MEASURING THE IMPACT OF SERVICE-LEARNING IN HIGHER EDUCATION: HOW PERSONAL SET CHARACTERISTICS, ACADEMIC PERFORMANCE, AND CIVIC ENGAGEMENT INTERACT IN THE PRESENCE OF SERVICE-LEARNING

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ABSTRACT

Research dating back to Astin & Sax (1998) and Eyler, Giles, and Braxton (1997) has shown a clear connection between service-learning pedagogy and development of students’ personal set characteristics, increased civic engagement, and improved academic performance. This paper explores how those three factors interact in the presence of service-learning. Specifically, it considers whether a relationship between service-learning and increased personal set characteristics leads in turn to increased civic engagement and academic performance, or whether the three factors act independently in the presence of service learning. This study, which focused on higher education in Kansas, found that the three factors act independently in the presence of service learning. It found service learning had no impact on personal skill set, marginal negative impact on civic engagement, and statistically significant negative impact on academic performance. This paper considers possible explanations for these unexpected findings and recommends direction for further research in this area.
Literature Review

From the long heritage of research on how service-learning impacts personal skill set, academic performance, and civic engagement we know that service-learning can have a positive effect on students’ personal set characteristics development. (Astin & Sax, 1998; Eyler, Giles, & Braxton, 1997; Eyler & Giles, 1999). We also know that service-learning can have a positive impact on students’ academic performance (Astin & Sax, 1998; Eyler & Giles, 1999; Eyler, Root, & Giles, 1998). We furthermore know that service-learning increases civic engagement in terms of social responsibility and citizenship skills (Astin & Sax, 1998; Eyler & Giles, 1999; Eyler, Giles & Braxton, 1997).

What is not known is how personal development, academic learning, and civic engagement interact in the presence of service-learning. Research outside the realm of service-learning has found that specific personal set characteristics are valid predictors of strong academic performance (Bandura, 1986; Shell, Colvin, & Bruning, 1995). Based on that premise, this study considers whether service-learning changes the personal set characteristics linked to strong academic performance, and this in turn results in increased civic engagement and improved academic performance. It also explores whether improved academic performance or increased civic engagement can be seen even in the absence of change in the personal set characteristics.

This review looks at the existing research for each of the three areas: personal set characteristics, academic performance, and civic engagement. This provides a research foundation for each of the three areas independently. The literature review includes discussion of how research in each of these three areas relates to each other.
Personal Set Characteristics

The personal set characteristics associated with learning and strong academic performance have been documented in a long history of studies. Personality researchers have argued that personality traits account for a significant portion of variance in academic performance (Chamorro-Premuzic & Furnham, 2003; Duff, Boyle, Dunleavy, & Ferguson, 2004; Furnham, Chamorro-Premuzic, & McDougall, 2003; Komarraju & Karau, 2005; Marsh et al., 2006; Martin, Montgomery, & Saphian, 2006). From this research have emerged five basic personality factors, known as the big-five personality traits factors (McCrae & John, 1992): (1) Extraversion, (2) Agreeableness, (3) Conscientiousness, (4) Emotional Stability, and (5) Openness to Experience. Further studies have found a positive correlation between two of the big-five personality measures and academic achievement: openness and conscientiousness (Costa & McCrae, 1992; Diseth, 2003; Piedmont, 1998). The other major traits have shown less consistent associations with academic achievement (Martin et al., 2006).

Individuals high in conscientiousness are typically efficient, organized, reliable, responsible, persistent, thorough, and goal directed. Digman (1989) indicated that conscientiousness is the one of the big-five model that is most closely linked to a will to achieve. It was also the trait that served as the strongest predictor of academic performance, even after controlling for intelligence (Porpat, 2009).

McCrae and John (1992) described people high in openness as being artistic, curious, imaginative, insightful, original, and as having wide interests. Numerous studies have found openness to be a major correlate of academic achievement and success (Asendorph & Van Aken, 2003; Blickle, 1996; De Raad & Schouwenburg, 1996; Paunonen & Ashton, 2001), and learning motivation (Tempelaar, Gijselaers, Schim Van Der Loeff, & Nijhuis, 2007).
Beyond the big-five personality traits, research has also linked self-efficacy and empathy to improved academic performance. Studies that looked at self-efficacy can be traced back to the foundational work of Bandura (1986) that defined self-efficacy as a person’s “judgment of their capabilities to organize and execute courses of action required to attain designated types of performances.” Bandura’s theory holds that the beliefs people have about themselves influences the way they behave (Bandura, 1986). This extends to students in that those who believe they can do well experience higher motivation in terms of effort, persistence, and behavior (Pintrich & Schunk, 2002). Additional studies have found a relationship between high self-efficacy and strong performance on standardized tests (Shell, Colvin, and Bruning, 1995), writing performance (Bissell and Collins, 2001), and task persistence (Bouffard-Bouchard, 1990). Self-efficacy has also been found to be positively related to deep processing of subject material and negatively related to surface processing (Seifert & O’Keefe, 2001), which indicates that higher self-efficacy might increase critical thinking.

The fourth trait that research has consistently linked to improved academic performance is empathy, one’s vicarious experience of another’s emotional experience—or feeling what the other person feels (Mehrabian & Epstein, 1972). Bonner and Aspy (1984) discovered that students with strong GPAs (a measure of knowledge) were best able to construct empathic messages and responses. Stroessner, Beckerman, and Whittaker (2009) found students in a history class who participated in a role playing game exhibited greater empathy for the historical figures and also improved academic skills in the course. Pavey, Greitemeyer, and Sparks (2012) found that empathetic arousal is a strong predictor of helping behavior. This might be especially important in the current study in that empathy might interact with academic achievement more in a service-learning course than in more traditional courses. If students understand the receiver’s
need for the service (empathy), they might put more effort into learning the concepts needed to complete the service.

In view of these findings from previous research, this study measured changes in four personal skills characteristics: Openness, conscientiousness, self-efficacy, and empathy. Research has linked all four to improved academic performance. All four are also traits commonly seen in students who demonstrate high civic responsibility.

**Civic Engagement**

Specific definitions of civic engagement vary from study to study, but all those definitions share certain common characteristics. The two most common characteristics described in most civic engagement studies are good citizenship and civic responsibility. Just like civic engagement, good citizenship and civic responsibility are defined in different ways by different authors and even sometimes interchangeably (Williams, 2000), hence making it hard to review without inclusion of the authors’ biases. In terms of good citizenship, Walzer (1970) held that citizens come in kinds and degrees and that all men and women legally bound to the state are not in fact morally bound in the same way. Barber (1998) coined the terms thin democracy and strong democracy to describe this phenomenon of citizens being morally bound in different ways. Perry and Katula (2001) developed these ideas further with a definition of good citizenship along three dimensions: an individual’s motivations and skill, philanthropic and civic behaviors, and political behaviors. Battistonia (2002) developed a more detailed conceptual framework of good citizenship based on seven criteria: civic professionalism, social responsibility, social justice, connected knowing, public leadership, public intellectual and engaged/public.
In describing civic responsibility, Degelman (2000) holds that civic responsibility is not an intuitive process and therefore young people must learn to participate in democracy. Degelman’s framework for measuring civic responsibility is based on three criteria: Citizenship for democracy, participatory democracy and social responsibility. Gottleib and Robinson (2004), similarly describe civic responsibility in the context of social responsibility, civic engagement and community involvement.

Given these intertwined definitions of good citizenship and civic responsibility, this paper treats the two variables as the same thing and as two of the most common described attributes of civic engagement. This research particularly focuses on the impact of service-learning in changing self-efficacy and emotional empathy as it relates to increased civic engagement.

Eyler, Giles, and Braxton (1997) foundational study of 1,500 students in 20 colleges and universities showed that students who chose service-learning demonstrated more developed civic engagement than students who did not choose service-learning. Additionally, they found that participation in service-learning a student’s self-efficacy. They showed service-learning to be a predictor of student’s political participation skills, tolerance for others, empathy, and ability to remain open to new ideas. The work of Eyler, Giles, and Braxton (1997) shows the interconnectedness of increased personal set characteristics and increased civic engagement and that both are enhanced by service-learning.

Perry and Katula’s (2001) review of 37 empirical studies found a consistent and significant increase in individual self-efficacy and motivation following a service-learning project, directly related to the individual’s community connectedness and understanding of local social issues. Their review found that giving and volunteerism tended to increase in most of the service-learning studies analyzed, but it was not clear whether volunteerism would be sustained
over a period of time. However, the authors found no significant relationship between service-learning and voting behavior, and made no mention of a relationship service and increased civic engagement or improved academic performance.

Hamilton and Zeldin (1987) found students engaged in service-learning posted greater increases in political efficacy than student not involved in service learning. The work of Youniss, McLellan, and Yates (1997) followed students for 15 years or more into adulthood and found that students who participated in high school government or community service projects were more likely to vote or join community organizations as adults. This supports the view that exposure to service-learning at a young age can help build civic identity and a sense of social responsibility for the community’s well-being (Youniss, McLellan, & Yates, 1997). Melchior (1999) and Berkas (1997) learned that students who engaged in high quality service-learning programs showed an increase in the degree to which they felt aware of the community needs and their belief in making a difference for that community. Marby (1998) found that service-learning was most effective as a civic and academic pedagogy when students reported at least 15 to 20 hours of service and had sufficient interaction and reflection with supervisors. The work of Hunter and Brisbin (2000) showed that students who participated in service-learning tended to be more civically engaged.

The foundational work of Astin and Sax (1998) found an increase in civic engagement as measured changed in civic responsibility indicators as a result of service-learning. They measured 12 civic responsibility outcomes related to students’ commitment to action with regard to social problems and social justice. The results indicated that all the 12 civic responsibility outcomes were positively influenced by service participation with the majority of the outcomes having significantly different coefficients (Astin & Sax, 1998). Aslam, Jaffery, and Zaidi (2011)
used the civic responsibility survey developed by Andrew Furco (1998) in a study of 13 college girls who volunteered for community health projects for 26 hours during the spring semester and showed statistically significant improvements on measures of connection to the community, civic awareness and altitude, and civic action and efficacy (Aslam, 2011). Here again, the positive correlation between civic engagement and efficacy as a result of service-learning can be seen.

These studies show a clear relationship between service-learning experiences and increased civic engagement. In some studies, an association is also seen between civic engagement attributes and the personal skill-set characteristic of efficacy. This study will extend that research by looking at the interaction among improved personal set characteristics, improved academic performance, and increased civic engagement. Specifically this study will look at whether increased civic engagement occurs, as seen in previous studies, even in the absence of improved personal characteristics.

**Academic Performance**

Research findings on the relationship between academic performance and service learning are mixed, with studies supporting each side of the question. Findings showing a relationship between service-learning and academic performance stem back to the work of Astin and Sax (1998) that found the effect of service-learning on grade point average was small – about 0.1 grade points – but statistically significant. Among students in the study, 69% of those who had at least a B+ grade average in high school, were able to maintain that average in college. That compares to just 56% of similar students who had not participated in service. Gray’s (1998) study of Learn and Service America Higher Education institutions found slightly higher grade point averages and more course satisfaction among students in service-learning.
classes, with the greatest improvement among students who volunteered more than 20 hours per semester.

Vogelgesang and Astin’s (2000) quantitative longitudinal study of 22,000 students found that both course-based service-learning and generic community service were associated with higher college GPA, but the effect on GPA and writing was even stronger among service-learning students.

Research finding no relationship between academic performance and service-learning stems back to the foundational work of Boss (1994) that looked at the effect of community service on academic performance. The study showed students in the community service section did a better job of defining issues and were using more principled moral reasoning, but found no difference in course grades (Boss, 1994).

The work of Miller (1994) looked at the effects of service learning when service was not a class requirement, but optional. In this study service-learning students reported higher expectations for the class but their final grades did not differ from students who chose the non-service option. Likewise Hudson (1996) and Kendrick (1996) found no statistically significant difference in academic performance, although service-learning students in the Kendrick (1996) study demonstrated improved ability to apply course concepts to new situations.

Parker-Gwin and Mabry (1998) studied 260 students participating in three models of service learning found that when service is required rather than optional and especially when reflection is limited, service-learning can cause a decline in students’ view of the importance of community service. They found improved academic performance only when students participated in service learning voluntarily and who had the opportunity to reflect on their service and its connections to the course content (Parker-Gwin & Mabry, 1998).
The wide range of findings in the literature may have to do with sample size. In the larger studies academic benefits were more pronounced. In smaller studies it was difficult or impossible to see any academic benefit from student learning. Additionally, studies that found no academic benefit tended to rely on students’ self-reported perception of their academic growth. By contrast, studies that found an academic benefit tended to rely on objective measures such as course grade or semester grade point average.

This study relied heavily on objective measures of academic performance such as course grade and grade point average. It used a model to predict expected course grade and compared expected grades to actual grades. The prediction of student outcomes based on current and other previous academic performance has been studied extensively over the past 40 years. Eskew and Faley (1988) introduced the first full mathematical model for predicting performance in their study that looked at the first college-level financial accounting course. They found 54% of the variance in course examination performance could be explained by ability as measured by SAT scores, course effort as measured by the number of quizzes taken, previous and current academic performance as measured by college and high school grade point average and previous accounting or related experience. Of these factors, they found aptitude and effort to be dominant (Eskew & Faley, 1988).

Since then researchers have tried variations of the Eskew & Faley (1998) model and applied the model to a variety of classes, all with similar results. Borde (1998) applied the model to undergraduate marketing courses and found grade point average to be the strongest predictor of performance. Borde’s model did not include an independent variable for effort (Borde, 1998). Kalbers and Wienieit (1999) applied a more detailed model to introductory accounting classes but found once again that college academic performance (GPA) and aptitude (ACT/SAT score)
were the most prominent characteristics for explaining student performance. Kruck and Lending (2003) applied the Eskew and Faley (1988) model to an introductory information systems class and found motivation and GPA predict performance.

D’Souza and Maheshwari (2010) applied the Eskew and Faley (1988) model to an introductory management science course. They found grade point average, average homework score, attendance, and completion of a pre-calculus prerequisite to be the most important predictors.

Therefore, it is consistent from literature review that the key independent variables in predicting student course academic outcomes are aptitude as measured by SAT scores, preparation as measured by current grade point average and high school grade point average, and effort as measured in any of a variety of ways. This study relies on a model for expected academic performance based on current grade point average, high school grade point average, and student motivation as measured by percentage grade on homework assignments. By controlling for these factors this study will measure the effect of service learning on academic performance.

**Research Questions**

This quantitative study seeks to extend existing research by examining the relationship between service-learning and personal skill set, academic performance, and civic engagement. In particular, this exploratory study looks at whether there is a relationship between service-learning and changes in the personal skill set, and that those changes in turn relate to changes in academic performance or civic engagement, or whether the three areas react independently to the presence of service learning.
RQ1: Is there a relationship between service-learning and improved levels of personal set characteristics (or skills)?
   a. Hypothesis R\(_1\): There is a relationship between service-learning and improved levels of personal set characteristics (or skills).
   b. Hypothesis R\(_0\): There is no relationship between service-learning and improved levels of personal set characteristics (or skills).

RQ2: Is there a relationship between service-learning and improved civic engagement even in the absence of improved personal set characteristics?
   a. Hypothesis R\(_1\): There is a relationship between service-learning and improved civic engagement even in the absence of improved personal set characteristics.
   b. Hypothesis R\(_0\): There is no relationship between service-learning and improved civic engagement even in the absence of improved personal set characteristics.

RQ3: Is there a relationship between service-learning and improved academic outcomes even in the absence of improved personal skill characteristics?
   a. Hypothesis R\(_1\): There is a relationship between service-learning and improved academic outcomes even in the absence of improved personal skill characteristics.
   b. Hypothesis R\(_0\): There is no relationship between service-learning and improved academic outcomes even in the absence of improved personal skill characteristics.

**Methodology**

This quantitative study looked at the relationship among changes in personal skill set, changes in civic engagement, and improved academic performance in the presence of service-learning. The study used a pre-test and a post-test to measure changes in personal set characteristics and civic engagement. It used data collected from students, teachers, and
institutions to measure academic outcome for the target course against expected outcomes based on aptitude, ability, and effort.

Participants

Participants for this study were recruited from Midwestern institutions of higher learning with the help of Kansas Campus Compact personnel. It initially included 364 students from eight institutions of higher education in Kansas. Ultimately 139 students completed both a valid pre-test and a valid post-test. Of those 44 students completed full grade and academic background information to be included in the study of changes in academic performance. Institutions participating in the study included state universities, private universities, and community colleges.

Study participants ranged in age from 18 to 57, with the average age 22 and the median age 20. Of those, 77 (55%) were female and 60 (43%) were male. Thirty-seven percent were first-year students, 32% were sophomores, 16% were juniors and 15% were seniors.

The study included 80 (58%) students who were currently participating in service-learning classes and 59 (42%) who were currently in traditional classes. Of all students in the study, 62 (45%) reported having previously participated in at least one class where service was a part of the course requirements. Additionally, 89 (64%) of the students reported having participated in volunteer work in the past. There was wide variation in the kind of volunteer work reported.

Procedures

Data for this study was gathered from February 2012 through June 2012. Students in the study took a pre-service survey during the first three weeks of the spring semester and took the post-service survey during the last three weeks of the spring semester. Both the pre- and post-
service surveys were administered in the classrooms using an online survey instrument. Individual students were identified by student ID number so that pre- and post-test results could be compared without compromising the students’ privacy. Field testing determined that the survey took approximately eight minutes to complete electronically. In instances where computer access was not available in the classroom, students completed a paper copy of the pre- and post-service tests. SPSS was used to analyze the final data.

In addition to the pre- and post-service surveys, student academic data was collected from the students, from their instructors, and from their institutions. Specifically this study collected ACT scores, college grade point averages, and high school grade point averages, from the students and from the institutions. It also used course grades and homework grades for the course, both of which were collected from participating instructors.

The pre- and post-service survey included 10 questions from The Big Five Inventory (Rammstedt & John, 2007) to measure changes in personal set. Students rated themselves using a 5-point Likert scale. Rammstedt and John (2007) tested this abbreviated version of the full 44-question survey and found that although the effect sizes were lower for the 10-item, the results were still accurate and sufficient if time was limited.

The pre- and post-service survey included 16 questions from The Toronto Empathy Questionnaire (Spreng, McKinnon, Mar & Levine, 2009) to measure changes in empathy. Students rated themselves using a 5-point Likert scale. This instrument was found by Spreng, et al. (2009) to have strong validity and high test-retest reliability. Its brevity and high reliability and validity made it ideal for this study.

The pre- and post-service survey included 20 questions from The College Self-Efficacy Inventory (Solberg, O’Brien, Villareal, Kennel & Davis, 1993) to measure changes in self-
efficacy. Students rated themselves using a 10-point Likert scale. Self-efficacy is domain specific, related to specific tasks (Barry & Finney, 2009). The instrument selected for this study specifically measures a person’s self-efficacy in the realm of college life and academics. Barry and Finney (2009) found the measure to be both valid and reliable in measuring a student’s confidence in various aspects of college.

The pre- and post-service survey included 24 questions from The Civic Responsibility Survey (Furco, Muller, & Ammon, 1998) to measure changes in civic responsibility. This study used the Level 3 version of the survey that shows the highest overall reliability for high school students. Although not originally piloted for college students, the civic responsibility survey has recently been used for this level of students as well (Aslam et al, 2011).

The pre- and post-service surveys collected information from students regarding college grade point average, high school grade point average, and ACT score. This information was cross-referenced against college grade point average, high school grade point average and ACT score provided by the institution. College and high school grade point average were used to measure student ability. Standardized test data was not used in the data analysis for this study because only a small percentage of survey participants had taken either the SAT or ACT test. The course grade for homework for each student was collected from the participating instructors as a measure of effort. This follows the general model first established by Eskew and Faley (1988) and validated by several studies that replicated their results. (Borde, 1998; Kalbers & Wienstein, 1999; Kruck & Lending, 2003; D’Souza & Maheshwari, 2010). The resulting formula for expected course grades was:

\[
\text{SUM} = \frac{(\text{HSGPA} + \text{CGPA} + \text{HW})}{3}
\]

SUM = Expected course grade
HSGPA = High school GPA
Participating instructors provided end of course grades for each student. These were compared to the grades derived from the formula for expected course grades. Analysis showed a statistically significant correlation between expected course grade derived from the model and actual grade, validating the model for expected course. Course grades were slightly higher than expected with the mean for course grade at 3.118 compared to the mean for expected course grade at 2.67.

<table>
<thead>
<tr>
<th></th>
<th>N</th>
<th>Mean</th>
<th>Std. Deviation</th>
<th>Std. Error Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>CG</td>
<td>44</td>
<td>3.1182</td>
<td>1.62988</td>
<td>.24571</td>
</tr>
<tr>
<td>ECG</td>
<td>44</td>
<td>2.6741</td>
<td>1.11179</td>
<td>.16761</td>
</tr>
</tbody>
</table>

This study found no relationship between service-learning and personal set characteristics or service-learning and civic engagement. The study found a statistically significant negative relationship between service learning and academic performance. Following are details of these unexpected results in each of the three subject areas.

**Personal Set Characteristics**

For the first research question, is there a relationship between service-learning and improved levels of personal set characteristics, the null hypothesis was supported. An ANOVA analysis found no statistically significant relationship between service learning and personal set characteristics. (Table 1) Students in service-learning courses did not see greater increases in personal set characteristics than did students in non-service learning courses.
Table 1

Mixed ANOVA Results for Students’ Personal Characteristic Scores and Service-learning

<table>
<thead>
<tr>
<th>Variable</th>
<th>df</th>
<th>F</th>
<th>$\eta^2$</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Self Efficacy</td>
<td>1</td>
<td>.151</td>
<td>.001</td>
<td>.699</td>
</tr>
<tr>
<td>Empathy</td>
<td>1</td>
<td>.800</td>
<td>.006</td>
<td>.373</td>
</tr>
<tr>
<td>Openness</td>
<td>1</td>
<td>.286</td>
<td>.009</td>
<td>.272</td>
</tr>
<tr>
<td>Conscientiousness</td>
<td>1</td>
<td>1.218</td>
<td>.002</td>
<td>.272</td>
</tr>
</tbody>
</table>

For two of the personal set characteristics—openness and conscientiousness—mean scores for students enrolled in the non-service-learning courses increased more than mean scores for students in the service-learning courses. (Table 2)

Table 2

Mean Scores for Students’ Personal Set Characteristics

<table>
<thead>
<tr>
<th>Trait</th>
<th>Class Type</th>
<th>Pre-Test Mean</th>
<th>Post-Test Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>Self Efficacy</td>
<td>Service-learning</td>
<td>152.959</td>
<td>157.257</td>
</tr>
<tr>
<td></td>
<td>Non-Service-learning</td>
<td>150.000</td>
<td>152.759</td>
</tr>
<tr>
<td>Empathy</td>
<td>Service-learning</td>
<td>62.205</td>
<td>62.244</td>
</tr>
<tr>
<td></td>
<td>Non-Service-learning</td>
<td>65.526</td>
<td>64.596</td>
</tr>
<tr>
<td>Openness</td>
<td>Service-learning</td>
<td>3.513</td>
<td>3.450</td>
</tr>
<tr>
<td></td>
<td>Non-Service-learning</td>
<td>3.364</td>
<td>3.483</td>
</tr>
<tr>
<td>Conscientiousness</td>
<td>Service-learning</td>
<td>3.906</td>
<td>3.931</td>
</tr>
<tr>
<td></td>
<td>Non-Service-learning</td>
<td>3.983</td>
<td>4.068</td>
</tr>
</tbody>
</table>
Analysis of specific statements asked in survey questionnaires found significant differences between pre and post-test means for three questions. These differences were significant at more than a 95% confidence interval as shown in Table 3.

Table 3
Mean Scores for Significantly Different Statements Related To Personal Set Characteristics

<table>
<thead>
<tr>
<th>Statement</th>
<th>Trait</th>
<th>Pre-Test Mean</th>
<th>Post-Test Mean</th>
<th>Sig (T-test)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. When someone is excited, I tend to get excited too.</td>
<td>Empathy</td>
<td>3.582</td>
<td>3.824</td>
<td>0.030</td>
</tr>
<tr>
<td>2. When I see someone being mistreated unfairly, I do not feel much pity for them.</td>
<td>Empathy</td>
<td>1.774</td>
<td>1.938</td>
<td>0.037</td>
</tr>
<tr>
<td>3. Make new friends at college.</td>
<td>Self-Efficacy</td>
<td>7.735</td>
<td>8.113</td>
<td>0.040</td>
</tr>
</tbody>
</table>

Civic Engagement

For the second research question, is there a relationship between service-learning and improved civic engagement even in the absence of improved personal set characteristics, the null hypothesis was supported. An ANOVA analysis found no statistically significant relationship between service learning and improved civic engagement. (Table 3) Students in service-learning courses did not see greater increases in civic engagement than did students in non-service learning courses.

Table 4
Mixed ANOVA Results for Students’ Personal Set Characteristic Scores

<table>
<thead>
<tr>
<th>Variable</th>
<th>df</th>
<th>F</th>
<th>$\eta^2$</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Connection to Community</td>
<td>1</td>
<td>.641</td>
<td>.005</td>
<td>.425</td>
</tr>
<tr>
<td>Civic Awareness</td>
<td>1</td>
<td>1.910</td>
<td>.014</td>
<td>.169</td>
</tr>
<tr>
<td>Civic Efficacy</td>
<td>1</td>
<td>1.187</td>
<td>.009</td>
<td>.278</td>
</tr>
</tbody>
</table>
In every factor of civic engagement, mean scores for students in non-service-learning courses increase more than mean scores for students in service-learning courses. (Table 5)

Table 5
Mean Scores for Civic Engagement

<table>
<thead>
<tr>
<th>Trait</th>
<th>Class Type</th>
<th>Pre-Test Mean</th>
<th>Post-Test Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>Connection to</td>
<td>Service-learning</td>
<td>17.51</td>
<td>17.28</td>
</tr>
<tr>
<td>Community</td>
<td>Non-Service-learning</td>
<td>17.80</td>
<td>18.05</td>
</tr>
<tr>
<td>Civic Awareness</td>
<td>Service-learning</td>
<td>42.75</td>
<td>42.81</td>
</tr>
<tr>
<td></td>
<td>Non-Service-learning</td>
<td>41.63</td>
<td>43.44</td>
</tr>
<tr>
<td>Civic Efficacy</td>
<td>Service-learning</td>
<td>39.59</td>
<td>39.88</td>
</tr>
<tr>
<td></td>
<td>Non-Service-learning</td>
<td>37.67</td>
<td>39.47</td>
</tr>
</tbody>
</table>

Analysis of specific statements asked in survey questionnaires found significant differences between pre and post-test means for three questions. These differences were significant at more than a 95% confidence interval as shown in Table 6.

Table 6
Mean Scores for Significantly Different Statements Related To Civic Engagement

<table>
<thead>
<tr>
<th>Statement</th>
<th>Trait</th>
<th>Pre-Test Mean</th>
<th>Post-Test Mean</th>
<th>Sig (T-test)</th>
</tr>
</thead>
<tbody>
<tr>
<td>I often try and act on political, social or national problems in the community.</td>
<td>Civic awareness</td>
<td>3.399</td>
<td>3.651</td>
<td>0.019</td>
</tr>
<tr>
<td>I try to find time or a way to make a positive difference in the community.</td>
<td>Civic Efficacy</td>
<td>4.049</td>
<td>4.232</td>
<td>0.038</td>
</tr>
<tr>
<td>I understand how political, and social issues or policies affect members in a community.</td>
<td>Civic Awareness</td>
<td>4.055</td>
<td>4.195</td>
<td>0.057</td>
</tr>
</tbody>
</table>
Academic Outcomes

For the third research question, is there a relationship between service-learning and improved academic performance even in the absence of improved of personal set characteristics, the null hypothesis was supported. Although the study showed that a relationship exists it was found to be a negative correlation between service learning and course grade, significant at the .05 level. (Table 7) The mean course grade for service learning students was 2.64 compared to a mean course grade of 3.48 for non-service learning students. (Table 10 – Table 11) A step regression found that service learning accounted for 21.6% of course grade variance. (Table 8)

Table 7
Pearson Correlations Related to Academic Performance Model

<table>
<thead>
<tr>
<th></th>
<th>SL</th>
<th>CG</th>
<th>HCG</th>
<th>GPA</th>
<th>HSGPA</th>
<th>ECG</th>
</tr>
</thead>
<tbody>
<tr>
<td>SL</td>
<td>Pearson Correlation</td>
<td>1</td>
<td>-.257*</td>
<td>-.145</td>
<td>-.085</td>
<td>-.067</td>
</tr>
<tr>
<td>N</td>
<td>44</td>
<td>44</td>
<td>44</td>
<td>44</td>
<td>41</td>
<td>40</td>
</tr>
<tr>
<td>CG</td>
<td>Pearson Correlation</td>
<td>-.257*</td>
<td>1</td>
<td>.852**</td>
<td>.579**</td>
<td>.445**</td>
</tr>
<tr>
<td>N</td>
<td>44</td>
<td>44</td>
<td>44</td>
<td>41</td>
<td>40</td>
<td>44</td>
</tr>
<tr>
<td>HCG</td>
<td>Pearson Correlation</td>
<td>-.145</td>
<td>.852**</td>
<td>1</td>
<td>.502**</td>
<td>.374**</td>
</tr>
<tr>
<td>N</td>
<td>44</td>
<td>44</td>
<td>44</td>
<td>41</td>
<td>40</td>
<td>44</td>
</tr>
<tr>
<td>GPA</td>
<td>Pearson Correlation</td>
<td>-.085</td>
<td>.579**</td>
<td>.502**</td>
<td>1</td>
<td>.628**</td>
</tr>
<tr>
<td>N</td>
<td>41</td>
<td>41</td>
<td>44</td>
<td>41</td>
<td>40</td>
<td>41</td>
</tr>
<tr>
<td>HSGPA</td>
<td>Pearson Correlation</td>
<td>-.067</td>
<td>.445**</td>
<td>.374**</td>
<td>.628**</td>
<td>1</td>
</tr>
<tr>
<td>N</td>
<td>40</td>
<td>40</td>
<td>40</td>
<td>40</td>
<td>40</td>
<td>40</td>
</tr>
<tr>
<td>ECG</td>
<td>Pearson Correlation</td>
<td>-.216</td>
<td>.853**</td>
<td>.871**</td>
<td>.755**</td>
<td>.667**</td>
</tr>
<tr>
<td>N</td>
<td>44</td>
<td>44</td>
<td>44</td>
<td>41</td>
<td>40</td>
<td>44</td>
</tr>
</tbody>
</table>

*. Correlation is significant at the 0.05 level (1-tailed).

**. Correlation is significant at the 0.01 level (1-tailed).

CG = Course Grade  ECG = Expected Course Grade  HCG – Homeowork Grade  GPA = College GPA  HSGPA = High School GPA
Table 8
Step Regression for Academic Performance Model

<table>
<thead>
<tr>
<th>Model</th>
<th>Change Statistics</th>
<th>R Square Change</th>
<th>F Change</th>
<th>df1</th>
<th>df2</th>
<th>Sig. F Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td></td>
<td>.216&lt;sup&gt;a&lt;/sup&gt;</td>
<td>10.761</td>
<td>1</td>
<td>39</td>
<td>.002</td>
</tr>
<tr>
<td>2</td>
<td></td>
<td>.656&lt;sup&gt;b&lt;/sup&gt;</td>
<td>194.891</td>
<td>1</td>
<td>38</td>
<td>.000</td>
</tr>
<tr>
<td>3</td>
<td></td>
<td>.078&lt;sup&gt;c&lt;/sup&gt;</td>
<td>58.490</td>
<td>1</td>
<td>37</td>
<td>.000</td>
</tr>
<tr>
<td>4</td>
<td></td>
<td>.002&lt;sup&gt;d&lt;/sup&gt;</td>
<td>1.305</td>
<td>1</td>
<td>36</td>
<td>.261</td>
</tr>
</tbody>
</table>

a. Predictors: SL  
b. Predictors: SL, GPA  
c. Predictors: SL, GPA, HCG  
d. Predictors: SL, GPA, HCG, HSGPA

CG = Course Grade  
ECG = Expected Course Grade  
HCG = Homework Grade  
GPA = College GPA  
HSGPA = High School GPA

Comparing the service learning sample group to the non-service learning sample group, mean expected course grades are slightly higher for non-service learning students at 2.88 versus 2.4 for service learning students. For the components that make up expected course grade, the mean scores for college grade point average and high school grade point average were slightly higher for non-service learning students, suggesting students who were better prepared for college work. But the largest difference between the two groups was in course grade for homework, with the mean score at 2.8 for non-service learning students and the mean score for service learning students at 2.2. Course grade for homework is a measure of effort in this model, so the results suggest service learning students put somewhat less effort into the class than their non-service learning counterparts.
Table 9

*Academic Performance Descriptive Statistics of Non-Service Learning Students*

<table>
<thead>
<tr>
<th></th>
<th>N</th>
<th>Range</th>
<th>Minimum</th>
<th>Maximum</th>
<th>Mean</th>
<th>Std. Deviation</th>
<th>Variance</th>
</tr>
</thead>
<tbody>
<tr>
<td>CG</td>
<td>25</td>
<td>5.05</td>
<td>.00</td>
<td>5.05</td>
<td>3.4788</td>
<td>1.36350</td>
<td>1.859</td>
</tr>
<tr>
<td>ECG</td>
<td>25</td>
<td>3.52</td>
<td>1.04</td>
<td>4.56</td>
<td>2.8808</td>
<td>1.02441</td>
<td>1.049</td>
</tr>
<tr>
<td>HCG</td>
<td>25</td>
<td>5.00</td>
<td>.00</td>
<td>5.00</td>
<td>2.8004</td>
<td>1.96029</td>
<td>3.843</td>
</tr>
<tr>
<td>GPA</td>
<td>25</td>
<td>3.00</td>
<td>1.00</td>
<td>4.00</td>
<td>2.7840</td>
<td>.77217</td>
<td>.596</td>
</tr>
<tr>
<td>HSGPA</td>
<td>25</td>
<td>2.54</td>
<td>1.36</td>
<td>3.90</td>
<td>2.8698</td>
<td>.66934</td>
<td>.448</td>
</tr>
<tr>
<td>Valid N (listwise)</td>
<td>25</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

CG = Course Grade  
ECG = Expected Course Grade  
HCG – Home-work Grade  
GPA = College GPA  
HSGPA = High School GPA

Table 10

*Academic Performance Descriptive Statistics of Service Learning Students*

<table>
<thead>
<tr>
<th></th>
<th>N</th>
<th>Range</th>
<th>Minimum</th>
<th>Maximum</th>
<th>Mean</th>
<th>Std. Deviation</th>
<th>Variance</th>
</tr>
</thead>
<tbody>
<tr>
<td>CG</td>
<td>19</td>
<td>5.12</td>
<td>.00</td>
<td>5.12</td>
<td>2.6437</td>
<td>1.85715</td>
<td>3.449</td>
</tr>
<tr>
<td>ECG</td>
<td>19</td>
<td>4.65</td>
<td>.00</td>
<td>4.65</td>
<td>2.4021</td>
<td>1.19004</td>
<td>1.416</td>
</tr>
<tr>
<td>HCG</td>
<td>19</td>
<td>5.03</td>
<td>.00</td>
<td>5.03</td>
<td>2.2337</td>
<td>1.96750</td>
<td>3.871</td>
</tr>
<tr>
<td>GPA</td>
<td>16</td>
<td>2.93</td>
<td>1.07</td>
<td>4.00</td>
<td>2.6500</td>
<td>.80068</td>
<td>.641</td>
</tr>
<tr>
<td>HSGPA</td>
<td>15</td>
<td>2.29</td>
<td>1.71</td>
<td>4.00</td>
<td>2.7707</td>
<td>.82498</td>
<td>.681</td>
</tr>
<tr>
<td>Valid N (listwise)</td>
<td>15</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

CG = Course Grade  
ECG = Expected Course Grade  
HCG – Home-work Grade  
GPA = College GPA  
HSGPA = High School GPA

**DISCUSSION**

The unexpected result of this study was that the null hypothesis was supported for all three research questions. This study found there is no relationship between service-learning and improved levels of personal set characteristics. Students enrolled in service-learning courses showed a decrease in two of the four personal characteristics: openness and conscientiousness, although the differences were not statistically significant. Parker-Gwin & Mabry, 1998 reported a
similar finding when service-learning is required rather than optional and when time for reflection is limited or not included in the course. The current study did not control for characteristics of the service learning experience, so it is not known whether service learning was required or optional. Previous research unrelated to service learning has found that personal set characteristics are relatively set and unchanging (Costa & McCrae, 1994). This would explain the relatively small changes between the pre-test and post-test in this study.

Comparison of pre and post survey results for all students found statistically significant changes in two of the empathy questions and one of the self-efficacy questions (Table 3). This could be explained by students’ exposure to the college experience and the general maturing process during the survey period, but it contradicts the findings of Costa and McCrae (1994) that personal characteristics are relatively set and unchanging. These changes were seen in both service-learning students and non-service-learning students, ruling out a relationship to service learning.

This study found no relationship between service-learning and improved levels of civic engagement. Non-service learning students showed greater increases in civic engagement than their service-learning counterparts, but the differences were small and not statistically significant. These findings mirror results reported by Hudson (1996), Miller (1994), and Parker-Gwin and Mabry (1998). The Parker-Gwin and Mabry study in particular used a research design and sample size similar to this study.

Comparison of pre- and post-service results for all students found significant differences in two of the civic awareness questions and one of the civic-efficacy question (Table 6). This could be explained by students’ exposure to the college experience and the general maturing
process during the survey period. These changes were seen in both service-learning students and non-service-learning students, ruling out a relationship to service learning.

With regard to academic performance, the statistically significant negative relationship between service learning and improved academic performance found in this study was an unexpected result. Particularly puzzling was the finding that course grades were lower in service learning classes in large part because students put less effort into the class as measured by course homework grade. This contradicts extensive previous research that found a positive relationship between service learning and improved academic performance (Astin & Sax, 1998, Tartter, 1996, Vogelgesang & Astin, 2000) or found service learning to have no impact (Boss, 1994, Hudson, 1996, Parker-Gwin & Mabry, 1998).

This study did not collect quantitative data from students related directly to their service experience. However Parker-Gwin and Mabry (1998) found service learning to have no impact on academic performance, and suggested explanations based on comments in their quantitative data. Comments from students described a general disappointment with what their service was able to accomplish. They had come into the course expecting to do good, to meet the needs of the less fortunate, and to feel good about doing so. When met with the realities of service and the complexity of problems faced, students’ comments suggested they had become discouraged. A similar phenomenon could explain why students in service learning classes scored lower on course homework grades than their non-service learning counterparts. The homework in service learning classes typically relates to the service, and if students had become discouraged or disillusioned with the service experience they may put less effort into the homework. More study is needed in this area to test that hypothesis.
It should also be noted that this study defined improved academic performance strictly in terms of course grade. Other studies that found service learning had a positive impact on academic outcomes (Astin & Sax, 1998, Tartter, 1996, Vogelgesang & Astin, 2000) tended to rely on students’ assessment of their skills in critical thinking and problem analysis, and their ability to apply what they have learned in the “real world”. Such outcomes could be present without a change in the course grade for the current course. This study did not measure these outcomes. Further research is needed to explore that possibility.

**Future Research**

The findings of this study suggest that not all service learning experiences are created equal. While an abundance of research has found that service learning is related to improved personal set characteristics, improved academic outcomes, and increased civic responsibility (Astin & Sax, 1998; Giles & Eyler, 1994: Tartter, 1996; Vogelgesang & Astin, 2000), equally credible studies have found service learning has no effect in these areas. (Boss, 1994; Hudson, 1996; Parker-Gwin & Mabry, 1998; Miller, 1994). The difference lies in the nuances of the service experience and this is an area that requires further study. How does required service learning affect these outcomes compared to optional service learning? Does service learning show greater effect on these outcomes when students are in direct contact with the clients served? When there is direct application of concepts gleaned from service to course concepts in the classroom, what is the effect on academic outcomes?

If previous research found instances where service learning enhances personal set characteristics development, academic performance, and civic responsibility, this study adds to the body of knowledge by suggesting there are instances when the reverse is true, and where service learning may actually impede this natural development. This is an important area for
future study. What is the risk of service disillusionment, where students expect to “save the world” and become disheartened in the face of the real life service experience? How can this risk be mitigated through the design of the service experience? Are there academic situations where due to the nature of the course, the nature of the students, or the two combined, service learning is not an appropriate pedagogy?

Finally, this study was developed with the expectation that service learning enhances personal set characteristics and that enhanced personal set characteristics would enhance academic performance and civic responsibility. Does any causal relationship run the other direction? Does improved academic performance result in enhanced personal set characteristics and increased civic responsibility? Does increased civic responsibility enhance both personal set characteristics and improved academic performance? All these questions are interesting questions that should be further investigated to better understand the relationship between service learning, personal skill-set characteristics, civic engagement and academic performance.
References


Diseth, Å. (2003). Personality and approaches to learning as predictors of academic achievement.  
*European Journal of Personality, 17*(2), 143-155.


