Journal of the Scholarship of Teaching and Learning, Vol. 11, No. 4, December 2011, pp. 102 – 115.

Benefits of service-learning for freshmen college students and elementary school children

Marion A. Eppler[1], Marsha Ironsmith, Stephanie H. Dingle, and Marissa A. Errickson

Abstract: Freshman honors students in a service-learning course tutored low-income English Language Learning kindergartners, first-, and second-graders in reading. We conducted two separate data collections, one assessing college students' attitudes and motives (Study 1) and one exploring the benefits for elementary school children (Study 2). We measured changes in college students' motivations for volunteering and social attitudes, and we measured changes in children's reading performance and achievement goals. Comparisons with non-service-learning college students revealed that the service-learning students volunteered more hours, showed larger gains in esteem and protective motives (volunteering made them feel better about themselves and helped them cope with personal problems), and showed a marginally significant increase in motivation to volunteer in order to promote professional growth. We found a positive correlation between hours tutored and increases in children's reading scores, and the children showed increases in adaptive achievement goals. Although service-learning benefits for children were non-significant due to small sample size, findings suggest that benefits of the service-learning project were reciprocal.

Keywords: service-learning, tutoring, volunteer motives, achievement goals

We evaluated a service-learning course in which freshman honors students tutored at-risk elementary school children in reading. We assessed the effects of this experience for the college students providing service by examining changes in their social attitudes and motivations for volunteering (Study 1). We assessed benefits for the children receiving service by examining changes in their achievement motivation and progress in reading (Study 2).

Service-learning is a "course-based, credit-bearing educational experience in which students (a) participate in an organized service activity that meets identified community needs and (b) reflect on the service activity in such a way as to gain further understanding of course content, a broader appreciation of the discipline, and an enhanced sense of civic responsibility" (Bringle & Hatcher, 1995, p. 112). Service-learning experiences can provide a variety of benefits to college students that persist even beyond the college years. These experiences enhance academic learning (Conway, Amel, & Gerwien, 2009; Markus, Howard, & King, 1993; Novak, Markey, & Allen, 2007) and are associated with positive cognitive and social changes, including advances in moral reasoning, prosocial reasoning, and decision-making (Batchelder & Root, 1994; Conrad & Hedin, 1981). Service-learning students report greater interest in interacting with culturally different and diverse people (Simons & Cleary, 2006) and increased commitment to future community service (Astin & Sax, 1998; Giles & Eyler, 1994). In fact, involvement in volunteer activities during the senior year of college predicted involvement in community service

[1] Department of Psychology, East Carolina University, Greenville, NC 27858, epplerm@ecu.edu.

nine years after graduation (Astin, Sax, & Avalos, 1999). Students are more likely to continue volunteering after graduation when they believe that service-learning experiences during college facilitated their personal development (Tomkovick, Lester, Flunker, & Wells, 2008). In the context of developmental transitions, service-learning experiences have both short- and long-term influences on conceptions of self, self-esteem, and identity formation (Conrad & Hedin, 1991; Jones & Abes, 2004; Yates & Youniss, 1996). Students engaged in service-learning are more likely to explore occupational identity issues (Batchelder & Root, 1994) and to aspire to service-related occupations (Reed, Jernstedt, Hawley, Reber, & DuBois, 2005).

Although service-learning can influence many outcome variables (Conway et al., 2009), we focused on changes in college students' social attitudes and which functional motives were highlighted by their service experience. A large national sample of college students who engaged in community service expressed stronger commitment to promoting racial understanding and reported increased knowledge of and ability to get along with people of different races and cultures (Astin & Sax, 1998). Several researchers have found that students report increased interest and understanding of diversity issues (Astin & Sax, 1998; Astin et al., 1999; Simons & Cleary, 2006), but studies that directly measure the effects of service-learning on racial attitudes are rare. Myers-Lipton (1996) found that service-learning students showed greater decreases in racist attitudes compared to students who participated in community service without the full service-learning experience and those sampled from a general student population. Thus, one goal of our study was to examine the effects of service-learning on racist attitudes.

A second goal of our study was to assess changes in college students' motivation for volunteering. Although motivational variables bear complex relationships to one another and to volunteer activities (Finkelstien, 2009), motivation is a key component in determining whether or not volunteer activity is sustained and what benefits volunteers derive from community service. People who volunteer may appear to share similar reasons for volunteering (e.g., to help others or give back to the community), when in fact some may have quite different underlying motivations (e.g., career advancement, building self-esteem, or socializing with friends). More specifically, the same volunteer activity may serve different personal functions for different individuals, and these functions may play an important role in sustaining the activity over time. Clary, Snyder, Ridge, Copeland, Stukas, Haugen et al. (1998) developed the Volunteer Functions Inventory (VFI) to assess six factors that motivate people to volunteer: values (motivated by altruistic concern for others), understanding (motivated by opportunities for learning), social (motivated by expectations of friends), career (motivated to explore vocational choices), protective (motivated by desire to cope with personal problems such as loneliness), and esteem (motivated by a sense of personal growth). Clary et al. found that individuals expressed greater satisfaction with their work and stronger commitment to future volunteering when there was a good fit between individuals' motivation for volunteering and the actual benefits derived from volunteer work.

Ferrari, Dobis, Kardaras, Michna, Wagner, Sierawski et al. (1999) used the VFI to assess pretest-posttest changes in motivation during varied service-learning experiences. Before service began, students rated values and understanding as the most important motives for volunteering with social and protective motives rated the lowest. Ferrari et al. found that teacher-education students who volunteered at a day-care center for low-income children showed an increase in social motives for volunteering after eight weeks of service. However, they found no changes in volunteer motives for sophomore honors students engaged in a wide range of service activities. Although these results suggest the possibility of interesting changes in students' motivations for

volunteering, the findings were inconsistent and the service-learning students were not compared to any control groups. Thus, further research is needed to better understand changes in motivation for volunteering, particularly during the transition to college life, a time when students often show a decrease in their volunteer activities (Bureau of Labor Statistics, 2010; Wilson, 2000).

Study 1 focused on benefits of service-learning for the college students. Using a pretest-posttest design, we compared service-learning students to a similar group of freshman undergraduates not involved in service-learning. Both groups completed surveys at the beginning and end of their first semester assessing frequency of volunteer service, motivation for volunteering, and racism. Study 2 examined benefits for the service recipients, with emphasis on assessing the relationship between amount of tutoring received and reading achievement. We obtained the elementary school children's reading achievement scores at the beginning and middle of the school year (comparable time to the college students' first semester). We also assessed changes in the children's achievement motivation.

I. Study 1: College Students' Attitudes and Motives.

The service-learning course was a humanities seminar for freshmen honors students, most of who were interested in the medical profession. These students tended to pursue a science curriculum having bypassed many of the university's humanities and social science requirements with advanced placement credit. The instructor's primary goal was to increase students' cultural competence through literature, class discussion, field trips and community service. The service-learning experience was designed to sensitize students to issues facing Hispanic immigrants living in a rural, low-income area. This goal is consistent with research demonstrating links between service-learning and increased interest in diversity experiences (Simons & Cleary, 2006), and between volunteerism and increased socializing with different races and ethnic groups (Astin et al., 1999).

The service-learning students tutored children at a local elementary school for approximately 2 hours per week. The instructor asked the school to choose kindergartners, first, and second graders who needed assistance with reading. We were interested in whether changes in the college students' attitudes and motivations matched the instructor's aims for the course. Based on the instructor's goals, we hypothesized that the service-learning students, in contrast to the comparison group, would shift their motives for volunteering toward values (concern for others) and understanding (desire to gain new perspectives) as measured by the VFI, and would show decreased levels of racism over the semester.

A. Method.

Participants. Participants included 18 freshmen honors students enrolled in the service-learning seminar and a comparable group of 25 introductory psychology students. The first-semester grade point averages (GPA) for the two groups were 3.81 (SD = 0.28) and 3.82 (SD = 0.13), respectively. The service-learning students completed the surveys in their class. To obtain a comparison sample, we recruited introductory psychology students who were fulfilling a course requirement. A pool of 150 students attended a session in which they completed the survey. The final sample was selected from this pool on the basis of GPA to form a sample that was comparable to the service-learning students. Comparison students were chosen from those

students with GPA > 3.5 who completed both measures. Twelve of the service-learning students were female, 4 male, and 2 did not report their sex. We eliminated data for additional participants, 1 student who was absent for the pretest and 3 international exchange students who indicated that the survey questions were not meaningful in the context of their culture. These students were Scandinavian and expressed the belief that community service was not a common practice by young people in their country. All service-learning students were European-American. Eighteen of the comparison group students were female and 7 were male, and 72% were European-American. The median age for both groups was 18.

Measures and Procedure. The students were tested at the beginning and again at the end of the semester with the same measures. The demographics section included questions about community service activity ("In the past 6 months, how often have you participated in volunteer activities or community service?" measured on a 5-point Likert scale with 1 = none, 2 = a few times per year, 3 = monthly, 4 = weekly, 5 = daily). We also asked students to rate how confident they were that they would participate in future community service activity (on a scale ranging from 1 to 10 with 10 = more certain).

The Color-blind Racial Attitudes Scale (CoBRAS), developed by Neville, Lilly, Duran, Lee, and Browne (2000), measures cognitive aspects of racial attitudes. This measure has 20 items rated on a 6-point Likert scale, and the items are summed to yield a maximum score of 120. Higher scores indicate more negative racial attitudes. Neville et al. found that reliability for the total racism scores was acceptable with alphas ranging from .68-.91. For concurrent validity, Neville et al. reported that the CoBRAS correlated with the Quick Discrimination Index and the Modern Racism Scale. Oh, Choi, Neville, Anderson and Landrum-Brown (2010) found that CoBRAS scores predicted acceptance of Affirmative Action in a diverse sample of college students. Tynes and Markoe (2010) found that CoBRAS scores predicted college students' discomfort with racist themes on social network sites. Finally, Neville et al. found significant decreases in CoBRAS scores as a result of multicultural training.

We selected the CoBRAS because it included items measuring attitudes toward the Hispanic community, such as "Immigrants should try to fit in the culture and values of the U.S," and "English should be the only official language of the U.S." Secondly, we chose it because Neville et al. (2000) showed that CoBRAS scores are modifiable through multicultural experiences. Cronbach's alpha for our sample was 0.78.

The Volunteer Functions Inventory (VFI), developed by Clary et al. (1998), measures students' motivations for volunteering. Sample items for the six subscales are: values (I am concerned about those less fortunate than myself.); understanding (Volunteering allows me to gain a new perspective on things.); esteem (Volunteering makes me feel better about myself.); protective (Volunteering helps me work through my own personal problems.); career (I can make new contacts that might help my business or career.); and social (People I am close to want me to volunteer.). Each subscale has five items which were averaged. Participants rated strength of agreement on a 7-point Likert scale with higher scores indicating stronger endorsement of those motives. Internal consistency was high for all of the subscales (Cronbach alphas were 0.83 for values, 0.88 for understanding, 0.83 for esteem, 0.81 for protective, 0.83 for career, and 0.84 for social).

B. Results.

We compared changes in the responses of students who were required to participate in service-learning activities to those of the comparison students in a series of 2 (class: service-learning vs. introductory psychology) x 2 (time: pretest vs. posttest) mixed analyses of variance for each of the measures. The means and standard deviations for each measure are summarized in Table 1.

Table 1. Pretest and posttest means and standard deviations for both groups of students.

	Service-learning		Introductory Psychology	
Measures	Pretest	Posttest	Pretest	Posttest
Volunteer Frequency[1]	3.00 (0.84)	3.83 (0.51)	2.00 (1.04)	2.16 (1.21)
Predict Future Service	8.94 (1.86)	9.22 (1.66)	7.96 (2.76)	7.83 (2.51)
CoBRAS – Total Racism	72.50 (11.06)	63.00 (13.03)	72.30 (12.26)	69.68 (10.26)
VFI				
Values	5.97 (1.09)	6.20 (0.81)	5.88 (1.15)	5.57 (1.10)
Understanding	5.21 (1.09)	5.88 (0.82)	5.38 (1.35)	5.34 (1.14)
Esteem	3.91 (1.35)	4.64 (1.01)	4.72 (1.38)	4.74 (0.86)
Protective	2.50 (1.06)	3.70 (0.95)	3.58 (1.60)	3.27 (1.00)
Career	4.20 (1.46)	5.40 (0.95)	4.70 (1.40)	5.02 (1.17)
Social	3.04 (1.40)	3.84 (1.41)	3.16 (1.47)	3.39 (1.03)

[1]The rating scale for Volunteer Frequency was 1 = none; 2 = a few times per year; 3 = monthly; 4 = weekly; 5 = daily.

Community Service Activity. For community service activity, there was a significant class x time interaction, $F(1, 41) = 4.07$, $p = 0.05$. There was little change in volunteer frequency for the introductory psychology students, who reported that they volunteered a few times a year. As expected, the service-learning students increased from volunteering monthly to approximately weekly.

Color-blind Racial Attitudes Scale (CoBRAS). On the total racism scale of the CoBRAS, lower scores indicate less racist attitudes. Findings for this scale showed a main effect of time, $F(1, 41) = 10.73$, $p = 0.002$, and the interaction approached significance, $F(1, 41) = 3.43$, $p = 0.07$. As seen in Table 1, racism scores for both groups declined at posttest. Decreased racism was one of the service-learning instructor's goals, and the service-learning students showed a tendency toward greater change in this direction. Their scores dropped by 9.5 points compared to the introductory psychology students whose scores decreased by only 2.6 points.

VFI—Values and Understanding Subscales. As seen in Table 1, both groups of students rated the values and understanding motives highest on both the pre- and the posttest. There were no significant effects for either of these subscales. Although we had predicted that these motives, which were consonant with the instructors' goals, would be most affected by the service-learning course, the scores were quite high for both groups at the outset, consistent with the findings of Ferrari et al. (1999). Ceiling effects may have masked any possible changes over time in these measures.

VFI—Esteem and Protective Subscales. These two motives showed similar patterns of results. For the esteem subscale, the main effect of time was significant, $F(1,41) = 4.45$, $p = 0.041$. There was also a significant class x time interaction, $F(1, 41) = 4.08$, $p = 0.05$. As seen

in Table 1, there was little change for the introductory psychology students, $t(24) < 1$, but a significant increase for the service-learning students, $t(17) = 2.95$, $p = 0.009$. On the protective subscale, both groups of students scored low on the pretest, which is consistent with Ferrari et al.'s (1999) findings. The main effect of time was significant, $F(1, 39) = 4.59$, $p = 0.038$, as was the class x time interaction, $F(1, 39) = 13.31$, $p = 0.001$. Similar to the results for the esteem subscale, the introductory psychology students' scores on the protective subscale did not change significantly, $t(24) = 1.19$, $p = 0.12$, but the service-learning group showed a significant increase from pretest to posttest, $t(15) = 3.78$, $p = 0.002$ (see Table 1). Service-learning increased students' motives for volunteering in order to protect their self-esteem and help them deal with personal problems, a finding that we did not anticipate.

VFI—Career Subscale. For the career subscale, the main effect of time was significant, $F(1, 41) = 9.39$, $p = 0.004$. As seen in Table 1, both groups scored higher at posttest than pretest. The service-learning students' scores increased more than those of the comparison students, however the class x time interaction only approached significance, $F(1, 41) = 3.15$, $p = 0.08$.

VFI—Social Subscale. Both groups of students rated social motives fairly low at pretest, which is also consistent with Ferrari et al. (1999). There was a main effect of time, $F(1, 41) = 4.75$, $p = 0.035$, but neither the main effect of class nor the interaction were significant. As seen in Table 1, both groups scored higher at posttest than pretest.

VFI Subscales as Predictors of Future Plans to Volunteer. We also looked at correlations between the students' ratings of how confident they were that they would participate in future community service and the six VFI subscales. The strongest predictors of students' confidence for future community service were the values (pretest $r = 0.50$, $p < 0.001$; posttest $r = 0.60$, $p < 0.001$) and understanding (pretest $r = 0.61$, $p < 0.001$; posttest $r = 0.53$, $p < 0.001$) VFI subscales. Although students' scores were quite high from the start on these two subscales so that the scores did not show any increases over time or any differences between our groups, there was enough variability to show significant correlations with plans for future volunteering. The careers subscale was also significantly related to future service plans (pretest $r = 0.30$, $p = 0.05$; posttest $r = 0.38$, $p = 0.012$). Students who volunteered to fulfill career goals indicated high confidence that they would engage in future community service. Other correlations between VFI subscales and plans for future community service were much smaller and mostly not significant (esteem pretest $r = 0.34$, $p = 0.027$; esteem posttest $r = 0.18$, $p = 0.241$; protective pretest $r = 0.20$, $p = 0.20$; protective posttest $r = 0.24$, $p = 0.12$; social pretest $r = 0.27$, $p = 0.09$; social posttest $r = 0.20$, $p = 0.186$).

C. Discussion.

Compared to introductory psychology students, service-learning students increased their community service (as required for their course), and also showed changes in their attitudes and motives for engaging in community service. Previous research reported that service-learning was associated with increased commitment to promoting racial understanding and increased interest in interacting with culturally diverse groups (Astin & Sax; 1998; Astin et al., 1999; Simons & Cleary, 2006). In the present study, all students showed significant declines in racism and the difference between the groups was only marginally significant. This finding may reflect a change in racial attitudes that was related to the general college experience, not specific to service-learning. Perhaps motives for volunteering are a more appropriate measure of how service-

learning influences students as well as a predictor of whether volunteer activities will be sustained.

Conway et al.'s (2009) meta-analysis showed small effects of service-learning on students' personal outcomes and stronger effects on academic and social outcomes. Our findings, in contrast, showed the most reliable effects for personal outcomes (volunteer motivations). It may be worth noting that the main criterion for including studies in the Conway et al. meta-analysis was that they had identical pretest-posttest measures for service-learning students, and this limited the sample to only seven studies for volunteer motivations. Also, the included studies were not required to have a control group for comparison, making it difficult to assess whether pre-post changes were actually due to service-learning or due to maturation. In our study, for example, even the non-service-learning students showed improved social outcomes (lower racism scores) although the change was somewhat greater for service-learning students.

We found that service-learning students became more likely to value service as a way to gain new perspectives, increase their self-esteem, and cope with personal problems. They also gained a somewhat stronger motivation to engage in service in order to clarify career goals. Similar to Ferrari et al. (1999), service-learning students showed increases over time in social motives for community service. The design of this study allowed us to compare service-learning students to comparable students who did not participate in service-learning. The use of paper and pencil measures to assess motivations and social attitudes enabled us to do a quantitative analysis of the effect of service-learning.

One limitation of this assessment was that students might have reported answers that they believed their instructor found socially desirable on the posttest. Although the investigators were not involved in the instruction of the course, some of the assessments were conducted in the classroom and students may well have inferred that the research was an investigation of the course effectiveness. Considering that the students showed gains in areas where we had not predicted growth reduces the likelihood that this was a significant problem. For example, the instructor expressed a hope that service-learning would increase students' understanding of problems facing the community and their desire to help others. However, these goals, measured by the values and understanding subscales of the VFI, were already endorsed by both service- and non-service-learning students to a high degree. Service-learning students, on the other hand, came to see service-learning as a way to foster their personal growth and development, an effect not expected by the instructor or the researchers.

II. Study 2: Benefits for the Elementary School Children.

Study 1 supported earlier research findings of benefits for college students engaged in service-learning courses. There is general consensus that more research is needed on the benefits of service-learning for community recipients (Butin, 2003). Study 2 describes the effects of service-learning tutoring on elementary school children performing below grade level in reading.

Volunteer tutors may provide schools with a cost-effective means of assisting children who have fallen behind their age mates in reading and who are at risk for school failure. A good example is Fitzgerald's (2001) study of at-risk first and second graders who were tutored by college students participating in the America Reads program, part of the National and Community Service Act of 1993. The college students worked on the children's reading skills during two highly structured 40-minute sessions per week for 25 weeks. During six months of tutoring, this at-risk group of children showed gains on the Bader Reading and Language

Inventory comparable to more than a grade level. This was in contrast to a within-program comparison group of children who received 12 or fewer weeks of tutoring. Their reading and language scores increased by only one-third of a grade level.

In a meta-analysis, Elbaum, Vaughn, Hughes, and Moody (2000) compared outcomes for several one-to-one tutoring programs in reading. The overall findings indicate that interventions conducted with trained college students and community volunteers are effective in improving children's reading comprehension and phonemic awareness. We were interested in whether tutoring by untrained college students improved the children's reading scores and also whether the college students developed relationships with the children that impacted the children's achievement motivation, specifically their response to challenge (persistence versus helplessness). Few studies have examined links between number of tutoring sessions and children's reading achievement (Wasik, 1998), but there is some evidence to suggest that the number of tutoring hours is related to advances in reading achievement particularly for children who start at the lowest levels (Dyson, Miller, & Gagne, 2008). To our knowledge, no studies have examined relationships between tutoring in reading and children's achievement motivation goals.

One aspect of achievement motivation on which young children differ is their response to criticism and challenge (Cain & Dweck, 1995; Heyman, Dweck, & Cain, 1992; Smiley & Dweck, 1994; Ziegert, Kistner, Castro, & Robertson, 2001), and these differences can have important academic consequences. Dweck and colleagues (Cain & Dweck, 1995; Smiley & Dweck, 1994) developed a task to categorize young children into those who seek challenge (mastery oriented) versus those who avoid challenge (performance oriented). Children are given success and failure trials in the form of solvable and unsolvable jigsaw puzzles, and then are asked to choose which of the two puzzles they would prefer to continue working on. Performance-oriented children, who choose the easier solvable puzzles, generally prefer non-challenging tasks and tend to respond negatively to challenging situations. They downgrade their performance after criticism and show characteristics of helplessness including negative self-judgments, negative affect, and low persistence. In contrast, mastery-oriented children, who choose the more difficult unsolvable puzzles, generally prefer challenging tasks and tend to respond positively to challenge. They are less affected by criticism, and they show persistence and increased effort to understand and master the subject matter. These findings have been replicated by Zeigert et al. (2001) with kindergarten and first graders.

The two patterns of academic motivation described by Dweck and colleagues have different consequences for academic performance when material is challenging. For example, during the transition to 8th grade when mathematics classes become more difficult, performance-oriented students' grades start to decline while mastery-oriented students maintain their previous grades (Blackwell, Trzesniewski, & Dweck, 2007). Although connections to academic performance have not been studied in younger age groups, we hypothesized that children who are struggling with reading might show similar patterns of divergence. Also, we speculated that having a college student tutor to encourage them to keep trying might help the children shift to a more adaptive mastery orientation.

The service-learning students, who received no special training, tutored their assigned children about once a week. However, the total number of hours of tutoring varied among the students. We predicted that the number of hours of tutoring would correlate with reading achievement scores and that tutoring would increase children's adaptive responses to challenge.

A. Method.

Teachers at a rural, low-income elementary school (98% of children qualify for reduced or free lunch) chose the children they thought were most in need of extra assistance, and each child was paired with a tutor. Twenty-eight children were matched to tutors, and we obtained parental permission to test 18 of the children: 5 kindergartners (3 M, 2 F), 5 first graders (4 M, 1 F), and 8 second graders (3 M, 5 F). Most children (78%) were Hispanic English Language Learners, and 22% were African American. One second-grade student moved away and was not available for posttest measures.

We obtained children's Texas Primary Reading Inventory scores (TPRI) from the school at the beginning and middle of the year. The TPRI (Foorman, Fletcher, Francis, Carlson, Chen, Mouzaki, et al., n.d.) is an early reading assessment for children in kindergarten through third grade. This screening test is a 3-5 minute assessment that is individually administered by the teacher and is designed to identify children who are at risk for reading problems. It has acceptable reliability (alphas = 0.81 to 0.91) and moderately strong correlations with the Woodcock-Johnson, Peabody Picture Vocabulary, and Rapid Naming of Letters and Objects Tests. Nelson (2009) reported test-retest alphas of 0.84 and 0.88 for kindergarten mid-year screening tests. Nelson assessed concurrent validity by correlating TPRI screening scores with Dynamic Indicators of Basic Early Literacy Skills (DIBELS), Test of Phonology Awareness-Second Edition: Plus (TOPA-2+) and the Woodcock Johnson. These correlations ranged from +0.40 to +0.76 and all were significant.

To assess achievement motivation, we adapted methods from Smiley and Dweck (1994). Each child completed an easy puzzle (8 pieces) with ample time to finish, followed by a difficult puzzle (24 pieces) with inadequate time to finish (4 min). To measure persistence and response to challenge, the children chose between working on a new puzzle like the current difficult one or like the first easy one. We classified children who chose the difficult puzzle as mastery oriented, or persistent in the face of failure, and children who chose the easy puzzle as performance oriented, or helpless. Achievement motivation was assessed at the beginning and middle of the school year.

B. Results.

The college students tutored the children between 20 and 44 total hours for the semester (M = 28.92, SD = 8.34). The correlation between hours tutored and increase in reading scores was 0.40, but this was not significant due to small sample size (p = 0.18). Nonetheless, the r^2 indicated that the amount of tutoring accounted for 16% of the variance in children's reading scores.

Regarding achievement motivation, mastery-oriented persistent children (n = 7) showed a significantly greater increase in reading level by the middle of the year than performance-oriented helpless children (n = 11), $t(15) = 2.41$, $p = 0.03$. The mastery-oriented persistent group increased an average of 2.00 levels (SD = 0.63), roughly equivalent to expected progress. Average increase for the performance-oriented helpless group was only 1.00 level (SD = 0.89). It was encouraging to find that most of the helpless group who chose the easy puzzle at the beginning of the school year switched their preference to the difficult puzzle by the end of the year (8 of 10), and only a few of the children who initially chose the difficult puzzle changed their preference (2 of 7). We cannot determine whether this change was due to maturation or to

the tutoring. We had hoped to compare the children's progress in reading and achievement goals to a comparison group who did not receive tutoring, but an appropriate comparison group was not available.

C. Discussion.

Overall, these children showed patterns of achievement motivation similar to middle-SES children in previous studies (Cain & Dweck, 1995; Smiley & Dweck, 1994), and preference for challenge predicted improvement in the children's reading scores. Few studies have reported a clear connection between achievement goals and academic performance (Blackwell et al., 2007) and none with children this young. We demonstrated a relation between adaptive achievement goals and academic achievement in young children from an understudied population. When considering tutoring as an intervention strategy, children's attitudes about academic achievement may also play an important role. Understanding children's achievement motivation, particularly how they respond to academic challenges, should aid in planning more effective educational interventions.

A most encouraging finding was that the children who originally preferred an easy task switched their preference to a difficult task by the middle of the school year. This could be an important finding if it were directly linked to tutoring. The lack of a comparison group of children who did not receive tutoring makes it difficult to determine whether changes in the children's achievement motivation were due to interacting with the tutors or to maturation. Ziegart et al. (2001) found that although achievement motivation goals reflect somewhat stable individual differences from kindergarten through fifth grade, they are influenced by a variety of academic experiences. Thus, tutoring may have increased the children's adaptive achievement goals. Further research with appropriate controls and comparison groups is needed before making stronger conclusions. Future research could also provide more information about the kind of tutoring relationship that works best for promoting persistence on challenging tasks. This might include training tutors to give certain kinds of messages at key times (e.g., praise effort rather than ability), choice of activities during tutoring (e.g., challenging tasks over easy ones), and talking to children about the meaning of failure (e.g., feedback on what you know and what you need to do rather than assessment showing lack of ability) (see Dweck, 2002).

III. General Discussion.

For first-year undergraduate students, understanding the self is an important developmental task. At a time of life when community service declines (Bureau of Labor Statistics, 2010; Wilson, 2000), service-learning appears to be a valuable way to help students adjust to college, adapt to social expectations, define career goals, and develop their identity within the context of the larger community.

Benefits for the children were less clear. Past studies have shown positive effects for children tutored by college students trained to use a structured reading curriculum (e.g., Allor & McCathren, 2004; Fitzgerald, 2001). We also found benefits even when the college students had no special training or curriculum to follow and simply read with the children.

This study was an attempt to assess benefits for both the providers and the recipients of service-learning. Few studies report data from both sides of the service-learning equation and

there are some daunting challenges to this type of research. Despite these challenges, our findings show benefits of service-learning experience for both students and the community.

Acknowledgements

We thank Dr. Michael Bassman for inspiring this project, Mr. Glenn Joyner and his staff at Belvoir Elementary School for making this research possible, and the Belvoir children and ECU students for participating. We also thank Dr. Holly Mathews, Dr. Susan McCammon, Angelita Ragland, Virginia Gonzalez, Sheila Wilcox, Maggie Gocke, Toy Sherrill, and Julie Webb for assistance with data collection and analysis. Portions of this research were funded by the UNC Undergraduate Research Expansion Initiative.

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