The Effects of a Service-Learning Program on the Development of Civic Attitudes and Behaviors Among Academically Talented Adolescents

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This study examined the effects of a service-learning program on the development of civic attitudes and behaviors of 230 high school students who were identified as academically gifted and participated in either a service-learning program or an accelerated academic program during the summer. Students' responses to 3 surveys measuring civic responsibility, civic behavior, and leadership skills showed that enhanced civic responsibility, particularly a greater awareness of civic issues and a stronger connection and commitment to the community, was found among the students who participated in the service-learning program. Significant differences were not found for civic behaviors and leadership skills as a result of participation in the service-learning program. Longer term studies with students and examination of the type of service-learning activities students choose to get involved in are suggested to corroborate the positive outcomes of the service-learning program.

Introduction

Service-Learning for Gifted Students

Interest in service-learning for adolescents in general, and particularly for gifted learners, has been growing over the past decades.

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Service-learning, a pedagogy that integrates meaningful volunteer service into traditional academic curricula, has been proposed for gifted learners based on its match to their needs, personality traits, and abilities.

Generally, academically gifted students are viewed as socially and emotionally mature and morally advanced compared to nongifted students. Specifically, a more highly developed sense of social justice, fairness, morality, concern for others, and interest in global issues have been empirically demonstrated for gifted students (Gross, 1993; Lee & Olszewski-Kubilius, 2006; Passow, 1988, 1989; Silverman, 1994; Tan-Willman & Gutteridge, 1981). Also, there is evidence of greater independence, responsibility, positive self-concept, self-confidence, and self-esteem (Ablard, 1997; Chan, 1988; Davis & Rimm, 1998; Janos, Fung, & Robinson, 1985; Katz, 1995; Olszewski-Kubilius, Kulieke, & Krasney, 1988; Sorenson & Francis, 1988) on the part of academically gifted students. Researchers and educators assert that for academically gifted learners who are generally interested in and sensitive to interpersonal, moral, social, and global issues, service-learning activities are a good match to these characteristics (Lewis, 1996; Passow, 1989; Silverman, as cited in Lewis; Terry, 2000; Terry & Bohnenberger, 2003). Service-learning activities not only respond to gifted students' interests and personalities, but they further enhance their sensitivity to and interest and engagement in community, society, and world issues (Passow, 1988, 1989).

Many of the above characteristics found among gifted students are considered aspects of leadership abilities or relevant skills for the development of leadership (Chan, 2000a, 2003; Plowman, 1981; Smith, Smith, & Barnette, 1991), another area of giftedness. The relationship between leadership and intellectual giftedness is not necessarily linear and clear. Yet, academically gifted students are more likely to be interested in becoming leaders and tend to emerge as leaders in small-group learning settings or show advanced leadership ability when compared to mixed-ability, heterogeneous groups of students (Lee & Olszewski-Kubilius, 2006; Myers, Slavin, & Southern, 1990; Perez, Chassin, Ellington, & Smith, 1982; Smyth & Ross, 1999). Leadership involves multiple aspects of human abilities or traits, mainly related to interactions with other people (Gonsalves, Grimm, & Welsh, 1981; Huckaby & Sperling, 1981)

or between personal qualities and environmental resources or needs (Oakland, Falkenberg, & Oakland, 1996). In particular, one critical feature of leadership has to do with interactions with or substantial influences on other people in "real-life situations" (Gonsalves et al., 1981; Huckaby & Sperling, 1981; Oakland et al., 1996; Plowman, 1981; Sisk, 1993). Although leadership programs are not identical to service-learning activities, and the goal of service-learning is not restricted to raising individuals' leadership ability per se, community service or involvement in community affairs has often been included as an important component both to recognize and develop leadership ability (Plowman, 1981). Similarly, Hensel (1991) stated that working within the context of real-life problems and collaborative work with other people can enhance leadership.

Service-learning is appropriate for gifted learners from a curricular standpoint. The benefits of service-learning come from classroom learning in connection with hands-on experiences. The National Service-Learning Cooperative defines service-learning as "a teaching and learning method that connects meaningful community service experience with academic learning, personal growth, and civic responsibility" (Mintz & Liu, 1994, p. 12). Similarly, in the National and Community Service Act of 1990, service-learning is defined as a method that extends classroom learning into real-life situations through participation in service experiences organized by collaborating schools and communities (Waterman, 1997).

Researchers and educators propose that service-learning can provide gifted students with challenging, appropriate curriculum and instruction that go beyond what is typically given to them in their classrooms (Hansen, 1991; Lewis, 1996; VanTassel-Baska, 1993), specifically, opportunities to work on authentic problems, acquire real-world skills, and focus on problem solving through participation in community service projects (Renzulli & Reis, 1997). Renzulli (1992) stressed that learners' unique abilities, interests, and learning styles should be integrated into curriculum development; for gifted learners, a focus on methods of inquiry that enables the gifted to become firsthand active inquirers rather than passive learners is needed. For gifted students, service-learning activities can be one example of appropriate curricula, commensurate with their unique abilities and needs. Service-learning experiences can provide gifted

youth with opportunities to develop their superior problem-solving abilities (Sorenson & Francis, 1988), critical thinking skills, and leadership skills (Lewis, 1996); explore specific interests (Lewis, 1996); and work with adult professionals or mentors, which gifted students generally prefer to do (Sorenson & Francis, 1988).

Although service-learning has been proposed for gifted learners, only a few educational programs that are designed specifically to enhance important nonacademic skills including leadership, moral sensitivity, cooperation, and an orientation toward the future exist particularly for gifted students (Passow, 1988). Similarly, much less attention has been paid in gifted education to the development of leadership compared to other areas of giftedness (mainly intellectual or academic) either in program development or empirical research (Hays, 1993; Matthews, 2004; Smyth & Ross, 1999). Yet, according to some gifted educators, this is exactly what programs for the gifted should be doing. Passow (1988) asserted that educators of the gifted should focus on the development of caring, concerned, compassionate, and committed individuals who are able to appreciate the value of giftedness and utilize it for both self-fulfillment and the welfare of society. Passow (1988, 1989) also suggested that schools need to integrate learning resources from the community into classroom learning to enable gifted students to become more sensitive to community and global issues such as poverty, famine, war, racial conflict, depletion of resources, cultural conflict, communal health, employment, and so forth. Service-learning is one example of a methodology that integrates community and global issues and academic content with purposeful learning objectives.

Positive Effects of Service-Learning on Adolescents

Positive effects of service-learning activities, particularly for academic, personal, and interpersonal growth of adolescents, are well documented. For example, service-learning activities enhanced students' problem-solving abilities (Conrad & Hedin, 1982; Goldsmith, 1996); personal, social, and civic responsibility (Conrad & Hedin, 1982; Goldsmith, 1996; Hamilton & Fenzel, 1988; Newmann & Rutter, 1983; Waterman, 1997; Zeldin & Tarlov, 1997); and social competence (Newmann & Rutter, 1983; Osborne, Hammerich, &

Hensley, 1998). Benefits documented in the literature also include better communication skills, empathy, and confidence (Hamilton & Fenzel, 1988; Osborne et al., 1998; Waterman, 1997; Zeldin & Tarlov, 1997); greater self-esteem (Conrad & Hedin, 1982; Goldsmith, 1996; Hedin, 1989; Luchs, 1981; Waterman, 1997); self-understanding or awareness (Conrad & Hedin, 1989; Eyler & Giles, 1999; Hursh & Borzak, 1979; Zeldin & Tarlov, 1997); higher levels of moral and ego development (Cognetta & Sprinthall, 1978); and gained tolerance and respect for diversity of other people (Alt & Medrich, 1994; Eyler & Giles, 1999; Hamilton & Fenzel, 1988; Osborne et al., 1998; Waterman, 1997; Zeldin & Tarlov, 1997). Other positive effects on students after service-learning experiences have to do with increased respect for organizations as resources to the community (Alt & Medrich, 1994; Eyler & Giles, 1999; Hedin & Conrad, 1991) and exploring options for future careers (Eyler & Giles, 1999; Waterman, 1997).

Research on Service-Learning and Gifted Students

Empirical research on service-learning involving gifted population is sparse. The following studies describe the effects of participation in service-learning projects or programs specifically for gifted adolescents.

Terry (2000) conducted focus-group interviews with three adolescents who had participated in "community action," service projects designed to empower students to make a positive impact on their communities, thereby becoming aware of, exploring, and being more engaged in the community issues. As part of the curriculum for eighth graders, students participated in projects with activities such as planning for the restoration of a historic theatre, raising money for an architect who worked on the designs for the renovation, and writing a state-approved solid waste management plan for their county. Interviews revealed positive academic and social effects for students after participation in the projects. Examples were increased positive feelings (e.g., thrilled, excited, loved, worthwhile, fun) about service-learning experiences, a sense of accomplishment, and respect for others working within their communities. Self-reported academic skills enhanced through these service-learning projects included public

speaking, use of mathematics, computer skills, photography, and writing (e.g., speeches, news articles, business letters).

Following their service experiences, the students reported that they were better able to recognize real-life problems in their communities and had learned new problem-solving skills, including the use of the political process, to help them resolve those issues. In addition, the students addressed increased self-confidence, perseverance, and responsibility, as well as the development of skills related to teamwork and cooperation. New perspectives (e.g., how government works and how to take part in the business world), knowledge about effective interactions with other people, and better relationships with parents and coworkers were also reported by some students. Self-efficacy (e.g., being in charge of their own learning and the ways in which they engaged in their communities) and empowerment (e.g., being treated like adults who could make an impact on their communities) were perceived as valuable benefits of the service-learning experience by the students.

Trebilcox (1997) provided additional proof of the benefits of service-learning for gifted students. The "Speak Out for Stephanie" (SOS) Foundation is a nonprofit organization founded by Greg and Peggy Schmidt in reaction to the brutal rape and murder of their daughter, Stephanie. The foundation lobbied for the passage of the Kansas Sexual Predator Law and provides a voice for rape victims. Since 1994, middle school students in the Guided Discovery gifted class in northeastern Kansas have participated in varied community service projects and donated the proceeds to the SOS foundation as a response to the foundation's education and awareness programs. Examples of those community service activities included refinishing furniture and decorating baskets to sell in an auction, displaying signs with crime statistics in school with the SOS logo on them, making a clay clock with a sign "Stop the Hands of Violence," and composing lyrics and music for a song entitled Sexual Predator. Using anecdotal data, Trebilcox found positive changes for student participants; specifically, the students became more aware of personal safety and violence prevention and of their ability to help revise and uphold laws after their community service experiences. Other reported benefits for the students included learning how to care about other people

and planning and organizing cooperative work with others through the projects.

In another study, a teacher, Willard (1984), described the effectiveness of service-learning activities as part of a social studies curriculum for gifted students. The Social Studies Model was a full-year course for fifth-grade gifted students who participated in a one-day-a-week pullout program. The model was based on John Dewey's idea of "shared activity" that combines experience, communication, and reflective thinking with Renzulli's (1977) Enrichment Triad Model. It involved a wide array of activities, including service-learning projects, integrated into a curriculum that included concepts from economics, urbanization, social organization, culture, and adaptation. The Social Studies Model consisted of a 3-month course on economics and urbanization, followed by a 4-month course focused on culture, social organization, and adaptation. The year-long course concluded with a 3-month course that included meaningful service projects. Willard asked her gifted students about their perceptions of the concept "social" as they participated in the course and found that the students had broadened their notions of the concept to include "social" as an integral part of life that embraces various aspects of community both in and outside of school. Examples of service projects in which the students participated were running a weekly story hour for students in the school; creating math, reading, and spelling games for children who were sheltered at a local center for battered women and children; and preparing readable science booklets for second graders. Other benefits of the service projects, according to Willard, were that students had the opportunity to build leadership skills, to commit themselves to the needs of others, and to learn the value of group cooperation.

Service-learning activities and other leadership programs are often designed for adolescents as part of a collaborative effort between various local organizations including schools, community agencies, businesses, and religious institutions (Chan, 2000b; Karnes & McGinnis, 1995; Smith et al., 1991). Many of the leadership programs are focused around real-life issues involving interactions with other people (Gonsalves et al., 1981; Oakland et al., 1996; Plowman, 1981). Major goals of these leadership programs for gifted learners are to develop cognitive and affective abilities, including problem

solving, conflict resolution, decision making, and interpersonal skills (Chan, 2000b; Karnes, Meriweather, & D'Llio, 1987; Plowman, 1981; Smith et al., 1991).

Research has documented the positive effects of leadership programs, both academically and socially, for gifted students. For example, using the Leadership Quotient Index, Smith et al. (1991) studied 32 adolescents who participated in a one-week leadership program. Findings revealed that the three most highly rated benefits students perceived from the leadership program were increased teamwork, exposure to different points of view, and risk taking. Other positive program effects included increased openness (e.g., willingness to respond to other group members and their suggestions) and ability to persuade others. Greater "ascendancy," which had to do with being active in a group, making independent decisions, and being self-assured in relationships with others, was another positive program effect.

Chan (2003) studied the effects of participation in the Chinese University Creative Leadership Training Program (CLTP), a university-based leadership program for gifted secondary students who had high IQ scores, outstanding performance in school, or specific talents in creative areas or leadership. Pretraining and posttraining measures for 60 students in grades 7 through 12 who participated in the program showed that, after the program, the CLTP students had slightly higher mean scores in perceived competence, or self-efficacy, on the shortened 15-item Chinese version of the Roets Rating Scale for Leadership (RSL; Roets, 1997).

Summary

The potential impact of service-learning is well-documented within the literature, although few studies exist documenting the effects on a gifted population. Studies that focused exclusively on gifted students have demonstrated benefits of service-learning primarily through anecdotal or qualitative data such as interviews and comments collected from students. Given the paucity of research dealing with the effects of service-learning programs on adolescents, including gifted students, and the seemingly excellent match between gifted students'

interests and personalities and service-learning activities, further research is warranted.

Purpose of the Study

This study examined the effects of a service-learning program, the Civic Leadership Institute (CLI), on the development of civic attitudes and behaviors among gifted adolescents. Students' responses to three surveys assessing civic attitudes, civic behaviors, and leadership were compared over time and by the type of program (service-learning vs. accelerated academic). The overarching question was what are the short-term and long-term effects of participation in a service-learning program focused on developing civic leadership among gifted adolescents?

Methods

Participants

One hundred and eighteen gifted students who participated in a service-learning program, the CLI, and 112 gifted students who participated in an accelerated academic summer program (Equinox) on a Midwestern campus were the subjects of this study. All of the students were in grades 10 through 12 at the time of the study (Summer 2003). Caucasian/White and Asian students were the two dominant ethnic groups of the student participants, and African American/Black and Hispanic/Latino students were underrepresented compared to the proportion of the entire U.S. population. See Table 1 for more information about student participants.

Generally, the students were considered academically gifted based on their SAT or ACT scores submitted to qualify for the CLI or Equinox programs. The average SAT scores of the students, based on talent search testing conducted in grades 7 or 8, were as follows: SAT-Verbal = 593 (CLI = 581, Equinox = 630); SAT-Math = 583 (CLI = 579, Equinox = 595); SAT-Combined = 1171 (CLI = 1156,

Table 1

Student Participants

	Total (N = 230)	CLI (n = 118)	Equinox (n = 112)
Gender			
Male	47.1%	43.2%	50.9%
Female	53.0%	56.8%	49.1%
Ethnicity			
Caucasian/White	53.1%	62.5%	43.6%
Asian/Pacific Islander	32.4%	22.9%	41.8%
African American/ Black	7.2%	10.7%	3.6%
Hispanic/Latino	2.2%	2.5%	1.8%
American Indian/ Alaskan/Native	1.6%	1.5%	1.8%
No response	3.5%		7.4%
Region			
Midwest	82.5%	75.6%	83.2%
East	6.6%	4.9%	6.7%
South	3.3%	2.5%	3.4%
West	3.3%	9.8%	2.7%
Southwest	0.9%	2.5%	0.7%
Foreign countries	3.7%	4.9%	3.6%

Equinox = 1216). For purposes of comparison, the students in the Equinox program had slightly higher SAT scores than students in the CLI program, but the difference was statistically significant for only the SAT-Verbal score, t (120) = 2.44, p = .02. Effect sizes for the mean differences between the two groups were medium for the SAT-Verbal (d = .50) and small for the SAT-Math (d = .18) and SAT-Combined (d = .37) scores.

Percentages of talent search students that receive these scores or higher on the SAT are about 8% to 13% for each subtest: 7.8% for the SAT-Verbal, 13.4% for the SAT-Math, and 8.7% for the SAT-

Combined. When compared to the scores of students who typically take the SAT (i.e., 2005 college-bound seniors; SAT-V = 508, SAT-Math = 518), both the CLI and Equinox students had higher mean scores on verbal and math subtests on the SAT. Effect sizes for these mean differences between the CLI and Equinox students and the college-bound seniors were large for the SAT-Verbal (d = .81) and medium for the SAT-Math (d = .58). Therefore, student participants in this study scored approximately in the top 10% of talent search participants and were above the averages of older students (i.e., college-bound seniors) who typically took the tests.

Civic Leadership Institute

The CLI is designed to help outstanding high school students develop civic responsibility and leadership skills through a combination of traditional academic work, hands-on community service, and field experiences. During 3-week residential summer courses, students explore various current social issues including urban poverty, hunger, homelessness, education reform, youth violence, and public health. Class activities consist of discussions and debates based on textbook readings, experiences in the field, and independent or small-group activities that are designed to develop students' leadership, teamwork, and group problem-solving abilities. Service-learning activities consist of hands-on projects such as preparing and serving a meal at a soup kitchen, reading to children at a day care center, and repairing dilapidated low-income senior housing. Other field experiences include community tours, visits to local historical sites (e.g., Holocaust Museum, National Monuments), and meetings with politicians and local leaders from the media, cultural institutions, advocacy organizations, and community groups. In addition, the program offers evening lectures by local civic leaders and special events on various social issues related to the topics of the course (e.g., a firsthand account of homelessness, the history of community development in Chicago, politics and public service, the media's role in social change, the role of business and philanthropy in communities). Classes meet for 5 hours daily with an additional 2 hours for an evening study hall.

There is an instructor for each group of 15–16 students. Instructors are selected from a competitive applicant pool and are chosen because of their mastery of the content area, experience facilitating high-quality service-learning, and interest in working with academically talented students. There are teaching assistants and residential assistants (typically college upperclassmen, recent college graduates, or graduate students) to support students' activities inside and outside the classroom.

To qualify for the program, multiple criteria are used, including test scores, personal essays, and teacher recommendations. To qualify via test scores, students must submit a score report demonstrating a minimum score of 510 on the SAT-Verbal or 24 on the ACT-Reading on a test taken in the sixth, seventh, eighth, or ninth (ACT only) grade. Students can submit an alternative admissions portfolio if they are not eligible for the program via their test scores or do not have test scores at the time of application. The portfolio includes students' grades, cumulative grade point average (GPA) and rank in class, teacher recommendations, scores on any nationally normed standardized tests, and writing samples. Applicants for the CLI program are evaluated further based on participation in extracurricular activities, community service, or work experience; leadership experience, including offices held in extracurricular and community organizations; and awards or honors received.

Equinox Program

The Equinox program is a 3-week summer academic program for high school students completing 10th to 12th grades. It offers honors-level and Advanced Placement courses for high school credit combined with social and cultural activities. Examples of courses are Advanced Creative Writing Honors, AP English: Literature & Composition, AP Macroeconomics, AP Psychology, Pre-Calculus Honors, Physics Honors, Human Biology Honors, and Research Methods Honors. Students take one course for 5 hours daily during the 3-week session and enroll as either residents or commuters. Classes are taught by master teachers experienced with gifted high school students. Each class also has a teaching assistant and a residential assistant to provide support to students both inside and outside the classroom.

In order to qualify for the program, students must submit standardized test scores from tests taken in grades 6, 7, 8, or 9; score requirements vary by course. For humanities courses, a minimum score of 510 on the SAT-Verbal or 24 on the ACT-Reading is required. For math courses, a minimum score of 540 on the SAT-Math or 20 on the ACT-Math is required. For science courses, a minimum score of 510 on the SAT-Verbal or 24 on the ACT-Science Reasoning is required. Students who do not have test scores or who submit scores that do not meet minimum requirements are able to submit an alternate admissions portfolio that consists of letters of recommendation from teachers, a copy of their latest grade report, and a writing sample. Options for writing samples include a teacher-graded copy of an essay, a piece of creative writing, or an expanded admission essay.

The CLI and Equinox programs are similar in many respects, including daily class time, length of program, and focus on advanced content. Selection criteria for both programs require students to show evidence of ability to complete advanced coursework. Additionally, the CLI looks for students with leadership potential who are interested in civic issues, as demonstrated by interest and involvement in extracurricular activities.

In this study, students in the Equinox program served as a comparison group to assess the short-term and long-term effects of the CLI program. Although not an ideal comparison group, by comparing the responses of the CLI students to Equinox students, we eliminate some validity threats including the possibility of normal developmental changes in adolescents' behaviors, such as increased maturity, and the possibility that any kind of intervention (not necessarily a service-learning one) could have affected students' civic attitudes and behaviors.

Test Instruments

Three surveys, the Civic Responsibility Survey: English version (CRS; Furco, Muller, & Ammon, 1998), the Civic Behavior Survey (CBS), and the RSL (Roets, 1997), were used to examine students' civic attitudes, civic behaviors, and leadership, respectively.

The CRS consists of pre- and posttests (both English and Spanish versions) for three levels (Level I, II, and III) varying by grade. Level I

is designed for elementary school students, Level II for middle school students, and Level III for high school students. The survey is composed of 24 items related to three "clusters" such as connection to the community (4 items), civic awareness (10 items), and civic efficacy (10 items). Examples of items are provided in Appendix A. Reliability for a total of 1,707 students in elementary to high school levels ranged from .76 to .93 (Level I = .76, Level II = .84, Level III = .93).

The CBS was developed by the staff of the CLI in order to examine the civic behaviors of gifted adolescents who participate in the CLI program. The survey consists of 13 items designed to measure the frequency with which students participate in community service, pay attention to the news, or discuss social or political issues with friends or family, for instance (see Appendix A). Most items use a 5-point rating scale (1 = *constantly/outstanding*, 2 = *frequently/above average*, 3 = *occasionally/moderate*, 4 = *rarely/poor*, 5 = *never/very poor*) for responses. Students chose specific categories to best represent their behaviors for several items not utilizing the 5-point scale.

The RSL (Roets, 1997) is a self-report measure appropriate for students in grades 5 to 12. It consists of 26 items about leadership behaviors (see Appendix A) and uses a 5-point rating scale (1 = *almost always*, 2 = *quite often*, 3 = *sometimes*, 4 = *not very often*, 5 = *never*). Students' leadership scores are tabulated by giving 3 points for responses of 1 (*almost always*), 2 points for responses of 2 (*quite often*), and 1 point for responses of 3 (*sometimes*). Evidence for validity of the scale includes a correlation of .71 with the leadership portion of Renzulli's Scales for Rating Behavioral Characteristics of Superior Students and .77 with Taylor's Checklist for Leadership. The reported Spearman-Brown split-half reliability coefficient is .85 (Roets, 1997).

Procedures

Data Collection. Students' responses to the CRS, the CBS, and the RSL were collected between Summer 2003 and Spring 2004. The surveys were administered multiple times in order to examine the effects of the CLI program, particularly on the development of civic attitudes and behaviors, over time.

For students who participated in the CLI program, the CRS and the RSL were administered three times between Summer 2003 and Spring 2004. The initial testing was conducted before the students started the 3-week session of the program in July 2003 (Time 1), followed by the second testing conducted after the 3-week session in August 2003 (Time 2) and the third testing conducted 6 months after the program ended (Time 3). The CBS was administered two times: (1) before starting the 3-week session in July 2003 (Time 1) and (2) 6 months after the program ended (Time 3). Unlike the CRS and the RSL, the CBS was not given to the students after the 3-week session because we assumed that it would be difficult to detect changes in students' civic behaviors in only 3 weeks and that students would have limited opportunities to engage in civic activities beyond the ones involved in the program.

For students who participated in the Equinox program, all three surveys were administered two times: (1) before starting the 3-week session in July 2003 (Time 1) and (2) 6 months after the 3-week session (Time 3). Because our primary interests were in the students in the CLI program and the effects of the CLI program, we did not follow up on the students in the Equinox program shortly after the 3-week session.

Data for Time 1 and Time 2 were collected on site; students filled out the surveys in class. For Time 3, all three surveys were mailed in February 2004 to 118 CLI and 112 Equinox students who had completed each of the surveys in the previous administrations (both Time 1 and Time 2 or Time 1 only). Initially, students were asked to return their responses to CTD by the end of April 2004. Due to a low return rate, one or two follow-up reminders were given to the students, and finally 57 of 118 CLI students and 47 of 112 Equinox students returned their surveys for a response rate of 45.2% (CLI = 48.3%, Equinox = 42.0%) by March 2005.

Data Analysis. For the CRS, scores on the three clusters (connection to the community, civic awareness, and civic efficacy) were created based on students' responses to the items (Furco et al., 1998) and used for analysis. For the RSL, students' total leadership scores were computed (using responses for all 26 items) and analyzed. Students' scores on each item of the CBS were used for analysis because the

items were not constructed to cluster with one another. For investigation of the CBS items, alpha levels were adjusted to .004 by dividing .05 by the number of items (n = 13) involved to control inflated Type I errors.

Data were all analyzed using SPSS 11.0 to compare students' performances on the surveys by the type of program (CLI vs. Equinox) and by time of administration (from Time 1 to Time 3) with the procedures described below.

First, a mixed-model ANOVA with the type of program as a between-subjects factor and time of administration as a within-subjects factor was conducted to examine whether students' performances on each of the three surveys varied significantly either by the type of program, the administration time, or interactions between both variables. Second, for main effects for the type of program, differences between the CLI students and Equinox students were further explored using independent samples t-tests, separately for Time 1 and Time 3. Third, for main effects for the administration time, a one-way repeated measures (or within-subjects) ANOVA was conducted for the CLI students and Equinox students, separately. This analysis examined whether the students' performances on the surveys differed over time (three times for the CLI students and two times for Equinox students). Paired samples t-tests were used to further assess those differences following the one-way repeated measures ANOVA. For analysis for individual items on the surveys (CRS and CBS), alpha levels were adjusted to .013 (CRS—connection to the community cluster), .005 (CRS—civic awareness and civic efficacy clusters), or .004 (CBS) by dividing .05 by the number of items involved to control inflated Type I errors.

Results

On the CRS, the mixed-model ANOVA showed significant main effects for the type of program (CLI vs. Equinox) and time of administration (from Time 1 to Time 3), but no significant interaction effect was found between the administration time and the program.

First, tests of between-subjects effects revealed statistically significant differences between the students in the CLI program and

the Equinox program in their performances on connection to the community, $F\,(1, 102) = 5.59$, $p = .02$, partial eta$^2 = .05$, and civic efficacy, $F\,(1, 87) = 4.32$, $p = .04$, partial eta$^2 = .05$. Overall, higher mean scores were found for the CLI students than the Equinox students (see Table 2); however, the partial eta^2 indicated that only 5% of the variance of the CRS scores was accounted by the type of program. The two groups of students did not differ in civic awareness, $F\,(1, 87) = 3.76$, $p = .06$, partial eta$^2 = .04$.

Second, tests of within-subjects effects yielded significant main effects for time of administration on connection to the community, $F\,(1, 102) = 12.44$, $p = .00$, partial eta$^2 = .11$, civic awareness , $F\,(1, 87) = 14.53$, $p = .00$, partial eta$^2 = .14$, and civic efficacy, $F\,(1, 87) = 8.37$, $p = .01$, partial eta$^2 = .09$. Specifically, higher mean scores were found for Time 3 than Time 1 for all three clusters with a medium effect size for the mean difference (Time 3 – Time 1) for civic awareness and small effect sizes for connection to the community and civic efficacy (see Table 2). Yet, less than 15% of the variance of the students' performances on these three clusters was explained by the administration time.

Third, results for the within-subjects effects revealed no significant interaction effect between the type of program and time of administration for all three clusters. The *F*-tests were not statistically significant for connection to the community, $F\,(1, 102) = 1.53$, $p = .22$, partial eta$^2 = .02$; civic awareness, $F\,(1, 87) = .88$, $p = .35$, partial eta$^2 = .01$; and civic efficacy, $F\,(1, 87) = 1.18$, $p = .28$, partial eta$^2 = .01$. Only about 1 to 2% of the variance of the students' performances on the survey depended on interactions between the program and time factors.

Because we found significant time effects for all three clusters and program effects for two of the three clusters but no significant interaction effects, follow-up tests on the CRS were conducted to further explore main effects of program and time (separately for the CLI and the Equinox students).

Students' performances on both the CBS and RSL led to no main effects for program or time and interaction effects between both factors ($p > .004$ for CBS and $p > .05$ for RSL). In other words, any changes of the students' responses to individual items on the CBS or the RSL did not vary over time or by the program they chose to par-

Table 2

Means and Effect Sizes by Program and Over Time

	Time 1			Time 2	Time 3			*d* (Time 3 – Time 1)	
	CLI	EQ	*d*	CLI	CLI	EQ	*d*	CLI	EQ
Connection to the Community	4.57	4.34	.29*	4.82	4.96	4.55	.57*	.53*	.26
I have a strong and personal attachment to a particular community.	4.16	4.25	-.07	4.65	4.79	4.29	.45	.53**	.03
I benefit emotionally from contributing to the community, even if hard and challenging.	4.94	4.63	.28	5.25	5.29	5.13	.18	.37	.46
I feel a personal obligation to contribute in some way to the community.	4.87	4.32	.46**	5.10	5.20	4.58	.57**	.34**	.20
I have a lot of personal contact with people in the community.	4.29	4.15	.12	4.30	4.55	4.21	.31	.23	.05
Civic Awareness	4.62	4.44	.29	4.88	5.04	4.73	57*	.65*	.41*
I often discuss and think about how political, social, local, or national issues affect the community.	4.63	4.41	.19	4.69	5.29	4.85	.50	.69***	.41
It is my responsibility to help improve the community.	4.80	4.46	.28	5.24	5.37	5.06	.31	.65***	.54
I am aware of the important needs in the community.	4.66	4.35	.29	4.70	4.71	4.56	.18	.05	.21
I am aware of what can be done to meet the important needs in the community.	4.21	4.08	.12	4.44	4.54	3.92	.59***	.33	-.14
Helping other people is something that I am personally responsible for.	4.51	4.64	-.12	4.96	5.04	4.80	.27	.53***	.16
It is easy for me to put aside my interest in favor of a greater good.	4.05	4.16	-.10	4.25	4.47	4.05	.41	.37	-.11
Becoming involved in political or social issues is a good way to improve the community.	5.18	4.57	.62**	5.28	5.49	4.95	.63***	.38	.37

Being concerned about state and local issues is an important responsibility for everybody.	4.88	4.56	.26	5.19	5.24	5.10	.15	.37	.45
Being actively involved in community issues is everyone's responsibility, including mine.	4.85	4.55	.24	5.18	5.39	5.00	.40	.57***	.43
I understand how political and social policies or issues affect members in the community.	4.47	4.51	-.03	4.82	5.06	4.70	.41	.58	.18
Civic Efficacy	4.23	3.98	.33*	4.46	4.51	4.18	.54*	.41*	.29
I participate in political or social causes in order to improve the community.	4.22	3.74	.39***	4.25	4.71	4.17	.46	.44	.34
Providing service to the community is something I prefer to let others do.	2.48	3.10	-.50***	2.59	2.29	2.63	.26	-.17	-.34
I feel I have the power to make a difference in the community.	4.76	4.35	.35	5.11	5.06	4.87	.23	.30	.51
I often try to act on solutions that address political, social, local, or national problems in the community.	4.05	3.87	.16	4.25	4.31	4.02	.26	.23	.13
I participate in activities that help to improve the community, even if I am new to them.	4.50	4.20	.27	4.61	4.71	4.20	.46	.19	.00
I try to encourage others to participate in community service.	4.32	3.97	.28	4.57	4.73	4.00	.59	.34	.02
I believe that I can personally make a difference in the community.	4.68	4.37	.27	5.03	5.12	4.78	.40	.46***	.39
I believe that I can have enough influence to impact community decisions.	4.01	3.68	.25	4.52	4.27	3.88	.33	.21	.16
I am or plan to become actively involved in issues that positively affect the community.	4.75	4.54	.42***	5.07	5.02	4.57	.45	.28	.24
I try to find time or a way to make a positive difference in the community.	4.48	4.31	.22	4.71	4.90	4.65	.24	.39	.39

Note. At Time 2, means only for the CLI students were available. *d* = Cohen's *d*.
*$p < .05$. **$p < .013$. ***$p < .005$.

ticipate in but were more likely due to chance. Thus, no further tests were conducted for those two surveys.

Preprogram Differences Between the CLI and Equinox Students on the CRS

As for civic responsibility, independent samples *t*-tests yielded significant mean differences between the CLI students and Equinox students in connection to the community, $t\ (224) = 2.19$, $p = .03$, and civic efficacy, $t\ (222) = 2.58$, $p = .01$, favoring the CLI students before participation in the CLI program. On civic awareness, no statistically significant difference was found between the two groups of students, $t\ (220) = 1.75$, $p = .08$. Effect sizes for the mean differences between the two groups for these three clusters were all small ($d < .5$).

Specifically, on connection to the community, a statistically significant difference, with a higher mean for the CLI students, was found for the item regarding "I feel a personal obligation to contribute in some way to the community," $t\ (225) = 3.51$, $p = .001$, with a medium effect size for the mean difference ($d = .46$). On civic efficacy, the CLI students had higher means on two items, "I am or plan to become actively involved in issues that positively affect the community," $t\ (225) = 3.22$, $p = .001$, and "I participate in political or social causes in order to improve the community," $t\ (225) = 2.98$, $p = .003$. Small effect sizes were found for the mean differences for these items ($d = .42$ and .39, respectively). One item, "Providing service to the community is something I prefer to let others do," yielded a higher mean score for the Equinox than the CLI students, $t\ (225) = -3.81$, $p = .000$, with a medium effect size ($d = -.50$) for the difference.

Postprogram Differences Between CLI and Equinox Students on the CRS

Six months after participation in each program, differences between the CLI and Equinox students in civic responsibility were statistically significant for connection to the community, $t\ (102) = 2.91$, $p = .00$; civic efficacy, $t\ (87) = 2.50$, $p = .01$; and civic awareness, $t\ (87) = 2.72$, $p = .01$. The CLI students had higher mean scores than the Equinox students on all of these total indices for the three com-

ponents of civic responsibility, with medium effect sizes for the mean differences ($.5 \leq d < .8$).

For connection to the community, one item, "I feel a personal obligation to contribute in some way to the community," $t\,(102) = 2.89$, $p = .005$, accounted for the higher mean score of the CLI students compared to the Equinox students. The effect size for the mean difference was medium ($d = .57$). For civic efficacy, despite higher average scores for the CLI students, no statistically significant differences ($p > .005$) were found between the two groups on individual items, although several items yielded medium effect sizes for the mean differences ($.5 \leq d < .8$). Individual items that accounted for the higher mean scores of the CLI students on civic awareness were "Becoming involved in political or social issues is a good way to improve the community," $t\,(87) = 3.00$, $p = .004$, and "I am aware of what can be done to meet the important needs in the community," $t\,(102) = 3.04$, $p = .003$. Both items yielded medium effect sizes ($d = .63$ and .59, respectively) for the mean differences between the two groups. See Table 2 for differences between the CLI and Equinox students in pre- and postprogram testing.

Changes Over Time on the CRS: CLI Students

The multivariate test resulting from the one-way repeated measures ANOVA yielded significant Wilks' Lambdas for connection to the community, Wilks' Lambda = .83, $F(2, 54) = 5.60$, $p = .01$, partial eta^2 = .17; civic awareness, Wilks' Lambda = .81, $F\,(2, 47) = 5.65$, $p = .01$ partial eta^2 = .19; and civic efficacy, Wilks' Lambda = .85, $F\,(2, 47) = 4.08$, $p = .02$, partial eta^2 = .15. About 15 to 19% of the variance of the CLI students' scores on these three clusters were associated with the administration time.

Paired samples *t*-tests confirmed significant differences by the administration time, indicating scores improved with each subsequent testing (from Time 1 to Time 3) on all three clusters except for one comparison on civic efficacy from Time 2 to Time 3, $t\,(48) = -1.68$, $p = .10$. On connection to the community, *t*-tests yielded significant increases in comparisons from Time 1 to Time 2, $t\,(113) = -2.25$, $p = .03$; Time 1 to Time 3, $t\,(55) = -3.35$, $p = .00$; and Time 2 to Time 3, $t\,(55) = -2.44$, $p = .02$. On civic awareness, significant increases from Time 1 to Time 2, $t\,(110) = -2.59$, $p = .01$; Time 1 to

Time 3, t (48) = -3.38, p = .00; and Time 2 to Time 3, t (48) = -2.51, p = .02, were found. On civic efficacy, significant increases were also found for comparisons between Time 1 and Time 2, t (110) = -2.78, p = .006, and Time 1 and Time 3, t (48) = -2.87, p = .006, but not from Time 2 to Time 3, t (48) = -1.68, p = .10.

When comparing the CLI students' performances on the initial testing (Time 1) to the last testing (Time 3), several items yielded statistically significant mean differences, favoring Time 3, with medium effect sizes for the mean differences ($.5 \leq d < .8$). Examples include "I have a strong and personal attachment to a particular community," (connection to the community), t (55) = -3.69, p = .001; "I often discuss and think about how political, social, local, or national issues affect the community" (civic awareness), t (55) = -3.41, p = .001; "It is my responsibility to help improve the community" (civic awareness), t (55) = -3.99, p = .000; and "I believe that I can personally make a difference in the community" (civic efficacy), t (48) = -3.61, p = .001. See Table 2 for more information.

Changes Over Time on the CRS: Equinox Students

Both the standard univariate ANOVA (sphericity assumed) and the alternative univariate tests (Greenhouse-Geisser, Huynh-Feldt) indicated that the Equinox students' responses for civic awareness varied significantly over time, F (1, 39) = 4.29, p = .04, partial eta^2 = .10, but not so for connection to the community, F (1, 47) = 2.74, p = .11, partial eta^2 = .06, and civic efficacy, F (1, 39) = 1.63, p = .21, partial eta^2 = .04.

Comparisons using paired samples t-tests confirmed the difference between Time 1 and Time 3 only on civic awareness, favoring Time 3 over Time 1, t (39) = -2.07, p = .04, with a small effect size. Although no statistically significant differences were found ($p > .005$), two items, "It is my responsibility to help improve the community" and "Being concerned about state and local issues is an important responsibility for everybody," had medium effect sizes (d = .54 and .45, respectively) with higher means for Time 3 than Time 1.

Discussion

Overall, findings showed that students who participated in the service-learning (CLI) program versus the accelerated academic (Equinox) program were significantly different both coming into the programs and 6 months following the programs in the area of civic responsibility, but there were no differences in civic behaviors or leadership skills between or within the two groups.

Major differences were found illustrating a higher level of civic responsibility for the students in the CLI program compared to the students in the Equinox program, both in initial testing (before participation in the programs) and in follow-up testing (6 months after participation in the programs). Specifically, the CLI students had a higher sense of connection to the community and civic efficacy in both periods of test administration than the Equinox students. Even before the program, the CLI students reported a greater level of obligation to the community and a greater level of engagement in social, political, and civic issues. Given the fact that summer academic courses for gifted students are generally self-selective, students who are interested in civic engagement are more likely to choose to participate in a service-learning program than in a fast-paced academic program such as Equinox.

Six months after the programs, the CLI students also indicated a stronger personal attachment to the community or obligation to contribute to the community and a greater belief in making a difference in the community. Also, the CLI students had a better awareness of political, social, and community issues 6 months after the program than the Equinox students. This was not the case before the program, when no difference between the two groups of students on these items was found. Activities in the CLI program were designed to educate students about complex social issues, help participants develop a long-term commitment to participate in civic affairs, and inspire students to continue to educate themselves and to take action on issues that their own communities face. Therefore, our results might be an indicator of the students' efforts to practice the skills that were promoted and developed in the program. The findings also support a previous study (Lee, Olszewski-Kubilius, Donahue, & Weimholt, 2006) revealing that academically gifted high school

students perceived their enhanced awareness and motivation to get involved in various civic issues as the most noticeable benefits from their participation in the CLI program. This is consistent with previous research documenting positive outcomes, such as a greater awareness of issues in the community and society at large, resulting from real-life experiences with service-learning projects or activities (Terry, 2000; Trebilcox, 1997; Willard, 1984).

Within-group comparisons confirmed that the level of civic responsibility of the CLI students, but not the Equinox students, was changed after participation in the CLI program. For the CLI students, positive changes were specifically found in students' attachment to their communities; awareness of political, social, and civic issues; and responsibility to help improve the community. One major goal of the CLI program is to inspire and equip students to become active participants in their own communities, and the students' desire to achieve this goal is a key measure of the success of this program. A greater sense of civic responsibility found for the CLI participants over time is likely a result of the students' increased understanding of political and social issues and ability to make connections to their own communities through their firsthand exposure and experience in the program. Similar findings were documented among other groups of gifted adolescents who reported greater understanding of other people and diversity among individuals (Lee et al., 2006; Smith et al., 1991; Terry, 2000), increase in desire to help other people (Lee et al., 2006; Terry, 2000; Trebilcox, 1997; Willard, 1984), and enhanced self-confidence and responsibility for their own communities (Chan, 2003; Lee et al., 2006; Terry, 2000) as a result of their service-learning experiences or participation in leadership programs.

We did not find any significant differences in leadership abilities resulting from participation in the CLI program. A previous study (Lee & Olszewski-Kubilius, 2006) also found no significant differences between students who participated in the CLI program and students who participated in the Equinox program in leadership, although both the CLI and Equinox students had higher levels of leadership skills compared to heterogeneous students in the norming group. Thus, this study did not support previous research (e.g., Willard, 1984) showing enhanced leadership skills as a positive outcome from service-learning experiences. Although leadership training

is one major component of the CLI program, activities in the program aim more for an understanding of real-life social issues occurring in local communities and around the world, and it may be difficult to affect changes in leadership in 3 weeks. Also, leadership is often considered as a separate area of giftedness, and, while often found at higher levels among academically gifted students, it is not clear that all academically talented learners also possess strong leadership abilities.

We also did not find any statistically significant differences between the two groups of students (CLI vs. Equinox) in civic behaviors (consisting of students' habits surrounding volunteer service or other civic activities), either before participation in the programs or 6 months after the programs. The survey results following students' participation in each program showed that both the CLI and Equinox students were similar in hours spent on community service (70% vs. 67% spent fewer than 10 hours a month), frequency of talking with family or friends about politics (82% vs. 73% frequently or constantly) or social issues (82% vs. 71% frequently or constantly), self-evaluation of their volunteer service experiences (98% vs. 94% moderate or above), and likelihood that they would register to vote at age 18 (97% vs. 90%). For most of the students, this was their first participation in a program like this, and thus, it may be difficult for a one-time experience with a service-learning program to induce changes in students' regular behaviors. Our time of assessment was also limited (6 months after the program), and it may be difficult to observe or measure changes in long-term behaviors such as voting or participation in community service in such a short period of time. Also, the homogeneity of students in both programs, based on their academic giftedness (measured by the SAT or ACT scores) and their socioeconomic status (i.e., most came from middle- to upper-middle class families with educated parents), might result in a similar level of engagement in regular civic behaviors.

Limitations

This study included the Equinox students as a comparison group for the CLI students. Although the CLI and Equinox students were similar in many respects, some significant differences were found

in students' civic attitudes before participation in each program, which made it difficult to know to what extent those initial differences induced differences obtained after the programs versus to what extent the later differences were a direct result of the impact of the programs. The only way to disentangle this would have been to assess students who applied to participate in the CLI and were not accepted or chose not to attend, something we could not do in this study.

This study followed up with students immediately after the end of the program and 6 months thereafter. The short time interval may not have been enough to bring about statistically significant changes in civic attitudes, behaviors, and leadership abilities among the participants. The participants are teenagers—high school students with busy school schedules. Six months after the program they were still in school and may not yet have been able to access volunteer or service-learning opportunities in their communities. Longer term investigations of the student participants would be needed to detect the full potential effects of the program.

Future Research

Longer term follow-up research with students who participated in this service-learning program on their further involvement in social, political, or civic issues in their communities is suggested. This would help understand how students' civic behaviors change with time and/or with continued exposure to service-learning activities.

Comparisons by the level of academic giftedness (profoundly gifted vs. moderately gifted) within the CLI students or between academically gifted students and nongifted students are other ways to explore and understand the nature of civic development for learners.

Exploring the relationship between the intensity of exposure to service-learning programs (e.g., participated multiple times vs. one time) and students' civic development may provide some insights about the level of exposure needed to significantly impact behaviors. Also, it would be interesting to know whether differences exist in students' civic attitudes and behaviors according to the type of service-learning activities, including volunteer activities, they choose to get involved in.

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Appendix A
List of Items for Each Survey

Civic Responsibility Survey (24 items)

I. Connection to the Community (4 items)

- Strong and personal attachment to a particular community
- Emotionally benefit from contributing to the community even if involved in hard and challenging work
- Feel a personal obligation to contribute to community
- Have personal contact with people in community

II. Civic Awareness (10 items)

- Discuss and think about how political, social, local, or national issues affect the community
- Helping to improve the community is my responsibility
- Aware of important community needs
- Aware of how important community needs can be met
- Personally responsible for helping other people
- Easy to put aside self-interest in favor of a greater good

- Involvement in community or social issues is a good way to improve the community
- Responsibility for everybody to be concerned about state or local issues
- Responsibility for everybody to be actively involved in community issues
- Understand how political and social policies affect members of a community

III. Civic Efficacy (10 items)
- Participate in political or social causes to improve community
- Prefer to let others provide community service
- Have the power to make a difference in the community
- Often try to act on solutions to political, social, local, or national problems in the community
- Participate in activities that improve the community, even if new to them
- Encourage others to participate in community service
- Can personally make a difference in the community
- Have enough influence to impact community decisions
- Am or plan to become actively involved in issues that impact the community
- Try to find a way or time to make a difference in the community

Civic Behavior Survey (13 items)

- Read newspapers/periodicals
- Sections of newspaper read
- Watch television
- Read books unrelated to school
- Talk about politics
- Vocally disagree over politics
- Talk about social issues
- Vocally disagree over social issues
- Quality of volunteer experiences
- Quality of volunteer contributions

- Encourage others to volunteer
- Hours of community service
- Vote when 18

Rating Scale For Leadership (26 items)

- Have strong convictions
- Promote what I believe
- Listen to both sides before making up mind
- Have self-confidence
- Able to say opinions in public
- Satisfied with my decisions
- Can go about work after criticism
- Like to be in charge
- Can see what materials are needed to complete project
- Can see what steps are needed to complete project
- Have courage when convinced
- Often lead in projects
- Think I can lead as well as other leaders
- Can speak to persons of authority
- Have energy to complete projects that I am interested in completing
- Understand others' viewpoints
- Willing to change mind
- Use anxiousness and excitability to complete task
- Can work with many types and personalities of people
- Understand plot of story or play, or main point of conversation
- Try new experiences when wise
- Know when to lead, when to follow, and when to move out of the way
- Admire people who have achieved great things
- Dream of leading myself or others to great accomplishment
- Feel at ease asking others for help or information
- Able to be "peacemaker" if wanted