Improving Academic Achievement and Self-Concept in Elementary School Students Through Mentoring Programs: A Preliminary Study

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Abstract

This study examined the efficacy of two school-based mentoring programs on improving academic achievement and self-concept among elementary school
students (N = 55). Results indicated standardized reading, language, and math achievement scores improved significantly from fall to spring in both the Job ASSET Peer Mentor Program and the Adult Mentor Program. In addition, self-concept improved more for students in the Job ASSET Peer Mentor Program compared to those in the Adult Mentor Program. Implications for school counselors are discussed.

**Keywords:** elementary school, mentoring, academic achievement, self-concept

One of the primary goals of school counselors is to support an equitable and rigorous learning environment for all students (American School Counselor Association [ASCA], 2012a). The advocacy role of the school counselor includes supporting both the academic success and emotional well-being of their students (ASCA, 2012a). The ASCA National Model (ASCA, 2012b) highlights the importance of developing comprehensive school-based counseling programs that incorporate the elements of foundation, management, delivery and accountability. Thus, it is important for school counselors to develop, implement, and engage in program evaluation to provide programs that enhance student success and determine the effectiveness of the programs they offer.

According to the ASCA National Model (2012b), data are an essential factor in determining the effectiveness of school counseling programs in relation to student academic achievement, attendance, and behavior. Program evaluation provides data that can be used to improve services, demonstrate program efficacy to key stakeholders, and legitimize counseling interventions and programs (Dimmitt, 2009, 2010). Documentation of improved academic outcomes for students participating in programs led by school counselors provides evidence to support the continuation of these activities in the schools. In this study, the authors aim to evaluate two mentoring programs developed to promote academic and emotional success among at-risk students, providing evidence to support counselor-led school-based mentoring programs.

**Academic Achievement**

ASCA identifies supporting students’ academic achievement as one of the roles for the school counselor (ASCA, 2012a). According to the National Center for Educational Statistics (NCES; 2014), 32% of public school fourth-grade students were below basic reading levels and only 35% demonstrated proficiency in reading performance in 2013. The statistics were only slightly better for mathematics, with 17% of public school fourth-grade students performing below basic mathematics levels and only 42% demonstrating proficiency in mathematics performance (NCES, 2014). Among eighth-grade public school students, reading proficiency was similar at 36%, but mathematics proficiency declined to 35% (NCES, 2014). Thus, it is essential for school counselors to develop and implement programs that enhance academic success.

Meta-analytic research demonstrates that school counseling interventions are effective in improving academic achievement (Whiston, Tai, Rahardja, & Eder, 2011). Data suggest that students in schools with comprehensive school counseling programs (CSCPs) have higher achievement test scores than those attending non-CSCP schools (Sink & Stroh, 2003). Other researchers have found that participation in small group counseling programs is associated with improved academic achievement for elementary school students (Bostick & Anderson, 2009; Webb, Brigman, & Campbell, 2005).
Researchers also reported that play therapy in elementary schools is effective in improving academic achievement (Blanco & Ray, 2011; Blanco, Ray, & Holliman, 2012). Together, these studies support school counseling interventions as effective strategies to increase academic achievement at the elementary school level.

**Self-Concept**

In addition to supporting students’ academic achievement, another role of the school counselor is to remove barriers to students’ success (ASCA, 2012b). Self-concept includes how the child perceives and understands him or herself, as well as the child’s perception of how others see him or her. Researchers have found that children with a poor self-concept are more likely to perform poorly in school (Parker, 2010). When self-esteem increases, there is an improvement in academic performance, which then enhances a child’s overall self-concept (Uszynska-Jarmoc, 2007). Self-esteem is also positively correlated with standardized test scores (Booth & Gerard, 2011). Additionally, there is a strong relationship between academic failure and later delinquency in youth (Christle & Yell, 2008). Therefore, self-concept is an important variable to consider when examining student success.

Research supports the efficacy of school counselor interventions in improving affective outcome measures, including self-esteem (Whiston et al., 2011). For example, groups implemented by elementary school counselors are effective in increasing social and self-management skills (Webb et al., 2005) and student emotional adjustment (Bostick & Anderson, 2009). Further, researchers have found that group interventions increase self-esteem among specific groups of students including ESL students (Shi & Steen, 2012) and African American male students (Schellenberg & Grothaus, 2009). Thus, research supports school counseling interventions as effective strategies to increase student emotional well-being, including self-concept.

**Mentoring Programs**

One approach frequently used by school counselors to address both academic and emotional adjustment is mentoring programs coordinated by school counselors (Herrera, Grossman, Kauh, & McMaken, 2011; Kolar & McBride, 2011). Mentoring programs have the capacity to influence the development of a range of cognitive processes and skills among children through the support and role modeling offered by the mentoring relationship (Rhodes, Spencer, Keller, Liang, & Noam, 2006). Research findings regarding the effectiveness of these programs, however, is mixed. For example, in one study examining a school program pairing high-risk students ages 7–12 with adult mentors, results indicated improvements in classroom behavior, the ability to get along better with peers, and overall self-esteem, but no improvements in student grades (Kolar & McBride, 2011). In contrast, results of a study examining Big Brothers Big Sisters school-based mentoring among 9- to 16-year-old students indicated improvements in academic success, but not self-esteem (Herrera et al., 2011).

Additionally, researchers have found that the quality of mentorship is associated with student outcomes such that students with high-quality mentors have higher self-esteem, fewer alcohol problems, and less depression than students with low-quality mentors (Whitney, Hendricker, & Offutt, 2011). Researchers have also found that students participating in programs that pair students with adult mentors report less
depression and alcohol problems compared to students in programs that pair students with peer mentors (Whitney et al., 2011). In contrast, research has also indicated cross-age peer mentoring programs are effective in increasing mentees’ self-esteem, social skills, and connectedness (Karcher, 2005). Thus, the literature suggests that mentoring programs may be a promising approach to improving student success, with some support for both adult and peer mentoring programs.

The Present Study

School counseling programs are effective in improving academic achievement and emotional well-being in students (Whiston et al., 2011). Research on the effectiveness of mentoring programs on academic achievement and emotional adjustment, however, is mixed with some studies demonstrating improvements in academic achievement but not in self-concept and others demonstrating opposite findings. In addition, it is unclear if student outcomes are differentially associated with peer and adult mentoring.

The aim of this study is to extend the literature by evaluating the effectiveness of two school-based mentoring programs designed to improve academic achievement and self-concept among elementary school students. To achieve these aims, we used a quasi-experimental design. The school counselor selected students to participate in one of two school-based mentoring programs: Job ASSET Peer Mentor Program and Adult Mentor Program. We were interested in the following research question: will there be differences in changes in student academic achievement and self-concept between the two mentor programs from the fall to spring semester?

Methods

Participants

Fifty-five students (30 males; 25 females) were recruited from a Title One elementary school in the Pacific Northwest. The majority of the students were Caucasian (93%), with 4% Hispanic, 2% African-American, and 1% other. The majority of students were in sixth grade (35.8%), with 22.6% in fifth grade, 24.5% in fourth grade, 15.1% in third grade, and 1.9% in second grade. Power calculations indicated the study sample size should yield power of ≥ .85 to detect a medium effect size for the between-subjects factors (group effects).

Procedures

The school counselor and teachers selected student participants based on referrals for behavior and self-esteem issues. The researchers used a quasi-experimental design to compare the relative effectiveness of two school-based mentor programs. The school counselor assigned students to the Job ASSET Peer Mentor Program (n = 34) and Adult Mentor Program (n = 21). This assignment was based on the school counselor’s perception of whether or not the students were more in need of an increase in connectedness to the school or an adult role model.

Participation in this study was voluntary, and students were not given incentives to participate. Parents of the students gave written consent for their student to participate.
in the study. Archival data from fall and spring semesters were used to measure academic achievement. The achievement measure was a standardized test that was group administered in the library by the elementary school counselor using standard administration procedures. The school counselor also group administered the self-concept measure in the library. The counselor read the items aloud and circulated the room observing the students’ understanding of the instrument and providing assistance when necessary. When the students completed the measure, they returned to their respective classrooms. Data were collected by the school district and the University IRB approved secondary analysis of data that were already collected.

**Instruments**

**Academic achievement.** The researchers used archival school data to measure academic achievement. The Idaho Standards Achievement Test (ISAT; Idaho State Department of Education, 2013) measures individual student achievement relative to the Idaho Learning Standards. The ISATs are computerized tests used to assess students' proficiency in reading, math, and language. The ISAT is administered to students to provide ongoing monitoring of individual, school, district, and state progress. Composed of reading, language usage, and mathematics tests, the ISATs are given in the spring of each year, and for some students, the ISATS are also given in the fall. Multiple-choice items are used to assess student knowledge and discern how he or she is expected to do on the Idaho Learning Standards. These items are used to assess a variety of skill levels, from short-term recall of facts to problem solving.

The language assessments of the ISAT are composed of items that address standards, goals, and objectives in two separate assessments, reading and language usage. The reading goals and objectives for each grade are distributed among two reporting categories: Reading Process and Comprehension/Interpretation. The language usage goals and objectives for each grade are distributed among two reporting categories: Writing Process and Writing Components. The mathematics assessment of the ISAT is composed of items that address standards, goals, and objectives. The goals and objectives for each grade are distributed among five reporting categories: Number and Operations; Concepts and Principles of Measurement; Concepts and Language of Algebra and Functions; Principles of Geometry; and Data Analysis, Probability, and Statistics.

**Self-concept.** Self-concept was measured using the Piers-Harris Children’s Self-Concept Scale 2 (Piers, Harris, & Herzberg, 2002). This is a self-report measure that is completed by the child. The instrument consists of 60 “yes-no” items that form six clusters (Behavior; Intellectual and School Status; Physical Appearance and Attributes; Anxiety; Popularity; and Happiness and Satisfaction) and a total scale score. Only the total score was used in this study. Test development of the Piers-Harris 2 resulted in test-retest reliability coefficients ranging from .42 to .96, and internal consistency estimates for the cluster scales and total score range from .74 to .90 (Piers et al., 2002). The reliability scores compare well with other instruments used to measure personality traits in children and adolescents (Piers et al., 2002). For the present study, internal consistency obtained using Cronbach’s alpha was good, with $\alpha = .84$ for the total score.
Mentor Programs

**Job ASSET Peer Mentor Program.** The Peer Mentor Program is referred to as the Job ASSET Program, standing for “A School-Based Student Employment Team.” The school counselor designed this program to provide students with a sense of competence and belonging. The school counselor assigned students specific tasks and duties to perform each day. Students were matched up with other students who the school counselor selected as they exhibited qualities of a self-manager or a positive role model. Together, these paired students fulfilled a “job” or helping position at the school. In addition, students were given badges that gave a title to their particular duty. The program also required a daily progress check-in with the school counselor.

**Adult Mentor Program.** The school counselor designed the Adult Mentor Program to provide a one-to-one relationship between a student and an adult. The school counselor selected a positive adult role model to provide the student with consistent support, guidance, and concrete help. The goal of the Adult Mentor Program was to help students gain skills and confidence, as well as develop a strong support system. The school counselor selected mentors from community organizations and asked the mentor to provide support, help the student problem-solve, and be a role model for the student. The school counselor assigned students to an adult mentor with similar interests who met with their mentee once a week during lunch. After lunch, mentors and mentees would play games in the lunchroom, work on homework together, or go out on the playground.

**Statistical Analysis**

To determine whether or not student characteristics differed between the two groups, the researchers examined group differences in baseline measures with t tests for continuous variables and chi-square tests for categorical variables. The researchers also conducted t tests and chi-square tests to assess difference in attrition between the two groups. The researchers used analyses of covariance (ANCOVAs) to examine differences in outcome variables. The independent variable was Group (Job ASSET Peer Mentor Program; Adult Mentor Program). The covariate was the baseline measure of the outcome variable. Effect size was calculated by partial eta squared (\(\eta^2_p\)). All analyses were conducted at \(p < .05\).

**Results**

**Preliminary Analyses**

Means and standard deviations for outcome variables at baseline and follow-up are reported in Table 1. The researchers first examined outcome variables for skew and kurtosis at baseline and follow-up assessments to test for assumptions regarding normality of the variable distributions. The researchers did not identify any outliers and all variables were within the normal range. Results from a series of chi-square analyses and t-tests indicated no differences in demographic variables or baseline academic or self-concept scores between students in the two groups, with the exception of the standardized reading score for which students in the Job ASSET Peer Mentor Program (\(M = 205.20, SD = 9.68\)) had significantly higher scores than students in the Adult Mentor Program (\(M = 194.71, SD = 17.77\)), \(t(52) = 2.43, p < .05\).
Table 1

<table>
<thead>
<tr>
<th></th>
<th>Job ASSET Peer Mentor Program</th>
<th>Adult Mentor Program</th>
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<tbody>
<tr>
<td></td>
<td>Fall</td>
<td>Spring</td>
</tr>
<tr>
<td>Achievement</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Reading</td>
<td>205.20 (9.68)</td>
<td>213.85 (7.56)</td>
</tr>
<tr>
<td>Language</td>
<td>204.85 (12.09)</td>
<td>214.60 (8.21)</td>
</tr>
<tr>
<td>Math</td>
<td>207.95 (8.68)</td>
<td>221.30 (7.09)</td>
</tr>
<tr>
<td>Self-Concept</td>
<td>48.35 (11.88)</td>
<td>53.00 (9.93)</td>
</tr>
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</table>

**Attrition**

Standardized academic achievement scores for fall and spring were available for 54 of the 55 students. For self-concept, 43 of the 55 students completed the fall baseline self-concept measure. Of these, 32 (74.4%) also completed the spring follow-up measure. A series of chi square analyses and t-tests indicated a higher rate of attrition in the Adult Mentor program compared to the Job ASSET Peer Mentor Program, \( \chi^2(1) = 4.05, p < .05 \).

**Academic Achievement**

Results indicated no significant main effects for reading, \( F(1, 53) = 0.00, p > .05, \eta^2_p = .00 \), language, \( F(1, 53) = 0.59, p > .05, \eta^2_p = .01 \), or math, \( F(1, 53) = 0.03, p > .05, \eta^2_p = .00 \), indicating no group differences in academic achievement. Although there were no differences in academic achievement between the two groups, follow-up paired-sample t-tests indicated an increase in reading, \( t(53) = -9.35, p < .001, \) Cohen’s d = -1.57, language, \( t(53) = -7.72, p < .001, \) Cohen’s d = -1.18, and math, \( t(53) = -13.67, p < .001, \) Cohen’s d = -2.12, scores for the whole sample. The effect sizes for reading, language, and math were all large.

**Self-Concept**

Results indicated a significant main effect for Group, \( F(1, 53) = 6.33, p < .02, \eta^2_p = .18 \), indicating group differences in self-concept at the follow-up assessment. The effect size for group differences is large. Examination of the means indicates students in the Job ASSET Peer Mentor group reported a significantly higher self-concept at follow-up relative to those in the Adult Mentor group.

**Discussion**

The aim of this study was to evaluate two school-based mentoring programs on improving academic achievement and self-concept among elementary school students. The Job ASSET Peer Mentor Program and Adult Mentor Program were designed by the elementary school counselor to provide students with a sense of belonging and competence. Both programs contained elements of mentoring, with a peer mentor as part
of the “management team” in the Job ASSET Peer Mentor Program and an adult mentor as a positive role model in the Adult Mentor Program.

Overall, results indicated there were no differences in academic achievement between the Job ASSET Peer Mentor Program and Adult Mentor Program. Instead, students in both groups demonstrated a significant improvement in academic achievement. Standardized achievement test scores in reading, language, and math increased significantly from the fall to spring semester for students in both programs. The effect size for each of the analyses was in the large range. These findings are consistent with prior research suggesting that comprehensive guidance and counseling programs provided by school counselors can be effective in increasing academic achievement (Whiston et al., 2011) and that mentoring programs are effective in improving academic success (Herrera et al., 2011). Findings from the current study support the use of both adult mentors and peer mentors as part of a school-based mentoring program designed to improve academic success.

Another interesting finding included a significant difference in self-concept between students in the Job ASSET Peer Mentor Program and Adult Mentor Program. Specifically, students in the Job ASSET Peer Mentor Program reported higher levels of self-concept in the spring semester than those in the Adult Mentor Program. These findings add to the mixed literature on mentoring programs. The results are consistent with studies that failed to find an association between adult mentoring and self-esteem (Herrera et al., 2011) and with research supporting the positive association of peer mentoring with student self-esteem (Karcher, 2005). Results of this study, however, are not consistent with research demonstrating emotional outcomes are better when students are paired with adult mentors compared to peer mentors (Whitney et al., 2011).

We can only speculate why students in the Job ASSET Peer Program reported an improved self-concept relative to the Adult Mentor Program in this study. Students in the Job ASSET Peer Program began the intervention with higher baseline scores and there is evidence that reading achievement is tied to self-esteem (Kaniuka, 2010). A study by Miller, Topping, and Thurston (2010) revealed the use of peer tutors increased reading levels, as well as self-esteem, in the participants. Yet, it is possible the use of peers as role models for participants is in itself an important intervention. A child’s peers become increasingly more important as they develop, and the opportunity to create supportive and positive friendships could be a stronger reinforcer than attention from adults alone (Henderson & Thompson, 2011). Alternatively, it could be that assuming the role of a leader in the school improves self-concept. Research suggesting that participating in programs that promote leadership skills is positively associated with self-esteem (Morgan, Saunders, & Lubans, 2012). Serving in a leadership role by performing tasks for the school may have helped students take pride in their work through their contribution to the school and connection to the student body. The physical nature of some of the tasks may also have contributed to the increase in self-concept. This idea is consistent with research suggesting that being physically active is positively associated with self-esteem (Gadbois & Bowker, 2007). It is possible that the activities selected for the Adult Mentor Program, including playing games and working on homework, were not sufficient to impact self-concept, although these activities may have contributed to improvement in academic achievement.
Limitations

Although this preliminary study adds to the literature by demonstrating the effectiveness of school counseling programs in improving academic achievement and self-concept, there are several limitations. First, the small sample size, of which the population is primarily Caucasian, limits the generalizability of the results. Future research with larger sample sizes and a more diverse sample is recommended to replicate the findings of this study. Next, students were not randomly selected or randomly assigned to the two programs. Therefore, it is not clear that group differences were due to the program content, selection effects, or other unmeasured factors. Finally, due to ethical considerations, this study did not include a control group. Thus, it is unclear how the changes in academic achievement and self-concept would have compared to at-risk students who did not participate in any type of mentoring activity. Future research using random selection, random assignment, and a wait-list control group would be beneficial to address these limitations.

Implications for School Counselors

A school counselor’s role is to continually evaluate the needs of his or her students by assessing the counseling program and analyzing student data (ASCA, 2012a). Identifying interventions that are comprehensive, developmental, and produce positive results help create more effective learning opportunities for students. The results of this study indicate that mentoring programs coordinated by the school counselor may be effective in improving academic achievement and self-concept. Students in both the Job ASSET Peer Mentor Program and Adult Mentor Program scored higher on an academic achievement test after participation in the program. Both programs provided a mentor and were geared toward increasing a sense of competence and belonging. Thus, participating in a mentor program with either a peer or adult mentor may have a positive impact on the academic success of at-risk students.

Results also indicated that self-concept increased among students in the Job ASSET Peer Mentor Program. Findings suggest that providing programming in which at-risk students are placed in leadership positions with peer mentors may impact self-concept more than programs geared toward an adult-student mentor relationship. Additionally, incorporating physical activity within specific duties may also contribute to a positive self-concept for at-risk students. Examples of these include being in charge of the school’s recycling disposal program, assisting in the development of a school garden, or delivering notes for the office.

School counselors who are interested in developing a mentoring program may want to take various aspects into consideration. First, securing stakeholder support from administration, parents, and community members may be helpful for ensuring buy-in and success of the program. In addition, offering some type of training for the mentors (whether adults or peers), may help eliminate potential problems before they arise (e.g., conflict resolution, listening skills). Lastly, documenting results and measuring the effectiveness of the program will help make decisions in designing or implementing future counseling interventions easier.
Conclusion

Results of this study provide evidence that school-based mentoring programs may be effective in improving academic achievement for elementary school students. Peer mentoring programs, however, may be more effective than adult mentoring programs in increasing self-concept. This preliminary study provides evidence to support the role of school counselors in coordinating mentoring programs that improve academic achievement and self-concept in at-risk students.

References


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