Final Technical Report

Ten-Year Follow-Up on the RCT Study of Mentoring in the Learning Environment (SMILE): Effects of the Communities in Schools Mentoring Program on Crime and Educational Persistence

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Michael J. Karcher, Ed.D., Ph.D., Principal Investigator

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Correspondence concerning this report should be addressed to Michael J. Karcher, Professor, Department of Educational Psychology, 501 W. Cesar Chavez Blvd., DB 4.337, University of Texas, San Antonio, Texas, 78207 michael.karcher@utsa.edu 210-458-2032

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ABSTRACT

This "Mentoring Best Practices" Long-Term Follow-up project assessed outcomes for adults who as children were part of the Study of Mentoring in the Learning Environment (SMILE; Karcher, 2008), which took place between 2003-2007 at *Communities In Schools (CIS)* of San Antonio. The original randomized study tested short-term benefits for students from participation in the CIS school-based mentoring program. Initially, 516 students who enrolled in CIS-San Antonio at one of 20 elementary, middle, and high schools were randomly assigned to receive either (1) standard CIS services or (2) standard CIS services plus assignment of a mentor. The present study looked at outcomes in adulthood ten years later, and found evidence that those who had enrolled in the CIS school-based mentoring program were half as likely to have been arrested for a misdemeanor and were 10% more likely to have pursued some form of post-secondary education by age 21 than who received only standard CIS services. Educational benefits of mentoring were strongest for females. Analyses linking actual mentoring interactions to these long-term outcomes further revealed the largest benefits were achieved when relationship-building was frequent, and that frequent problem-focused conversations in matches with youth who did not feel they were valued or mattered to their mentor predicted increased likelihood of arrest later.

EXECUTIVE SUMMARY

The purpose of this longitudinal study was to estimate the long-term effects of school-based mentoring on study participants' subsequent criminal activity and educational pursuits during early adulthood. The study adds to a body of research that has consistently found short-term benefits of youth mentoring in preventing criminal activity. In a meta-analysis by Tolan et al. (2014) examining the effects of youth-mentoring program participation on delinquency, criminality, and drug use (in studies published between 1970 and 2005), the authors found that the largest effects of youth mentoring were reductions in delinquency and aggression. They also found that the provision of emotional (i.e., relational) support was a key moderator of program effects on these reductions in delinquency and aggression. They noted, however, a problematic lack of information on the types of interactions that contribute to effective mentoring (p. 2). Another meta-analytic review by DuBois et al. (2011) also concluded that better understanding mentoring interactions is critical to more fully understanding the effects of mentoring-program participation on a variety of youth outcomes. The second part of the present study, therefore, attempted to link both the types of mentoring activities reported by mentors and the quality of the relationship reported by their mentees with long-term programmatic effects of program participation on adult criminality and educational persistence.

The present study extends an investigation called the Study of Mentoring in the Learning Environment (SMILE; Karcher, 2008), which took place between 2003-2007, by gathering and examining publicly available data on participants' criminal records and educational attainment ten years later. In the original study, 516 students were enlisted for participation in the Communities In Schools (CIS-San Antonio) program. Follow-up data collected from 466 of the 516 students was used in this study. As one of several services provided by CIS, this study examined the effects of random assignment in receiving a school-based mentor. The students were randomly assigned to

one of two experimental conditions: (1) receipt of standard CIS services or (2) receipt of standard CIS services *plus* assignment of a mentor. This design provides an experimental test of the additive effects of being assigned a mentor for students already receiving other support services.[1]

SMILE was the first of three large-scale studies of school-based mentoring to report the short-term effectiveness of school-based mentoring (Wheeler, DuBois, & Keller, 2010). It was unique, however, in three ways. First, it was the only one of three studies to include a sufficient number of high-school-age mentees to effectively measure the short-term impact of school-based mentoring on adolescents (high school students). Another unique sample characteristic is that it included mostly Latino/a children and youth, thereby offering insights into the effects of this approach specifically for this ethnic group. Second, an effective collaboration between program staff and researchers allowed the collection of relatively complete information about what happened during each mentoring meeting (mentor's activity reports). Third, the study did not employ a waitlist comparison group. Thus, neither resentful demoralization among youth or parents who were denied a mentor posed a viable threat to the validity of the study inferences, nor was the present long-term follow-up study compromised by delivery of the mentoring experience to the control group at a later date (which complicates the estimation of long-term outcomes in experimental studies using a wait-list comparison group).

In the original publication of findings from the SMILE study (Karcher, 2008), the short-term effects of being assigned a school-based mentor were estimated nine months after program enrollment (at the end of the academic school year) by comparing course GPA, attendance scores,

[1] The original title of this project as originally awarded was "Ten and 40 Years After Mentoring: Longitudinal Analyses of Relationship and Developmental Processes as Moderators of Outcomes in Two Experimental Studies." Substantial changes in the goals of the project necessitated a more narrowly focused title for this report.

and youths' responses to attitudinal surveys. This report compared differences across the two experimental groups on outcomes at post-test, controlling for pre-test scores, using a between-group, intent-to-treat design. The outcomes were generally positive, favoring those assigned to the mentoring group, with main effect differences benefitting youth in the mentoring condition, who reported more connectedness to peers, greater self-esteem (global and present-oriented), and more social support from friends than youth in the control condition. Subsequent analyses considering school level and sex as moderators, however, revealed that the program did not affect all students similarly.

The short-term effects of participating in the school-based mentoring program varied by sex and school level with elementary-age boys in the mentoring group benefitting the most, and high school boys in the mentoring group with no positive and one iatrogenic effect from program participation. Specifically, elementary boys in the mentoring condition reported higher social skills (empathy and cooperation), hopefulness, and connectedness both to school and to culturally different peers. Whereas, in terms of iatrogenic effects, mentored high school boys evidenced general (albeit not statistically significant) declines in most outcomes and a statistically significant decline in connectedness to teachers relative to high school boys in the control group at the end of the first year. These iatrogenic effects were one reason for the importance of conducting the present, long-term follow-up study.

Subsequent within-group analyses of mentoring interactions suggested time spent in discussions of academics, behaviors, and attendance was negatively related to multiple outcomes and occurred most frequently in matches with high school boys (Hansen & Karcher, 2009). High school boys also reported feeling the least valued by their mentors (Avera et al., 2014), and these youth-reported feelings were negatively correlated with many pre-post outcome change scores for the

mentees. This led to the hypothesis that the iatrogenic effects of mentoring program participation among high school boys (Karcher, 2008) might be due to the boys' reaction to the greater frequency of problem or goal-focused conversations (e.g., discussions about grades, misbehavior, attendance) in their mentoring match meetings. The present study attempted to test the hypothesis that types of interactions might explain long-term outcomes as well.

There were two goals of the present study. The first was to test the hypothesis that there would be long-term benefits of mentoring program participation on rates of crime and the likelihood of post-secondary educational enrollment. Because the study also might reveal persistent iatrogenic effects for the older boys, two-tailed significance tests were required to address this alternative hypothesis. The second goal was to examine the relationship between two types of interactions (relationship-building vs. problem- or goal-focused) and these two long-term outcomes (see Karcher & Nakkula, 2010), and determine if any link between activities and outcomes could be a function of the way specific interactions influenced how valued mentees felt by their mentors.

Method

The sample for the study included 466 predominantly Latino/a students from the 20 schools (6 elementary, 7 middle, and 7 high schools) who participated in the Communities in Schools (CIS-San Antonio) program. Recruitment began with the distribution of 675 consent forms (475 wave I, August 2003; 200 wave II, August 2004), and receipt of 525 signed parental consent forms returned to authorize student enrollment in the study. After omitting youth with histories of abuse and those whom staff removed from the starting study sample, the remaining 466 (89% of 525) youth were randomly assigned either to the mentoring condition (and were retained in this group regardless of whether they ever did meet with a mentor, n = 234) or to the control condition (n = 232), in which students received only the standard CIS services. All students received, on average, 29 hours of

standard CIS services. Those in the CIS services plus mentoring received, on average, 8 hours of mentoring (SD = 5.3 hours, with range of actual time with mentors between 0 and 30 hours). Dissimilar proportions of female and male youth, between mentored (143 females/91 males) and control groups (females 168/64 males) and across grade levels (see Table 2.2), necessitated considering sex either as a covariate, main effect, or moderating factor in most analyses.

To account for age differences across treatment groups, and to account for the varying length of time participants had to accrue a criminal arrest record and pursue post-secondary education in adulthood, outcomes for all youth were restricted to the range of activities up to age 21. With outcome distributions for the number of criminal arrests and years enrolled in post-secondary education being heavily skewed, estimates of change relied on non-parametric tests, making the use of logistic regression and survival analysis to test for the presence or absence of the outcome in question (not the number of crimes or the degree of persistence in post-secondary education) most appropriate. Between-group differences in the probability of arrest or post-secondary educational pursuit were estimated using non-parametric Cox regression and survival analysis, then evaluated using Kaplan-Meier hazard functions, Wald, and Chi-squared statistics, and associated significance tests.

Findings

Tests of the effects of being assigned to participate in the CIS mentoring program using logistic regression, including both main effects and moderator tests, yielded consistent, positive effects of mentoring on decreasing the likelihood of being arrested for a misdemeanor. The same three-way interactions (viz. treatment moderated by sex and grade level), including the same covariates as in the original study (Karcher, 2008), were replicated and yielded positive effects on misdemeanor arrests. Less consistent evidence of change was found for serious, property, and

violent crimes, likely because of their infrequency.

In terms of the likelihood of being arrested for a misdemeanor before age 21, the simple between-group odds ratio suggests youth in the mentoring group were 55% less likely to have committed a misdemeanor by age 21. Including sex as a main effect predictor in logistic regression analysis revealed youth in the mentoring group were 61% less likely to have committed a misdemeanor by age 21. Girls who had participated in the mentoring program were half as likely to have been arrested for a misdemeanor (2%) as girls not in the program (4.3%). The percentage of boys in the mentoring program arrested for a misdemeanor by age 21 (4.4%) was 67% lower than for the comparison group (12.5%). Both main effects of mentoring were statistically significant. After factoring in school level and starting grades, the adjusted odds ratio of .33 suggests those assigned to the mentoring condition were 67% less likely to have been arrested for a misdemeanor by age 21.

Logistic regression analyses (using SPSS 24) revealed a statistically significant difference in the probability of post-secondary educational enrollment between groups, with rates of pursuing some form of post-secondary education (certificate programs, trade school, college) higher for the treatment (33%) than control group (30%). Therefore, mentees were 10% more likely to pursue post-secondary education, and the odds of enrolling in some post-secondary pursuit were 14% greater for mentees; the odds of enrolling in some form of post-secondary education or training program were 27% greater for mentees when the odds ratio from logistic regression accounted for differences in starting levels of problem behaviors, grades, and sex. Within-sex comparisons, however, indicate the only statistically significant difference was the higher rate of post-secondary enrollment for girls assigned to the mentoring condition (38%) compared to girls in the control (30%) condition. Thus the effects of the mentoring program on post-secondary educational pursuit were found only for girls, indicating girls were more likely to pursue post-secondary education by age 21 if they were

assigned to the mentoring program. For boys, the difference in the percent of youth in the mentoring (25%) and control group (31%) who had enrolled in post-secondary education favored the control group, but the difference was not statistically significant. The statistical significance of these differences—significant for girls, not statistically significant difference for boys—was the same both when estimating odds ratios without and then with pre-intervention grades in math and reading and starting levels of problem behavior as covariates, and with and without bootstrapping.

Having confirmed the long-term benefits of school-based mentoring, subsequent analyses examined what types of experiences and mentoring interactions contributed most to relationship quality as well as these long-term outcomes. Bivariate and partial correlations examining the relationship between rates of matches engaging in specific mentoring activities, youth-reported relationship experiences (e.g., closeness experienced in the match), and the two long-term outcomes of crime and post-secondary pursuit yielded several statistically significant associations. Although correlations between both mentoring activities and mentee experiences and these outcomes are not evidence of causality, the pattern of association supports several hypotheses from the original study, the TEAM framework (Karcher & Nakkula, 2010), and the mentoring literature by revealing that specific mentoring interactions were useful predictors of long-term outcomes.

Partial correlations between likelihood of arrest for a misdemeanor in adulthood, mentoring interactions during the study, and self-reported experiences of the quality of the mentoring relationship while in the program, controlling for initial rates of misbehavior and grades, revealed that youth whose matches engaged in more relationship-building discussions were less likely to be arrested for a misdemeanor in adulthood. In comparison, time spent in discussions of grades, attendance, and behavior, by comparison, was not directly related to likelihood of arrest in adulthood but was negatively related to multiple relationship quality measures and predicted shorter match

duration. Youth who reported greater connectedness to the program had longer matches, and mentees reporting they felt they mattered more to their mentors were all less likely to be arrested for misdemeanors by age 21.

In terms of explaining post-secondary educational pursuit, the direction of the association between match activities and long-term outcomes was similar. Both zero-order and partial correlations between relationship-building discussions and post-secondary education were positive, and time spent on homework was negatively associated with post-secondary pursuit of some kind. The negative association with homework was stronger for males than females, but the positive association between time talking to build the relationship and later post-secondary pursuit held only for females. Also, only for females was the total number of mentoring hours associated with later education.

To test the hypotheses posed in the TEAM framework (Karcher & Nakkula, 2010) about the interactive nature of mentoring activities and relationship quality, moderator analyses were conducted to test the way one type of mentoring activity may have moderated the influence of the other. To test the hypothesis that mentoring conversation topics affect the way the quality of the relationship predicts outcomes, conditional analyses were undertaken that considered the frequency of specific relationship-building and problem-focused activities and examined how each moderated the way that relationship quality contributed to long-term risk for arrest. These analyses followed the approach to conditional process analyses described by Hayes (2013) and used the SPSS macro PROCESS developed by Hayes.

For both preventing criminality and fostering post-secondary educational persistence, PROCESS analyses revealed that the largest benefit of school-based mentoring in deterring later arrest manifested when problem/achievement-focused interactions occurred in relationships in which

the youth felt she or he mattered to the mentor and where time had been spent getting to know the mentee. Specifically, in the absence of time spent getting to know the mentee, among youth feeling least valued by their mentors, frequent engagement in problem/achievement-focused interactions predicted a greater probability of later criminal arrest for a misdemeanor than for similar matches that spent less time discussing school problems. Subsequent analyses are required to confirm the nature and directionality of these relationships, of course, but one interpretation that is consistent with the hypothesized causal model is that relationship-building interactions set the stage for problem/achievement-focused interactions to be effective through the way they make youth feel important to their mentors. When little time is spent getting to know mentees, and when mentees feel they matter little to their mentors, a heavy focus on mentees' problems may be counterproductive.

Discussion

The goals of this study were (a) to examine whether the harmful outcomes as well as positive programmatic outcomes of school-based mentoring found ten years earlier (Karcher, 2008) persisted over time; and (b) to explore relationships between two types of mentoring interactions and later rates of crime and pursuit of post-secondary education. Findings from this randomized study reveal positive long-term effects of school-based youth mentoring in decreasing rates of arrest for misdemeanor crimes and increasing educational enrollment in adulthood. Ten years after participating in the Communities in Schools of San Antonio mentoring program, intent-to-treat analyses comparing 234 youth randomly assigned to receive a mentor (regardless of whether they ever did) to 232 youth assigned to the control condition revealed that mentored youth were 55% less likely to have committed a misdemeanor by age 21 and as much as 67% less likely to have committed a misdemeanor once the role of age, pre-match characteristics, and mentee sex were considered. Mentored males were 67% less likely than control males, and mentored females were

51% less likely than control females to commit a misdemeanor. In terms of post-secondary enrollment, the results varied by sex. Overall, the odds of youth in the mentoring treatment condition having enrolled in some form of post-secondary education within five years of graduating were just 14% greater than for the control group, but females in the mentoring condition were 27% more likely to have pursued post-secondary education than females in the control group.

In addition, it was evident that both match strength (measured by indicators of feeling one matters to the mentor and feeling valued by one's mentor) and specific interactions defining the nature of the relationship (measured by the type and frequency of specific interactions) were important predictors of long-term outcomes. The findings suggest that engaging in the relationship-building conversations that are the hallmark of youth mentoring may contribute to the way mentoring influences arrest rates in adulthood, and that conversations that focus on the mentees' academic performance and in-school behavior may be counterproductive if insufficient time has been spent getting to know the mentee, time which perhaps leads the mentees to feel that they uniquely matter to the mentor. The findings from these conditional process analyses, which accounted for interactive effects of activities and relationship quality on long-term outcomes, support the short-term findings from the original study ten years prior (Avera, Karcher, & Zholu, 2014), wherein bivariate correlations revealed negative associations between problem/achievement-focused interactions and both short-term outcomes and relationship experiences; suggesteding a problem focus may undermine relationship quality in school-based matches.

BACKGROUND AND BRIEF REVIEW OF THE LITERATURE

The positive effects of youth mentoring on short-term (i.e., post-test) outcomes are now well documented through multiple meta-analytic investigations (DuBois et al., 2002, 2011; Tolan et al. 2014). The effect size of youth mentoring is consistently, generally small; however, these meta-analyses also reveal that moderators of main effects can double a program's impact, which underscores the need to better understand moderators of program impacts. Better understanding how mentor and mentee interactions (activities and discussions), separately or in combination, moderate program impact to yield the strongest outcomes is seen by many as the next critical step in the field of youth mentoring research (DuBois & Karcher, 2014). In fact, identifying what mentoring activities are best for youth of different ages has been recognized in the field as a topic needing to be better understood for many years (Naom, Malti, & Karcher, 2014), yet the field has made only modest movement toward better understanding the effect of specific mentoring interactions on mentoring outcomes, with little work specifically exploring the way school setting or developmental status may moderate the effect of specific interactions on outcomes for mentees (Karcher & Hansen, 2014).

Youth mentoring has been shown to be effective in fostering short-term changes that may facilitate successful adult development. It has been found effective across multiple program contexts and for youth of varying degrees of risk for adult criminality. The meta-analyses conducted by DuBois and colleagues (2002; 2011) have revealed technically small effects of youth mentoring (ranging from d= .15 for children in schools to .28 for adolescents in the workplace). Early work of DuBois et al. (2002) also revealed the cumulative effect of best practices. Their analyses illustrated how effect sizes could be doubled, from small (Cohen's d = .20) to nearly medium-sized effects (d = .40), when a half dozen or more known best practices are employed (compared to the average use of

two or three by most programs). Two such practices, for example, are utilizing mentors with backgrounds in the helping professions and using structured activities in mentor-mentee match meetings (DuBois et al., 2002). Many view the first of these as a proxy indicator that the mentor will understand the value of a compassionate approach to mentoring that establishes an atmosphere of trust before any difficult topics or tasks are undertaken. The second, using structured activities, is frequently seen as a means to convey purposefulness to the participants in this otherwise potentially awkward context for program-based friendships (i.e., mentoring). Some have argued this is particularly critical when mentoring adolescents (Noam, Malti & Karcher, 2014).

These two practices reveal the importance of effectively guiding mentors' use of both relational and goal-directed activities, which makes better understanding these practices and their effect on mentoring relationships an important policy or pragmatic research focus. Consider Tolan and colleagues' (2012) meta-analysis of youth mentoring program outcomes on delinquency, criminality, and drug use in studies that were reported between 1970 and 2005. Two of the main conclusions of their analyses were, first, that youth mentoring can reduce delinquency and aggression, and second, that, when using mentoring for the prevention of delinquency and aggression, the provision of emotional (i.e., relational) support was a key moderator of program impacts. Tolan et al. lamented a problematic lack of information on these interactions in the studies they included in their analyses, stating "the collected set of studies are less informative than expected with quite limited detail in studies about what comprised mentoring activity" (p. 2). The lack of clarity may be especially problematic when mentoring teens in schools because of the increased awkwardness older students may experience when they imagine how their peers view their meeting with a stranger in a formal mentoring program (Noam, Malti & Karcher, 2014).

Indeed, despite the consistent evidence of positive effects of mentoring programs, there is evidence that older adolescents may not benefit as much from traditional school-based youth mentoring as younger children. Consider the Study of Mentoring in the Learning Environment (SMILE; Karcher, 2008), which is the only large-scale study of school-based mentoring to date with a sizeable number of high-school-age students. In that study, Karcher reported markedly different outcomes for older and younger youth. Pre-adolescent Latino boys benefitted the most and demonstrated statistically significant improvements in conventional outcomes such as connectedness to school, social skills, and hopefulness. Older boys, however, reported declines in connectedness to school (d = -.23) relative to controls and statistically significant declines in connectedness to teachers after receiving a school-based mentor. One reason may be the type of mentoring interactions employed. In that study, mentors were four times more likely to focus on mentees' behavior and attendance problems when matched with high-school-age mentees than with elementary mentees.

Similarly, research on the Big Brothers Big Sister (BBBS) community-based mentoring program by Grossman and Rhodes (2002) found that older adolescents were more likely to terminate their matches early and thereby experience fewer benefits. It is worth noting that, in both the BBBS program and the school-based Communities in Schools mentoring program evaluated in the SMILE study (Karcher, 2008), staff trained mentors to focus on relationship-building as their primary intervention approach regardless of the age of youth.

These findings along with common sense agree that how mentoring works may differ for older and younger youth. Much youth-mentoring research with children suggests that one of the ways mentoring affects long-term outcomes is through improving the relationships in youths' familial, academic, and social networks. For example, several studies have found that gains from

school-based mentoring for preadolescents, specifically upon academic achievement and attitudes, appear to be mediated by improvements in mentees' relationships with parents (Karcher, Davis, & Powell, 2002; Rhodes, Grossman, & Resch, 2000) and with teachers (Cavell, Karcher, & Elledge, 2010). In all these studies, however, the majority of the mentees were under the age of thirteen; thus, little can be extrapolated regarding effects of school-based mentoring for teens.

With older youth, their peers' perceptions become more salient factors in self-esteem and may be more important in influencing program outcomes in positive and negative ways. Because school-based mentors are more likely to interact with their mentees alongside their peers during lunch than with younger mentees (Herrera & Karcher, 2014), how their peers understand the meaning of a mentees' having been assigned a mentor may enhance or undermine program success. It is possible that teens may recoil against the stigma associated with having a mentor by investing more heavily in peer relationships as a consequence of their peers' observing the presence of a mentor. Evidence of this negative peer influence may appear, for example, as an "improvement" in peer relationships as an immediate mentoring program outcome. Evidence supporting the interpretation of this increase in peer connectedness as an iatrogenic effect would be when such increases are not accompanied by corresponding improved parental or teacher relationships. This is what was observed in the SMILE study (Karcher, 2008) for high-school-age boys and girls. In particular, high-school-age Latinas seemed to have benefited from being assigned mentors, but they reported only higher levels of self-esteem, peer support, and connectedness to peers; however, in the absence of any evidence of more conventional improvement in attendance, grades or connectedness to school, parents, or teachers, these outcomes appear suspect. It has already been noted that the high school boys reported declines across the board compared to their peers, and most strongly in decreased teacher connectedness, after being assigned mentors.

Negative Effects of Youth Mentoring Programs (Iatrogenic Processes)

Until recently, most notably in the work by Cavell (Cavell & Elledge, 2014) whose work strategically enlists peers alongside mentors to positively influence mentees' outcomes, most research discussing the role of peers in the mentoring process, particularly for adolescents, has been about the ways in which peers can negatively influence the effects of program participation for youth. Analyses of the way program interactions may influence long-term outcomes from the Cambridge-Somerville Youth Study in the 1950s, which included mentoring as one intervention component of a larger set of intervention services, suggested that frequent association of participating youth with other deviant youth put their less deviant peers on a trajectory toward criminality (McCord, 1978). For this reason, further work to better differentiate helpful from harmful mentoring interactions and to better understand their contribution to long-term outcomes like criminality in adulthood is very much needed, specifically on programs that exclusively provide mentoring.

Better understanding what intervention characteristics moderate the treatment-effect relationship in youth mentoring for different ages is critical given the divergent outcome trajectories outlined above. Barlow (2010) commented that over the past 40 years, continued refinement of psychotherapeutic interventions has taken place, but concomitant study of the reasons for negative outcomes of other interventions has not occurred. The work by Dishion, McCord and Poulin (1999), which re-analyzed the data from the Cambridge-Somerville study to better understand the reasons behind McCord's (1978) reports of negative intervention effects, provided one of the most important contributions to the youth development field, with over 1400 citations in the past ten years. Their analyses on the amount of time participants spent with one another outside the supervision of staff found that peer interaction could foster deviancy training that cemented some program youth on a

path toward crime. The relationship to school-based mentoring is that, to date, limited research has examined the way in which the delivery of mentoring to youth in settings alongside their peers, in unstructured settings, like when students meet with their mentors in the cafeteria alongside other students, may affect program outcomes.

Mentoring Interactions

The study of what happens in youth mentoring interactions is critical to understanding not only positive as well as negative effects of youth-mentoring programs but also may help inform our understanding of the manner in which mentoring relationships achieve these outcomes. This was the premise emphasized by Tolan et al. (2014) in their Campbell report on the effects of youth mentoring on delinquency and aggressiveness. They argue we need to know more about both what happens in mentoring relationships—specifically in mentoring programs that do prevent crime and delinquency—and also about the ways in which specific interactions are leveraged to achieve these outcomes most efficiently.

In the mentoring field, two main theories have been used to explain how a mentors' specific interaction focus influences the quality of the relationships that emerge in their mentoring relationships with youth. These two approaches, the instrumental and developmental styles, are described below to introduce a framework that uses lessons learned from research on both styles to propose several hypotheses about the causal manner through which and interpersonal conditions under which specific mentoring interactions are most influential.

Styles of Mentoring--Instrumental and Developmental

The two predominant theoretical perspectives in the field about what constitutes effective mentoring styles are born from research conducted with mentees of different ages. This is one reason a developmental lens seems important to bring to any study of school-based mentoring that involves

both children and adolescents. The first view comes from research on internships in the workplace, which suggested mentoring with teens using an "instrumental" style that focuses first on skills development is most useful (Darling, 2005; Hamilton & Hamilton, 2002, 2005). Indeed, there is some evidence that structured, workplace mentoring yields larger impacts than community or school-based approaches that tend to focus first on relationships (DuBois, Holloway, Valentine, & Cooper, 2002). Yet, more often cited in the field of youth mentoring is research on programs in which younger children are mentored in the community, such as through the well-known Big Brothers Big Sisters program. In one study of this program, Morrow and Styles (1995) dubbed the "developmental" interaction style of relationship-building, having fun, and getting to know each other first as most viable. Indeed, this approach to mentoring, which assumes the relationship must be formed first, before other skills and attitudinal changes can be realized, is advocated by many (Rhodes, 2002).

These two constructs—the "developmental" and "instrumental" mentoring styles—have had considerable staying power in mentoring research but have not been advanced or investigated further than what was originally proposed until recently (Karcher & Nakkula, 2010). Originally proposed by Morrow and Styles (1995) and Steve and Mary Agnes Hamilton (1992) to characterize match interactions in two different studies, these two styles remain the most empirically supported approaches.

Morrow and Styles (1995) conducted a study of matches in the Big Brothers Big Sisters program. Their study, in contrast to that by Hamilton and Hamilton (1992) described above, focused mostly on preadolescents. The results revealed a portrait of successful mentoring relationships which they described as "developmental." These relationships were given the label "developmental" because the adult partner in the match focused on providing the youth with a comfort zone in which

to address a broad range of developmental tasks—such as building emotional well-being, developing social skills, or gaining straightforward exposure to a range of recreational and cultural activities. "Developmental volunteers responded flexibly, adjusting any preconceived notions as to the reality, circumstances, and needs of their younger partner. Furthermore, these volunteers intentionally incorporated youth into decision-making about the relationship, allowing them to help choose activities and have a voice in determining whether and when the adult would provide advice and guidance" (Morrow & Styles, 1995, p. 19). That is, the mentors were initially relational and collaborative in dealing with their mentees, avoiding interactions that might stigmatize, and only later addressed problems or skills training.

By contrast, another approach called the "instrumental style" emerged from research with older adolescents that revealed the unique developmental needs of teenage mentees and relationship patterns in their mentoring relationships with adults. The primary authors of the literature on this approach, Steve and Mary Agnes Hamilton (2002), focused on the process of workplace mentoring and apprenticeship. Their research into reasons why some matches tended to meet less frequently than they should revealed that "understanding [the mentors'] purpose was a critical predictor of the regularity of meetings." Those who saw their initial or primary purpose as developing a relationship with their mentees were least likely to meet regularly, whereas "the mentors who seemed best able to overcome the frustrations of their task were those who combined the aims of developing competence and developing character" (1992, p. 548). It is for this reason they suggest that mentoring for high-school-age youth is more appealing to youth and more effective when "it occurs in the context of joint goal-directed (instrumental) activity" and when "the relationship develops around shared goals and actions more than purely social interaction" (2005, p. 352-353). They suggest, furthermore, that "instrumental mentoring" is more effective for high school students than younger youth. Recall that,

by contrast, in the work by Morrow and Styles (1995) and most studies of the Big Brothers Big Sisters program (e.g., Herrera et al., 2007), the mentees are children and younger adolescents. This highlights the importance of mentees' specific developmental needs.

Although these two styles reflect what the mentoring literature seems to agree are the two most effective mentoring approaches, there have been no formal tests of the relative benefits of each in the context of school-based mentoring. Yet there may not be a need to test each as competing, given that these two styles share several properties that allow their integration into one model. In both styles, for example, it is clear that, across the course of a developing relationship, both relationship-building and goal, problem, or task-focused interactions will take place. One match will start relational and become goal-directed later (instrumental) and another will start goal-directed and become relational (developmental). What is needed is a contextual view of when one or the other focus may work better for a specific age group; indeed, the two views agree that the more effective mentoring relationships, regardless of the mentee's age, incorporate both goal-directed and relationship-building interactions. What is needed is testing the interactive or moderating effects of one interaction focus on the other as both views suggest it is the presence of both that yields larger program effects, especially when a collaborative interpersonal relationship, one in which both individuals feel valued and important, has become established.

The TEAM Framework: A Theoretical Integration of Existing Research

Karcher and Nakkula (2010) proposed a three-pronged typology that integrates both approaches—goal-oriented ("instrumental") and relationship-focused ("developmental") activities—by viewing them as complementary and central to the interpersonal process of collaboration. The Theoretically Evolving Activities in Mentoring (TEAM) Framework (Karcher & Nakkula, 2010; Figure 1) was developed to empirically distinguish between those mentoring activities that are

primarily focused on building a relationship versus those that are directed at achieving a specific goal, skill, or outcome, but also to illustrate the critical importance of interpersonal collaboration (of both feeling they are receiving and giving) in the relationship.

The second dimension of this framework is the purpose of the interaction—whose values, goals, or needs are met in a given interaction. The view of purpose draws on Jessor and Jessor's (1971) problem behavior theory research, which revealed that delinquent youth were far more committed to unconventional goals and relationships (such as with peers), than to conventional relationships (e.g., with parents, teachers, employers) and goals (e.g., job and educational success). This second dimension—a conventional vs. a playful purpose of any given interaction—indicates whose goals or purposes are served in that mentoring interaction. Its nature or definition, however, is subjective and developmental. It is developmental in that young children prioritize and value playing, and playful mentoring interactions may be seen as meeting the mentees' needs. However, for teenagers, who straddle the worlds of adults and children, the decision about whether a given teen wants to think about his future or have fun in the moment, may be determined subjectively, and often can reflect her or his expectations based on prior experiences with adults and her or his own determination about the value of a mentor for helping to achieve some goal in the future, versus the likelihood that the youth would want to become friends with an unfamiliar adult. This issue of purpose, and mentors' attunement to the youths' needs, is what may make or break a mentoring relationship with a teen (see Pryce, 2012).

Finally, the TEAM Framework identifies the degree of youth-centeredness of mentor-mentee interactions or collaboration. In both the research espousing the benefits of a relationship focus (Morrow & Styles, 1993) as well as research on the more goal-focused, apprenticeship-style mentoring (Hamilton & Hamilton, 1992; 2005; 2013), researchers reported that a youth-centered

relationship, in which the youth was given equal authority to author or shape the match's interaction focus, was essential. The youth-centeredness may be particularly important when mentoring teens because without the youth's communicating interests to the mentor, it often can't be known whether a given interaction is viewed as purposeful by the youth. The collaborative or co-authored nature of the relationship seems a particularly important determinant of the effectiveness of a given mentoring interaction with a teen.

Figure 1 illustrates the three dimensions of the TEAM framework. In this figure, we see that the center column reflects the presence of co-authorship and collaboration—the degree of shared decision-making in the match activity selection. We see adult-youth relationship styles that lack collaboration and are more unilaterally directed on the right (youth purpose) and left (adult purpose) sides of the center column. A unilateral, youth-driven relationship (right column) yields an overly playful interaction, regardless of whether it is relationally focused or goal-directed. A unilateral, mentor-driven approach (left column) that does not reflect the mentees' desired purpose puts the emphasis on the youth's future, overcoming problems, and building skills to a degree that negates the mentoring relationship. The figure illustrates the focus of interactions reflecting a playful focus at the top and goal-directed interactions at the bottom.

The TEAM framework postulates that mentoring occurs when there are both playful and goal-directed interactions at some point in the match. It states that adult-youth relationships that are only goal-focused in nature are not mentoring (bottom row), nor is meaningful mentoring happening in directionless, solely playful adult-youth relationships. These reflect other standard adult-youth roles. This is why the TEAM framework hypothesizes that programs (and matches within programs) wherein adults engage youth, over time, through both play and goal-directed activities (center squares #5 and #8) that are of mutual interest are the most impactful.

Figure 1. *The Theoretically Evolving Activities in Mentoring (TEAM) Framework*

Purpose: Talk	Unilateral Authorship: "Me" as Mentor's focus	Collaborative Authorship: "We" as Shared focus	Unilateral Authorship: "Me" as Mentee's focus	Purpose: Play
Serves conventional (adult) purpose	**(Adult-centric Talking)**	Focus: **Minimally goal-directed/structured and/or highly relational**	**(Youth-centric Playing)**	Serves playful (youth) purpose
Adult-led spontaneous (non-relational)	1. **Preacher/Bore** as in mentor-driven, but goal is vague. Mentor talks about whatever seems important at the time, mentee is disengaged (usually a non-relational approach)	**2. Peer, classmate or *acquaintance*** (Keller & Pryce) as in doing whatever both can agree on in the moment, this is a non-relational and unstructured relationship "about nothing."	3. **Joker** Mentor as in unstructured and overly playful (e.g., mentee has fun, play is spontaneous), but mentor feels insignificant (non-relational approach)	Youth-led spontaneous (non-relational)
Adult-oriented preventive and developmental activities or discussions (relational focus)	4. **Counselor** takes a youth-development focus on prevention (e.g., indirectly addresses conventional concerns such as school, work); the focus is the mentee (self-in-the-future) and on their relationship as the primary means to achieve growth	*5.* ***Developmental Mentor*** (from Morrow & Styles) as initially relational interaction focus yet very collaborative (includes talk about interests, relationships, experiences; play, casual activities). "We" authorship supports the incorporation of more goal-oriented interactions later on	6. **Playmate** as playful, supportive, relational interactions focused on youth's interests (e.g., may learn skills indirectly); focus is the mentee's self-in-the-present as enhanced through the relationship	Youth-oriented preventive and developmental activities or discussions (relational focus)
Conventional Skill Development Purpose relevant to adult/societal goals, interests, or what mentee needs to prepare for future (goal-oriented focus)	**7. Tutor** (e.g., Keller & Pryce). Focus on goal-directed interactions that are conventional. Focused on developing skills for adult world, such as reading or writing) or goal-directed and future-oriented (coaching of job skills). Often didactic	8. ***Instrumental Mentor*** (from Hamilton & Hamilton) as collaborative, goal-oriented focus on character and competence; shared purpose in the goal they choose or agree to focus on; goal-directed at first, the interactions become increasingly relational over time	**9. Teammate** as being goal-directed and playful (e.g., older and wiser peer) to help teammate (mentee) develop the skills needed to play well or may focus in the mentee's present concerns (e.g., peers, personal relationships)	**Playful Skill Development Purpose** relevant to the youths' goals, or emphasizes outcomes in the present (Primarily goal-oriented)
Remedial/ Intervention-oriented: Serves adults' goals (goal-oriented)	10. **Prescriptive/Colonel** Mentor as heavy-handed (often insensitive), bombastic, directed at problems and adult-identified goals	**11. Master with apprenticeship** Highly instructive (directive), minimally relational but has some youth buy-in through shared purpose	12. **Coach** as active, fun, but very directive and minimally relational. Focus on youth's goals, such as improved skills	Remedial/ Intervention-oriented: Serves youths' goals (goal-oriented)
Serves conventional (adult) purpose	**(Adult-centric Learning)**	Focus: **Highly structured and goal-directed (and/or minimally relational)**	**(Youth-centric Doing)**	Serves playful (youth) purpose
Purpose: Learn	Unilateral Authorship: "Me" as Mentor's focus	Collaborative Authorship: "We" as Shared focus	Unilateral Authorship: "Me" as Mentee's focus	Purpose: Do

Adapted from Karcher and Nakkula (2010).

In the use of the TEAM framework, it can be assumed that where there lacks a collaborative, reciprocal relationship in which both mentor and mentee feel *they matter* to the other and feel valued, no specific focus is likely to achieve long-term positive outcomes in general youth development. Perhaps tutoring relationships (Fig. 1 cell 7) that are highly directive (i.e., lack collaboration) can still be successful in teaching skills or information, which may yield long-term effects as well as provide the starting point for a relationship. But directive, skill-focused tutoring is not a mentoring relationship. It may become one, the framework suggests, through gradual inclusion of reciprocal exchanges of personal information and playful interactions.

Table 1: *Coding Mentoring Interactions for Corresponding TEAM Framework Categories*

TEAM Cell in Figure 1	Activity Log in SMILE study (Karcher, 2008)
3	Casual conversation (Discussed sports, weekend activities, holiday plans, fun things to do in the community, neighborhood, etc.)
1	Conversation on social issues (Discussed current events in the news, poverty, neighborhood events, religion, cultural issues, etc.)
2, 4	Conversation about relationships: ❑ Family ❑ Teachers ❑ Friends ❑ Romantic Friend
2, 3, 4	Listening & learning (Discussed mentee's hobbies & interests, feelings, or mentee talked most of the time while mentor listened.)
9, 12	Sports, athletic activity, or outdoor game (activity) (Played basketball, soccer, catch, volleyball, tennis…)
6, 11	Creative activities (activity) (Engaged in drawing, arts and crafts, reading and writing for fun, photography, crafts, art projects, etc.)
4, 6	Indoor games (activity) (Board games, playing cards, chess, Uno, checkers, computer games, puzzles, etc.)
1, 7	Academics (Discussed grades, school, testing, etc.)
1, 7, 10	Tutoring/Homework (activity) (Helped with homework, did tutoring, helped with reading, library, academic computer work.)
1, 4	Behavior (Discussed youth's behaviors that were related to problems with peers, teachers, adults, specifically misbehavior.)
1, 10	Attendance, graduating and "stay-in-school" discussion
1, 11	Future (Discussed college, careers, jobs, goals, dreams, etc.)

Cells 5 and 8 in Figure 1 reflect a balance of goal-directed and relationship-focused interactions over time within the context of a relationship in which both partners feel their input matters and feel valued by the other. Around cells 5 and 8 are other youth-adult roles which vary in terms of focus and collaboration. In Table 1, the top seven rows reflect the types of activities that serve a relationship-building function, and that may provide a foundation for the developmental style (cell 5). The bottom five rows reflect the type of skill-focused, task-focused, or problem-remediation focused activities that may serve as the starting place for building an *instrumental style* relationship. To shift from the more conventional adult-youth roles to an instrumental style (cell 8) requires the inclusion of both relationship building activities (top 7 rows) as well as shared guidance or collaboration regarding the focus of their discussions or activities. Thus, cells 5 and 8 reflect some degree of cross-over or incorporation of interactions from the top and the bottom, and joint decision-making as the way that blend of functional and relational focus and purpose take place. It is out of this second element, namely collaboration in decision-making, that feelings of mutual respect and appreciation begin to form that typically lead to longer and stronger matches over time.

For an adult-youth mentoring relationship to manifest, the experience of feeling one matters and that one is valued by the other is central. This is what is often captured, reflected in, or meant by the term relationship quality. Mattering, and specifically the feeling that a person (the mentee and the mentor) believes the other person cares about what they want to do together, conveys that one feels respected by his or her partner. It is a necessary characteristic of the relationships shown in cells 5 and 8. When both feel they matter, it can be assumed that they feel partnered. They feel they are collaborating in steering their ship together.

The relevance to this study is that, by recording the specific focus of activities and discussions that took place in the match (e.g., through collection of weekly activity logs by mentors,

see Table 1), and knowing the degree to which mentees feel they matter and are valued by their mentors (assessed through self-reports), analyses that include combinations of interaction focus and interpersonal experience can be tested to determine whether patterns reflective of cell 5 and 8 are indeed the best predictors of long-term outcomes.

This study draws on the archival data from Karcher's 2008 study and extends it through the collection and analysis of additional publicly available follow-up data on adult criminality and higher educational pursuits for both studies in adulthood. Karcher's 2008 Study of Mentoring in the Learning Environment is unique in three ways. First, it employed a randomized, experimental, alternative-treatment control group. Second, researchers collected weekly activity logs (see Table 1) that allow tests of the relationships among specific mentoring interactions and immediate, intermediate, and long-term outcomes. Third, it assessed relationship quality in the match through mid-year youth reports. With these archival data, in combination with adult outcomes collected ten years later, tests of mentoring styles can be examined for the prediction of long-term outcomes for the first time.

This long-term SMILE study also offers a unique opportunity to determine whether initially iatrogenic processes (viz. declines on several outcomes as a function of program participation) persist in a sizeable number of adolescents, or instead serve as a steeling or hardening effect that made them more resilient in the long run, as Karcher (2008) initially proposed. Knowing this could inform best practices in recruitment of mentees (such as whether or not to recruit mentees in high school at all). This study builds on the primary study analyses by conducting new analyses of how activities and relationship-quality assessments contribute to long-term outcomes of school-based mentoring. The specific research questions and combinations of variables needed to test these TEAM framework hypotheses are described in the following chapter.

RESEARCH QUESTIONS AND OBJECTIVES

The goal of the first part of this research study was to conduct a longitudinal follow-up on an experimental study of school-based youth mentoring: The Study of Mentoring in the Learning Environment (SMILE). The SMILE study analyzed data from 466 youth from twenty schools (6 elementary, 7 middle and 7 high schools) who were identified as at risk for educational underachievement by teachers, parents and staff members of the Communities in Schools (of San Antonio) agency. The first part of this study examined rates of pursuing post-secondary education and engaging in criminal activity.

The second part of the study examined what happens inside of the matches. Little is known about how specific mentoring interactions contribute to program outcomes. The goals of this second part of the study were to (a) test theory-driven hypotheses about the most appropriate mentoring interactions for children versus adolescents and (b) examine whether initial reports of both iatrogenic/harmful and positive programmatic outcomes in the original study (Karcher, 2008) have persisted 10 years later.

Research Questions

RQ1: Does youth mentoring affect increases in post-secondary educational pursuit by adults?

RQ2: Does youth mentoring affect reductions in later criminal behavior in adults?

RQ3: Are there styles of mentoring (i.e., different activities and conversation focuses over time) that explain variability in proximal and distal outcomes in youth mentoring?

RQ4: Are there types of youth, types of mentoring interactions, or interactions between types of youth and interactions that predict long-term outcomes from youth mentoring?

STUDY METHODS AND ANALYTICAL TECHNIQUES

Present Research

The goals of this study are to examine the degree to which iatrogenic as well as positive programmatic outcomes persist ten years after the original study, and to test hypotheses regarding the school-based mentoring interactions that best explain program outcomes for children and adolescents.

Goal 1: Long-term Outcomes of school-based mentoring. The first step toward measuring long-term effects was to track the 466 youth who originally began in the school-based mentoring study (in 2003 and 2004). In order to conduct intent-to-treat impact analyses, efforts were made to identify police arrest and conviction reports in public records as well as post-secondary educational pursuit for all youth from the original study and then estimate differences in the proportional representation of study participants with these outcomes across the intervention groups to which they were initially assigned (regardless of their adherence, compliance, or receipt of intended condition). After main effect (treatment vs. control) comparisons were conducted, tests of the three-way interaction of treatment condition, sex, and school level (as in Karcher, 2008) were run.

Goal 2: Identify relationship between youth mentoring interactions and relationship and adult criminality. The TEAM Framework (Karcher & Nakkula, 2010) was used to code the focus (relational vs. goal-directed) of mentoring interactions in logs completed by mentors after every visit (see Table 1). Using logs, mentors specified the time spent in each of several different interactions, discussion focus, and activity. Individual match interactions from mentors' activity log reports were clustered into two general types (playful and problem-focused), and were then analyzed using bivariate associations and partial correlations with mentees' reports of relationship quality and the long-term program crime and education outcomes.

In order to test whether mentoring activities explain how program participation contributed to long-term outcomes, conditional analyses were conducted. Conditional analyses tested whether the effect of combinations of playful and problem-focused mentoring interactions on long-term outcomes was moderated by mentees' reported experience of feeling valued and that they mattered to their mentors. Because control youth had no reports of mentoring activities, they were not included in these analyses. In these conditional analyses of data from youth in the treatment group (mentees) whose mentors completed mentoring interaction logs, mentor-reported activities and match quality served as the moderating variables explaining variability in long-term outcomes associated with these mentoring processes.

Design

Intent-to-treat analyses were conducted that compared 232 youth randomly assigned to receive a mentor (regardless of whether they ever did) to 234 youth assigned to the control condition for two types of dichotomous outcomes, pursuit of post-secondary education and criminal arrests. Both logistic regression and survival analyses were conducted to answer questions for Goal 1 above, and in order to determine the degree of corroboration of findings from the two approaches. Regression and random-effects structural equation models were employed to answer questions related to Goal 2 above.

Sample

Original study. The Study of Mentoring in the Learning Environment (SMILE, Karcher, 2008) ran from 2003 to 2007. It originally included 516 at-risk youth (see Figure 2 for CONSORT illustration on sample attrition). However, the final analyses included 466 youth from 20 schools (six elementary, seven middle schools, and seven high schools) who were identified as at risk for educational underachievement by teachers, parents or staff members of the agency Communities in

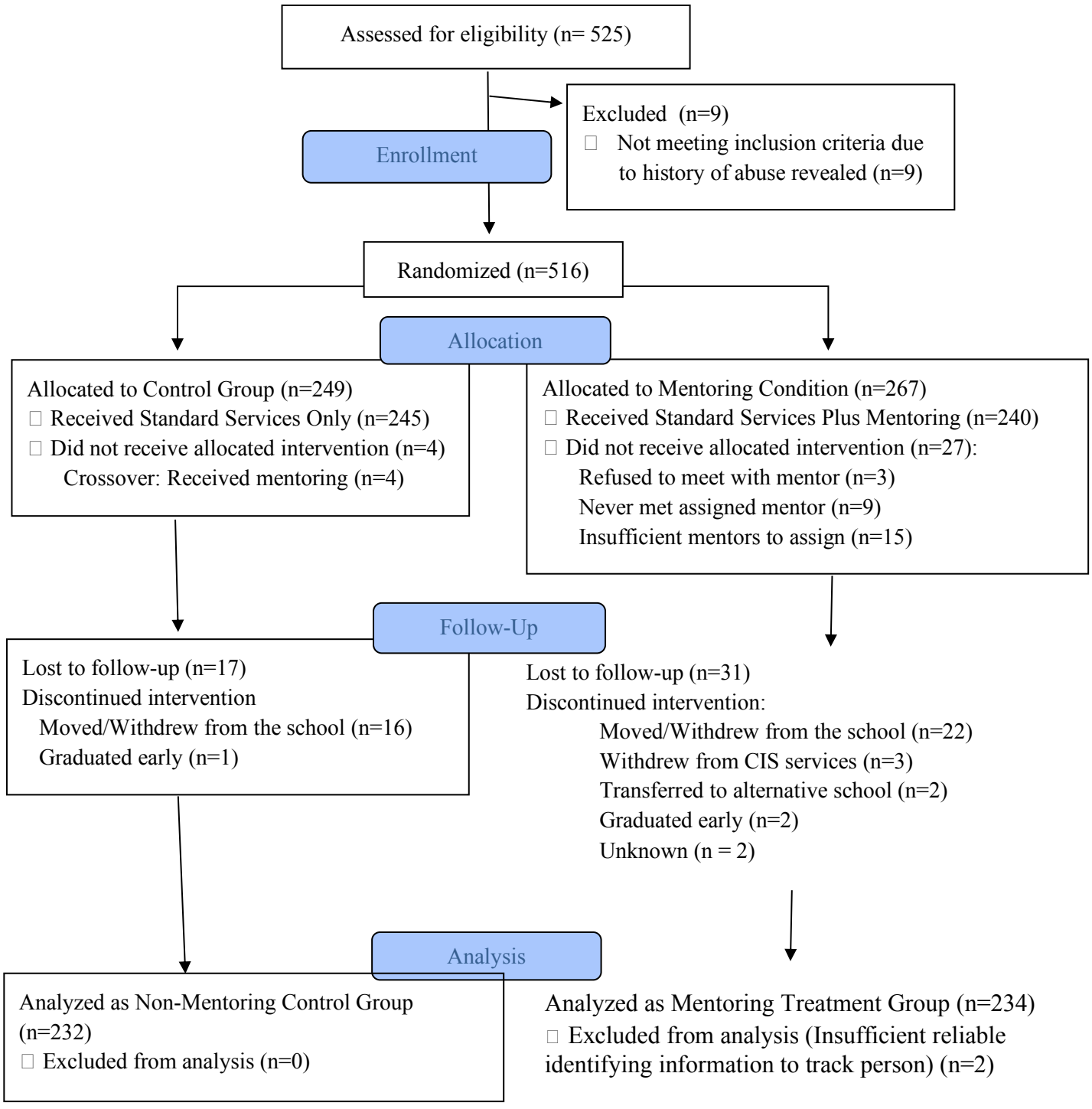
Schools (of San Antonio) to offer these youth a host of support services through participation in their program. Mentoring is one of those services. The youth were between the ages of 10 and 18, in grades five through twelve (see Table 2.1). The majority of the study participants were Latinas (2:1 ratio of females to males, see Table 2.2). All were designated by either the school, parent or CIS staff member as academically at risk. Their average family income was less than $20,000 a year.

Table 2.1: *Age at Enrollment in August 2003 or 2004*

Age	Frequency	Percent	Valid Percent	Cumulative
10	55	11.8	11.8	11.8
11	83	17.8	17.8	29.6
12	84	18.0	18.0	47.6
13	52	11.2	11.2	58.8
14	36	7.7	7.7	66.5
15	64	13.7	13.7	80.3
16	48	10.3	10.3	90.6
17	35	7.5	7.5	98.1
18	9	1.9	1.9	100.0
Total	466	100	100	

		N	Percent
Treatment Group	Non-Mentee	232	49.8%
	Mentee	234	50.2%
	Total	466	
Sex	Female	311	66.7%
	Male	155	33.3%
	Total	466	
Grade Group	Elementary	114	24.5%
	Middle School	146	31.3%
	High School	206	44.2%
	Total	466	

Figure 2. *CONSORT 2010 Flow Diagram for SMILE Study*



Random assignment was stratified within school level in order to ensure comparable numbers of treatment and control group participants at the elementary, middle, and high school levels. Table 2.3 illustrates that in the final sample of 466 participants, the number of participants in each randomly assigned group were statistically equivalent in terms of the number within each school level. Although there were more participants at the high school level than the other two school levels, this is a reflection of the structure around grade levels, as there were 50 participants in each grade (with the exception of 5th grade, where there were 114 students). Students in grades 4 and below were excluded from the study because it was determined they would not be able to complete the self-reported outcome surveys reliably.

The 5th grade was oversampled to allow for a sufficiently large sample at the elementary level to allow comparisons across school levels, as reported in the original study (Karcher, 2008). Oversampling at the elementary level, as well as of boys at the high school level, into the treatment group also was conducted in order to allow adequate representation of elementary students and of boys in the sample of mentees to allow for statistical tests of the relationships between mentoring practices and outcomes. This oversampling of boys was possible, and also somewhat necessary, because of the greater number of adults who wanted to mentor at the elementary level. In fact, most of the 22 youth who were assigned to the mentoring condition but who never met with a mentor were at the high school level. The result of this approach to stratified random assignment was a sample that was statistically balanced across treatment conditions as a whole and across school grade levels. Therefore, simple main effect and between-group tests of treatment effects were possible.

		Random Assignment Intent to Treat Groups		
		Non-Mentee	Mentee	Total
Grade Group	Elementary	57	57	114
	Middle School	74	72	146
	High School	101	105	206
Total		232	234	466

The sampling strategy effectively ensured that the proportion of treatment and control group participants within each grade level was similar. Similarly, for boys and girls, the proportional assignment to each treatment condition, when examined separately for each sex, was balanced across the three school levels, as shown in Table 2.4 below. Chi-square tests for boys (X^2=.84) and Girls (X^2=.89) were non-significant, suggesting school level and treatment assignment were not confounded. However, between the sexes there were marked differences that resulted from the oversampling of boys into the treatment condition and the disproportionate number of girls enrolled in CIS.

There were, however, large differences in the allocation of participants to treatment conditions between boys and girls. There were half as many boys interested in participating in the CIS program as girls to begin. In order to achieve satisfactory statistical power for planned analyses of mentoring program practices on outcomes, boys were randomly assigned to the treatment group at a 3:2 ratio to reach a total of 100 male mentees (This number was subsequently reduced to 91 after attrition and refusal [all three treatment refusers were male]).

Table 2.4: *Size of Samples in the Final Dataset at Each School Level for Boys and Girls*

			Intent to Treat Group		
Sex			Non-Mentee	Mentee	Total
Female	School Level	Elementary	41	29	70
		Middle School	48	41	89
		High School	79	73	152
	Total		168	143	311
Male	Grade Group	Elementary	16	28	44
		Middle School	26	31	57
		High School	22	32	54
	Total			91	155

Table 2.5: *Number of Boys and Girls Assigned to Treatment and Control Conditions*

		Random Assignment		
		Non-Mentee (Control)	Mentee (Treatment)	Total
Sex	Female	168	143	311
	Male	64	91	155
Total		232	234	466

This resulted in imbalanced proportions of boys and girls across treatment and control conditions (see Table 2.5). As a result, all analyses need to include sex as a main effect (and possibly as a moderator as well).

Measures Collected for the Present Study

Pursuit of post-secondary education. To determine whether study participants had engaged in any form of post-secondary education, a list of participant names and dates of birth was submitted to the Research Center of the National Student Clearinghouse (NSC; https://nscresearchcenter.org/). The NSC gathers data for all types of post-secondary institutions (i.e., two-year and four-year institutions, public and private institutions, and nonprofit and for-profit institutions). Analyses focused on whether enrollment in any form of post-secondary education had occurred, not whether or not individuals had graduated, because there were only 24 graduates out of 466 participants, or five percent of the sample, and this was across several different types of educational programs, making the term "graduation" vague or unreliable (e.g., awarded certificate, earned a degree) as well as low number for analyses.

Adult arrests. The adult arrest history of each participant in the original sample was recoded to indicate whether or not each study participant had been arrested for a misdemeanor during the first four years for which study participants had an adult criminal record. In Texas, criminal records are collected in a permanent record starting at age 17, so each person's record was screened for evidence of an arrest for a misdemeanor before age 21. The study focused on misdemeanor crimes, because rates of property, violent, and other serious crimes were too infrequent and resulted in too many data analysis limitations to yield reliable findings. See Appendix for list of crimes in each category.

Data Management and Confidentiality

Several steps were taken to ensure confidentiality of participants' information throughout the duration of the study. Personal identifiers in documents from the original studies (surveys by youth, parents, and teachers, as well as grades and attendance records) were previously de-identified by removing personally identifiable information from the paper files once in the electronic dataset. Data

in the electronic dataset were linked to personal information only by a number in the analysis dataset that was linked in a separate document (source form) with just personally identifying information and the common ID. This source form is kept locked in a separate file cabinet by a different researcher in another department. First, the researcher created two datasets that were retained in separate, secure, and confidential locations. Only a participant's Common ID number was included in the two files. The researcher had access to the de-identified data for the purpose of conducting ongoing analyses. Control of the original file with name and basic demographic characteristics was released by the researcher and secured in a location to which the researcher had no direct access without securing IRB approval. The actual surveys, after all identifying information (usually only names and addresses) was marked out, were deposited into UTSA's long-term storage facilities.

At the start of the current study, the researcher was given access to an Excel file including only the name and birthdate of individuals in the second dataset and which included no ID code linked to the Principal Investigator's data file. Following the conclusion of the original data collection for the original study, the above efforts were made to ensure the confidentiality of participants but also to retain information necessary for the follow-up study in the following way. To initiate the present study, the Principal Investigator requested from the other researcher holding the source form a copy of the names and birthdates on the source form (once stripped of the Common ID). Using only the names and birthdates, two graduate students working for the Principal Investigator conducted searches for crime and education data using online databases. Once data was retrieved from online sites, the students created a second random ID code linked to each participant's name, deleted the collected outcome data from a copy of the file, and delivered this copy back to the independent researcher holding the source form. Using the names in the returned file, that researcher merged the Common ID with the names, deleted the names, and returned to the Principal

Investigator a file with the Common ID and secondary ID associated. Through this process, names/DOBs of participants from the original source forms were not linked by (nor known to) the original researcher at any point, securing that the dataset gathered for the present study (publicly available data on crimes and educational activity) remained de-identified and confidential.

FINDINGS

This section reports three related but distinct sets of findings, each building on the previous set of findings. First reported are the intent to treat analyses of the effects of participation in the CIS mentoring program on the probability of criminal activity and the pursuit of post-secondary education through age 21. Following the identification and description of these long-term findings, simple correlational analyses are reported that link mentoring experiences with these long-term outcomes. Finally, more complex analysis findings of theory-driven tests of the interactions between what happened in the mentoring relationships, how participants felt about their relationships, and variation among mentees in these long-term outcomes are described.

The effect of participation in the school-based youth-mentoring program on criminal activity in early adulthood was the first outcome examined as it is probably the most important outcome for the Department of Justice. In an effort to directly test whether effects observed in the original study were sustained over time, the three-way test of the interaction of treatment group by sex and grade level was attempted as well as the main-effect between-group intent to treat analyses without these moderators. The moderator tests, as well as general linear models, require cell count representation that was not obtained in the data; however, as evident by the rare frequency of crimes in general, but especially for violent and property crimes. For that reason, these analyses were deemed unreliable, and the study focused primarily on the presence of long-term effects rather than the maintenance of differences across subgroups over time. Misdemeanors were committed at a rate sufficient to have group counts of at least 5 when accounting for both sex and treatment, which allowed logistic regression to be used for group comparisons. In order to not overgeneralize findings to other crimes, such as arrests for felony violent and property crimes, which were reported so infrequently, those these outcomes were excluded from the final analysis. As a result the study focused solely on the

likelihood of being arrested for a misdemeanor by age 21. While these tests of the main effect of program participation on the likelihood of misdemeanor arrests do not replicate the three-way interaction of the original study, they are superior in that they provide a stronger test of program impact by providing a true experimental test without distraction by what could be considered quasi-experimental subgroup comparisons across grade levels.

Subsequently, in the second set of analysis of long-term effects of mentoring program participation on educational pursuit in early adulthood, the same approach was taken to estimate long-term effects of school-based mentoring program participation on the likelihood of pursuit of any form of post-secondary education. Just as main effect tests for differences in the probability of arrest for a misdemeanor between treatment and control groups were given the most attention—i.e., because this type of crime had the greatest frequency and could be reliably tested for boys and girls independently (testing main effects of treatment after accounting for main effect of sex on crime rates), which was necessary given the oversampled boys in the treatment group and 3:2 ratio of girls to boys in the sample overall—the most reliable analyses of long-term effects on post-secondary education were on the likelihood of engaging in post-secondary education of any kind within the first five years beyond high school.

Goal 1: Long-term Outcomes of School-based Mentoring

First long-term outcome: Arrests for crime by age 21. The first analysis of long-term effects of mentoring program participation on crime in early adulthood was an attempt to replicate the three-way interaction reported in the original study. (Presenting the three-way interaction before the main effect analyses is unconventional, but serves the purpose of first responding to the funded objective of determining whether the effects first reported by Karcher (2008) persisted into adulthood.) The three-way interaction analyses reported by Karcher revealed differential effects of

mentoring on short-term outcomes, especially between elementary and high-school-age boys, wherein the high school boys worsened while the elementary boys improved on outcomes as a consequence of program participation. Using general linear modeling in SPSS 24, the first analysis used Poisson regression to run this same model to estimate between-group differences in number of arrests for any crime. The Poisson regression transformed the highly skewed count data to allow tests of mean differences in the rates of having been arrested for any type of crime.

Although the model test statistics indicate there was a statistically significant three-way interaction of treatment differences across sex and grade levels (Wald Chi-Square = 7.08, $p \leq .01$), there was also evidence from model fit indices that this model may not have been completely reliable. The problem appeared to be a consequence of there being no criminal arrests for females in the mentoring condition who were elementary age girls at the age of mentoring (Table 3.1), which resulted in singularity in the Hessian Matrix, rendering the model statistics and estimates unreliable.

The descriptive statistics, however, do provide an answer to the question of whether long-term iatrogenic effects had persisted and were manifest in records of adult criminal activity. Observations from the rates of crime across groups reveal that, unlike in the original study, differences between older and younger boys in terms of overall arrest rates were not consistent with the initial report (Karcher, 2008). Results of these follow-up analyses indicate that there is no evidence of long-term iatrogenic effects of intervention for those mentored as older boys and, quite possibly, suggest greater benefits for boys mentored in high school than boys in elementary school, when each is compared to their same grade-level peers in the control group. However, the women who were mentored during high school showed no long-term benefit of participation in the mentoring program on crime activity in adulthood. It should be noted, this is the subgroup of study participants in the treatment condition least likely to have actually been matched with a mentor

because none were available for them. This is not the type of non-compliance typically observed in treatment studies as those who refuse treatment; rather, it is the high school girls who were most likely to never have been given the opportunity for treatment (i.e., to meet with a mentor) and they are, therefore, least likely to reflect evidence of treatment on the treated.

Table 3.1: *Mean Rate of Arrest for Any Crime (Misdemeanor and Felony) Committed by Individuals by Sex, School Level, and Intervention Group*

Treatment Group	Sex	Grade Group	Mean	Std. Error	95% Wald CI Lower	95% Wald CI Upper
Non-Mentee	Female	Elementary	.10	.049	.04	.26
		Middle School	.17	.059	.08	.33
		High School	.04	.022	.01	.12
	Male	Elementary	.25	.125	.09	.67
		Middle School	.58	.149	.35	.96
		High School	.68	.176	.41	1.13
Mentee	Female	Elementary	.00	.000	.00	.00
		Middle School	.10	.049	.04	.26
		High School	.11	.039	.05	.22
	Male	Elementary	.18	.080	.07	.43
		Middle School	.61	.141	.39	.96
		High School	.13	.063	.05	.33

To better estimate the direct effects of mentoring, age was included as a control to address school-level variability, and the interaction of sex and treatment was examined. Given the

unreliability of the prior model, the model was re-run including age as a continuous covariate, rather than categorical school level, to test the interaction of sex and treatment. In this Poisson general linear model, a main effect of mentoring on mean number of arrests for any crime was found that did not vary as a function of sex (the interaction term was not significant). This model, however, included arrests for all crimes, which is problematic because of the infrequency of the more serious crimes; this would make an unconvincing general statement about mentoring's effect on criminal activity which is unwise based on these analyses. Therefore, subsequent analyses examined only misdemeanor crimes, for which there had been the largest number of arrests.

The time frame for the outcome variable also was narrowed to the likelihood of an arrest for a misdemeanor crime that occurred only within the period between ages 17 and 21 for all participants. This was done as a way to address the differences in outcomes that may result from those in later grades having more time as adults in which to be arrested. By looking at rates of arrest for all youth by age 21, which was the age of the youngest program participants when the crime record data was accessed in 2016, the amount of time each participant had to accrue an arrest record was held constant.

Finally, subsequent analyses looked at the likelihood of any arrest, rather than total number of arrests by age 21. Narrowing the time frame and focusing only on the experience of being arrested (versus the number of arrests) was both a more logical and statistically sound approach to analysis. The response variable of whether or not the individual had been arrested for a misdemeanor is a naturally occurring and meaningful outcome, and also one that was deemed more appropriate for this study given the low base rate and need to account for anticipated sex differences. Using the total number of arrests required severe data transformations to correct positively skewed count data, but also thrust significant bias into the model by the heavy influence of a few individuals with multiple

arrests. These low arrest counts require minimal subgroup categories in order to avoid overdispersion. Therefore, viewing misdemeanor arrests as a dichotomous categorical experience was the most theoretically and statistically sound approach.

Table 3.2 reveals both actual arrests and the odds of arrest for each group. Odds of arrest can be interpreted as the number of individuals who were arrested divided by the number of individuals who were not arrested in each group. (This is not the probability, which would be the number of those arrested divided by the total number of people in that group.) Results indicate that among those in the control group, the odds of being arrested for a misdemeanor by age 21 (Odds of Arrest = .069) were more than twice the odds of arrest among those in the treatment group (Odds of Arrest =.031; see Table 3.2). Mantel-Haenszel OR = .446, CI: .178—1.12; Eta = .082). The resulting odds ratio is .45 (or .031/.069), with odds of arrest 55% lower for mentees than control youth. Nevertheless, this number is confounded by the disproportionate numbers of boys in the treatment condition and rates of arrest (see Table 3.1).

Table 3.2. *Number of Misdemeanor Arrests by Age 21 for Youth in Treatment vs. Control Groups*

		Intent to Treat Group		
		Non-Mentee	Mentee	Total
Arrested for Misdemeanor by Age 21	No	217	227	444
	Yes	15	7	22
Total		232	234	466
Odds of Arrest (Probability of Arrest)		.069 (.065)	.031 (.030)	

The treatment group differences in odds of arrest for a misdemeanor by age 21 were in the same direction, favoring mentees, for both boys and girls (see Tables 3.4 and 3.5). The differences in odds of arrest were somewhat larger for among boys; for whom the odds of being arrested for a misdemeanor for those in the mentoring group was 67% less than for those in the control group (Mantel-Haenszel OR = .322, CI: .09-1.12; see Table 3.4).

Table 3.4: *Number of Misdemeanor Arrest by Age 21 for Males in Across Treatment Groups*

		Intent to Treat Group		
		Control	Treated	Total
Arrested for Misdemeanor by Age 21	No	56	87	143
	Yes	8	4	12
Total		64	91	155
Odds of Arrest (Probability of Arrest)		.14 (.125)	.046 (.044)	

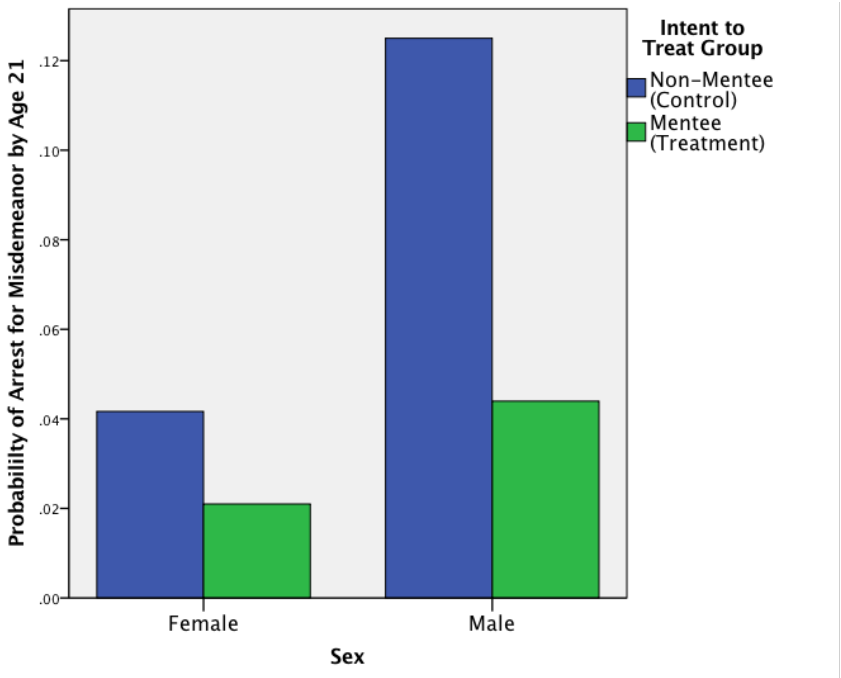


Figure 3.1. *Probability of Arrest for a Misdemeanor by Sex in Each Treatment Condition*

The probability of misdemeanor arrest for boys in the mentoring program was one-third the likelihood for boys in the control group and the likelihood of arrest for girls in the mentoring program was half that of control group girls (See Figure 3.1). Among girls, the odds of being arrested for a misdemeanor for those in the mentoring group were 50% less than for those in the control group (Mantel-Haenszel OR = .493, CI: .125-2.08)(Eta=.058)(See Table 3.5).

Table 3.5: *Number of Misdemeanor Arrests by Age 21 for Females in Across Groups*

		Intent to Treat Group		Total
		Non-Mentee	Mentee	
Arrested for Misdemeanor by Age 21	No	161	140	301
	Yes	7	3	10
Total		168	143	311
Odds of Arrest (Probability of Arrest)		.043 (.042)	.021 (.021)	

To account for the over-representation of boys in the mentoring group, a logistic regression model including treatment group membership and sex as predictors was estimated. Including no other covariates in estimating probability of being arrested for a misdemeanor by age 21, both the magnitude of treatment condition and sex were statistically significant. The results reveal reduced odds of arrest for a misdemeanor associated with being assigned to the mentoring program, after accounting for the over-representation of boys in the treatment group. By including sex in the model (Table 3.3), we see the adjusted odds ratio is .387. In other words, controlling for differences in proportion of boys and girls in each group, the odds of arrest for a misdemeanor by 21 were reduced by approximately 61% by being assigned to the mentoring program. *This logistic regression model provides the most direct test of the benefits of mentoring in terms of reductions in the probability of committing a crime.*

Table 3.3: *Main Effects of Treatment Condition Assignment and Sex on Probability of Misdemeanor Arrest*

	B (S.E.)	Wald	Sig.	Odds Ratio Exp(B)	95% C.I. for Exp(B) Lower	Upper
Treatment	-.95 (.48)	3.99	.046	.387	.15	.98
Sex	1.05 (.45)	5.56	.018	2.87	1.19	6.88
Constant	-2.96 (.42)	49.99	.000	.052		

Reference Categories: Treatment=Mentees, Sex=Males. Wald (df = 1)

In terms of meeting required statistical assumptions, it was clear that the main effect logistic regression model above, including only sex and treatment as main effects with no school level variable, provides a more trustworthy estimate of program impact than the planned three-way interactions (paralleling the Karcher, 2008 study). Including sex and treatment group status allowed the more straightforward use of logistic regression analysis of the logit link (Fox, 2008), because excluding a factor for school level eliminated risks posed by zero-cell counts for absent arrests (O'Connell & Amico, 2010, see Table 3.1). Additionally, without additional continuous covariate predictors, threats of multicolinearity and linearity were minimized. Further evidence of this model's meeting key assumptions was revealed by leverage and residual statistics. All DFBeta values were less than .20, Cook's distances less than .22, and no leverage values were above .15. Only four normalized residuals for the sample of 466 exceeded 1.98, or less than 1%.

Table 3.6: *Effects of Treatment and Sex on Probability of Misdemeanor Arrest Adjusted for Age and Grades*

	B (S.E.)	Wald	Sig.	Exp(B)	95% C.I. for EXP(B) Lower	Upper
Treatment	-1.12 (.49)	5.02	.025	.33	.12	.87
Sex	1.03 (.46)	5.00	.025	2.80	1.14	6.912
Starting Math	-.06 (.020)	10.09	.001	.94	.90	.98
School Level	-.99 (.51)	3.84	.050	.37	.14	1.00
Constant	2.17 (1.58)	1.89	.170	8.73		

Reference Categories: Treatment=Mentees, Sex=Males. School Level=High School. Wald (df = 1).

Nevertheless, to provide one more test of program participation effects that includes additional individual explanatory variables, another model that included school level and the only other covariate (starting math grades) found to be associated with the outcome is presented in Table 3.6. This model confirms the main effects of mentoring on the likelihood of misdemeanor arrests and indicates the effects are slightly stronger (i.e., mentees 67% less likely to be arrested) when variability due to starting levels of academic skills are considered and school level of participants are accounted for. Risk of arrest was also lower for those in high school during the study and was negatively associated with math grades prior to randomization (See Table 3.6).

Survival Analysis Cumulative Hazard Rate

The proportion of study participants who had not yet been arrested for a misdemeanor by age 21 is illustrated in Figure 3.2, which presents a Cumulative Survival rate for each month following the year the youth turned 17 and could begin to have a public criminal record. Between-group differences in arrest rates for misdemeanor crimes between age 17 and 21 were estimated using non-parametric Cox (logistic) regression in SPSS 24 and are presented below in terms of survival analysis (Kaplan-Meier) hazard functions (see Figure 3.3, Table 3.7, 3.8., and 3.9).

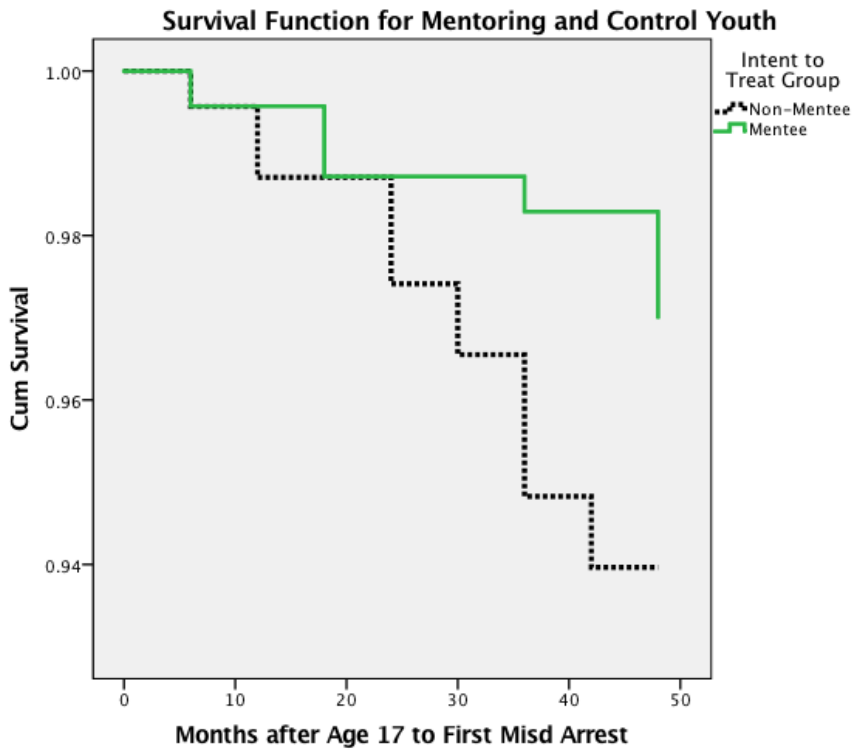


Figure 3.2. Cumulative Survival Rate by Month Starting at Age 17

Table 3.7. Number of Individuals Arrested (Events) Vs. Censored

Sex	Intent to Treat Group	Total N	N of Events	Censored N	Censored Percent
Female	Non-Mentee	168	7	161	95.8%
	Mentee	143	3	140	97.9%
	Overall	311	10	301	96.8%
Male	Non-Mentee	64	8	56	87.5%
	Mentee	91	4	87	95.6%
	Overall	155	12	143	92.3%
Overall	Overall	466	22	444	95.3%

Table 3.8. Means and Confidence Intervals for Survival Time by Group and Sex

Sex	Intent to Treat Group	Estimate	Std. Error	95% Confidence Interval Lower Bound	95% Confidence Interval Upper Bound
Female	Non-Mentee	170.780	2.312	166.249	175.310
	Mentee	168.161	1.632	164.961	171.361
	Overall	172.277	1.477	169.382	175.171
Male	Non-Mentee	150.031	5.956	138.357	161.706
	Mentee	169.308	3.288	162.863	175.753
	Overall	164.239	3.271	157.827	170.650
Overall	Overall	169.910	1.482	167.006	172.814

a. Estimation is limited to the largest survival time if it is censored.

The length of time before average onset of an arrest was significantly greater for the youth in the mentoring condition, with odds of survival 1.5 times greater for the treatment group (OR = 2.5).

Table 3.9. Survival Analysis Estimates and CI for Independent Variables in the Equation

	B	SE	Wald	df	Sig.	Exp(B)	95.0% CI for Exp(B) Lower	Upper
Intent to Treat Group	.925	.461	4.017	1	.045	2.521	1.021	6.227
Sex	1.027	.432	5.660	1	.017	2.792	1.198	6.505

The cumulative hazard (Figure 3.3) corroborates earlier findings of group differences in probabilities for risk of arrest and reveals the risk to be increasing over time for those in the control condition.

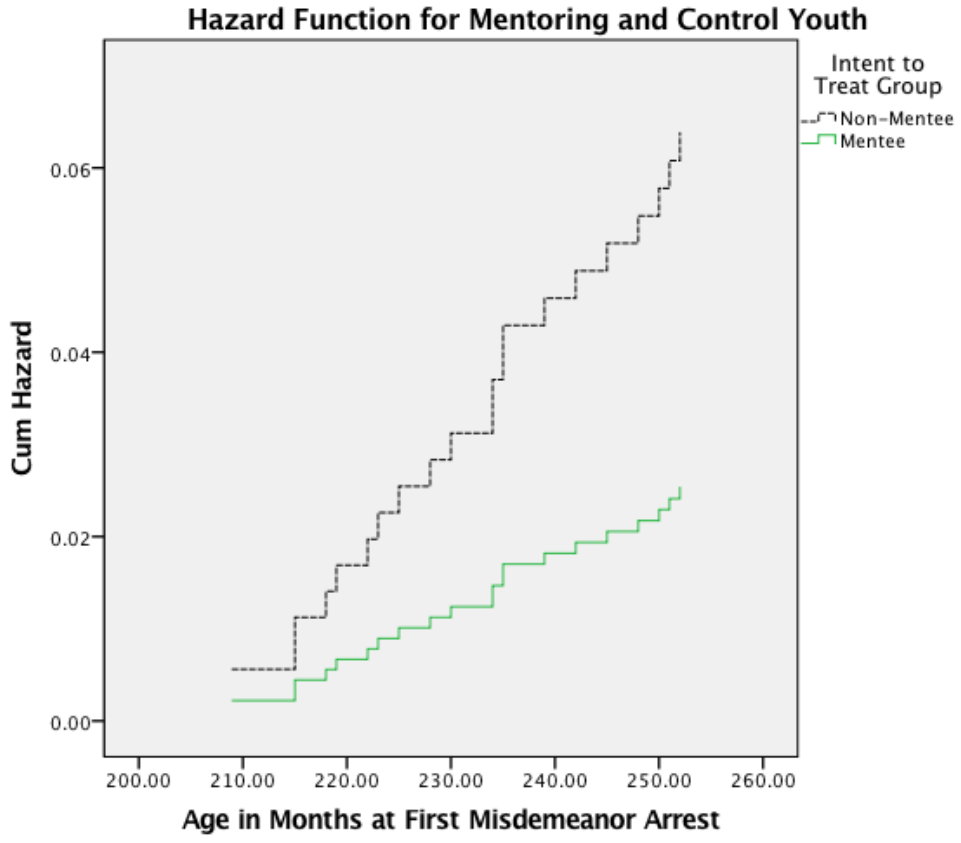


Figure 3.3.

Conditional Cumulative Hazard Function by Month Starting at Age 17

Second long-term outcome: Predicting post-secondary education. Tests of the effects of school-based mentoring on the likelihood of pursuing post-secondary education by age 22 (within five years after high school) were first conducted using logistic regression without any covariates. The omnibus test for the first model, which replicated the three-way interaction of the original study (Karcher, 2008), was not statistically significant and revealed the effects of mentoring did not vary across grade levels between the sexes.

A second logistic regression model without school level as a variable was statistically significant, revealing a main effect for mentoring and sex. Table 3.10 shows a small difference between groups, with 33% of mentees compared to 30% of control group participants having enrolled in some form of post-secondary education (77/157 divided by70/162 = OR=.1.14). In other words, the odds of post-secondary pursuit were 14% greater for mentees, or that mentees were 10% more likely to pursue post-secondary education; however, there was a significant difference in the probability of enrollment as a function of the participants' sex, with girls in the treatment/mentoring group showing a greater likelihood of pursuing post-secondary education (OR = 1.27). Including an interaction term for treatment group by sex, as well as several covariates, revealed that clearly girls benefitted the most from program participation in terms of their likelihood of long-term educational pursuit after high school (See Table 3.12). The confidence interval for treatment main effects generated from this same model with bootstrapping further suggests the benefits were restricted to girls (Table 3.13).

Table 3.10: *Enrolled by Age 22 for Treatment Groups by Sex*

Sex			Intent to Treat Group Non-Mentee	Mentee	Total
Female	Enrolled by Age 22	.00	118	89	207
		1.00	50	54	104
	Total		168 (30%)	143 (38%)	311
Male	Enrolled by Age 22	.00	44	68	112
		1.00	20 (31%)	23 (25%)	43
	Total		64	91	155
Total	Enrolled by Age 22	.00	162	157	319
		1.00	70	77	147
	Total		232 (30%)	234 (33%)	466

Gender differences in treatment effects were found in logistic regression estimates of differences in the probability of youth pursuing some form of post-secondary education (including certificate programs, trade school, college). These results were true both without and when including pre-intervention grades in math and reading as covariates as well as parent-rated pre-assignment problem behaviors. The interaction of sex and treatment group was statistically significant in both models. Post-secondary educational enrollment was higher for girls in the mentoring (38%) vs. control (30%) condition. The largest difference was for the 70 girls in elementary school, wherein 59% of girls in the mentoring condition had enrolled but only 37% of the control group girls had (see Table 3.11). For boys, the difference in the percent of mentored

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(25%) and control group (31%) youth enrolled in post-secondary education by age 22 favored the control group but was not statistically significant (see Table 3.11).

Table 3.11: *Number Enrolled by Age 22 for Treatment Group By Sex and School Level*

				Number Per Group		
Sex	Grade Group			Control (Percent)	Treatment (Percent)	Total
Female	Elementary	Enrolled by	No	26	12	38
		Age 22	Yes	15 (37%)	17 (59%)	32
		Total		41	29	70
	Middle	Enrolled by	No	33	26	59
	School	Age 22	Yes	15 (31%)	15 (37%)	30
		Total		48	41	89
	High	Enrolled by	No	59	51	110
	School	Age 22	Yes	20 (25%)	22 (30%)	42
		Total		79	73	152
Male	Elementary	Enrolled by	No	11	22	33
		Age 22	Yes	5 (31%)	6 (21%)	11
		Total		16	28	44
	Middle	Enrolled by	No	18	23	41
	School	Age 22	Yes	8 (31%)	8 (26%)	16
		Total		26	31	57
	High	Enrolled by	No	15	23	38
	School	Age 22	Yes	7 (32%)	9 (28%)	16
		Total			32	54

Table 3.12: *Logistic Regression Predicting Post-Secondary Enrollment (with Covariates)*

	B (S.E.)	Wald	Sig.	Exp(B)	95% C.I. for EXP(B) Lower	Upper
Sex	.550 (.342)	3.094	.079	1.73	.939	3.199
Math Grades (Pre)	.034 (.012)	8.056	.005	1.04	1.011	1.060
Reading Grades (Pre)	.040 (.014)	8.004	.005	1.04	1.012	1.070
Connors Global Index	-.859 (.280)	9.394	.002	.42	.245	.734
Treatment Group	.508 (.257)	3.902	.048	1.66	1.004	2.752
Treatment by Sex	-.912 (.464)	3.862	.049	.40	.162	.998
Constant	-6.186 (1.20)	26.465	.000	.00		

Reference Categories: Treatment=Mentees, Sex=Males. Wald (df = 1).

Table 3.13: *Bootstrap Logistic Regression Predicting Post-Secondary Enrollment (with Covariates)*

	B	Bias	S.E.	Sig.	95% C.I. Lower	Upper
Sex	.550	.003	.328	.081	-.099	1.176
Math Grades (Pre)	.034	.000	.013	.012	.009	.062
Reading Grades (Pre)	.040	.001	.016	.010	.011	.072
Connors Global Index (Parent Report Pre)	-.859	-.024	.289	.002	-1.505	-.319
Treatment Group	.404	.001	.384	.279	-.305	1.179
Treatment by Sex	-.912	-.011	.471	.047	-1.902	-.035
Constant	-6.228	-.114	1.185	.001	-8.721	-4.068

Reference Categories: Treatment=Mentees, Sex=Males. Wald (df = 1).

Goal 2: Identify Relationships Between Mentoring Interactions, Relationship Styles, and the Likelihood of Arrest in Adulthood

The second goal of this project was to better understand whether and perhaps how mentoring interactions and relationship styles contribute to long-term outcomes of school-based mentoring. Used to guide the analyses in this section, the TEAM Framework (Karcher & Nakkula, 2010) was both derived from findings of two pioneering studies of community-based mentoring, and further developed through an application of those findings to the early analysis of activity data derived from the present study summarized below (Avera et al., 2014; Karcher, Benne et al., 2006).

The analyses in this section first consider bi-variate correlations among types of mentor-reported activities, youth-reported assessments of relationship quality, and long-term outcomes (misdemeanor arrest and post-secondary enrollment by age 21). Bivariate correlations, both zero-order and partial (controlling for factors that might influence the selection of specific mentoring activities—namely, pre-match grades, attendance, problem behaviors, age and sex) were used to test whether relationship-building discussions and fun activities (hallmark "mentoring" interactions) were more strongly associated with long-term outcomes than the academically and problem-oriented discussions and homework that more commonly occur in school-based mentoring settings.

Then an attempt was made to test the TEAM framework hypotheses that (a) the combination of relationship-building discussions and goal-directed activities best predicts long-term outcomes and (b) their interactional quality varies as a function of the youth's report of relationship quality. These analyses focused on the degree to which the youth felt he or she mattered to the mentor as the indicator of relationship quality. One set of analyses and graphical output from PROCESS analyses run in SPSS 24 tested the moderation of the degree to which the relationship between mattering and the likelihood of arrest by 21 varied as a function of the extent of relational or problem discussions.

The mentoring activities indices reported first in correlations reflect aggregates of the total data collected into four theoretically derived interaction categories—the same as presented in Figure 1 to illustrate the TEAM Framework dimensions. Earlier factor analyses of the individual match interactions described in Table 1 (and listed, as reported by mentors in the activity log, in Appendix A of this report) use data from the original study (Karcher, Benne et al. 2006). These factor analyses revealed the presence of two general purposes of mentoring interaction (serving adult/future or youth/present purpose), as well as two types of interaction focus, either a relationship focus or a goal or problem focus. (These are the horizontal and vertical dimensions, respectively, in Table 1.) However, factor analyses also differentiated discussions from activities, resulting in four categories—Playing, Talking, Learning, and Doing—that are central to the TEAM framework (Karcher & Nakkula, 2010) and which were used to identify the aggregate categories of interaction used in correlations presented in this chapter. Each category was further identified as either developmental or instrumental to indicate the type of interaction that typically happens first in each of these two relationship styles. In the developmental style, social discussions and playful activities are focused on first and constitute a relationship-building focus initially: Developmental Activities such as "Play" (games, sports) and Developmental Discussions such as "Talk" (casual conversation, discussions of specific relationships). The instrumental-style relationships start with a skill-development focus or a problem-remediation purpose: Instrumental Activities are represented by doing homework or tutoring ("Doing") and Instrumental Discussions focus on the conventional, adult purpose of solving problems, school misbehavior, and poor attendance and grades ("Learning"). The mentoring interaction data used in these analyses are from responses on activity logs completed by mentors after every visit (see Table 1) recording the time spent in each of several different kinds of interaction (typically ranging from 30 to 75 minutes a meeting). (See Appendix A

for Activity Log indicators and names, and Appendix B for Playing, Talking, Learning, and Doing Variable Coding based on combinations of Activity Log tallies). The total time for activities and discussions in each category for the two relationship style types was divided by the total hours the youth was mentored to create an average "percent time" spent on each. These were used for estimating associations between activity frequency and several measures of both relationship quality and long-term program outcomes in correlational analyses (both zero-order and partial correlations).

Bivariate and partial correlations examined the relationships among specific mentoring activities engaged in, the youth-reported relationship quality, and several program experiences assessed ten years prior, and their association with the two long-term outcomes. These correlations yielded several significant and theoretically consistent associations (See Table 3.14). The pattern of correlations associating mentoring activities and mentee experiences with long-term outcomes most closely replicates prior findings by Morrow and Styles (1995) revealing the utility of the developmental style, but also support for Hamilton and Hamilton's (2005) instrumental style. It is consistent with Wampold et al.'s (1997) meta-analysis regarding the efficacy of different psychotherapy approaches, and his use of a line from *Alice in Wonderland*, "both have one and both shall have prizes."

Consistent with the *developmental style* advocated by Morrow and Styles (1995), which at first prioritizes conversations through which relationships are built, we see that zero-order correlations between time spent in developmental discussions were most predictive of avoiding arrest and pursuing post-secondary education ten years later for all mentees. Table 3.14 reveals statistically significant negative correlations with likelihood of arrest for misdemeanors (r =-.19) and increases in likelihood of post-secondary educational pursuit (r =.17).

Table 3.14: Zero-order and Partial Correlations Between Long-term Outcomes, Mentoring Interactions and Relationship Quality

	1	2	3	4	5	6	7	8	9	10	11	12	13
1. Arrested	1	.03	-.05	-.08†	.06	-.16*	.04	.09	-.07	-.08	-.15*	-.09	-.16*
2. Enrolled	.00	1	-.02	.07	.03	.19**	-.09	-.18**	-.08	.04	-.05	-.05	-.03
3. Total CIS hrs.	-.07	.01	1	.25**	-.03	-.07	.11	-.01	.08	.05	.13†	.08	.10
4. Mentoring hrs.	-.08	.07	.25**	1	-.25**	.05	.20**	-.05	.25**	.22	.27**	.30**	.21**
5. Learning	.05	-.10	-.09	-.23**	1	-.31**	-.48**	-.10	-.13†	-.12†	-.10	-.01	-.17*
6. Talking	-.19**	.17*	-.07	.02	-.12	1	-.44**	-.41**	.02	.08	.10	.05	-.02
7. Playing	.07	.02	.13	.19**	-.62**	-.52**	1	-.22**	.07	.07	.04	-.01	.15*
8. Homework	.08	-.14*	.02	-.04	-.17*	-.40**	-.08	1	.03	-.05	-.08	-.05	.00
9. Valued	-.08	.00	.11	.24**	-.24**	-.02	.17*	.07	1	.72**	.69**	.68**	.72**
10. Motivated	-.08	.08	.07	.22**	-.12*	.04	.12	-.02	.72**	1	.70**	.56**	.62**
11. Matter	-.16*	.03	.16*	.26**	-.22**	.07	.14	-.03	.70**	.70**	1	.72**	.71**
12. C_Mentor	-.09	.01	.10	.29**	-.11	.02	.08	-.02	.70**	.58**	.730**	1	.58**
13. C_Program	-.16*	.02	.13	.22**	-.26**	-.06	.23**	.05	.71**	.62**	.72**	.58**	1

Notes. † $p \leq .10$, * $p \leq .05$, ** $p \leq .01$, Full labels: 1. Arrested for Misdemeanor by Age 21; 2. Enrolled in Post-Secondary Ed. by Age 21; 3. Total CIS services (excl. mentoring); 4. Total hours of Mentoring; 5. Percent of Time in Instrumental Discussion; 6. Percent Time in Developmental Discussion; 7. Percent Time in Developmental Activities; 8. Percent Time Doing Tutoring or Homework; 9. Mentee feels valued; 10. Feels motivated by mentor; 11. Matter to mentor; 12. Connectedness to Mentor ; 13. Connectedness to Program; Below the diagonal are zero-order correlations, and above the diagonal are partial correlations controlling for age, sex, and initial problem behaviors, attendance, and grades.

Table 3.15: Partial Correlations Between Long-term Outcomes, Mentoring Interactions and Relationship Quality by Sex

	1	2	3	4	5	6	7	8	9	10	11	12	13
1. Arrested	1	.00	-.05	-.06	.07	-.16†	-.07	.22**	.08	.02	-.02	.04	-.04
2. Enrolled	.07	1	-.03	.13*	.02	.25**	-.15†	-.18*	.02	.14	-.01	-.01	.05
3. Total CIS hrs.	-.09	.01	1	.25**	-.03	-.10	.16†	-.02	.05	.02	.15	.05	.06
4. Mentoring hrs.	-.12	-.08	-.12*	1	-.27**	.02	.30**	-.09	.27**	.23**	.34**	.31**	.20*
5. Learning	.06	.07	-.10	-.22†	1	-.39**	-.40**	-.10	-.12	-.16†	-.15	-.02	-.17†
6. Talking	-.16	-.03	-.09	-.02	-.22†	1	-.39**	-.47**	.01	.07	.12	.10	.01
7. Playing	.11	.09	.11	.16	-.57**	-.51**	1	-.21**	-.01	.06	.03	-.09	.07
8. Homework	-.06	-.23*	.06	.05	-.07	-.23*	-.30*	1	.123	.001	-.04	-.004	.07
9. Valued	-.24*	-.27*	.15	.22*	-.12	-.02	.18	-.13	1	.71**	.65**	.66**	.67**
10. Motivated	-.18	-.13	.14	.25*	-.05	.03	.10	-.15	.71**	1	.68**	.53**	.61**
11. Matter	-.28*	-.12	.08	.13	-.01	.03	.06	-.14	.74**	.73**	1	.74**	.72**
12. C_Mentor	-.24*	-.13	.15	.31**	.02	-.11	.12	-.09	.69**	.60**	.70**	1	.55**
13. C_Program	-.29*	-.18	.21†	.24*	-.15	-.15	.28*	-.09	.80**	.61**	.67**	.58**	1

Notes. † $p \leq .10$, * $p \leq .05$, ** $p \leq .01$, Full labels: 1. Arrested for Misdemeanor by Age 21; 2. Enrolled in Post-Secondary Ed. by Age 21; 3. Total CIS services (excl. mentoring); 4. Total hours of Mentoring; 5. Percent of Time in Instrumental Discussion; 6. Percent Time in Developmental Discussion; 7. Percent Time in Developmental Activities; 8. Percent Time Doing Tutoring or Homework; 9. Mentee feels valued; 10. Feels motivated by mentor; 11. Matter to mentor; 12. Connectedness to Mentor ; 13. Connectedness to Program; Below the diagonal are correlations for boys, above the diagonal are for girls. Both are controlling for age, sex, and initial problem behaviors, attendance, and grades.

Partial correlations with these two long-term outcomes, controlling for initial rates of misbehavior, grades in reading and math, absences, age and sex, remain statistically significant ($r_{partial}$=-.16, $r_{partial}$=.19, Table 3.14 above diagonal).

Gender differences in the association between frequency of developmental conversations and long-term outcomes were also observed. Looking at just the women (Table 3.15), the partial correlations with later arrests (r =-.16,) and post-secondary pursuits ($r_{partial}$ = .25) were the same as for the full sample (Table 3.14), suggesting that women whose matches engaged in more relationship-building discussions were less likely to be arrested for a misdemeanor in adulthood and were more likely to pursue post-secondary education. For men, the negative associations ($r_{partial}$ = -.16) between developmental conversations and later arrest were similar in size and direction to the full sample, but did not reach statistical significance; however, there was no evidence of a direct association between developmental conversations and post-secondary pursuits $r_{partial}$ = -.03).

Time spent doing homework was not associated with good long-term outcomes. For all youth (both sexes combined, Table 3.14), time spent doing homework was negatively associated with later pursuit of post-secondary education (r = -.14). Even controlling for differences in mentees' initial grades, attendance, school behavior, sex, and age, the negative relationship between time spent on homework and post-secondary pursuits remained statistically significant ($r_{partial}$=-.18). For women separately (Table 3.15), partial correlations between time doing homework and both later arrest ($r_{partial}$=.22) and post-secondary enrollment ($r_{partial}$=-.18) ten years later were statistically significant, revealing iatrogenic effects of doing homework with girls. For the men, doing homework was also negatively associated with later post-secondary pursuits ($r_{partial}$=-.23), though not with arrests.

Problem-focused conversations (Learning or "instrumental discussions") were not directly associated with either long-term outcome in zero-order or partial correlations for the mentees when

women and men were both included in analyses (Table 3.14). For men, despite the fact that a zero-order association with later pursuit of post-secondary education was found (r =-.14), it was not statistically significant, and the relationship was entirely absent in partial correlations (r = .02), suggesting such conversations may have been related to other problems (e.g., problem behaviors) that explained the link to long-term outcomes in the zero-order correlation. There were no direct associations for men. However, this does not mean they had no influence on the match.

Problem-focused "learning" discussions (instrumental discussions) were negatively correlated with total hours of mentoring (r =-.23; $r_{partial}$ = -.25), both for the whole sample as well as for women (r = -.24, $r_{partial}$ = -.27) and men (r = -.22, $r_{partial}$ = -.22) separately (Zero-order correlations are in Appendix F and Partial correlations for men and women in Table 3.15). Thus, for all youth, regardless of (i.e., controlling for) the perceived need to discuss problematic grades, attendance, or school behavior, such discussions predicted shorter relationships, suggesting problem-focused conversations may have contributed to poorer quality relationships. The statistically significant negative associations between the "Learning" interactions and most process measures of mentees' views of the program and of relationship quality support this assertion.

Time spent playing games ("developmental activities") was positively related to total hours of mentoring (r =.19)—so predictive of a longer relationship in general—regardless of the child's age, grades, attendance, and problem behaviors ($r_{partial}$ =.20), suggesting it was relationship-enhancing, even if no direct association with long-term outcomes was observed. Multiple positive associations between playing and mentees' feeling valued in the match (r = .17, $r_{partial}$ = .07) and being more connected to the CIS mentoring program (r = .23, $r_{partial}$ = .15) support this interpretation.

Mentees' reports of feeling they mattered to their mentors (r =-.16, $r_{partial}$ =-.15) and the strength of their connection to the CIS mentoring program (r =-.16, $r_{partial}$ =-.16) were negatively

associated with adult arrest by age 21, but no such associations were found with pursuit of post-secondary education. However, these associations were moderated by sex (see Table 3.15). For men, all of the relationship process measures were negatively related (in partial correlations) to being arrested by age 21, and three measures were significantly associated with longer matches; for women girls, none of the four relationship quality measures nor the program connection measure were associated with either long-term outcome, even though all were positively related to total hours of mentoring.

As a whole, these correlations support the value of the developmental model, which places a priority on friendship-building initially. Developmental discussions, focused on learning about the mentee, were predictive of positive adult outcomes. Conversely, time spent doing homework was not. Regardless of the need (as evidenced by the corroborating zero-order and partial correlations), the youth whose mentors acted like tutors were less likely to be drawn to higher education. Similarly, although not related directly to long-term outcomes, having fun ("developmental activities") predicted longer match length, while problem-focused conversations predicted shorter matches, again, controlling for whether or not the child's behavior, grades, or attendance were suggestive that play or problem conversations were needed by the youth.

What these correlations could not do, however, is reveal the presence of any interaction between different activities and relationship processes on long-term outcomes. The TEAM Framework, building on the research that informed the "developmental" and "instrumental" styles, proposes that both goal-directed (problem-focused) and relationship-focused interactions are present in the most efficacious mentoring relationships, and that their interplay contributes to outcomes through changes in relationship quality. This hypothesis, however, cannot be tested with bivariate

correlations, but instead requires tests of how activities may shape or moderate the way relationship quality contributes to program outcomes.

Testing the Interplay of Mentoring Interactions and Mentee Experiences on Outcomes

To better understand the way some mentoring activities may moderate the influence of relationship experiences on long-term outcomes, and to test the hypothesis that they are interactive in nature, analyses in this section examined moderators of the relationship between mentoring relationship quality and long-term outcomes. Analyses here consider the frequency of relationship-building and academically or problem-focused activities, and estimate how the frequency of these interactions may have moderated the way relationship quality affected long-term outcomes.

Regression analyses using the SPSS macro PROCESS (Hayes, 2013) allowed regression analyses to be conducted that provide precise tests of significance of interactions across multiple moderators and reveal the strength and significance of the moderating effect at specific cut points of the moderator that reflect subgroups of respondents. The PROCESS macro facilitates the estimation of the contribution of a second moderator (for example, also measured and tested at three cut points) at specific points of the first moderator, and provides tests for significance wherein the difference is not zero. Cut points were the mean and one standard deviation above and below the mean.

This is similar to a three-way interaction but is calculated in a manner that allows tests of the degree to which a second moderator reliably (Z) moderates the effect that the first moderator (W) has on the X-Y relationship at specific cut-points of W, even when the moderating effect of the second moderator is not evident at all levels of the first moderator. It reveals the way a moderator explains the interaction between two other variables for subgroups of participants, whereas typical significance tests of interaction variables test that the moderating interaction works the same way across all levels of the XY relationship.

Table 3.16: Logistic Regression Coefficients for Main, Moderator, and Conditional Effects

```
Model  : 2
    Y  : Misdby21
    X  : midmattr
    W  : redob
    Z  : redoh

Covariates:
 ssrsa1   cgi_p1   sexfis0  age

Sample
Size:  204

**************************************************************************
OUTCOME VARIABLE:
 Misdby21

Coding of binary Y for logistic regression analysis:
  Misdby21  Analysis
      .00       .00
     1.00      1.00

Model Summary
       -2LL    ModelLL         df          p   McFadden   CoxSnell   Nagelkrk
    31.5637    22.5744     9.0000      .0072      .4170      .1048      .4494

Model
              coeff         se          Z          p       LLCI       ULCI
constant   -11.4315     6.9753    -1.6389      .1012   -25.1027     2.2398
midmattr    -1.4338      .8615    -1.6644      .0960    -3.1222      .2546
redob       17.4517     7.2981     2.3913      .0168     3.1477    31.7557
Int_1       -5.1359     2.3274    -2.2067      .0273    -9.6975     -.5743
redoh      -13.7988    13.6097    -1.0139      .3106   -40.4733    12.8758
Int_2        3.7097     3.5539     1.0438      .2966    -3.2559    10.6753
ssrsa1       2.4327     1.2937     1.8804      .0601     -.1029     4.9684
cgi_p1        .5403     1.3114      .4120      .6803    -2.0301     3.1107
sexfis0       .7619     1.1276      .6757      .4992    -1.4481     2.9720
age           .2616      .2679      .9766      .3287     -.2634      .7867

These results are expressed in a log-odds metric.

Product terms key:
 Int_1    :        midmattr x        redob
 Int_2    :        midmattr x        redoh

Likelihood ratio test(s) of highest order
unconditional interactions(s):
        Chi-sq         df          p
X*W     6.5990     1.0000      .0102
X*Z     1.8948     1.0000      .1687
----------
    Focal predict: midmattr (X)
          Mod var: redob    (W)
          Mod var: redoh    (Z)

Conditional effects of the focal predictor at values of the moderator(s):

      redob      redoh     Effect         se          Z          p       LLCI       ULCI
      .0000      .0000    -1.4338      .8615    -1.6644      .0960    -3.1222      .2546
      .0000      .4596      .2711     1.7169      .1579      .8746    -3.0941     3.6362
      .0000     1.0488     2.4569     3.6853      .6667      .5050    -4.7661     9.6799
      .2659      .0000    -2.7996      .9919    -2.8225      .0048    -4.7436     -.8556
      .2659      .4596    -1.0947     1.7353     -.6309      .5281    -4.4958     2.3063
      .2659     1.0488     1.0911     3.6627      .2979      .7658    -6.0877     8.2699
      .7529      .0000    -5.3005     1.8472    -2.8695      .0041    -8.9210    -1.6800
      .7529      .4596    -3.5957     2.2611    -1.5902      .1118    -8.0275      .8360
      .7529     1.0488    -1.4098     3.8857     -.3628      .7167    -9.0256     6.2059
```

Variables: redob: Behavior or "Discussed youth's behaviors that were related to problems with peers, teachers, adults, specifically misbehavior"; redoh: Getting to know the mentee or "Discussed mentee's hobbies & interests, feelings, or mentee talked most of the time while mentor listened". Cgi_P1: Connors Behavior Rating Scale, Parent Report; ssrsa1: Youth-reported social skills rating scale, assertiveness; sexfis0: Sex with female coded 0. Int_1 and Int_2 are activity by mattering moderator interaction terms.

The model was run twice to rule out alternative variables that might account for this effect. First it was run with only the four variables, X, Y, W, and Z and no covariates; then it was run again including a number of covariates to rule out the likelihood that patterns of what happened in the match were simply proxies for other exogenous predictors or causal variables, namely the following characteristics: initial rates of problem behavior, social skills, sex, and age. Results were corroborated across runs; results with covariates are provided in Table 3.16.

Results in Table 3.16 are from a test of whether multiple mentoring activities moderate the effect of program participation experiences on long-term outcomes through their separate and combined influence on mentees' feeling they mattered to their mentors. For explaining how mentoring activities contributed to the negative association between feeling the mentee mattered and the likelihood of misdemeanor arrest in adulthood, a logistic regression model was constructed with mattering predicting likelihood of arrest by 21, controlling for youth's self-reported social skills, parent-reported problem behaviors, age, and sex, and including two moderator variables, the frequency of time spent discussing school problems (redob) and time spent listening and learning about the mentee (redoh). Of the two moderating variables, the first (redob) was the frequency at which the match "Discussed youth's behaviors that were related to problems with peers, teachers, adults, specifically misbehavior," and it was a statistically significant predictor of later arrest (Y) and a moderator variable of the XY relationship. The second mentoring interaction (redoh) was not. This variable (the mentors' report of frequency of time they "Discussed mentee's hobbies & interests, feelings, or mentee talked most of the time while mentor listened"), however, was influential in its absence.

Although only problem-focused discussion was found to be an unconditional moderator of the way mattering predicted later arrests ($X^2 = 6.60$, $p \leq .01$), suggesting that it was at low levels of

mattering that problem-focused conversations most strongly predicted increased likelihood of later arrest, this effect was further conditioned by the absence of time spent getting to know the mentee.

Conditional effects, listed in Table 3.16, reveal that it was when mentors spent little time getting to know the mentee (i.e., redoh = .00 = -1 SD) that the negative effect of a focus on problem behavior most strongly affected likelihood of later arrest. When little time was spent getting to know the mentee and the mentee felt like he or she did not matter to the mentor, high rates of problem-focused conversations (redob = .75 = + 1 SD), and controlling for differences in social skills, problem behaviors, sex, and age, predicted a higher likelihood of arrest (Beta = -5.30, p = .14). These multiple moderator (PROCESS Model 2) analyses, specifically the significant mattering x problem-focused conversations interaction term (Int1 in Table 3.16), suggest that mattering most strongly predicted later arrest when problem-behavior conversations were frequent, and this effect was further conditioned by time spent getting to know the mentee (variable redoh). With little time spent getting to know the mentee, frequent conversations about problems at school predicted a greatly increased risk for later arrest among kids who felt they did not matter much to their mentors.

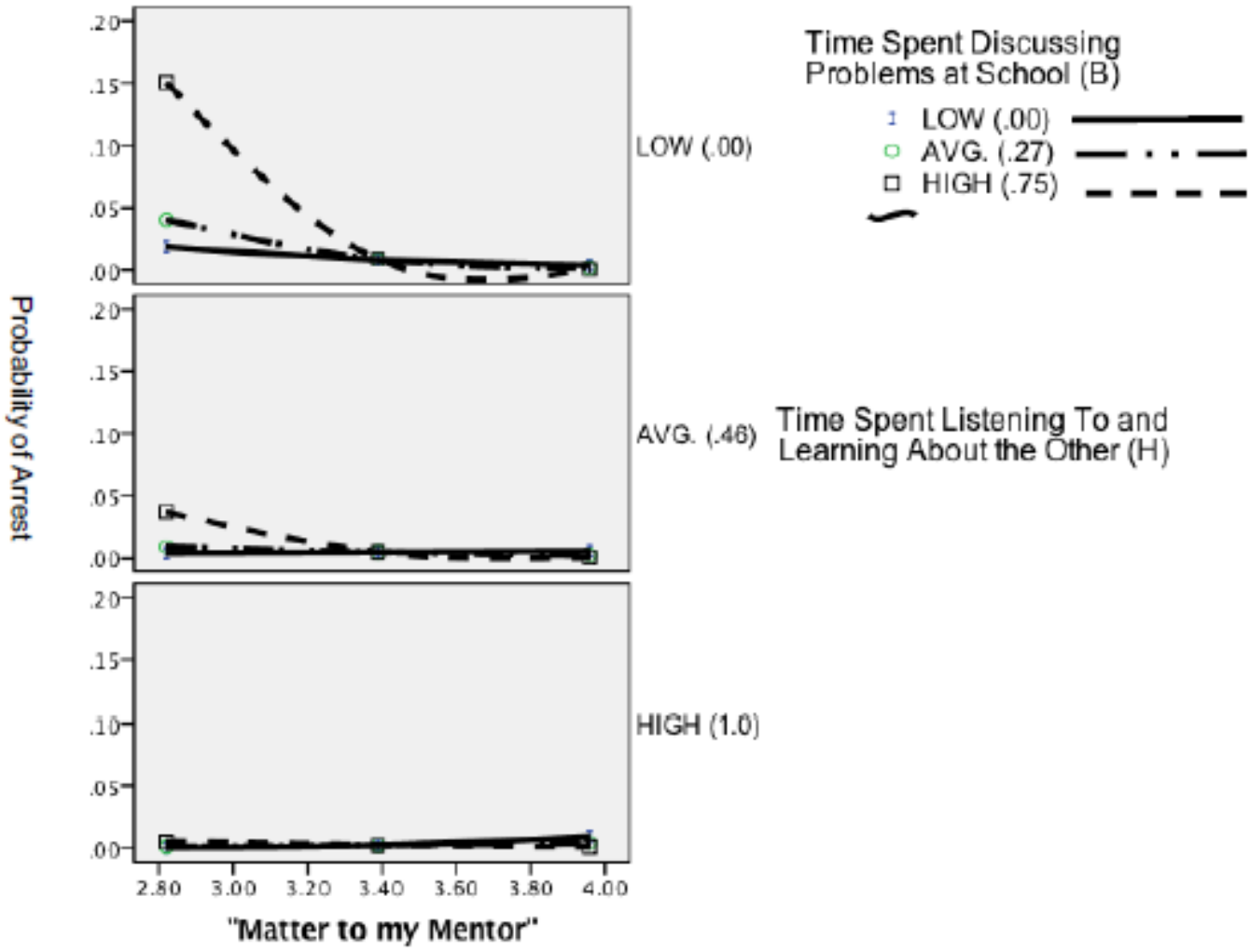


Figure 3.4. *Moderation of Likelihood of Misdemeanor Arrest by Conversation Focus and Mattering*

Figure 3.4 provides an illustration of the conditional process analysis approach (Hayes, 2013), in which contrasts are drawn between the relationship between a predictor (X) and an outcome variable (Y) at three cut points along a continuous moderator variable (M) to provide both visual depiction and statistical significance testing of difference in slopes across these cuts. Again, here, cuts are at the mean and one standard deviation above and below the mean for W and Z.

Figure 3.4 illustrates that the relationship between how much a mentee felt he or she mattered to their mentor (X) and the likelihood of arrest (Y) varied most at low levels of mattering (i.e., low levels of X) and as a function of the frequency of the type of mentoring discussion. The highest

probability of arrest was found in matches where mentors spent the least time getting to know the mentee (top panel), and frequently discussed school problems, as depicted by three sets of lines reflecting low, medium and high frequency of the first moderator (W, i.e., redob).

Figure 3.4 shows that the X-Y relationship—viz. the degree to which mentees feeling they mattered to their mentors predicted the probability of being arrested for a misdemeanor by age 21—differed across three horizontal panels reflecting three rates of time the mentor spent getting to know the mentee. Lines represent three rates (frequency) of time spent focusing on school problems. The dash-dotted green-tipped line ("average" amount of time spent discussing problems), serves to indicate the difference in the probability of arrest that can be expected across the range of reported mattering at each of three cut points for low (- 1 SD), average and high rates (+1 SD) of time getting to know the mentee (top, middle, bottom panel). At an average frequency of problem focus, the probability line (at intercept) varies from 4% probability of arrest for matches with "little time" time spent getting to know the mentee and with low reported mattering (in the bottom panel of Figure 3.4) to 1% arrest probability for those in matches spending a lot of time learning about mentees (in bottom panel in Figure 3.4). This moderating effect is present, however, only when youth reported feeling they mattered very little to their mentors (-1 SD on X or 2.82), which is the left side of the X axis on each panel (i.e., those youth who said they felt they mattered little to their mentors). The probability of arrest was three times greater in highly problem-focused matches that spent little time (14% probability) compared to a lot of time getting to know the mentee (1% probability), among mentees who felt unimportant (i.e., low on X). When mentees felt they mattered to their mentors (high on X), the probability of a future arrest did not vary depending on either the amount of time spent getting to know the mentee.

Further, Figure 3.4 also reveals that the degree to which time spent these relationship-building activities (talking about the mentee) interacts with mentees' perceptions of mattering (i.e., differs across the three panels) is further moderated and also varies as a function of the amount of time spent discussing mentees' problems. This illustrates how testing conditional processes can reveal the additional contribution of a second moderator (Z) within the region of specific cut points along another variable). It is like a 3-way interaction but examined for separate cases, reflected by regions along one of the moderators, to allow tests of the degree to which this moderator conditions the first moderator's influence on the X-Y relationship for those specific cases or groups.

Please note that in the matches in which mentors spent the least amount of time getting to know the mentee (the top panel in Figure 3.4, as shown in Figure 3.5), the three lines represented convey the varying degree to which time in matches was spent in discussions of mentees' school problems and how much more strongly it predicts the probability of arrest when mentees felt they mattered little to their mentors.

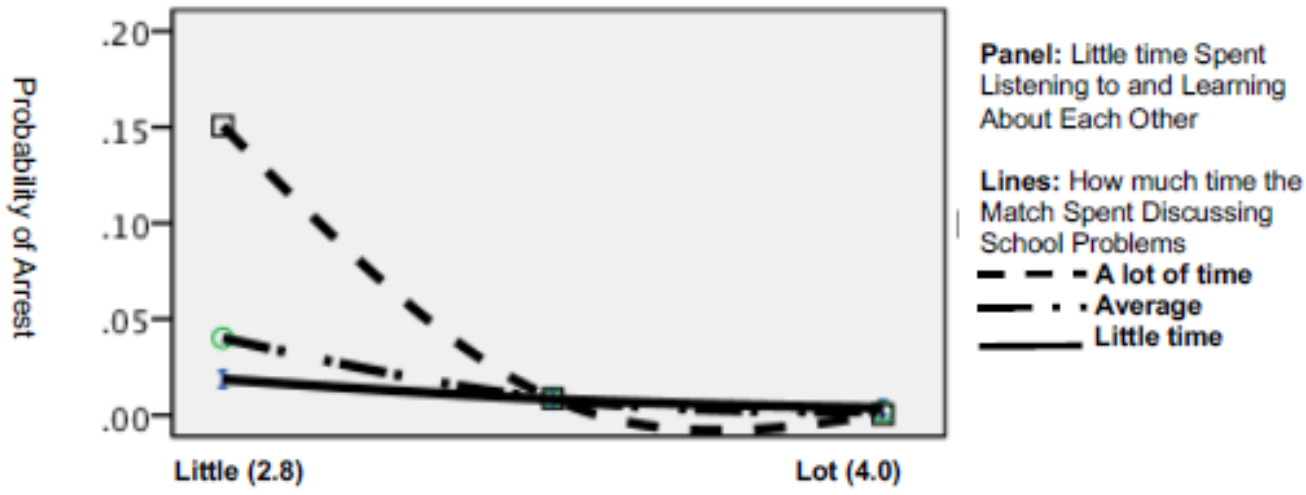


Figure 3.5. *Mattering Moderates Effect of Problem Focus Most When Focus on Relationship is Low*

Specifically, the likelihood of being arrested was over times higher (dashed, top line at the intercept at 14% probability of arrest) when their matches focused heavily on the youths' problems than for youth in matches focusing an average amount on the mentees' problems (dashed-dotted line ending in circles, meeting the intercept below 4% probability of arrest) that also were low in mattering and low in getting to know the mentee.

IV. DISCUSSION

There was good reason to expect that if any outcomes from the original study had persisted, it would be the iatrogenic or harmful effects of school-based mentoring found initially or that these negative effects would have grown larger, but the opposite was true. What appeared to be solid evidence of harmful effects for the high school boys ten years prior seems to have been transformed into processes propelling positive youth development and successful adult outcomes. Also surprising was that the effects initially found, which varied across students of different ages and sex, also evened out over the ten-year period since the original study concluded. In this current study, no evidence of persistent iatrogenic effects was found; in contrast, even stronger positive effects of youth mentoring emerged that were surprisingly consistent across age and sex of study participants. Compared to the group of youth who had not been assigned to receive a mentor (even though some inadvertently did), the youth who were randomly assigned to meet with a school-based mentor (including those 24 in the treatment group who never did meet with a mentor) were less likely to be arrested for a misdemeanor and more likely to have pursued some form of post-secondary education by the age of 21.

Female Mentees' Higher Likelihood of Initiating Post-Secondary Education by Age 21

Mentored girls benefitted more than boys in terms of long-term educational outcomes. Girls in the mentoring program were 27% more likely to have pursued some form of post-secondary education than girls in the control condition. There was a trend in the other direction for mentored boys, such that they tended to be less likely to pursue post-secondary education than those boys not assigned to receive a mentor. But this difference was not statistically significant and thus may reflect a chance finding.

All Mentees' Lower Probability of being Arrested for a Misdemeanor Crime by Age 21

The mentored youth were 55% less likely to have committed a misdemeanor by age 21. These effects were statistically larger than the typical program-impact estimates for youth mentoring on short-term outcomes like grades, attendance, and self-reported attitudes towards school or adults. Indeed, survival analyses suggest that the magnitude of the program's impact increased with each passing year from age 17 to 21. After adjusting for proportional differences in boys and girls across treatment conditions, we see odds of being arrested was reduced by 61% from being assigned to the mentoring program, and fully 67% after accounting for initial, between-group differences in grades and problem behaviors as well as sex differences.

The Relationship Between Mentoring Experiences and Long-Term Outcomes

For both preventing criminality and fostering post-secondary educational persistence, PROCESS analyses revealed that the largest benefit of school-based mentoring was achieved when both relationship-building and problem/achievement-focused interactions occurred in relationships in which the youth felt valued or that she or he mattered to the mentor. For example, in the absence of relationship-building interactions, for children feeling least valued by their mentors, frequent engagement in problem/achievement-focused interactions predicted a probability of later criminal arrest for a misdemeanor four times higher than for similar matches that spent the least time in problem/achievement-focused interactions. Subsequent analyses are required to confirm the directionality of these relationships, but one interpretation that is consistent with the hypothesized effect is that relationship-building interactions set the stage for problem/achievement-focused interactions to be effective by the way they make the youth feel valued by their mentors.

The Benefits of *Doing It All* with Someone You Think Likes You

Conditional process analysis (Hayes, 2013), which estimated the interactive effects of the two types of theory-specific activities described Chapter 1 and shown in Table 1.1 (cells 5 and 8),

which are separately viewed as the two most effective mentoring styles in the existing mentoring literature (as highlighted in the TEAM framework, Karcher & Nakkula, 2010)), found both styles to be meaningful moderators of long-term outcomes. Confirming the TEAM framework hypothesis specifically, the way in which these two contrasting types of activities (relationship-building and problem-focused discussions) interact is mediated by the degree to which the mentee feels he or she is valued by the mentor or matters to the mentor. Findings revealed the probability of arrest that can be expected across the range of reported perceptions of mattering at each of three frequencies of time spent getting to know the mentee varied from 1% to 14%, depending on how much mentees reported feeling they mattered very little to their mentors and the frequency of specific activities that occurred in the match. The probability of arrest was 3 times greater than average in matches where mentors spent little time learning about their mentees and when those mentees felt unimportant. When mentees felt they mattered to their mentors, the probability of a future arrest did not vary depending on the amount of time spent learning about mentee.

The varying degrees to which the way the experience of mattering predicts the probability of arrest differently at varying levels of engagement in relationship-building also differed based on the amount of time matches spent in discussions of mentees' problems. When little time was spent getting to know each other, and mentees felt they mattered little to their mentors, the likelihood of being arrested was three times higher for youth in matches focusing heavily on the youths' problems compared to matches focusing very little on the mentees' problems.

Subsequent analyses are required to confirm the directionality of these relationships, but one interpretation that is consistent with the hypothesized effect is that relationship-building interactions set the stage for problem/achievement-focused interactions to be more or less effective by the way they make the youth feel they matter to their mentors.

Some Limitations and Unanswered Questions

Although the original study did not observe the type of gains in grades or attendance that would predict the increases in post-secondary educational pursuits observed here, there are multiple reasons that this finding is not incompatible with this outcome. The most direct explanation for why the SMILE study originally did not find these changes, when several other studies of school-based mentoring have (see Herrera & Karcher, 2014; Wheeler, Keller & DuBois, 2010; also, Herrera et al., 2007), is that these outcomes may have been experienced by the entire sample of youth, all of whom received standard CIS services. Research on the CIS program suggests these are primary outcomes of that program. Given this, it would be difficult to expect non-academically-focused youth mentoring to leverage additional change in such indicators of school engagement beyond what CIS already yielded for the sample as a whole (Somers & Haider, 2017).

V. IMPLICATIONS FOR POLICY, PRACTICE, AND FUTURE RESEARCH

Evidence of the long-term benefits of school-based mentoring for the study's sample of predominantly low-income, Latino/a students was corroborated through complementary effects on both educational and social/behavioral outcomes. Supplementing the modest and mixed findings from the initial impact study (Karcher, 2008), this study suggests long-term effects of school-based mentoring may reflect sleeper effects that were not initially evident after nine months but required a longer period of time to take hold. As the first long-term follow-up study of school-based mentoring, and perhaps the first long-term follow-up on a no-waitlist, randomized, controlled trial of youth mentoring, it is important to consider the possibility that other studies of the short-term impact of youth mentoring provided similar underestimates of the general benefits of this approach in supporting youth development, reducing crime, and fostering educational advancement among low-income and minority youth.

Therefore, one implication is to invest in longer evaluation cycles in future research as well as to return to the other large-scale experimental tests in the field of youth mentoring to see if sleeper effects were also at play in the initial outcome studies. That is, what has been reported to date, including the largest study of school-based mentoring (funded by IES through the US Department of Education; Bernstein et al., 2009), which reported small impacts overall, may not have captured the best evidence of the value of this approach as a means for bettering individuals and society.

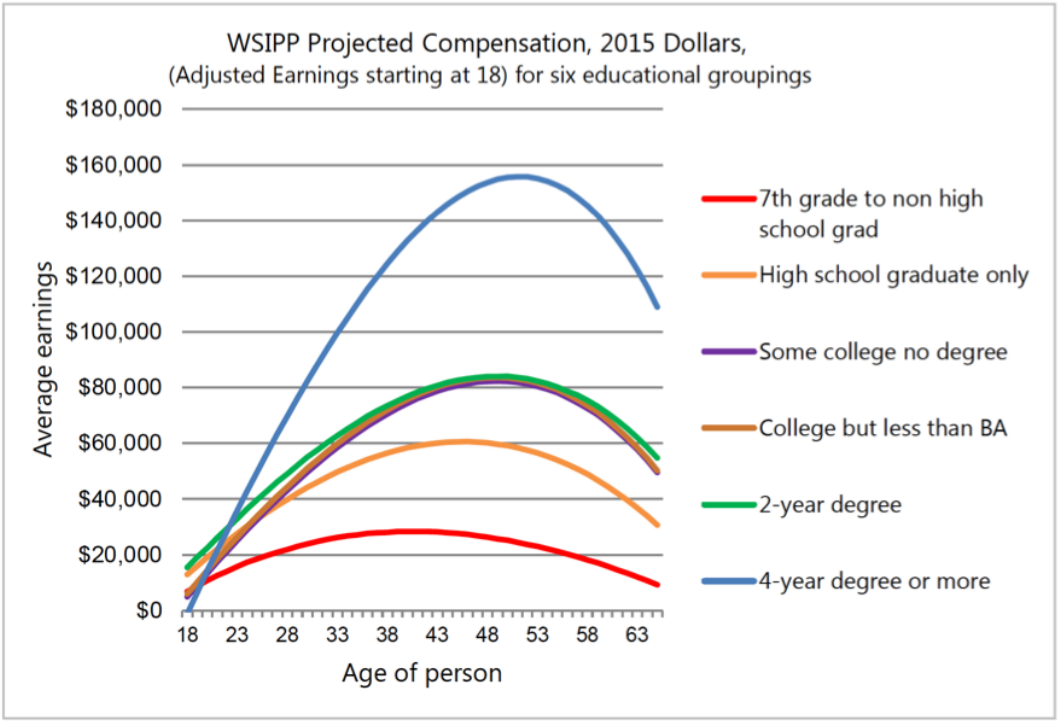
Specifically speaking to the use of this study, however, it seems clear there are policy implications for including school-based mentoring as part of a broader strategy for agencies and organizations seeking to effect change in the expected trajectories of low-income and minority youth in terms of rates of educational persistence and reduced criminality in adulthood. The rationale for doing so, including possible specifics to consider, is noted next.

For Federal and Local Investment in Mentoring as a Tool to Promote Higher Education

The pursuit of almost any form of post-secondary education has meaningful consequences for the individuals themselves, but also for society; therefore, finding that there is compelling evidence that being enrolled in a mentoring program can extend the contribution beyond what other services may already do to facilitate future educational engagement is promising.

The benefits of earning a bachelors' degree are significant for individuals directly and for their children as well. Baum, Ma, & Payea (2013) reported the median weekly earnings of a full-time, bachelor's degree holder in 2011 were 64% percent higher than those of a high school graduate ($1,053 compared to $638), and college-educated workers are more likely to be employed and to have jobs with benefits (e.g., vacation, employer-provided health insurance). Without a college degree, children born into the bottom income quintile have a 45% chance of remaining there as adults, whereas with a degree, they have less than a 20% chance of staying there.

Earning an associate's degree or having just engaged in some college classes has been shown to make an annual difference in salary (at the peak of one's career) of almost $20,000 on average (see Figure 5). Therefore, even though this study did not measure post-secondary educational degree completion, just finding statistically non-negligible differences in rates of post-secondary enrollment can be expected to yield real-world differences in salaries earned for these individuals, resulting in more disposable income and greater tax revenue for the government.



Source: from Fumia et al., 2016

Figure 5. *Annual Income Difference at Varying Levels of Post-Secondary Education*

The findings of this study about the direct benefits of school-based mentoring-program participation on adult educational pursuits, therefore, suggest further cost-benefit analysis is likely to reveal that providing school-based mentoring in this manner could be a highly cost-effective tool for promoting educational persistence.

Also, it would be short-sighted to view benefits found in this study associating participation in a school-based mentoring program with fewer misdemeanors in the first five years after high school as insufficiently impactful to individuals and society to warrant policy initiatives. Such initiatives could include formally investing in school-based mentoring programs to lessen adult criminality as a standard prevention approach provided in schools.

Although no effects of participation in a school-based mentoring program were found for rates of felony violent or property crimes in the first five post-high-school years (because the frequencies were too low to yield reliable analyses), the observed reductions in rates of misdemeanors are meaningful and important, not just statistically significant. In an article entitled "*Why misdemeanors aren't so minor*," Natapoff argues,

> "…we shouldn't write off misdemeanors. The repercussions of a petty conviction can be anything but minor. These offenses are increasingly punished with hefty fines that low-income defendants cannot pay…. A conviction of any kind can ruin a person's job prospects. A petty conviction can affect eligibility for professional licenses, child custody, food stamps, student loans, and health care or lead to deportation. In many cities, a misdemeanor makes you ineligible for public housing." (Natapoff, 2012, p. 1)

As a whole, these findings suggest that policy initiatives to support school-based mentoring may yield substantial return on investment to the public. In terms of the ratio of the cost for school support programs like CIS to involve community volunteers as mentors relative to the long-term reductions in crime and increased educational advancement observed in this study, the investment seems likely to have a promising cost-benefit ratio for public funding.

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APPENDICES

APPENDIX A: Mentor's Activity Log Options

Statistical Variable Name	*Mentoring Activity Description*	*TEAM Framework Dimension*
redoe	Casual conversation (Discussed sports, weekend activities, holiday plans, fun things to do in the community, neighborhood, etc.)	Talk
redof	Conversation on social issues (Discussed current events in the news, poverty, neighborhood events, religion, cultural issues, etc.)	Talk
redog	Conversation about relationships: ❑ Family ❑ Teachers ❑ Friends ❑ Romantic Friend	Talk
redoh	Listening & learning (Discussed mentee's hobbies & interests, feelings, or mentee talked most of the time while mentor listened.)	Talk
redoj	Sports, athletic activity, or outdoor game (activity) (Played basketball, soccer, catch, volleyball, tennis…)	Play
redok	Creative activities (activity) (Engaged in drawing, arts and crafts, reading and writing for fun, photography, crafts, art projects, etc.)	Play
redol	Indoor games (activity) (Board games, playing cards, chess, Uno, checkers, computer games, puzzles, etc.)	Play
redoa	Academics (Discussed grades, school, testing, etc.)	Learn
redob	Behavior (Discussed youth's behaviors that were related to problems with peers, teachers, adults, specifically misbehavior.)	Learn
redoc	Attendance, graduating and "stay-in-school" discussion	Learn
redod	Future (Discussed college, careers, jobs, goals, dreams, etc.)	Learn
redoi	Tutoring/Homework (activity) (Helped with homework, did tutoring, helped with reading, library, academic computer work.)	Do

Source: Karcher, M. J. (2008). The Study of Mentoring in the Learning Environment (SMILE): A randomized evaluation of the effectiveness of school-based mentoring. *Prevention Science*, 9*(2),* 99-113.*

Mentor-Mentee Interaction Checklist (Karcher, 2005). Mentors described the content of their interactions and discussions with their mentees using a form provided by CIS that listed many common activities engaged in during school-based mentoring. The interactions tallied were the same ones as examined in an earlier study (DuBois, Neville, et al., 2002) that found that particular mentoring interactions and discussion content were highly predictive of whether or not mentees came to see their mentors as "significant adults" in later life. Using DuBois, Neville, et al.'s scales, a checklist was created that program site coordinators' had mentors complete after each meeting. Prescriptive/Instrumental activities included discussion of youth's behavior, activities related to homework or schoolwork, and discussion or participation in prevention curricula activities, such as skill building exercises. Developmental/Psychosocial activities included discussion of social issues, casual conversation, recreational activities (like sports), game play, and

mentor listening to the mentee talk or learning about his or her life (e.g., struggles or successes). There was space for mentors to write additional activities not listed. These data were entered into a database each month. At the end of the evaluation, the additional activities reported by the mentors were coded by two raters as either prescriptive/instrumental, developmental, or ambiguous, based on the definitions provided by Morrow and Styles (1995), will be used as indicators of either the developmental or prescriptive latent factors.

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APPENDIX B: Activity Coding

Coding Mentoring Interactions

Estimating total hours of mentoring and percent time of mentoring activities. Presented below is SPSS syntax used, linking specific activities (in parentheses) to higher order interaction categories of Play, Talk, Learn, and Do.

LEARN: Percent Time in Instrumental Discussion

COMPUTE TPctInsD = SUM(redoa,redob,redoc,redod)/RedoThrs .

VARIABLE LABELS TPctInsD 'Percent of Time in Instrumental Discussions' .

TALK: Percent Time in Developmental Discussion

COMPUTE TPctDevD = SUM(redoe,redof,redog,redoh)/RedoThrs .

VARIABLE LABELS TPctDevD 'Percent Time in Developmental Discussions' .

PLAY: Percent Time in Developmental Activities

COMPUTE TPctDevA = sum(redoj,redok,redol)/RedoThrs .

DO (Homework): Percent Time in Instrumental Activities/Homework

COMPUTE TPctInsA = ThrsInsA/RedoThrs .

VARIABLE LABELS TPctInsA 'Percent Time Tutoring or Homework' .

APPENDIX C: Mentoring Experience and Relationship Quality Surveys

Mentee Mattering Survey (Marshall, 2001). Mattering, a form of social identity, is the psychological tendency to view the self as significant to others. Based on the Perceived Mattering scale (Marshall, 2001) developed to assess how much youth feel they matter to their mothers, fathers, friends, and other important individuals, the Mentee Mattering Survey includes nine items translated from Marshall (2001) and which have demonstrated high reliability when used previously with Caucasian mentees in grades four and five (α = .93; Karcher, 2002), and the survey demonstrated good reliability (*a* = .75/.81) in the present study.

	not much		**somewhat**		**a lot**
1. I am important to my mentor:	1	2	3	4	5
2. I am needed by my mentor:					
3. I am missed by my mentor when I am away:					
4. When I talk, my mentor tries to understand what I am saying:					
5. I am interesting to my mentor:					
6. My mentor notices my feelings:					
7. My mentor gives me credit when I do well:					
8. My mentor notices when I need help:					
9. I matter to my mentor:					

Marshall, S. (2001). Do I matter? Construct validation of adolescents' perceived mattering to parents and friends. *Journal of Adolescence, 24,* 473-490.

Scales of Social Support Applied to Mentors. Based on DuBois and Hirsch (1990), measures feeling valued and being motivated by mentor.

Feel valued by mentor

1bv My mentor cares about how well I am doing in school.
2bv My mentor is very sure that I can do well in school and in the future.
3bv My mentor cares about me even when I make mistakes
4bv My mentor really listens and understands me.
5bv My mentor looks out for me and helps me.
6bv My mentor and I both have fun when we are together.

Feel motivated by mentor

1bm My mentor gives me useful advise in dealing with my problems.
2bm My mentor has qualities or skills that I'd like to have when I'm older.
3bm I learn how to do things from watching and listening to my mentor.
4bm My mentor introduces me to new ideas, interests, and things to do.
5bm My mentor pushes me to succeed at things I want to do.

DuBois, D. L., & Hirsch, B. J. (1990). School and neighborhood friendship patterns of Blacks and Whites in early adolescence. *Child Development. 61*(2), 524-536.

Connectedness to Mentor and Connectedness to Mentoring Program Scales

Mentor connection. The mentor connection scale includes items that were intended to measure the degree to which the mentee viewed the mentor as providing empathy, praise, and attention. These are the three elements of Kohut's model of self-psychology viewed as core the to development of self-esteem and social connectedness (see Karcher, Zambrano, & Holcomb, 2008; Lee & Robbins, 1998). *Mentor Connection.* The Mentor Connection scale (EPA) contains seven items. The items are designed to assess the level of connection a student has to his or her mentor. Each of the items, for both years, are well above the accepted cutoff of .5.

MY Mentor…	*Responses:* No/Never	Sometimes	Often	Always
	1	2	3	4

(1) … understands me well.
(2)… says good things about me.
(3) … likes to spend time with me.
(4) … is rude to me. (Filler item to lessen response set)
(5) … knows a lot about me.
(6)… likes how I am in mentoring.
(7) … asks me questions about me and my life.
(8) … is disrespectful to me. (Filler item)
(9)… accepts me for who I am.
(10)… makes me feel good about who I am.
(11)… listens to what I have to say.

Program connection. The program connection scale includes items that were intended to measure the degree to which the mentee views the program as providing a clear, consistent structure in which enjoyable activities are provided, and which allow the mentee to idealize the mentor through positive, structured experiences with the mentor. These are the second set of elements of Kohut's model of self-psychology viewed as core the to development of self-esteem and social connectedness (see Karcher, Zambrano, & Holcomb, 2008; Lee & Robbins, 1998). In Kohut's model of the bi-polar self-development (1971), this structure is viewed as the second pole of supportive developmental contents which afford opportunities to idealize the others present in this environment. The scale has six items. In both years, the factor loadings were above the .5 cutoff

ABOUT THE PROGRAM	*Responses:* No/Never	Sometimes	Often	Always
	1	2	3	4

1. I like what we do together.
2. I get to do things I like to do.
3. I like coming to meet my mentor.
4. I learn things about myself from my mentor
5. Mentoring is boring.
6. I enjoy what we do in mentoring.

Mentor Connection=1, 2, 3, 5, 6, 7, 9, 10, 11
Program Connection= 1, 3, 4, 5, 6
Filler Variables to Avoid Response Set Bias (omitted from all scales =M4, M8)

Connors Child Rating Scale: Global Index (Conners, Sitarenios, Parker, & Epstein, 1998). This survey, completed by parents prior to each youth being randomly assigned to conditions, reflects ten items which capture a range of problems behaviors, both internalizing and externalizing. Items include: The child is "Restless or overactive; Excitable, impulsive; Cries often and easily; and Mood changes quickly and drastically." The scale demonstrated high reliability (a = .82).

Conners, C. K., Sitarenios, G., Parker, J. D. A., & Epstein, J. N. (1998). The revised Conners' Parent Rating Scale (CPRS-R): Factor structure, reliability, and criterion validity. *Journal of Abnormal Child Psychology, 26*(4), 257-268.

Social Skills Rating Scale (Elliott & Gresham). Assesses Cooperation, Empathy, Self-Control, Assertiveness and Responsibility. Has extensive reliability and validity data.

Elliott, S. N., & Gresham, F. M. (1987). Children's social skills: Assessment and classification practices. Journal of Counseling and Development, 66, 96-99.

APPENDIX D: Criminal Activity Coding

Classification		**Code**
Criminal Part I	**Felony**	
	Violent:	
a	Criminal homicide	CRP1CHO
b	forcible rape	CRP1RAP
b	robbery	CRP1ROB
b	aggravated assault	CRP1AGA
	Property Crime	
f	buglary	CRP1BUG
f	larceny	CRP1LAR
f	motor theft	CRP1MOT
b	arson	CRP1ARS
I	drug trafficing place	CRP1DRT
d	child pornography	CRP1CPo
Criminal Part II	**Misdemeanor**	
MSD A	bail jumping	CRP2BAI
MSD A	stolen property	CRP2STP
MSD A	driving under influence	CRP2DUI
MDS A	drug offences	CRP2DRU
MDS A	reckless driving	CRP2REC
MSD A	resisting officer	CRP2ROF
MSD A	neglecting a child	CRP2NEG
MSD A	weapon offenses	CRP2WOF
MSD B	vandalism	CRP2VAN
MSD B	disorderly conduct	CRP2DOC
MSD B	trespassing	CRP2MSD
MSD C	simple assault	CRP2SAS
MSD C	forgery	CRP2FOR
MSD C	counterfeit	CRP2COU
MSD C	fraud	CRP2FRA
MSD C	gambling	CRP2GAM
MSD C	offenses against family	CRP2OAF
MSD C	prostitution	CRP2PRO
MSD C	public drunkness	CRP2PUB
MSD A	sex offenses	CRP2SEX
MSD C	loitering	CRP2LOI
MSD C	vagrancy	CRP2VAG

CRIME CODING

```
COMPUTE ViolentTot=CRP1CHO+CRP1RAP+CRP1ROB+CRP1AGA.

VARIABLE LABELS  ViolentTot 'Total Violent Crimes'.


COMPUTE PropTot=CRP1BUG+CRP1LAR+CRP1MOT+CRP1ARS.

VARIABLE LABELS  PropTot 'Total Property Crimes'.


COMPUTE MisdTot=CRP2STP+CRP2DUI+CRP2DRU+CRP2WOF+CRP2VAN+CRP2DOC+
CRP2SAS+CRP2FOR+CRP2COU+CRP2FRA+CRP2GAM+CRP2SEX+CRP2LOI+CRP2VAG.

VARIABLE LABELS  MisdTot 'Total Misdemeanor Crimes'.


RECODE ViolentTot PropTot MisdTot (0=0) (1 thru 45=1) INTO Violentby21 Propby21 Misdby21.
```

APPPENDIX E: Zero-Order Correlations by Sex

Zero-Order Correlations for Female Mentees Between Activities and Outcomes

		Arrested for Misdemeanor. by Age 21	Enrolled in Post-secondary by Age 21	Total CIS (ex. men)	Total hours of Mentoring
Enrolled in some post secondary Education by 21	r	0.002	1		
	p	0.977			
	n	311	311		
Total CIS services (excl. mentoring)	r	-0.046	0.013	1	
	p	0.425	0.815		
	n	307	307	307	
Total hours of Mentoring	r	-0.059	.130*	.245**	1
	p	0.301	0.023	0.000	
	n	307	307	307	307
Percent of Time in Instrumental Discussion	r	0.042	-0.144	-0.100	-.240**
	p	0.634	0.104	0.260	0.006
	n	129	129	129	129
Percent Time in Developmental Discussions	r	-0.163	.181*	-0.122	0.010
	p	0.065	0.040	0.167	0.907
	n	129	129	129	129
Percent Time in Developmental Activities	r	-0.025	0.043	.203*	.255**
	p	0.781	0.627	0.021	0.003
	n	129	129	129	129
Percent Time Doing Tutoring or Homework	r	.206*	-0.126	-0.001	-0.079
	p	0.019	0.156	0.990	0.376
	n	129	129	129	129

Zero-Order Correlations for Female Mentees Between Experiences and Outcomes

		Arrested for Misdemeanor. by Age 21	Enrolled in Post-secondary by Age 21	Total CIS (ex. men)	Total hours of Mentoring
Mentee feels valued	r	0.087	0.087	0.083	.258**
	p	0.330	0.329	0.353	0.003
	n	128	128	127	127
Feels motivated by mentor	r	0.021	0.153*	0.030	.219*
	p	0.816	0.084	0.737	0.013
	n	128	128	127	127
Matter to mentor	r	-0.011	0.057	0.168†	.329**
	p	0.901	0.524	0.059	0.000
	n	128	128	127	127
Connectedness to Mentor (Year 1)	r	0.046	0.043	0.070	.298**
	p	0.603	0.626	0.434	0.001
	n	129	129	128	128
Connectedness to Program (Year 1)	r	-0.023	0.071	0.075	.199*
	p	0.798	0.424	0.403	0.024
	n	129	129	128	128

Zero-Order Correlations for Male Mentees Between Activities and Outcomes

		Arrested for Misdemeanor. by Age 21	Enrolled in Post-secondary by Age 21	Total CIS (ex. men)	Total hours of Mentoring
Enrolled in some post secondary Education by 21	r	0.012	1		
	p	0.881			
	n	155	155		
Total CIS services (excl. mentoring)	r	-0.105	-0.004	1	
	p	0.193	0.961		
	n	154	154	154	
Total hours of Mentoring	r	-0.113	-0.082	.271**	1
	p	0.161	0.313	0.001	
	n	154	154	154	154
Percent of Time in Instrumental Discussion	r	0.054	-0.021	-0.075	-0.202
	p	0.636	0.856	0.516	0.076
	n	78	78	78	78
Percent Time in Developmental Discussions	r	-0.197	0.042	-0.070	-0.040
	p	0.084	0.713	0.540	0.730
	n	78	78	78	78
Percent Time in Developmental Activities	r	0.110	0.083	0.088	0.166
	p	0.338	0.470	0.442	0.147
	n	78	78	78	78
Percent Time Doing Tutoring or Homework	r	-0.028	-0.214	0.047	0.052
	p	0.806	0.060	0.683	0.652
	n	78	78	78	78

Zero-Order Correlations for Male Mentees Between Experiences and Outcomes

		Arrested for Misdemeanor. by Age 21	Enrolled in Post-secondary by Age 21	Total CIS (ex. men)	Total hours of Mentoring
Mentee feels valued	r	-.241*	-0.166	0.178	0.204
	p	0.031	0.142	0.113	0.070
	n	80	80	80	80
Feels motivated by mentor	r	-0.180	-0.060	0.191	.241*
	p	0.110	0.595	0.090	0.032
	n	80	80	80	80
Matter to mentor	r	-.279*	-0.045	0.129	0.134
	p	0.012	0.691	0.254	0.236
	n	80	80	80	80
Connectedness to Mentor (Year 1)	r	-.235*	-0.060	0.185	.283*
	p	0.036	0.599	0.101	0.011
	n	80	80	80	80
Connectedness to Program (Year 1)	r	-.273*	-0.113	.237*	.236*
	p	0.014	0.319	0.035	0.035
	n	80	80	80	80