

**Increases in Academic Connectedness and Self-esteem Among High School Students Who Serve as Cross-age Peer Mentors**

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Abstract

Cross-age mentoring programs (CAMPs) are peer helping programs in which high school students serve as mentors to younger children. This study compared Fall-to-Spring changes on connectedness, attachment, and self-esteem between 46 teen mentors and 45 comparison classmates. Results revealed an association between serving as a cross-age peer mentor and improvements on academic self-esteem and connectedness. ASCA regards coordinating a peer helping program as an appropriate activity for school counselors; this study supports that position.

## Increases in Academic Connectedness and Self-esteem

### Among High School Students Who Serve as Cross-age Peer Mentors

As school counselors have moved from a student services model to a comprehensive developmental guidance model, their role in supervising service delivery has increased. One way that professional school counselors can have a wider effect than by working one-on-one with the individual students most in need is to implement and supervise programs that serve a larger swath of the student population. Providing guidance lessons to large groups, such as on social skills, is one way to reach this wider group of students. Yet, when students themselves assist in the delivery of guidance lessons and learning experiences for other students, the number of students affected by the developmental guidance program may be greatly magnified or doubled.

ASCA believes that peer-helping programs are one means of helping students reach a higher level of maturity and accepting responsibility.... Peers can be selected and trained by professional school counselors in the areas of communication and helping skills through a carefully planned peer helping program... Peer helpers increase the services of the school counseling program in an outreach function and are an invaluable part of a comprehensive school counseling program (ASCA, 2008, ¶ 1-2; 11)

Peer helping has long held a place in school counseling, as indicated by the ASCA position statement on peer helping (above) that was approved in 1978 and revised most recently in 2008. In addition, two reviews of school counseling effectiveness have highlighted the impact such programs can have on all involved (McGannon, Carey, & Dimmitt, 2005; Whiston & Sexton, 1998), yet there is less research on cross-age peer helping, such as in cross-age peer mentoring (Noll, 1997), than on peer tutoring or same age peer helping.

In cross-age mentoring programs (CAMPs), which are one manifestation of peer helping, an older youth, typically high school aged, is paired or matched with an elementary or middle school aged child (Noll, 1997). Meetings typically take place in the school setting, after school, and in a group context. Like adult mentors, cross-age peer mentors are paired with mentees for the purpose of providing the younger youth guidance, social support, or limited instruction. Despite limited research, there is evidence that cross-age peer mentoring can have beneficial effects for both the mentees as well as the mentors who provide it (Karcher, 2005a, 2007a).

#### *The Effects of School-Based and Cross-age Peer Mentoring*

*For mentees.* Although no large-scale randomized study of the effects of CAMPs on mentees have been reported in the literature to date, small single-site randomized studies have consistently revealed positive findings. Following cross-age peer mentoring, mentees have demonstrated or reported improvements in attitudes toward and connectedness to school and peers (Bowman & Myrick, 1987; Karcher, 2005b; Stoltz, 2005), self-efficacy (Stoltz, 2005; Tomlin, 1994), grades or academic achievement (Karcher, Davis, & Powell, 2002; Stoltz, 2005; Tomlin, 1994; Westerman, 2002), social skills (Karcher, 2005b; Noll, 1997), behavior problems (Bowman & Myrick, 1987) as well as gains in conventional or prosocial attitudes toward illicit and antisocial behavior (Sheehan, DiCara, LeBailly & Christoffel, 1999). In contrast, very small and non-significant effects have been found for cross-age peer programs enlisting middle-school aged mentors to work with elementary aged children (Akos, 2000), which suggests high school mentors may be more effective than middle school aged mentors.

Recent studies of school-based mentoring which utilized adult mentors with student mentees suggest academic and family outcomes are differently effected by school-based mentoring. Herrera et al. (2007) report improvements in teacher reported academic performance

and attitudes among elementary and middle school-aged mentees in the Big Brothers Big Sisters school-based mentoring program. Karcher (2008) found that the improvements in school connectedness and self-esteem resulting from adult-with-youth school-based mentoring in the Communities in Schools program were largest for elementary aged boys, but that improvements in connectedness to peers were reported by all mentees. These findings differ from those reported in the hallmark Big Brothers Big Sisters impact study of community based mentoring, in which some of the largest impacts were in relationships (“attachment”) with parents (Grossman & Rhodes, 2002). Improvements in parent connectedness (in addition to academic achievement) also have been found to result from school-based cross-age peer mentoring (Karcher et al., 2002) suggesting that, while school-based mentoring may primarily effect academically related outcomes, it is worth examining the impact of school-based mentoring on family and non-school relationships as well, both for mentees as well as for mentors in CAMPs.

*For mentors.* There is more limited evidence from studies of CAMPs that participating as a high school mentor can have positive effects on the mentors, but what is available suggests the effects are comparable to those reported by youth who engage in service learning (Stukas, Clary & Snyder, 2000) and extracurricular activities (Eccles & Barber, 1999; Hamilton & Fenzel, 1988). For example, a randomized study of 129 high school students found improvements in moral reasoning and empathy after youth served as peer mentors (Ikard, 2001). Another reported that “a positive experience with the peer mentoring program was predictive of a more favorable connection to school” (Stoltz, 2005, p. 11). Indeed, in an evaluation of the Big Brothers Big Sisters High School Bigs (HSBigs) program, the high school mentors reported improvements in their own communication skills and felt a stronger “connection to their community and school” (Hansen, 2006, p. 3). However, there also is evidence that high school mentors can be

overwhelmed by serving as mentors to high-needs children. For example, socially interested high school age mentors who chose to work with more challenging mentees consequently have reported declines in their own connectedness to school at year's end (Karcher & Lindwall, 2003). But no prior studies have examined the effects of serving as a cross-age peer mentor by comparing changes to a comparison group of non-participating peers.

Given the anecdotal reports of improved connectedness as well as these iatrogenic (negative) findings, it is important to better understand whether serving as a mentor to a younger child helps or hurts the adolescent mentors' self-esteem, connectedness, and attachments. It is important to better understand processes and outcomes of cross-age peer mentoring programs for the high school mentors for two reasons: (1) the numbers of youth who serve in this role nationwide each year are large. For example, in just the Big Brothers Big Sisters program, the number of high school mentors surpassed 50,000 in 2007, exceeding the number of adults in their school-based programs by nearly 10,000; and (2) school counselors often coordinate or serve as the agency liaisons for these programs (Herrera et al., 2007).

The purpose of this study was to conduct a quasi-experimental test of the impact of serving as a cross-age peer mentor on adolescents' academic connectedness, self-esteem, and family attachment. Tests of impacts on school-related and family-related outcomes were conducted separately, and were examined for both positive and potentially negative outcomes.

## Methods

### *Participants*

The 46 Mentors were high school age students were mostly from grades 10 and 11 (two 9th and four 12th graders). The average age was 15.5 (SD = 1.45). Thirty-four were female. Mentors (and mentees) were 95% Caucasian, and most were from rural working class families.

All mentors participated in eight hours of training, and most participated in two hours of monthly supervision. Nearly half also were involved in a sport, drama, or band as an extracurricular activity at school; two mentors discontinued after two months because of conflicts due to their extracurricular involvement.

The 45 comparison group youth were recruited from two 10th and 11th grade classes in a high school with 500 students. The average age was 15.3 (SD = 1.17). Thirty-five were female. One was bi-racial, one Hispanic, and the rest were Caucasian.

Originally, 45 mentees (24 male and 21 female fourth and fifth grade students) were assigned to work with the high school mentors. Twenty-eight were recruited after being rated by their teachers as having three or more (of a possible seven) social, behavioral (e.g., poor impulse control), or family risk factors (e.g., low income, loss of parent). The remaining youth (or their parents) responded to an announcement about the program and sought to participate. All the children were Caucasian except for one Latino boy and one African American girl.

### *Study Procedure*

Fully informed written parental consent and youth assent forms were obtained prior to the study. Mentors and comparison youth were surveyed in their class in September and May. The program was located in a 4<sup>th</sup>-8th grade middle school in a rural town of 5000 and coordinated by the first author and three graduate assistants, two of whom were school counselors in training. In this study, the program took place from September to May in the library, gym, and cafeteria after school, and once a month on Saturday for five to six hours. The dyads spent half of their time engaged in structured academic or social development activities and half in free play activities.

*The CAMP Program.* The cross-age mentoring program (CAMP) conducted in this study has been described in prior research (Karcher, 2005b; Karcher & Lindwall, 2003; Karcher,

Nakkula, & Harris, 2005) and many of the components of the program are described online (Karcher, 2004; Karcher, in preparation a, b; Lakes & Karcher, 2005). CAMP is designed to facilitate strong mentor-mentee relationship. CAMP requires a host of structural supports, the most important of which may be the initial matching and the eventual termination procedures. The mentees and mentors self-select each other (following a six-hour Saturday orientation) using a “meet and greet” procedure (see Karcher, 2007b) wherein both children and the teens nominate up to three people as “interesting and memorable.” In this study, almost 90% of mentees received either the first or second mentor nomination. Terminations, both premature and at the end of each year followed a specific termination ritual (Lakes & Karcher, 2005) designed to help program staff systematically get the mentor and mentee together to help the mentee understand that the dissolution of the match is not because of his or her likeability or worth.

*The CAMP Curriculum.* During the after school meetings each week, a sequence of daily activities included an icebreaker, a connectedness curriculum activity, a snack, and finally a group game or recreational activity (like playing tag, doing artwork, playing basketball). Mentors and mentees worked in a pair for most of the afternoon meeting, but were part of a larger group format of up to 15 pairs. A two-year connectedness curriculum was developed that included activities to promote connectedness to peers, friends, family, self, parents, school, and reading (Karcher, in preparation a). Two examples of the connectedness curriculum, which targeted connectedness to teachers and to reading, are teacher interviews and reading and role-playing stories from “The Decision is Yours” social dilemma books. In the teacher interview activity, mentors worked with their mentees to plan a teacher interview and they rehearsed it before conducting it with a teacher. Afterwards mentees discussed their interview with their mentors. The mentors helped their mentees develop a poster and story about the teacher, which they both

presented to their peers at a subsequent after school meeting. The connectedness-to-reading activity used eight short children's books that mentors and mentees read together. After discussing the story, the pair joined the larger group and role-played alternative outcome scenarios in front of the larger group of mentors and mentees.

The CAMP program also included a monthly “Super Saturday” day-long event in which parents spent time with their children's mentors, saw the work their children had done with the mentors during the afterschool program, and participated in playful activities with their child and his or her mentor. Saturday events included a trip to the zoo, a picnic at a local public park, and a mock carnival at the school. Each of these events, like the after-school meetings, were highly structured to promote prosocial interactions between the children and mentors (e.g., *Project Northland*, see Komro & Perry, 1996), and, on Saturdays, to encourage positive parent-child-mentor interactions. This structure is deemed critical to minimizing the possibly “iatrogenic effects” of deviancy training (Dishion, McCord, & Poulin, 1999), which can occur when peers reinforce delinquent or authority-undermining behaviors (e.g., such as when a mentor suggests to a mentee “Hey, this activity is stupid, let’s go see who is hanging out in the hallways” or when a mentor, if given unstructured time to interact with her same age peers, talks about her smoking or drinking over the weekend while her mentee overhears).

### *Measures*

*Hemingway: Measure of Adolescent Connectedness* (Karcher, 2003). This self-report survey consists of 78 (1-5 rated) Likert items designed to measure the adolescents’ degree of caring for and involvement in specific relationships, contexts and activities. Development of the measure began by asking adolescents in focus groups to explain what they thought it meant to be “connected,” and to identify the people, places, and things (i.e., domains of connectedness) to

which they thought adolescents were connected. The focus group adolescents identified 12 general domains which reflect the scales in the measure: connectedness to friends, peers, parents, siblings, teachers, school, reading, neighborhood, religion, culture, and two forms of self (future and present). The connectedness to self (present and future) constructs capture the phenomenon whereby adolescents develop a new “sense of a future self” that, along with a sense of self in the present shapes their behavior and feelings. Reading is a “world of connection” because reading (e.g., being able to escape in a book) reflects a world youth may choose to engage in (or not).

Examples of items for select subscales: Three of the six *Friends* items are “Spending time with my friends is a big part of my life. My friends and I talk openly with each other about personal things. I spend as much time as I can with my friends.” Four of the six *School* items are “I work hard at school. I enjoy being at school. I get bored in school a lot (reverse coded). I do well in school.” Three of the six *Self-in-the-Future* items are “I do things outside of school to prepare for my future. I think about my future often. I do lots of things at school to prepare for my future.” The four *Reading* items are “I enjoy spending time by myself reading. I like to read. I never read books in my free time (reverse coded). I often read when I have free time.”

There is at least one reverse scored item in each subscale which is included to lessen a patterned positive response. Once negatively worded items are reverse scored, the items within each of the subscales are averaged to obtain subscale scores for each world of connectedness. Reports of internal consistency and test-retest reliability for the subscales and composite scales are strong (Karcher, 2003; Karcher, Holcomb, & Zambrano, 2008). Good concurrent validity evidence has been reported through correlations with domain-specific self-esteem scales (Karcher, 2003). Factor analyses suggest each of the subscales falls under superordinate categories of either academic, familial, or social connectedness, and there is evidence of cross-

gender and multicultural factor structure equivalence across African-American, Anglo, and Latino youth (Karcher & Sass, 2008). Post-test alpha coefficients for the school scales in Figure 1 were School ( $\alpha = .80$ ), Culturally Different Peers ( $\alpha = .84$ ), Future ( $\alpha = .79$ ), Friends ( $\alpha = .70$ ).

*Inventory of Parent and Peer Attachment* (IPPA, Armsden & Greenberg, 1987; 75-item revised scale reported in Corcoran & Fischer, 2000). The IPPA measures trust, communication, and alienation in parent and peer relationships. The authors report adequate three-week test-retest reliability ( $r = .86$ ) and internal consistency ( $\alpha = .72$ ) for the peers scale. In the present study the inter-item reliability for peers,  $\alpha = .75$ ; mother,  $\alpha = .72$ ; and father,  $\alpha = .78$  was good.

*Self-Esteem Questionnaire* (SEQ; DuBois, Felner, Brand, Phillips, & Lease, 1996). The SEQ self-report survey assesses self-esteem using 42 self-evaluation statements pertaining to each of five separate domains (peer relations [8 items], school [8 items], family [8 items], physical appearance [4 items], and sports/athletics [6 items]), as well as global self-esteem (8 items). Each statement is rated on a 4-point scale ranging from *strongly disagree* to *strongly agree*. As in prior research, where the scale has demonstrated good reliability and evidence of construct validity (DuBois et al., 1996) with estimates of school self-esteem being the highest and sports/athletics the lowest, in this study alphas ranged from  $\alpha = .72$  to  $.86$ , most  $\alpha = < .80$ .

## Results

Prior to running tests of end-of-year (post intervention) differences on outcomes between mentors and comparison classmates, start-of-school (pre-intervention) between group differences were examined. To reduce the likelihood of chance findings, comparisons were conducted in groups of subscales using multivariate analysis of variance (MANOVA). All three surveys include several subscales, and because prior research has reported effects of mentoring on both school-related outcomes and non-school scales, the scales were grouped according to their

context. The self-esteem, attachment, and connectedness scales that were related to school (e.g., school, teacher, and peer self-esteem and connectedness) were examined as one group in the first analysis, and the family-related scales (e.g., sibling connectedness, parental attachment, and family self-esteem) were examined in a second analysis. Tests were conducted for between-group differences at the start of the year and at the end of the year (see Table 1). In each comparison, age and sex were controlled for in analyses of covariance.

The Multivariate Analyses of Covariance (MANCOVA) for school-related scales at the start of the year controlling for age and sex was non-significant,  $F(11, 77) = .64, p = .79$ , and there were no significant univariate ANCOVAs on any school-related scales. This indicates the mentors and comparison teens did not differ on any scales at the start of the year. The MANCOVA for family-related scales controlling for age and sex also was non-significant,  $F(10, 78) = .68, p = .74$ . Univariate tests for pre-existing differences on starting scores on the scales revealed only two significant differences, which were on two family-related scales: Father Connectedness and Father Attachment. On both comparison youth scored higher at pretest.

To test for differences on connectedness, self-esteem and attachment at the end of the school year (after one group received the “treatment” of serving as a peer mentor) the same two MANCOVAs were conducted. Post-test scores were compared between mentors and comparison youth, controlling for sex and age, but also included all pre-test scales as covariates. The omnibus test for the family subscales, which included Connectedness to parents, mother, father, sibling, religion, and neighborhood; family and global self-esteem; and father and mother attachment, revealed no between group differences on the at end of the year (post-intervention),  $F(10, 68) = .92, p = .52$ .

However, there were post-test differences on the school-related scales, which included Connectedness to school, teachers, culturally different peers, peers, self-in-the-future, and friends; extracurricular, sports, and school self-esteem; and attachment to peers. At the end of the year, the MANCOVA omnibus test for differences between mentors and the comparison group suggest an association between serving as a mentor and positive changes on the school-based outcomes,  $F(11, 66) = 2.11, p = .03$ , partial eta-squared = .26 (i.e., a large effect size).

Figure 1 presents post-test adjusted means for the connectedness scales on which there were significant between-group differences in the adjusted means for high school aged mentors and a comparison group of their peers at the end of the school year (i.e., after one group mentored for eight months). Post-hoc univariate ANCOVAs demonstrated the connectedness scales were significantly higher among mentors at year's end on connectedness to Friends ( $F = 6.05, p = .016$ ), Culturally Different Peers ( $F = 5.88, p = .018$ ), Self-in-the-Future ( $F = 6.06, p = .016$ ), and School ( $F = 6.81, p = .011$ ). Mentors also were higher on school-based scores for Extracurricular Self-Esteem ( $F = 8.27, p = .005$ ), Sports Self-Esteem ( $F = 4.36, p = .04$ ), and School Self-Esteem ( $F = 4.35, p = .04$ ; also see Table 1). Figure 2 demonstrates the self-esteem scales on which there were significant between-group differences in the adjusted means for high school aged mentors and the comparison group of their peers at the end of the school year.

### Conclusion

Youth who participated as cross-age peer mentors in the CAMP reported larger Fall-to-Spring gains in school-related connectedness and self-esteem than did a comparison group of their peers. In contrast, consistent with prior research on school-based mentoring (Herrera, et al., 2007; Karcher, 2008) there were no effects on family (non-school) related outcomes. Fortunately, the post-test comparisons revealed no iatrogenic (negative) effects of serving as a

mentor. That is, there was no evidence to suggest that serving as a mentor to a young child is developmentally inappropriate for teens (e.g., results in declines in connectedness). This positive impact of CAMPs on mentors reveals the double advantage of such programs being able to promote positive youth development among mentors *and* mentees.

This quasi-experimental pre-post, non-equivalent between-groups design study demonstrates that by coordinating cross-age peer mentoring programs in schools, school counselors can utilize students to promote key academic, career, personal and social developmental competencies that are central to the ASCA National Standards. In conjunction with prior research on the effects of CAMPs on mentees (Karcher, 2007a), this study demonstrates that CAMPs provide a novel way to promote all students' academic development by helping both mentors and mentees to acquire several attitudes known to propel student achievement, including school and teachers connectedness, and school, extracurricular, and sports self-esteem. Coordinating CAMPs can help school counselors promote the student mentors' career development, both by increasing their connectedness to the future and by providing them opportunities to explore helping roles commensurate with careers as counselors, coaches, and teachers. Finally, both by learning the social skills that they as mentors will teach to the younger children, but also as a function of experiencing increased connectedness to culturally different peers after serving as peer mentors, the mentors can acquire knowledge, attitudes and social skills that may help them better understand and respect self and others.

This study has limitations to both external and internal validity. It should be noted that the use of a non-equivalent comparison group limits the internal validity of the study. Although we found no pre-existing differences on the outcomes under investigation in the study, these youth differ (at least) in that only half self-selected to serve as mentors. The use of only self-

report measures (e.g., did not include grades or attendance as outcomes) limits its external validity because inferences cannot be drawn about changes on other outcomes or the long-term effects of the program. Studying a program conducted in a small town with Caucasian mentors limits the generalizability of these findings to urban schools and ethnic minority mentors as well.

It also should be noted that the program in the present investigation was perhaps more structured than are many other cross-age mentoring programs. There is great variability in the support, training, and structure provided in peer programs (see NPHA, 2007; PAL, 2007; YouthLaunch, 2007). The mentors in this study received more training than appears most school-based mentors typically receive (i.e., Herrera, et al., 2007; Karcher, 2008). Training included structured activities for mentors, their actions with mentees also were carefully guided using a developmental, rather than goal or skill focused, curriculum (Karcher, in preparation a, b), and specific program practices were utilized to begin and conclude the matches effectively (Karcher, 2007b; Lakes & Karcher, 2005).

The degree of structure required explains why, just because these programs are school-based and utilize free labor (teens), CAMPs may not be less costly to operate than other programs. The mentor training manuals, the program curriculum, and staff (e.g., school counselor) time are needed to operate this program. While CAMPs may fill a unique role in a comprehensive guidance program, they are labor intensive and require adequate resources to maximize their potential (and to “do no harm”). This level of structure may be necessary not only to ensure positive effects for mentors and mentees, but also to avoid iatrogenic outcomes from either failed matches (Karcher, 2006) or deviancy training by the mentors (Dishion et al., 1999). While CAMPs offer a way to positively effect both older and younger students alike, these programs may have the potential to do harm if not structured and supported sufficiently.

School counselors have limited time and resources, so they must be strategic in allocating their energies to programs and interventions. In a comprehensive guidance program, school counselors also must ensure their efforts do not serve only those most at risk but also that their programmatic efforts systematically promote academic, career, and social competencies among a wide array of students. Cross-age peer mentoring programs (CAMPs) provide a unique way for school counselors to reach a range of students by supervising one group of older students who can teach, support and serve as role models to a group of younger students. Finding out that CAMPs have important benefits for the older students who provide them should encourage more school counselors to consider adding CAMPs as one component of their comprehensive developmental guidance programs.

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Table 1. Adjusted Means for Mentors' and Comparison Classmates' Year End Scores on Connectedness, Self-Esteem, and Attachment

<i>Scales in MANCOVA for School-related Outcomes</i>	F	p-value	partial eta <sup>2</sup>	Mentor Mean	Mentor SE	Comparison Mean	Comparison SE
Friend Connectedness	6.05	.016	.074	4.41	.07	4.17	.07
Self-in-the-Future	6.06	.016	.074	4.23	.06	4.00	.06
Conn. to Culturally Different Peers	5.88	.018	.072	4.19	.08	3.90	.08
Attachment to Peers	.44	.509	.006	4.17	.06	4.12	.06
Teacher Connectedness	2.48	.119	.032	3.95	.06	3.81	.06
Peer Connectedness	2.53	.116	.032	3.90	.07	3.73	.07
School Connectedness	6.81	.011	.082	3.66	.06	3.45	.06
Peer Self-Esteem	.46	.498	.006	3.07	.04	3.02	.04
Extracurricular Self-Esteem	8.27	.005	.098	2.96	.04	2.80	.04
School Self-Esteem	4.35	.040	.054	2.91	.05	2.75	.05
Sports Self-Esteem	4.33	.041	.054	2.77	.05	2.62	.05
<i>Scales in MANCOVA for Family-related Outcomes</i>							
Parent Connectedness	1.61	.208	.021	4.02	.06	3.91	.06
Mother Connectedness	2.30	.133	.029	4.00	.08	3.82	.08
Father Connectedness	1.82	.181	.023	3.60	.07	3.47	.07
Sibling Connectedness	.56	.457	.007	3.64	.08	3.55	.08
Neighborhood Connectedness	.45	.506	.006	3.57	.09	3.48	.09
Self-in-the-Present	.99	.324	.013	4.19	.06	4.10	.07
Attachment to Mother	2.35	.129	.030	3.89	.07	3.74	.07
Attachment to Father	.51	.476	.007	3.44	.07	3.37	.07
Family Self-Esteem	.93	.337	.012	2.84	.07	2.74	.07
Global Self-Esteem	.44	.512	.006	3.04	.05	3.09	.05

Note: Partial Eta<sup>2</sup> is an effect size index (like R<sup>2</sup> in regression). It explains the proportion of variance in an outcome associated with a variable (e.g., program participation). It is similar to Cohen's d (on which .2 = small, .5 = medium, .8 = large effect), but uses a different metric. For Partial Eta<sup>2</sup>, the amount of variance in the outcome associated with a variable is .01 = small, .05 = medium, or .13 = large.

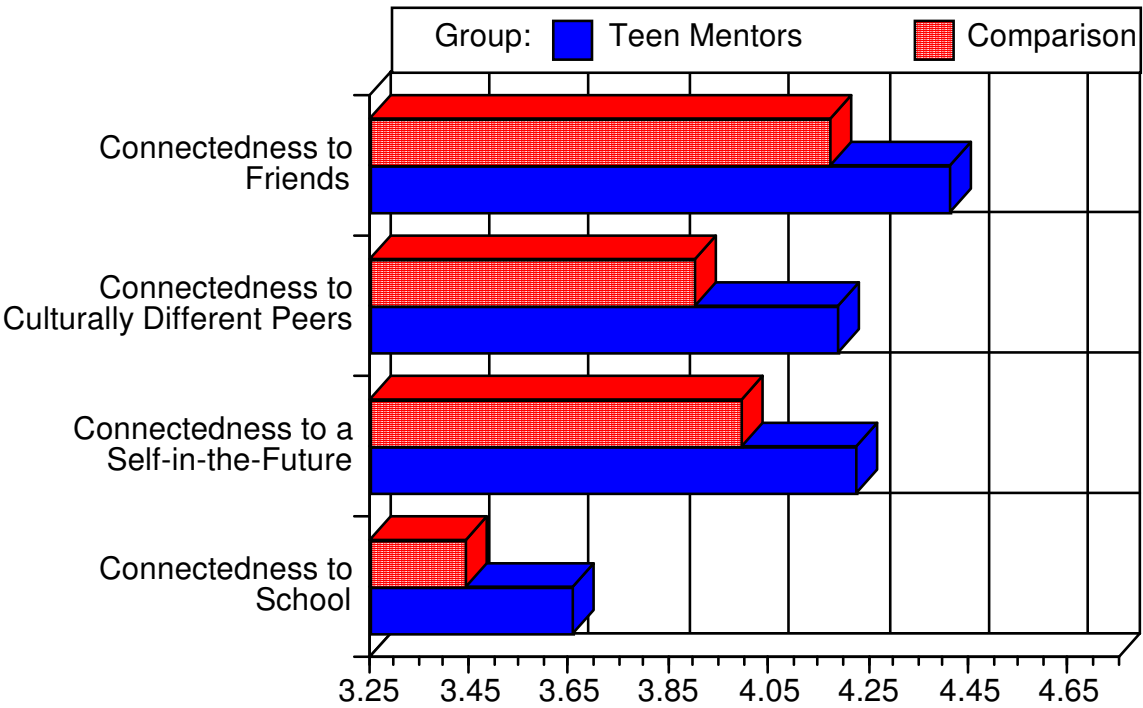


Figure 1. End of year levels of academic connectedness among teen mentors and comparison youth (adjusted for initial score levels and differences in age and sex).

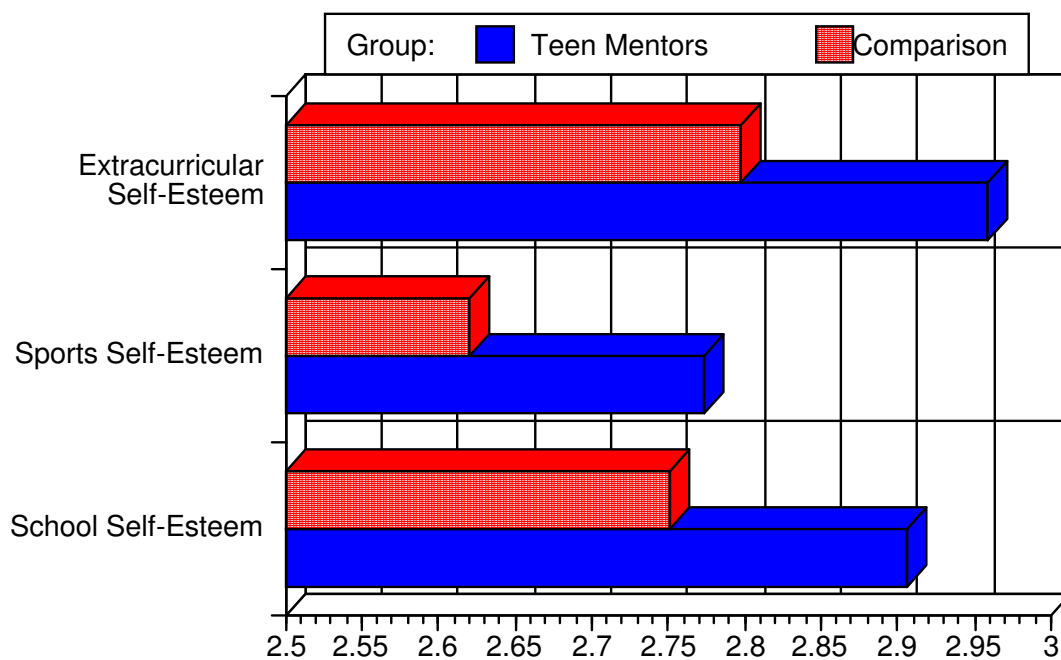


Figure 1. End of year levels of academic self-esteem among teen mentors and comparison youth (adjusted for initial score levels and differences in age and sex).