will make the decision to assist or not. The link between an intention to assist and prosocial behavior is mediated by additional factors, such as the perceived utility of helping for the individual. For this study, Eisenberg's model was utilized to assess the degree to which students included elements of prosocial decision-making in their service-learning journals.

Eisenberg and her colleagues (Eisenberg-Berg, 1979; Eisenberg-Berg and Roth, 1980; Eisenberg et al., 1983; Eisenberg et al., 1987) have also constructed a five-level theory of the development of reasoning about positive moral conflicts (hedonistic orientation, needs-oriented, approval-interpersonal/stereotyped, self-reflective empathic, and internalized). A series of cross-sectional and longitudinal studies conducted by Eisenberg and her colleagues provide support for this developmental sequence. These studies demonstrate that hedonistic reasoning is the predominant form of reasoning among pre-school children. In elementary school, the use of hedonistic reasoning declines and children demonstrate increases in both needs-oriented and approval-interpersonal/stereotyped reasoning. In high school needs-oriented and approval-interpersonal/stereotyped reasoning decline and adolescents' reasoning begins to reflect the influence of self-reflective empathy processes and internalized values. One purpose of the present study was to examine the influence of the service-learning program and features of the service-learning experience on the level of prosocial reasoning reflected in students' journals.

A final goal of the study was to investigate the influence of service-learning on occupational identity development. Researchers have documented effects for community service participation on adolescents' career exploration (Luchs, 1981; Conrad and Hedin, 1982); however, little atten-

EFFECTS OF SERVICE-LEARNING ON UNDERGRADUATES

A final goal of the study was to investigate the influence of service-learning on adolescents' construction of an adult occupational identity. Nevertheless, Hamilton and Fenzel (1988) argue that one rationale for involving youth in service is to assist them in mastering the tasks of adolescence, including the formation of an identity.

Grotevant (1987) has developed a model of the identity formation process which delineates the identity exploration process in detail. In this model, identity exploration is viewed as a type of problem-solving in which the individual attempts to resolve adult role questions in a variety of domains, for instance, occupation or religious ideology. Two key components of identity exploration are the exploration process itself, in which the individual engages in a variety of activities to gather information about potential identity options, such as seeking information about that option, and weighing the risks and benefits of a potential identity choice.

Once identity exploration is complete, the individual engages in investment, a process which is marked by indicators of commitment such as the allocation of time, money, or emotional energy to a particular role option. A final goal of this study was to utilize Grotevant's model to examine the effects of service-learning on the process of occupational identity formation. In particular, the investigation examined the extent of occupational exploration and investment processing reflected in students' journals.

This study tests the hypothesis that students' perceptions of characteristics of service-learning courses are significant predictors of changes in cognition, prosocial cognitive development, and identity development. The availability of a comparison group for the cognitive measures allowed the testing of the additional hypothesis that participation in service-learning courses would, by itself, influence cognitive change. Changes in prosocial reasoning and identity processing were examined by pre-post t-tests. Finally, it was hypothesized that cognitive changes would appear not only in response to situations relevant to the courses (as found by Conrad and Hedin, 1982) but also in response to situations not directly addressed by the respective courses.

METHODS

Participants

We recruited 226 students from undergraduate classes at a small, mid-western, liberal arts college. Ninety-six of these students participated in the comparison of the effects of service-learning and non-service-learning courses on the cognitive variables. Forty-eight from this sub-sample were
in service-learning courses, and 48 were from courses which were similar in content and taught by the same instructors, but which did not include service-learning components.

**Instruments**

For the Responses to Situations (RS), participants were asked to write for 30 min about how they would respond to two problem situations described on the form. These situations cast the students in the role of a public authority asked to deal with a woman's concern about her elderly father's drinking, to deal with child abuse in the community, or to initiate a community recycling program. Students were told to select the one situation related to their courses and one other situation (in order to assess generalization beyond the specific subject matter of the course). RS responses were scored on 8 dimensions (see Table 1) constructed to reflect the "higher-order", complex thinking frequently hypothesized (e.g., by Stanton, 1990) to increase during service-learning. Journal entries were scored for prosocial decision-making, level of prosocial reasoning, and occupational identity processing. The assessment of prosocial decision-making involved an analysis of journal entries to determine whether they included a discussion of a person or group's needs at the placement site. Journal entries involving discussions of need were classified according to the Prosocial Decision-Making scoring scheme shown in Table 2. The number of statements in each category was summed to yield a Prosocial Decision-Making score.

<table>
<thead>
<tr>
<th>Dimension</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Complexity</td>
<td>Number of distinct subjects, actions, targets of action, and reasons for actions</td>
</tr>
<tr>
<td>Multidimensionality</td>
<td>Number of dimensions of the situation (e.g. economic, ethical, legal, political, etc.)</td>
</tr>
<tr>
<td>Obstacles</td>
<td>Number of potential obstacles (e.g. inabilities, resistances) foreseen</td>
</tr>
<tr>
<td>Coping</td>
<td>Number of ways proposed to deal with potential obstacles</td>
</tr>
<tr>
<td>Differentiation</td>
<td>Number of subgroups or other instances of differentiation of elements of the stimulus situation (e.g. writing about physical and emotional abuse rather than abuse generally)</td>
</tr>
<tr>
<td>Uses of differentiation</td>
<td>Number of explicit reasons for noting differentiated elements to deal with different subgroups</td>
</tr>
<tr>
<td>Uncertainty/Resolve</td>
<td>Statement of resolve to act despite explicitly acknowledged uncertainty of the success of the action (scored &quot;Yes&quot; or &quot;No&quot;)</td>
</tr>
<tr>
<td>Information-gathering</td>
<td>Number of plans to gather more information (e.g. about the nature or causes of the problem, possible strategies, etc.)</td>
</tr>
</tbody>
</table>

**Table 1. Dimensions of thinking about social problems.**

**Table 2. Categories of Prosocial Decision-Making.**

<table>
<thead>
<tr>
<th>Type of statement</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Interpretation of need</td>
<td>Reference to circumstantial or behavioral characteristics which suggest a need, but no direct statement of need, e.g. &quot;Terry's mother seems too busy for her&quot;</td>
</tr>
<tr>
<td>Statement of need</td>
<td>Explicit description of a need, e.g. &quot;She craves adult attention&quot;</td>
</tr>
<tr>
<td>Identification of helpful action</td>
<td>Reference to an action that would provide assistance (not necessarily performed by the writer), e.g. &quot;Her parents need to spend more time with Terry&quot;</td>
</tr>
<tr>
<td>Ability to assist</td>
<td>Acknowledgement of own competence to perform a helpful action, e.g. &quot;I can help Terry with her schoolwork&quot;</td>
</tr>
<tr>
<td>Motivational responses (a) Affective motivations</td>
<td>Expression of sympathy or personal distress in response to another's need</td>
</tr>
<tr>
<td>(b) Cognitive motivations</td>
<td>Cognitive analysis of situation of need, e.g. an analysis of the costs vs. benefits of helping or attributional analysis concerning the causes of another's need</td>
</tr>
<tr>
<td>(c) Value statements</td>
<td>Expression of values related to the situation, e.g. &quot;These prisoners are human beings also&quot;</td>
</tr>
<tr>
<td>Intentions</td>
<td>(a) To assist</td>
</tr>
<tr>
<td>(b) To learn more to assist in future</td>
<td></td>
</tr>
</tbody>
</table>

Report of a Prosocial Action (beyond those required by the course)
Table 3. Levels of Prosocial Reasoning.

<table>
<thead>
<tr>
<th>Level</th>
<th>Type of reasoning</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Hedonistic, self-focused</td>
<td>Reasoning reflects evaluation of potential self-gain</td>
</tr>
<tr>
<td>2</td>
<td>Needs-oriented</td>
<td>Reasoning reflects simple identification of physical or psychological needs with no evidence of role-taking or sympathy</td>
</tr>
<tr>
<td>3</td>
<td>Approval and interpersonal and/or stereotyped</td>
<td>Issues discussed reflect concern about another's approval or disapproval and/or stereotyped images of good vs. bad behavior</td>
</tr>
<tr>
<td>4(a)</td>
<td>Self-reflective empathic</td>
<td>Reasoning reflects sympathy; role-taking; reference to shared humanness; or positive or negative affect related to helping or not helping</td>
</tr>
<tr>
<td>4(b)-5</td>
<td>Internalized</td>
<td>Reasoning reflects internalized values, or norms; concern for the betterment of society; emphasis on contractual obligations; the need for equal treatment and respect for human worth; or positive or negative affect related to the expression of writer's values</td>
</tr>
</tbody>
</table>

In addition a Composite Score was assigned using a method designed by Eisenberg *et al.* (1983), in which the percentages of reasoning at each level are weighted and weighted percentages are summed. The system for assigning weights was as follows: Hedonistic reasoning = 1; Needs-oriented reasoning = 2; Approval and Interpersonal and/or Stereotyped Reasoning = 3; Self-reflective Empathic and Internalized Reasoning = 4.

Table 4. Occupational Identity Processing.

<table>
<thead>
<tr>
<th>Type of Identity Processing</th>
<th>Aspect</th>
<th>ESL Question</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Occupational identity exploration</td>
<td>(a) discussion of alternative career choices</td>
<td>I could make my own choices about important aspects of the service-learning experience</td>
</tr>
<tr>
<td></td>
<td>(b) discussion of the perceived benefits and risks of alternative careers</td>
<td>Role clarity</td>
</tr>
<tr>
<td></td>
<td>(c) report of attempt to gather information about a career</td>
<td>The course instructor helped me to adjust to and deal with the service-learning experience</td>
</tr>
<tr>
<td></td>
<td>(d) report of attempts to deal with new learning about a career, even negative learning</td>
<td>The course instructor helped me to adjust to and deal with the service-learning experience</td>
</tr>
<tr>
<td></td>
<td>(e) re-examination of the positive and negative aspects of a career</td>
<td>The course instructor helped me to adjust to and deal with the service-learning experience</td>
</tr>
<tr>
<td></td>
<td>(f) plan of how to implement a career choice</td>
<td>The course instructor helped me to adjust to and deal with the service-learning experience</td>
</tr>
<tr>
<td>2. Occupational identity investment</td>
<td>(a) report of time, money, or emotion invested in career</td>
<td>Perceived contribution to recipient</td>
</tr>
<tr>
<td></td>
<td>(b) attempt to relate career-related learning to other areas</td>
<td>Regarding of how well my particular experience actually went, the service-learning component was an opportunity in which a student could “make a difference” and be of real help to others</td>
</tr>
<tr>
<td></td>
<td>(c) report of plans to invest time, money, or emotion in a career</td>
<td>Instructional quality</td>
</tr>
<tr>
<td></td>
<td>(d) statement of values specifically pertaining to career choice</td>
<td>Combination of Autonomy, In-class Reflection, and Instructor Support</td>
</tr>
</tbody>
</table>

Occupational identity processing was evaluated by analysing journal entries for statements in which students discussed occupational concerns. These statements were analysed (see Table 4) to determine whether they were reflective of occupational identity exploration or investment processes, according to Grotevant's (1987) description of the identity exploration process. The number of Occupational Identity Exploration and Investment statements was summed to yield an Occupational Identity Processing score.

The Evaluation of Service-Learning (ESL) was constructed to assess aspects of service-learning that are hypothesized (e.g. Hedin and Conrad, 1990) to mediate the effects of service-learning. The ESL includes 7 Likert-format items assessing students' perceptions of aspects of the service-learning experience (See Table 5).
Participants in both the service-learning and comparison classes completed the RS in class during the first week and again during the last week of the term. Participants in the service-learning courses kept weekly journals concerning their service experiences and completed the ESL. All identifying information (course name, and pre vs. post status) was removed from the RS responses and journal entries prior to scoring. Student assistants scored the RS responses and the journals. Intrarater reliability coefficients ranged from 0.77 to 0.93. (The majority of coefficients were above 0.88).

RESULTS

Hierarchical multiple regression procedures were used to test the contributions of the evaluation dimensions to the cognitive, prosocial cognitive, and identity outcomes, and the contribution of service-learning involvement to the cognitive outcomes. Students’ scores on the dependent measures during the first week of their courses were forced into the equations as the first independent variables in order to control statistically for the possible confound of pre-course differences.

The evaluation scores were subjected to principal component factoring followed by varimax and oblique rotations. Both rotations showed Autonomy, In-class Reflection, and Instructor Support loading highly (> 0.70) on Factor 1 with no loadings greater than 0.25 on a secondary factor. Scores for these questions were therefore combined. The In-class Reflection and Instructor Support variables seem clearly to relate to academic aspects of the service-learning experiences. The Autonomy question could also be viewed as related, because the ability to select aspects of the service-learning experience, in this study, was under the control of the instructor. For these reasons, Factor 1 was labeled Instructional Quality. All significant results reported have p < 0.05 or slightly better.

Cognitive variables: service-learning vs. non-service-learning courses

Participation in service-learning courses had a significant effect on Multidimensionality, Differentiation, and Uncertainty/Resolve in the responses to the situations which were relevant to the courses. After controlling for the effects of the pre-test scores, the partial correlations for service-learning involvement were 0.232 (F = 6.832) for Multidimensionality, 0.24 (F = 7.353) for Differentiation, and 0.183 (F = 4.153) for Uncertainty/Resolve (df = 1,121 for each).

On both the situation relevant to the course and the irrelevant situation, service-learning had a significant impact on Differentiation (partial corre-
A series of paired t-tests compared students’ mean Prosocial Decision-Making, Prosocial Reasoning (as indicated by Composite scores and percentage of Self-Reflective Empathic and Internalized Reasoning), and Occupational Identity Processing scores on later journal entries with their first journal entry scores. These tests revealed a significant increase in Prosocial Decision-Making in students’ journals ($t = 4.406$, df = 110). Additionally, there were significant increases in students’ Composite Prosocial Reasoning scores and the percentage of Self-Reflective Empathic and Internalized Reasoning ($t = 6.949$ and $6.596$, respectively, df = 110). Finally, students’ Occupational Identity Processing scores significantly increased in later journal entries ($t = 2.061$, df = 101).

DISCUSSION

The present study examined the effects on undergraduates of a program to enhance civic involvement, social responsibility, and social conscience. A primary purpose of the study was to address some of the methodological limitations of previous investigations of service-learning. In order to address the discrepancy between the results of anecdotal and objective data, the study applied quantitative scoring to narrative data from students (essays and journals). The use of several regression equations, the modest size of the partial correlations, and the absence of control groups for the journal analyses mean that the findings must be regarded as suggestive. Nevertheless, the new instruments developed for the study seem to have produced several potentially interesting findings.

Participation in service-learning courses influenced a number of aspects of students’ thinking about social problems. Two features of the study suggest that it was the service-learning, per se, that caused these influences: students were compared to peers in similar courses which lacked a service-learning component, thus suggesting that the cause was not simply maturation or a semester of instruction. Also, pre-existing differences among students probably do not account for the outcomes since the regression procedures allowed statistical control of these differences.

These results suggest that some of the complex cognitive variables described in the theoretical and anecdotal literature are affected in measurable ways by service-learning. Service-learning students demonstrated greater resolve to act in the face of acknowledged uncertainty and greater awareness of the multiple dimensions and variability involved in dealing with social problems. In contrast to Conrad and Hedin’s (1982) findings, there was some evidence of generalization of cognitive change to situations, not directly related to the content of the courses.

The relationships between the cognitive outcomes and the ESL dimensions are consistent with previous suggestions (Conrad & Hedin, 1982) that both on-site and academic factors are important mediators of service-learning outcomes. High-quality on-site supervision seems to increase general complexity of thought and awareness of variability, while the quality of on-campus instruction influences the awareness of obstacles and of ways to address these obstacles. Both Instructional Quality and the relationship to the site supervisor influenced Uncertainty/Resolve.

The negative relationship between the students’ feelings that they were “of real help to others” and their differentiation of the situation and uses of differentiation was surprising. Campus supervisors of practica suggest, however, that students frequently become attached to the models provided in their first helping experiences. Those students who felt that they had been the most helpful might then be less likely to think of or address variability in the situation.

The results indicated that Instructional Quality (Factor 1) was related to the level of prosocial reasoning in students’ journals. This finding is consistent with studies (Conrad and Hedin, 1982; Hamilton and Zeldin, 1987) which have found that classroom aspects of experiential learning programs influence their impact on student gains. The effects of instructional quality also reinforce the consistent recommendation in the service-learning literature that service-learning courses provide participants with a guiding interpretive framework for their experiences based, in part, on reflection-generated insights.

An analysis of Instructional Quality into its components indicated that autonomy was the strongest predictor of prosocial reasoning. This finding supports cognitive developmental theories of morality (e.g. Piaget 1932/1965; Kohlberg, 1976) which suggest that independence from the constraints of authority figures stimulates the development of more mature forms of moral reasoning.

The findings that neither the relationship with the on-site supervisor nor the perceived value of the service to the recipient predicted prosocial reasoning scores was unexpected. These results conflict with Conrad and Hedin’s (1982) discovery that a collegial student-site supervisor relationship predicted gains on the Defining Issues Test of moral reasoning. However, the relatively short duration and group character of several of the service-learning experiences may have made it difficult for the on-site supervisor to exert a strong influence.

The finding that characteristics of the service-learning experience did not significantly predict Occupational Identity Processing suggests that...
the features of the service-learning experience isolated in this study may not have been ones which prompted students to examine vocational issues pertaining to self-identity. Perhaps other aspects of the service-learning experience, such as an explicit effort by the instructor to relate the experience to career options, would have stimulated this examination.

Despite the absence of strong relationships between many features of the service-learning experiences and the journal variables, students' tendency to engage in prosocial decision-making, use of advanced types of prosocial reasoning, and tendency to explore occupational identity issues increased significantly during the courses. These results extend the findings of prior investigations (Cognetta and Sprinthall, 1978; Conrad and Hedin, 1982), which have shown an impact for service learning on the use of principle-based considerations on "prohibition-oriented" measures of moral reasoning. In addition, the t-test findings are congruent with prior studies showing an effect for service-learning on self and vocational development (Luchs, 1981; Conrad and Hedin, 1982).

CONCLUSION

Participation in a college service-learning program facilitated student development in several areas. The participants made greater gains than students in traditional classes on several dimensions of thinking about social problems, such as multidimensionality. Service-learning appears to have influenced participants' use of prosocial decision-making and advanced forms of prosocial reasoning as well as their tendency to reflect on occupational identity issues.

Finally, the quality of on-site and of classroom support and instruction was significantly related to gains in several aspects of higher order thinking and prosocial reasoning.

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