

THE IMPACT OF SERVICE-LEARNING ON LEADERSHIP SKILLS OF STUDENTS WHO ARE GIFTED AND TALENTED IN THE MIDDLE SCHOOL

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Abstract

This research article summarizes a study that is based on surveys, observations, and interviews from students identified as gifted in the middle school. The student responses and the observations from the researcher and teacher of the gifted are related to the impact of service-learning on the students' leadership skills while the students planned the project in school and executed their goals out of school for their project. Findings show that most of the students in the study felt that their yearlong service-learning project positively impacted their leadership skills. The data reveals some grade, age, and gender variances in the post survey after the students spent time sharing ideas and implementing their goals for their service-learning projects. The contribution this study made to the existing literature in the gifted education is the considering of service-learning as a part of the gifted programming at the middle school level.

Introduction

Service-learning has increased in popularity across the United States for many years, as exemplified in the research conducted by the National Center for Educational Statistics (1999) in their *National Student Service-Learning and Community Service Survey*. At the time of the study, which was the first national-level study of service-learning in the United States' K-12 public schools, it was found that 64% of all public schools participated in community service activities, and 83% of those schools were high schools. Most of the schools surveyed believed that an outcome of service-learning consisted of the strengthened relationships between the students and the community.

Gifted education began at the beginning of the twentieth century, when the advancements in education and psychology provided credence for the field. Early studies of giftedness from the 1920-30s grew from research on mental inheritance, subnormal children, and construction of instruments to measure intelligence. This led to an understanding that schools may not meet the needs of all children. Lewis Terman and Leta Stetter Hollingsworth were leaders in the movement to support gifted education, and they also conducted some of the first widely publicized research studies on gifted children.

Community service is now a requirement in many high schools and colleges throughout the country. In the *Campus Compact Annual Service Statistics* of 2011, it was noted that among the 697 college campuses surveyed, 2,174,470 students participated in some form of service, and 47,454 service-learning courses were taught (Campus Compact, 2011). Therefore, it is reasonable to consider that service-learning may be beneficial for students who are gifted to be engaged in earlier than high school. By working in their communities through service-learning, they would be more prepared to address global issues, such as social, political, economic, and environmental, from previous experiences of volunteering and making a difference. Service-learning can impact and enhance the demonstration of

their leadership skills. To date, there has been little research on how students in gifted programs in middle schools exhibit this phenomenon, so that has become the direction of this study.

The purpose of this study is to survey the general effects of service-learning and, more specifically, the demonstration of leadership skills by middle school students in gifted programs. This study examines the students who have been identified as gifted in a middle school, observing the rate of their demonstration of leadership skills when participating in service-learning.

The National and Community Service Trust Act of 1990 defined service-learning as a method by which students learn and develop through curriculum integration and active participation in service experiences that are organized and address needs of their community. Newly acquired skills can be applied to real-life situations and can foster a sense of caring for others (National and Community Service Trust Act, 1990). The history of the development of service-learning dates back to 1903, when the Cooperative Education Movement was founded at the University of Cincinnati. In 1905, William James and John Dewey created the intellectual foundations relative to service-learning. In 1915, some folk schools in Appalachia became two- and four-year colleges that connected work and service. From 1933 to 1942, the Civilian Conservation Corps (CCC), which was created by Franklin D. Roosevelt, consisted of youth who restored national parks, improved the economy, and supported themselves and their families. In 1961, President John F. Kennedy set up the Peace Corps, which was accompanied by legislation to support it. Then, in 1961, President Lyndon B. Johnson developed VISTA, a National Teacher Corps, and the Job Corps, which gave Americans full-time employment to assist low-income communities. In the 1970s, the Youth Conservation Corps had 38,000 youth involved in summer environmental programs. The “Three Principles of Service-Learning” was published in 1979 in the *Synergist*. Through the 1980s, national efforts in service-learning occurred at the grass roots level, which included service programs in higher education to develop future leaders through opportunities to serve communities. President George Bush created the Office of National Service in the White House Points of Light Foundation, which was developed to enhance volunteering. Since then, President Bill Clinton signed legislation, which supported service-learning opportunities, and the University of Colorado provided networking options through the Internet.

The definition of service-learning applies to a method of instruction which combines learning with community service. There are several levels of community service, ranging from surface to in-depth involvement. “Service” refers to unpaid assistance for individuals, organizations, communities, or the environment, and “learning” is the organized set of efforts that promotes new skills and knowledge, especially related to having an in-depth understanding of social problems (Gray, Ondaatje, Fricker, Geshwind, Goldman, Kaganoff, Robyn, Sundt, Vogelgesand, Klien, Campbell, & Rosenblat, 1999). In addition, there are academic benefits as well as civic responsibility that can be outgrowths of the goals of service-learning.

National statistics that support the use of service-learning in education, such as those represented by *Growing to Greatness: The State of Service-Learning Project* (2004). It was the first one of its kind to study service-learning from a K-12 perspective. Some of the statistics data include:

- 69% of K-12 public schools engage students in community service
- 30% of K-12 public schools involve students in service-learning
- principals from low-income communities say that service-learning positively affects academic achievement and school engagement
- 8 out of 10 principals say that service-learning has a positive impact on academic achievement, teacher satisfaction, school climate, and the community’s view of youth as resources.

THE IMPACT OF SERVICE-LEARNING ON LEADERSHIP SKILLS OF STUDENTS WHO ARE GIFTED AND TALENTED IN THE MIDDLE SCHOOLS

Service-Learning and Leadership

The research connected to service-learning and leadership development points out the benefits that young people gain from involvement in service-learning. For example, one study discussed service-learning and the development of leadership skills as having a possible effect on learned helplessness and service-learning's empowerment for youth (Mueller, 2005). The potential effect of service-learning and leadership for can be powerful. A technology education student involved in various service-learning experiences, found service-learning and the leadership development it provided a "teaching strategy that can enrich student learning, enhance teaching, and revitalize the community" (Moser, 2005, p. 21).

Most of the research on service-learning and leadership has been conducted at the college level. More emphasis could be directed toward grades K-12, since there is a national interest in providing quality experiences in service-learning to younger students, as evidenced in previous studies. One study of note surveyed 230 academically talented adolescents, and analyzed the effects of a service-learning program on civic attitudes and behaviors. Students who participated in the service-learning program demonstrated enhanced civic responsibility, especially in their awareness of civic issues and commitment to community. The researchers felt a more long-term study was needed to examine what kinds of service-learning the students preferred (Lee, Olszewski-Kubilius, Donahue, & Weimholt, 2007).

Gifted Students and Service-Learning

Currently, students who are identified gifted participate in service-learning through the community service requirement in many high schools throughout the United States. Some students who are gifted and in the middle schools participate in service-learning through various levels of involvement, but it is not a requirement of either the school system or the gifted programs that are offered. The research related to both service-learning and its impact upon students who are gifted and in middle school is limited. One case study design consisted of gifted adolescents who participated in community action service-learning projects. The perspectives of the students involved pointed out the appropriateness of service-learning as being suitable to the concept of differentiated curriculum, as well as noting the benefits related to personal and social development, commitment, and empowerment (Terry, 2000). Despite the inability of most schools to provide experiences beyond the classroom in service-learning, the obvious potential for service-learning opportunities to enhance character traits for students who are gifted remains promising.

An article about the trends in secondary schools for the education of gifted students addressed the benefits of service-learning for this population. The service-learning can benefit not only students who are identified gifted but also bright and highly motivated students, especially in regard to self-esteem and self-efficacy (Terry, 2000). According to Karnes and Bean (1996), extracurricular activities provide real-life options for students to practice leadership skills. Since middle school students, including those who are gifted, struggle with significant issues in early adolescence related to their physical, psychological, and social changes, they often have been characterized as needing to explore a variety of interests, connect learning to practical life and work, and rely on friends to provide comfort, understanding, and approval (American School Counselor Association, 2012).

It is important to consider a service-learning component at the middle school level for students who are gifted. This is due in part as preparation for the national emphasis at the high school level for community involvement and to meeting the unparalleled need for leadership development in students who are gifted at the middle school level while they are still developing individual goals and directions

for the future. Competitions, such as Community Problem-Solving (CmPS) and others, are proven to motivate, enhance self-concept, address issues of subjectivity through real-world solutions, and provide opportunities for role modeling and adult supervision and support to occur. Competitions are by no means limited to students who are gifted and talented, since it has been found that all students should be allowed consideration for participation in competitive academics (Ozturk & Debelak, 2008).

Presently, there has not been much research on the effects of service-learning on students who are gifted at the middle school level, especially in regard to service-learning's effect on leadership development. The No Child Left Behind Act (NCLB, 2001) legislation emphasizes math and science scores to increase. It is understandable that a concentration on the development of problem-solving and leadership skills through service-learning experiences would be beneficial. The idea can be proposed that the sooner students are exposed to such opportunities, the better the students may make the connection to real-world experiences and the impact of being independent learners. With the reauthorization of the Individuals with Disabilities Education Act (IDEA, 2004), and having to meet standards such as the National Council for Accreditation of Teacher Education (NCATE), it may behoove those involved in the field of education to consider service-learning as an important component in any school system. Leadership development and service-learning are two possible areas of research, not just for students who are gifted, but for students of all abilities. The use of gifted pedagogy to infuse motivation and independence of each individual's learning may have a vital impact for students of all learning abilities to reach their truest potential (Renzulli, 2005).

This study was designed to garner information about how service-learning and leadership skills are developed by the students who are gifted in the middle school, and also whether leadership development is increased when participating in a service-learning experience. The program for the gifted students in most states has minimum requirements that must be met to service those students who are identified as gifted. Service-learning refers to any involvement in learning about and working in the community to resolve problems. For the purposes of this study, leadership skills refer to the leadership skills from the Scale for Rating the Behavioral Characteristics of Superior Students (Renzulli, Smith, White, Callahan, Hartman, & Westberg, 2002), which contributes to each individual's ability to design, implement, and sustain a service-learning project, and to use problem solving to identify and rectify the problems in the service-learning project as an individual and/or group. The leadership skills for the survey were modified from the Leadership section of the National Community Service Study that was developed by Brandeis University in 1995, and was part of a national study of schools and service-learning. Implications from these data may assist in creating service-learning experiences that are more beneficial for the parties involved, and have ramifications for educators as to the constructs of service-learning in general and how it is best incorporated into programs for middle school students who are gifted so they will be more prepared for future experiences. The research question to be investigated is the following: What is the impact of service-learning on leadership skills of students who are gifted and talented in the middle school?

Method

Participants and Settings

The participants were selected based on convenience, and consisted of sixth through eighth grade students who were identified as gifted. There were approximately 35 students who were identified gifted at this middle school, and there were boys and girls who ranged from the age of 11 through 14. All had

THE IMPACT OF SERVICE-LEARNING ON LEADERSHIP SKILLS OF STUDENTS WHO ARE GIFTED AND TALENTED IN THE MIDDLE SCHOOLS

been identified as gifted, which meant that they had qualified through intellectual and academic achievement tests to participate in the gifted program, and each student had an Individual Education Plan (IEP) that was developed to meet individual needs that were serviced outside of the realm of the regular classroom. The students were surveyed as to their perceptions related to the impact of service-learning, called Community Problem-Solving (CmPS) on their leadership skills.

There was a more intense observation of a smaller subgroup within this population, consisting of sixth through eighth grade students who were identified gifted. These students were selected from the larger group by a table of random numbers. This subgroup of students was observed while they were planning and executing their project. The location was determined to be on the outside campus of their school when they selected the topic of building a greenhouse at the beginning of the school year. The students participated in service-learning through Community Problem-Solving (CmPS), both in school and out of school. The students selected the community problem to address, identified goals and objectives, and devised an implementation plan to carry out during the school year. They also developed criteria by which to evaluate their project. CmPS, a yearlong service-learning project, is believed to foster leadership skills, and these skills were observed by both their teacher and the researcher, the students' own reactions to the pre and post survey, and individual interviews.

Measurement

The researcher examined the impact of service-learning (independent variable) on the leadership skills (dependent variable) of the sixth through eighth grade students who were gifted and talented. This was accomplished through a Single-Case experimental study, collecting both quantitative and qualitative data on the phenomenon through observation of the frequency and types of leadership skills in CmPS. Data collection included a survey, observation, and interview. This format of a mixed methods study was selected because it had the flexibility to assist in evaluating the effect of service-learning on the leadership skills due to its sensitivity to the small group of individuals that was observed. Target skills associated with leadership were operationalized, and both the teacher of the gifted and researcher observed the students in CmPS separately, keeping track of the frequency and types of the leadership behaviors. The students completed a pre and post survey, and interviews were conducted. These measures assisted in determining if leadership skills were occurring in the CmPS setting, and if there was any variance due to the grade levels, age, and genders of the students, according to the data gathered. Because there was direct observation involved, its strengths were that the observation occurred in real time and captured the event context. Weaknesses of the direct observations were that they were time consuming, some facts may have been missed, and the mere presence of the researcher may have caused change in the natural reactions of the students. The teacher of the gifted and the researcher independently completed the observation chart of the leadership skills to compare results and to establish inter-rater reliability. The strengths of the student pre and post survey were the same as those of the direct observation, and provided insight from the data gathered from the target participants and comparisons of the results. Weaknesses were similar to the direct observation, including bias due to investigator actions, intended or unintended. The interview strengths included targeting the study topic and providing perceived causal inferences. The weaknesses included the possibilities of poorly worded questions, response bias, incomplete recollection, and demand characteristics, where the student may express what he or she believes the interviewer wants to hear. The researcher selected leadership skills that were targeted across the surveys, observations, and interviews. These leadership skills may not be the only ones that could have been occurring during the study. It was hoped that the study would demonstrate that service-learning reliably produced a particular change in the students' behavior in the

CmPS setting. Experimental control was important in this study in order to establish if there was a consistent effect on the dependent variable by systematically manipulating the independent variable.

In order to assure the reliability and validity of the measures, the survey, observation chart, and interview questions were focused around the same items that would measure the impact of service-learning on leadership skills. The Leadership section from the National Community Service Study that was developed by Brandeis University in 1995, and was part of a national study of schools, and service-learning was selected for this purpose. The content, criterion-related, and construct validity issues were assured in the present study through the selection of a portion of the Brandeis survey that is related to leadership, and the items were adapted to be measured across the survey, observations, and interviews of the participants in the study. In that manner, there was more likelihood that the results of the present study would measure whether service-learning was having an impact upon the students' leadership skills based upon the data collected from these three sources over the time of this study.

Internal consistency reliability for the survey was determined by calculating Cronbach's alpha for the results obtained. The concurrent validity of the survey was determined by the consistency of the results from the survey, observations, and interviews. The correlation between the survey results and results from the observations assessed concurrent validity. The relations between the interview results and the observations and survey results also assessed the concurrent validity of all three in a less formal manner. The less formal analysis consisted of determining if the students felt there was an impact from service-learning on their leadership skills across the three measures, and the extent to which the results from the survey, observations, and interviews related to each other in regard to the items that were consistent among all three measures.

Procedure

The data collection began with the sixth grade through eighth grade students in the gifted program completing a pre survey of their perceptions regarding service-learning, as their perceptions related to in-school and out-of-school experiences. Randomly selected sixth through eighth grade students were observed as they participated in service-learning through CmPS, yielding the frequency of leadership skills demonstrated by the individual students in that setting. Finally, the sixth through eighth grade students were interviewed on a one-to-one basis, to gain more rich impressions of their service-learning experiences. A post survey was also administered to see if there were any changes from the start to the end of the study.

The participants experienced the presence of the researcher during the planning and execution of the project, and understood that they were being observed. The names of the students remained anonymous, with only ages, grade level, and gender included in the surveys, observations, and interviews. The study was not sensitive in nature, did not include at-risk or special populations, and the participants' identities were protected. IRB permission, consent, and assent were received prior to the study. The study was completed during classes when CmPS was being planned or occurred. The teacher of the gifted and the researcher administered the pre-survey, observed specific skills in leadership through the observation chart, and interviewed the students. The teacher of the gifted child and the researcher compared the frequency of occurrence of leadership skills in the CmPS settings. The students participated in a survey related to the leadership skills at the beginning of the study and at the end of the study. Observations were completed, and then the students were interviewed. The data gathered from the survey, observations, and interviews were then analyzed to compare and contrast the results from the students as they participated in CmPS to determine if any common themes occurred when comparing the three sources of data collection. Details of the study from start to finish have been provided, so the

THE IMPACT OF SERVICE-LEARNING ON LEADERSHIP SKILLS OF STUDENTS WHO ARE GIFTED AND TALENTED IN THE MIDDLE SCHOOLS

procedures of this study could be easily replicated. Copies of the survey, observation chart, and interview questions are made included in the Appendices. The order of the procedures included (a) administering the pre-survey to the 6th through 8th grade students who are gifted, (b) observing randomly selected 6th through 8th graders who are gifted from that group during CmPS for several weeks, (c) interviewing the 6th through 8th grade students who are gifted in the last week of the study, and (d) administering the post-survey on the last day of the study to the initial group of 6th through 8th grade students. A checklist of the study plans was provided to the teacher of the gifted kids and the principal of the school, so they could verify that all of the procedures had been completed as stated, and they signed the checklist as a part of the verification process. This checklist was presented to both the teacher of the gifted students and the principal, before the study began. A researcher's journal was kept throughout the study.

The study consisted of the comparison of the in-school versus out-of-school data. Measures included within-subject Analysis of Variance (ANOVA), and measuring the frequency of the leadership skills as they occurred in the treatment, during the CmPS service-learning project. The study began when the treatment phase was starting. Therefore, the researcher and the teacher of the gifted students observed service learning as CmPS was being introduced. Treatment fidelity was assured through the details of the measures of the study. This design was used to answer the research question of whether or not there was an impact on leadership skills from CmPS service-learning (Kennedy, 2004). In addition, the students completed the survey at certain intervals, were observed, and were interviewed, in order to triangulate the data.

The data collected represented the impact that the service-learning had or did not have upon the leadership skills of the students who were the participants in the study during CmPS. The data was analyzed based upon the frequency of leadership characteristics that were observed as they related to the service-learning treatment during CmPS. The leadership characteristics referred to the ability to design, implement, and sustain a service-learning project, and to use problem-solving to identify and rectify the problems in the service-learning project as an individual and/or a group. The Leadership Characteristics section from the Scales for Rating the Behavioral Characteristics of Superior Students (Renzulli, et al., 2002) and the Brandies study were used to select leadership skills being observed directly for the survey, observation, and for open-ended questions during the interview. These sources were designed to obtain estimates of a student's characteristics in the area of leadership and were well suited to the research question, literature review, method, and design of this study. The results of the frequency of the behaviors were graphically displayed through figures that denoted the leadership skills during the times observed in CmPS. The mean frequency of the leadership skills in each observation environment was determined through analysis of the data. The trends found in the data determined if the research question produced the information to support a finding that there was an impact from service-learning on the leadership skills of the students in the study. These data can also analyze the differences in variability and level changes between the service-learning setting of CmPS and how the students from 6th-8th grades responded. From these results, there will be opportunity to determine if service-learning through CmPS had an impact upon the leadership skills of the students in the gifted program. Accordingly, service-learning would be a viable option for students who are identified as gifted and talented in the middle school.

Results

A middle school was selected as the site for this study. It was the only middle school that participated in CmPS, a yearlong service-learning project for students who are identified gifted. The school was located in a rural part of the county, has approximately 500 middle school students in grades 6 through 8, and more than half of the student population qualifies for free and reduced lunch. There was a wide variety of socio-economic backgrounds from impoverished to wealthy families. The students participated in CmPS for many years with the current teacher of the gifted. She also worked with most of the current middle school students at the elementary level, but did not do CmPS until they were in middle school. The researcher followed the students from the opening of the school year while they planned and executed some of the site activities for their CmPS service project.

The participants were students in the 6th through 8th grade identified gifted and whose parents provided consent for this study. Those students who assented were administered the survey prior to planning their community service project. The survey consisted of ten questions (see Appendix A: Service Learning Survey) for in-school and ten questions for out-of-school when planning and implementing service-learning. Both the researcher and the teacher of the gifted administered the same survey within a few days of each other to the same students in the 6th, 7th, and 8th grade who were identified gifted. There was very little difference in the overall responses and totals for the students between the surveys given on either day by the researcher or the teacher of the gifted.

The overall responses toward service-learning were favorable among the students in the pre survey. They were in the 6th through 8th grade, between 11 and 14 years old, and included males and females. The SAS System was used to run an Analysis of Variance (ANOVA) procedure to determine if there were any significant differences within (a) grades, (b) ages, or (c) genders among the students. It was found that there were no significant differences in the leadership skills responses among grades, ages, or genders. Since the students had only recently begun their service-learning project when the pre survey was administered, they may not have had much of an opinion as yet.

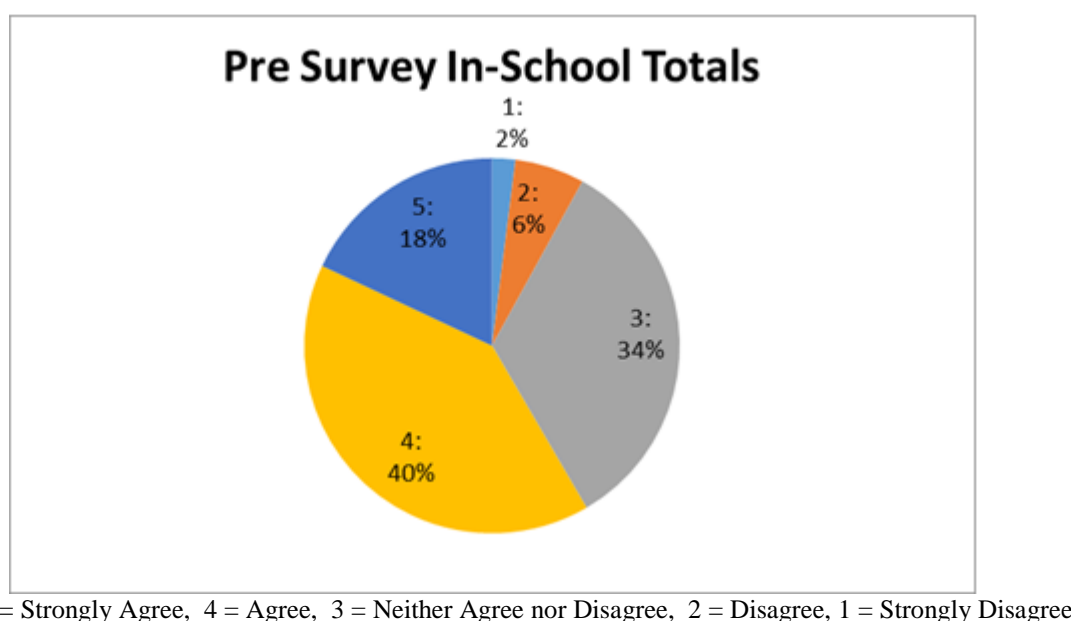
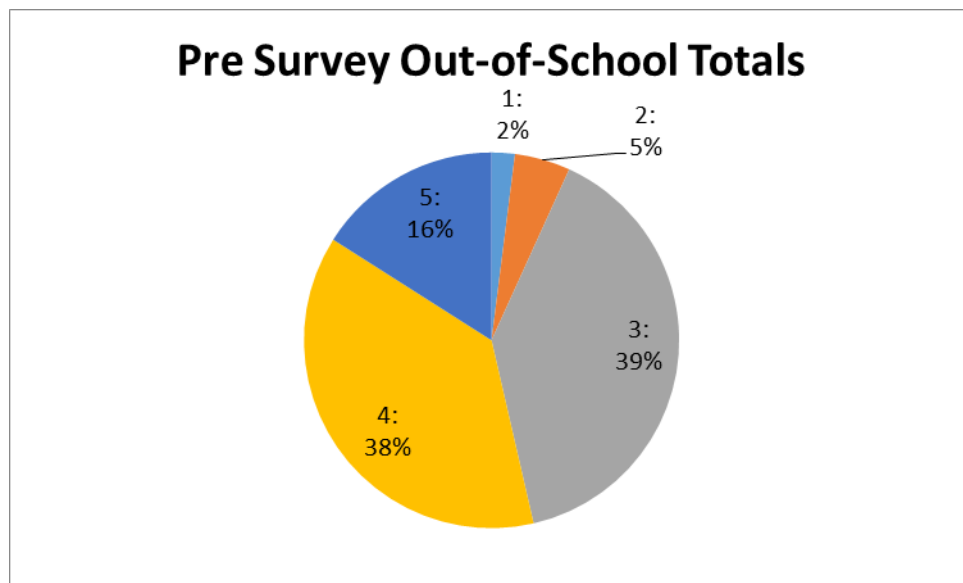


Figure 1: Pre Survey In-School Totals

THE IMPACT OF SERVICE-LEARNING ON LEADERSHIP SKILLS OF STUDENTS WHO ARE GIFTED AND TALENTED IN THE MIDDLE SCHOOLS

On the pre-survey, 18% of the students responded favorably to in-school planning of their service-learning project by selecting “Strongly Agree” to the items related to service-learning. Another 40% responded “Agree” to the items related to service-learning. The other responses were 34% “Neither Agree nor Disagree,” 6% “Disagree,” and 2% “Strongly Disagree.” Some of the most positive responses were to the items related to being aware of the needs in the community, believing students their age can make a difference, and continuing to do service-learning projects in-school (see Fig. 1).

The averages of the responses given by the participants related to the out-of-school pre survey, 16% of the students responded favorably to out-of-school planning of their service-learning project by selecting “Strongly Agree” to the items related to service-learning. Another 38% responded “Agree” to the items related to service-learning. The other responses were 39% “Neither Agree nor Disagree,” 5% “Disagree,” and 2% “Strongly Disagree.” Some of the most positive responses related to believing students their age can make a difference, knowing what skills are expected of a leader in service-learning, and continuing to do service-learning projects out-of-school (see Fig. 2).



5 = Strongly Agree, 4 = Agree, 3 = Neither Agree nor Disagree, 2 = Disagree, 1 = Strongly Disagree

Figure 2: Pre Survey Out-of-School Totals

There were five weeks of observation that followed the pre survey. Twelve students in grades 6 through 8 were randomly selected to be observed by both the researcher (see Fig. 3) and the teacher of the gifted (see Fig. 4) to establish inter-rater reliability. Week 1 consisted of discussing previous CmPS service projects, and brainstorming ideas for this year. In Week 2, the students brought in research for each of the brainstormed ideas, such as building a greenhouse on their school campus, adopting an African child and the child’s school, recycling, and Children’s Hospital. In Week 3, the students discussed their ideas and voted on their CmPS service project for the school year. They selected building a greenhouse on their school campus and composting from their school cafeteria. In Week 4, the students went out onto their school campus with a compass to determine the best placement for the greenhouse, which they decided would be 8 feet by 12 feet in size. They also secured a donation from a local builder for their project. In Week 5, they visited a greenhouse for a tour and to ask questions regarding their project.

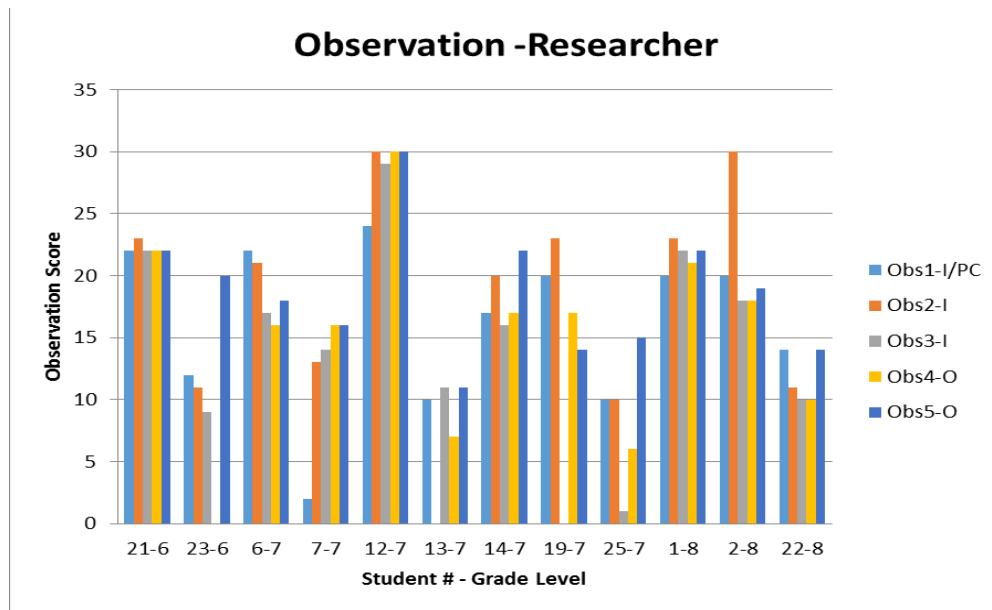


Figure 3: Observation by the Researcher

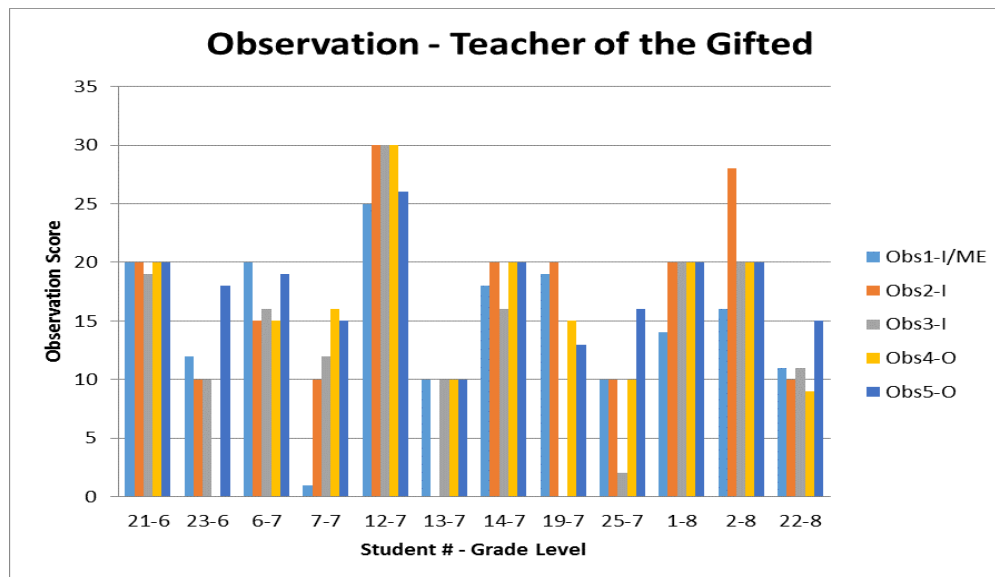


Figure 4: Observation by the Teacher of the Gifted

We found that there was not much difference in the observation results from the researcher (Fig. 3) and the teacher of the gifted (Fig. 4). Students who were in the 0-10 range on the bar graph were in the “Never” to “Rarely” range. Students who were in the 11-20 range on the bar graph were in the “Most of the Time” range. Students who were in the 21-30 range on the bar graph were in the “Always” range. Depending on the student, some demonstrated more leadership skills than others, while some did not exhibit leadership skills much or at all. For example, participants 21-6, 12-7, 1-8, and 2-8 exhibited leadership skills during service-learning “Most of the Time.” Participant 12-7 also exhibited strong tendencies for leadership over the entire observation period. The leadership skills observed included contributing ideas to their service-learning project, discussing and applying ideas, working with others,

THE IMPACT OF SERVICE-LEARNING ON LEADERSHIP SKILLS OF STUDENTS WHO ARE GIFTED AND TALENTED IN THE MIDDLE SCHOOLS

and confidence in expression of their opinions and ideas in the group (see Appendix B: Service-Learning Observation).

For the post survey, the overall responses toward service-learning were favorable among the students. The students were in the 6th through 8th grade, between 11 and 14 years old, and included males and females. The SAS System was used to run an Analysis of Variance (ANOVA) procedure to determine if there were any significant differences within (a) grades, (b) ages, or (c) genders among the students' leadership skills responses for in-school and out-of-school experiences.

In regard to grade for in-school responses for the post survey, in-school Item 1 had a trend toward significance, having an F value of 2.48 and probability of 0.10. Item 1 related to being "aware of needs in my community that I can do something about." For this item, students in grade 7 tended to select "Agree" and "Strongly Agree" more than those in grade 6 and 8.

In regard grade for out-of-school responses, Item 2 had significant difference, having an F value of 3.30 and a probability of 0.04. Item 2 is related to believing "I personally can make a difference in my community." For this item, students in grades 6 and 7 selected "Agree" and "Strongly Agree" more than those in grade 8. Also, Item 5 had significant difference, having an F value of 5.78 and a probability of 0.01. Item 5 is related to knowing "what resources are available to help me with a service-learning project." For this item, students in grades 6 and 7 selected "Agree" and "Strongly Agree" more than those in grade 8.

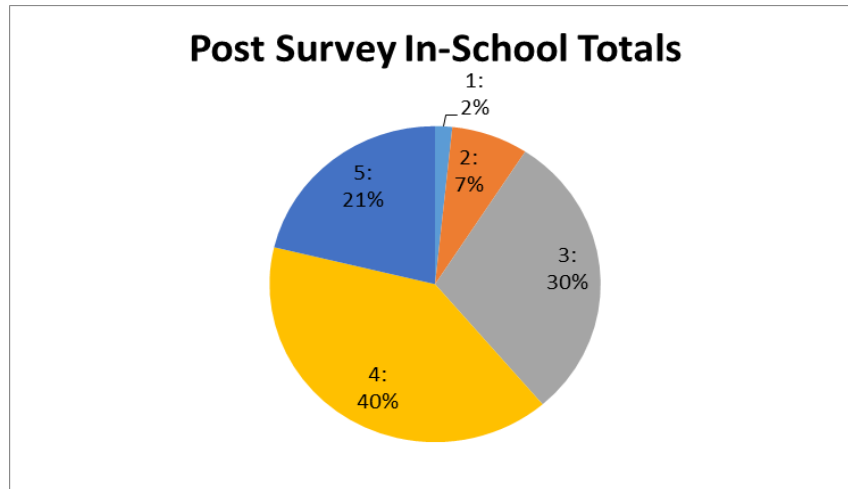
In regard to age, there was not a significant difference for the in-school responses. However, for the out-of-school responses, Item 5 had significant difference, having an F value of 3.21 and a probability of 0.04. Item 5 is related to knowing "what resources are available to help me with a service-learning project." For this item, students who were 11 and 12 years old selected "Agree" and "Strongly Agree" more than those who were 13 and 14 years old. Also, Item 9 had a trend toward significance, with an F value of 2.50 and a probability of 0.08. Item 9 is related to being "committed to service-learning both now and later in life." For this item, students who were 11 and 12 years old selected "Agree" and "Strongly Agree" more than those who were 13 and 14 years old.

When it comes to gender for in-school responses, Item 4 had a significant difference, with an F value of 4.38 and a probability of 0.04. Item 4 is related to knowing "how to design and implement a service-learning project." For this item, males selected "Agree" more than females, and females selected "Strongly Agree" more than males. Also, Item 10 had a trend toward significance, with an F value of 3.11 and a probability of 0.09. Item 10 is related to wanting to "continue doing service-learning projects in school." For this item, males selected "Agree" more than females, and females selected "Strongly Agree" more than males. In the observations, the researcher noticed the females tended to assume more leadership roles than the males in most cases, volunteering to take notes, lead the class in discussing and organizing their ideas, and making suggestions for the CmPS service project.

The changes from not having significance in the pre survey to having some significance in the post survey could be due to the fact that the students became involved in the selection, planning, and implementation of their service project after the pre survey. Their level of involvement may have increased among grades, age, and gender, which could explain the examples of significance described earlier.

Of the averages of the responses given by the participants related to in-school for the post survey, 21% of the students responded favorably to in-school planning of their service-learning project by selecting "Strongly Agree" to the items related to service-learning. Another 40% responded "Agree" to the items related to service-learning. The other responses were 30% "Neither Agree nor Disagree," 7% "Disagree," and 2% "Strongly Disagree." Some of the most positive responses related to adults being

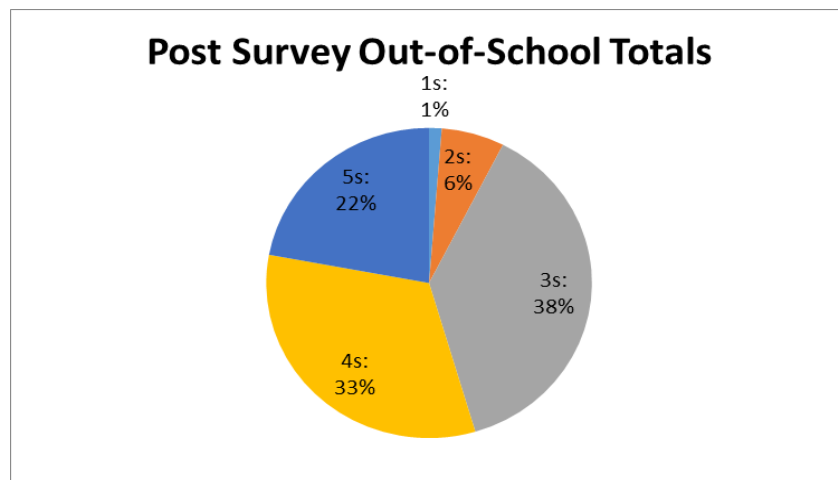
supportive of their efforts, believing students their age can influence and impact the community, and continuing to do service-learning projects in-school (see Fig. 5).



5 = Strongly Agree, 4 = Agree, 3 = Neither Agree nor Disagree, 2 = Disagree, 1 = Strongly Disagree

Figure 5: Post Survey In-School Totals

Of the averages of the responses given by the participants related to the out-of-school post survey, 22% of the students responded favorably to out-of-school execution of their service-learning project by selecting “Strongly Agree” to the items related to service-learning. Another 33% responded “Agree” to the items related to service-learning. The other responses were 38% “Neither Agree nor Disagree,” 6% “Disagree,” and 1% “Strongly Disagree.” Some of the most positive responses related to adults being supportive of their efforts, believing students their age can influence and impact the community, and believing that they can personally make a difference in their community (see Fig. 6).



5 = Strongly Agree, 4 = Agree, 3 = Neither Agree nor Disagree, 2 = Disagree, 1 = Strongly Disagree

Figure 6: Post Survey Out of School Totals

THE IMPACT OF SERVICE-LEARNING ON LEADERSHIP SKILLS OF STUDENTS WHO ARE GIFTED AND TALENTED IN THE MIDDLE SCHOOLS

When comparing the pre-survey and post-survey results, the students responded even more favorably in regard to service-learning impacting their leadership skills in the post survey. This was noted in the increase for both the in-school responses and out-of-school responses on the post survey. Finally, all of the students who participated in the study were interviewed by the researcher after the post survey (see Appendix C: Interview Form). The responses were analyzed for themes.

Question number 1 was “How can you make a difference in your community through service-learning?” Common themes among grade, age, and gender included “improving the lives of others,” “raising money for them,” and “making them happy.” Question number 2 was “Has service-learning improved your leadership skills? If so, how?” Some common themes among grade, age, and gender overwhelmingly included “comfortable speaking with others and sharing ideas,” “increased confidence,” and “learning to solve problems on my own.” Question number 3 was “Is there another area of gifted programming or regular education that has provided you with the same leadership skills as service-learning?” Most of the students responded “No,” but some said that Future Problem-Solving, Sports, First Lego League, Student Council, and Boy Scouts provided some of the same leadership skills of team work, critical thinking, and problem-solving. All of the participants were asked if they viewed CmPS service-learning positively, neutrally, or negatively. All but two responded “positively,” and the two who responded “neutrally” said they did so because they were not far enough into the project to formulate an opinion as yet.

Conclusions

In summary, this study was designed to determine the impact of service-learning on the leadership skills of students who are gifted and talented in the middle school. Research in the field suggests that students who are gifted benefit from the development of leadership skills. CmPS is a yearlong service-learning project that can develop leadership potential over time. Some of the benefits include empowerment for youth, civic responsibility, and leadership skills. Service-learning can also be suitable for the concepts of differentiated curriculum, personal and social development, and commitment to tasks that are cultivated in gifted education.

The research question was “What is the impact of service-learning on the leadership skills of students who are gifted and talented in the middle school?” The methods used were pre and post surveys, observations, and interviews. The study was conducted at a middle school, the only school in the county that participated in a yearlong service-learning project called Community Problem-Solving, or CmPS. The students started their service-learning project at the beginning of the school year, and decided to build a greenhouse for the school campus and start composting from their school cafeteria. They secured a donation for an 8x12 foot greenhouse kit, and visited a greenhouse to learn about building and maintaining a greenhouse that would suit the needs of their school. The students created a site on “Donor’s Choose,” a non-profit website where they received donations for materials for the greenhouse, such as pots, soil, plants, and shelves. It was their idea to raise potted plants to sell, grow vegetables to donate to the needy, and possibly experiment with other ideas with the science department at their school. The students felt that being on campus to do their service-learning project made it easier for more of the students to participate, since one area of difficulty for them in the past was getting to the out-of-school site for their service project for CmPS.

The pre-surveys were administered at the outset of the CmPS service project at the beginning of the school year. The results indicated that the students seemed to favorably view the impact of service-learning on their own leadership skills, whether planning the project in-school or implementing their goals for the project out-of-school. Then, 12 of the students were randomly selected to be observed to

gather further data as to the impact of service-learning on the leadership skills of students who are gifted and talented. All of the students in the study were then interviewed by the researcher, one on one. At the end of this investigation, all of the students were administered the post survey to determine if their opinions had stayed the same or changed in any manner as a result of selecting, planning, and implementing the goals and objectives of their service-learning project.

There were some consistent themes among the surveys, observations, and interviews in the study. Many of the students felt that a yearlong service-learning project through CmPS gave them confidence to share their ideas and opinions with a group of their peers, helped them become aware of and have an impact on their community needs, and be able to make a difference through their problem-solving skills. Because it was a yearlong service-learning project, the interest and engagement of the students was sustained over a long period of time. In the interviews, the students overwhelmingly agreed that not many other areas of gifted education, regular education, or extracurricular activities could provide them with the same leadership skill development as their service-learning project through CmPS. In addition, CmPS involves research, team work, high order thinking skills, and technical writing skills. Extending this study across the entire school year would have provided more insight into the “life cycle” of their service-learning project. It would have been interesting to see if there was any change over time with the students who were gifted and talented as to how they viewed the impact on their leadership skills by the end of the school year.

For future studies regarding the impact of service-learning on the leadership skills of students who are identified gifted and in the middle school, it would be worthwhile to consider a larger pool of participants at schools that are in rural, urban, and suburban areas. This study could also be replicated with students who are in the regular education and special education classrooms, to compare the results among the populations of varying abilities. Other leadership skills could be examined when developing the pre and post surveys, observations, and interviews, or added to the existing forms to provide more data and examine if there is a greater impact on leadership skills if more items relating to leadership skills were considered. For example, academic, social, and civic domains of service learning and leadership skills could be examined. Another recommendation would be to eliminate the neutral ranking on the pre- and post-survey, leaving a 4-point scale of “Strongly Agree,” “Agree,” “Disagree,” and “Strongly Disagree” as the choices. Also, such a study might be considered for a statewide, nationwide, or even an international study of students in the gifted program in the middle school who are participating in CmPS service projects. Since CmPS is a nationwide as well as a worldwide program, it would be meaningful to determine if similar results would be found larger scale studies. There may be some cultural differences if this investigation was conducted in an international context.

Based on the results from the data collected in the surveys, observations, and interviews, it appears that service-learning positively impacts the leadership skills of middle school students who are gifted and talented. Leadership skill development is an important feature in gifted education, and a study of larger scale may produce more evidence to support it. In the future, consideration of service-learning as a programming option in gifted education for middle school students would be an important strategy to develop leadership skills. It is an exciting possibility to enhance the potential of our future leaders! ■

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THE IMPACT OF SERVICE-LEARNING ON LEADERSHIP SKILLS OF STUDENTS WHO ARE GIFTED AND TALENTED IN THE MIDDLE SCHOOLS

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Appendix A: Service-Learning Survey

Thank you for your willingness to complete this survey.

Grade Level _____ Age _____ Gender _____ Date _____

Please read the following survey items, and respond using the following scale:

5 – Strongly Agree 4 – Agree 3 – Neither Agree nor Disagree 2 – Disagree 1 – Strongly Disagree

The first 10 questions refer to In-School Experiences in regard to my service-learning project.

I am aware of needs in my community that I can do something about. _____

I believe I personally can make a difference in my community. _____

I believe students my age can influence and impact the community. _____

I know how to design and implement a service-learning project. _____

I know what resources are available to help me with a service-learning project. _____

I feel most adults are supportive of my efforts in service-learning. _____

I am confident in expressing my opinions and ideas in front of my group. _____

I know what skills are expected of a leader in the service-learning project. _____

I am committed to service-learning both now and later in life. _____

I would like to continue doing service-learning projects in-school. _____

Please provide any comments you feel are relevant to service-learning as it pertains to In-School experiences:

The second 10 questions refer to Out-of-School Experiences (on site) in regard to my service-learning project.

Please read the following survey items, and respond using the following scale:

5 – Strongly Agree 4 – Agree 3 – Neither Agree nor Disagree 2 – Disagree 1 – Strongly Disagree

I am aware of needs in my community that I can do something about. _____

I believe I personally can make a difference in my community. _____

I believe students my age can influence and impact the community. _____

I know how to design and implement a service-learning project. _____

I know what resources are available to help me with a service-learning project. _____

I feel most adults are supportive of my efforts in service-learning. _____

I am confident in expressing my opinions and ideas in front of my group. _____

I know what skills are expected of a leader in the service-learning project. _____

I am committed to service-learning both now and later in life. _____

I would like to continue doing service-learning projects out-of-school. _____

Please provide any comments you feel are relevant to service-learning as it pertains to Out-of-School experiences:

Thank you again for your participation!

THE IMPACT OF SERVICE-LEARNING ON LEADERSHIP SKILLS OF STUDENTS WHO ARE GIFTED AND TALENTED IN THE MIDDLE SCHOOLS

Appendix B: Service-Learning Observation

Grade Level _____ Age _____ Gender _____

Key: Never – 0 Rarely – 1 Most of the time – 2 Always – 3

Behavior Skill	Week
Identifies needs of community	
Contributes ideas to service- learning	
Contributes in planning service- learning	
Contributes to the design and implementation of the service- learning project	
Discusses and applies resources	
Works with other students and adults involved	
Confidence in expression of opinion and ideas in front of the group	
Demonstrates leadership skills involved in service- learning project	
Shows commitment to service-learning project	
Shows pleasure in service- learning	

Appendix C: Service-Learning Interview

Grade _____ Age _____ Gender _____ Date _____

How can you make a difference in your community through service-learning?

Has service-learning improved your leadership skills? If so, how?

Is there another area of gifted programming or regular education that has provided you with the same leadership skills as service-learning?

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