

Research paper

The Mediating Effects of Self-esteem and Delinquency on the Relationship Between Family Social Capital and Adolescents' Educational Achievement

by Omolola Abiola Adedokun (oadedok@purdue.edu)

and Mark A. Balschweid (markb@purdue.edu)

Purdue University, IN, USA.

NOTE. This study was conducted with permission from the Institutional Review Board of Purdue University, IN, USA.

Contextualization

This study extends existing research in the fields of education and sociology that focuses on the effects of family social capital on adolescents' educational achievement. In recent years, educational researchers have employed social capital theory as a framework for understanding the influence of family interactive processes on the educational outcome of young people. However, a major limitation of much of the existing studies in this area is that the processes by which family social capital may influence educational achievement have hardly been explored. The present study in an attempt to fill the observed gap examines self-esteem and delinquency as mediators of the relationship between family social capital and adolescents' educational achievement. This study contributes to literature by increasing the understanding of the indirect paths from family social capital to educational achievement via delinquency and self-esteem.

Abstract *Using a nationally representative data of rural adolescent boys and girls in 10th grade through 12th grade, this study explored the mediating effects of self-esteem and delinquency on the educational achievement of rural adolescents. Structural equation modeling analyses reveal that the combination of self-esteem and delinquency completely mediates the influence of family social capital on educational achievement. The findings provide compelling empirical evidence that positive social interactive processes within the family facilitate the educational achievement of young people by attenuating their involvement in non-normative behaviors and enhancing their development of positive self-worth.*

Introduction

Researchers are becoming increasingly aware that the educational outcomes of adolescents are facilitated (or inhibited) by a range of family contexts, especially the social interactive processes taking place within the family such as parental monitoring, parental home-based involvement in adolescents' academics and the emotional tone of parent-adolescent relationship. In recent studies, one way of exploring the link between adolescents' educational outcomes and family interactive processes has been to adopt the concept of social capital based on the works of Coleman (1988) and Bourdieu (1986).

Social capital theory posits that the positive interactive processes and relations among family members, especially between parents and their children are capital resources that can facilitate educational achievement. Social capital in the family is generated from the strength of relationships between parents and their children, and, the dynamics of social interactive processes within the family (Coleman, 1988; 1990). Since the studies by Bourdieu (1986)

and Coleman (1988), researchers (eg, Israel and Beaulieu, 2004; Israel, Beaulieu, and Harteless, 2001; Sandefur, Meier, and Campbell, 2006; Spera, 2005) have confirmed that family factors such as positive parent-adolescent relationship, parental monitoring, parental involvement in adolescents' education and parents' expectation of college education are indeed social capital resources that facilitate adolescents' educational achievement.

However, a limitation in the study of the effects of family social capital on achievement is that while much has been done with regards to the direct effects of family social capital on adolescents' educational outcomes, little is known about the mechanisms through which family social capital might affect adolescents' educational achievement. There are limited explorations, if any, of the indirect links between family social capital and adolescents' educational achievement. As stated by McNeal (1999) "more research should attempt to understand how social capital affects a range of behavioral variables, thereby indirectly affecting academic achievement" (McNeal, 1999, p 137). For example, a possible process by which social capital influences adolescents' academic performance is via the potency of social capital resources in enhancing positive self-concept and inhibiting delinquent and non-normative behaviors in adolescents (McNeal, 1999; Newman, 2004; Parcel and Menaghan, 1993). Parental practices such as parental monitoring and positive parent-adolescent relationship may promote positive self-concept in adolescents and curb their participation or involvement in non-normative behaviors. Positive self-concept and avoidance of delinquency may in turn increase adolescents' educational achievement.

The purpose of this study is twofold: First, the study examines the effects of family social capital on rural adolescents' educational achievement, and, second, the study tests the mediating effects of self-esteem and delinquency on the relationship between family social capital and rural adolescents' achievement. There are two basic research questions guiding the study; (1) what is the effect of family social capital on adolescents' educational achievement? (2) Do adolescents' self-esteem and involvement in delinquency mediate the effect of family social capital on adolescents' educational achievement? The structural model developed to answer these questions is depicted in Figure 1.

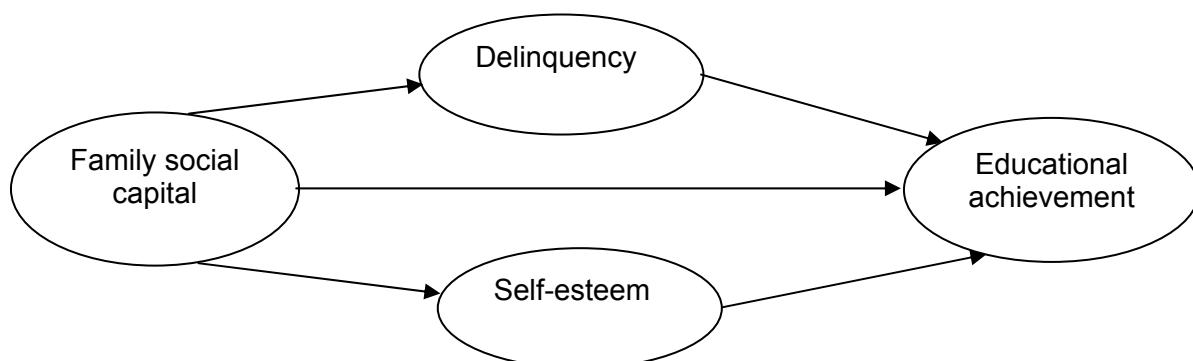


Figure 1. Delinquency and self-esteem as mediators in the effects of family social capital on educational achievement

Background

The present study builds on past research that has identified positive family interactive processes as social capital resources, and, studies that have tried to link these resources and adolescents' educational outcomes. For example, parental monitoring—the ability of parents to monitor their children has been viewed as a social capital resource that can facilitate educational achievement. Parental monitoring is a parental behavior involving giving attention to, and tracking of a child's whereabouts and activities. Such practices include parents' knowledge of the where, what, when, why and with whom of their child's activities (Dishion and McMaho, 1998; Huebner and Macini, 2003; Jacobsen and Crockett, 2000).

Israel, Beaulieu, and Harteless (2001) as well as Spera (2005) indicated that students are more likely to have good academic performance when their after school activities (eg, limiting television viewing and time spent out with friends on school nights and weekends) are monitored by parents. More specifically, Israel and Beaulieu (2004) in their study of the influence of family interactive process on adolescents' chances of persisting versus dropping out of high school found that limiting students' television viewing increased the odds of staying in school by 0.177 times.

Parents' expectation that their adolescents will attend college is another indicator of family social capital. When parents express their expectations of college attendance, both parents and their children are motivated to act in ways that facilitate the achievement of those expectations (Israel and Beaulieu, 2004). In the study conducted by Israel and Beaulieu (2004), the effect of parents' expectations on adolescents' chances of persisting in school was estimated at .477. Similarly, Coleman (1988) found the high school dropout rate among students with mother's expectation of college education to be 8.6% lower than for those without mothers' expectation.

Another indicator of family social capital is parental home-based involvement in adolescents' academics which can be defined as the dedication of resources (eg, time and emotional resources) by the parent to the child's educational and schooling experiences (Grolnick and Slomiaczek, 1994). Parental involvement could also refer to parents' management, supervision, assistance, and interest in their adolescents' educational experiences such as, providing guidance in course selections, helping with homework, encouragement of educational goals, and attendance at school events (Crosnoe, 2001). Parents' involvement in adolescents' academics has been found to positively influence academic performance and college enrollment. Specifically, Sandefur, Meier, and Campbell (2006) reported that parents' academic involvement increased the likelihood of college attendance by 16%.

Carbonaro's (1998) analyses of mathematics achievement revealed that intergenerational closure is another important indicator of social capital. Coleman (1988; 1990) described intergenerational closure as the extent to which parents know and interact with the parents of their child's friends. That is, a situation in which "a child's friends and associates in school are sons and daughters of friends and associates of the child's parents" (Coleman, 1990, p 318). Intergenerational closure is a form of social control and monitoring of children's activities. When parents interact with the parents of their child's friends, they (parents) come together to discuss their children's activities, set norms and standards for the children, and are able to provide support for another parents' child when necessary (Sandefur, Meier and Campell, 2006; Coleman, 1990; Coleman and Hoffer, 1987). According to Israel and associates (2001) intergenerational closure increases the likelihood of excellent academic performance, the odds of staying in school and pursuing college education.

The extent of intergenerational closure depends on the dynamics and quality of other interactive processes between parents and adolescents (Bankston and Zhou, 2002). For example, parents who monitor the activities of their children, are involved in their children's schooling and have close and positive relationships with their adolescents are more likely to know their adolescents' friends, and, be friends with the parents of their adolescents' friends (Cleveland and Crosnoe, 2004). Likewise, the transmission of much of the family-based social capital resources is "largely predicated on the emotional tone of parent-adolescent relationships" (Crosnoe, 2004 p 268). For example, parental academic involvement and monitoring can only be effective in a positive and supportive environment, this is because a "strong communicative relationship between parents and their children is a conduit for transfers of advice" (Meier, 1999, p.15). Students who have open and regular communication with their parents are less likely to drop out from school. In the analyses conducted by Israel and Beaulieu, (2004), the effect of parent-child discussions of school plans on the odds of

staying in school was .351. Similarly, Sanderfur and colleagues (2006) reported that parent-child discussions of school activities increased the chances of going to a university by 20%. The brief background provided above shows that most studies on the effects of family social capital focus only on its direct effect on educational achievement. It is conceivable; however, that in addition to its direct effect, the influence of family social capital on educational achievement might also include some indirect effects. For example, it is possible that family social capital may have indirect effects on educational achievement via its potency in boosting self-esteem and controlling delinquency and non-normative behaviors in adolescents (McNeal, 1999; Hoffman and Dufur, 2008). Both self-esteem and delinquency have been found to affect educational achievement (Garg, Kauppi, Lewko, and Urajnik, 2002; Trusty, Plata, and Salazar, 2003). Research studies have shown that students with positive self-worth are more likely to perform better in school than those who hold negative self-appraisals (Covington, 1989; Farmer, 1985; Owens, 1994; Wylie, 1979). Covington (1989) found that as the level of self-esteem increases, the achievement scores of the students in his study also increased. In the same vein, delinquency has been negatively linked with academic achievement. Students who participate in delinquent behaviors have lower aspirations and are more likely to drop out school (Chen and Kaplan, 2003; Hill, Castellino, Lansford, Nowlin, Dodge, Bates, and Petit, 2004).

Given the observed gap in literature, the intention of this study is to examine self-esteem and delinquency as mechanisms through which social capital may influence educational achievement. For example, parental involvement and intergenerational closure often serve as social controls of delinquent and non-normative behaviors, thereby increasing the likelihood to stay in school and the possibility of college attendance (McNeal, 1999). Hence, strong social support from the family results in fewer behavior problems, thereby facilitating the academic success of adolescents (Hill and Craft, 2003; Parcel and Menaghan, 1993). Likewise, positive social interactive processes within the family enhance adolescent self-perception and self-esteem (Dumont and Provost, 1999; Kilpatrick, Bell, and Falk 1999). Young people's access to supportive parent-adolescent relationships and positive parent-adolescent communication enhances their self-worth which in turn produces positive influence on their achievement (Yabiku, Axinn, and Thornton, 1999). Moreover, intergenerational closure, by producing feelings of family solidarity and belonging, promotes the development of positive self worth in adolescents. Indeed, supportive social environments increase adolescents' positive self-image by building in them a sense that they are "cared for, esteemed, valued" loved, wanted and appreciated by their family and others (Vedder, Boekaerts, and Segers, 2005, p 269).

Method

Data Description

Data for this study is from the first wave of data, collected by the National Longitudinal Study of Adolescent Health (Add Health). Add Health, a school-based cluster sample is an ongoing study of American adolescents in Grades 7–12 (ages 11 to 20 years) that began in 1994. The Add Health study was launched to collect information on the influences of the social contexts (family, peers, schools, etc.) on adolescent health, behavior and academic performance (For more on Add Health, see Bearman, Jones, and Udry, 1997). The sample for this study was created by selecting 1657 (50.3 percent boys and 49.7 percent girls) high school students in grades 10, 11 and 12 enrolled in the 14 schools described as rural in the Add Health data set. The age of the students in the selected sample ranged from 15 to 20 years (mean age =17.47, S.D. = 0.95).

Variables and Measurements

Family social capital, is a latent construct measured by three observed indicators; intergenerational closure, parents' home-based involvement, and, parent-adolescent relationship. Intergenerational closure is an indicator of the networks of adults upon which families can lean for the enhancement of adolescents' educational outcomes (Sandefur, Meier, and Campbell, 2006). For example, parents often rely on the parents of their child's friends when in need of information about college enrollment, scholarship opportunities, and other educational issues (Sandefur, Meier, and Campbell, 2006). The measure of intergenerational closure employed in this study is a single item asking the interviewed parents to indicate the number of the parents of their child's friends they had spoken with in the past four weeks.

Parents' home-based involvement is a variable created from students' indication of whether they had done the following with each of their mother and father in the past week; (1) "talked about school work or grades" (2) "worked on a project for school" and, (3) "talked about other things you're doing in school". The reliability of the scale, (ie, the degree to which the itemized variables measure parents' home-based involvement) as measured by Cronbach's alpha, α , is .75. Parent-adolescent relationship is a composite variable created from a ten item index ($\alpha = .88$) of emotional closeness or positive relationship between adolescents and their parents. Adolescents were asked to indicate how close they are to their parents and how much they think their parents care about them. Response categories for the questions were: "strongly agree", "agree", "neither agree nor disagree", "disagree", and, "strongly disagree" numerically represented as 5, 4, 3, 2, and, 1 respectively. The responses for mothers and fathers were summed and averaged to make adjustments for students with single parents.

Delinquency is a latent variable measured by three composite variables, each of which is a summated ratings scale: (1) a four item index of general delinquency (eg, "in the past 12 months, how often did you damage any property?"), $\alpha = 0.65$, (2) six items of fighting and violence (eg, "got into a physical fight") $\alpha = 0.81$, and, (3) a three item index of stealing (eg, "how often did you steal something worth less than \$50?"), $\alpha = 0.78$. The response categories for all the delinquency items ranged from "never" to "five or more times." Items were coded so that high scores reflect high levels of delinquency, ie, "never" =0, "one or two times" = 1, "three or four times" = 2, and, "five or more times" = 3.

Self-esteem is a latent variable measured by four items very similar to Rosenberg's (1989) global self-esteem scale ($\alpha = .85$). It thus, does not include items regarding specific attributes such as academic, body or social self-esteem. The respondents were asked to indicate their levels of agreement with the following statements: "You like yourself just the way you are," "you have a lot of good qualities," "you have a lot to be proud of," and, "you are just as good as other people" (answer categories were "strongly agree" =5, "agree" = 4, "neither agree nor disagree" =3, "disagree" = 2, and, "strongly disagree" = 1).

Educational achievement is measured by each student's overall grade point average, GPA, calculated from their self-reported most recent English, history, science and mathematics classes. The effects of race, age and parents' educational level on students' educational achievement were controlled. The adolescents indicated the highest level of education obtained by their resident parents. The responses were codified as "never went to school" =0, "8th grade or less" =1, "more than 8th grade, but did not graduate from high school" =2, "high school graduate" =3, "completed a general education diploma" = 4, "went to a business or vocational school after high school" =5, "went to college but did not graduate" =6, "graduated from college/university" =7 and, "had professional training beyond a four-year college" = 8.

Analyses of the Hypothesized Model

The hypothesized model was tested with AMOS 6.0 (a structural equation modeling program), using maximum likelihood estimation. Maximum likelihood estimation is a method used to estimate models with normally distributed endogenous variables. To ascertain that the endogenous variables in the models are normally distributed, their skewness and kurtosis values were calculated (Table 1). In accordance with the suggestion of Livingston (2004), all the endogenous variables have acceptable values of skewness (absolute values ≤ 3) and kurtosis (absolute values ≤ 10)

Table 1. Descriptive Statistics of Variables

Variables	Descriptive Statistics			
	Mean	S. D.	Skew	Kurtosis
Intergenerational closure	2.11	1.81	0.77	-0.24
Parents' home-based involvement	1.19	0.91	0.14	-1.02
Parent-adolescent relationship	21.23	3.13	-1.32	2.56
Educational achievement (GPA)	3.28	0.63	-1.32	1.90
DELQ1 (4 items of general delinquency)	1.20	2.22	1.46	2.17
DELQ2 (6 items of fighting and violence)	1.34	2.34	2.51	7.45
DELQ3 (3 items of stealing)	1.70	1.59	2.97	9.27
SE 1 ("just as good as other people")	1.95	0.96	-0.52	-0.76
SE 2 ("have lots of good qualities")	4.24	0.64	-0.59	0.93
SE 3 ("have a lot to be proud of")	4.23	0.71	-1.01	2.05
SE 4 ("like self as you are")	3.91	0.95	-0.82	-0.24
Parents' educational level (SES)	5.01	1.95	0.06	-0.64
Age	17.47	0.95	0.12	-0.53
Race	--	--	3.31	12.47

Note: S. D.: Standard deviation

The statistical method of structural equation modeling was used to estimate the direct and indirect effects of family social on the educational outcomes of the adolescents. In general, structural equation modeling analysis occurs in two stages. First, a factor analysis is conducted to investigate the loading of the measured indicators on the latent constructs, and, second, a path analysis is conducted to investigate the structural relationship among the latent constructs (Kline, 2005). The significance of the indirect and direct effects was tested using the bootstrap method (For a detailed discussion of the bootstrap method see Fan, 2003 and Preacher and Hayes, 2004; 2005).

The fit of the model was assessed by considering the model's chi square (hereafter, χ^2), RMSEA (Root Mean Square of Error Approximations), and fit indices, ie, CFI (comparative fit index), IFI (incremental fit index), GFI (goodness of fit index), and, NFI (normed fit index). For each of these fit indices, values greater than 0.90 indicate very good fits. Also, RMSEA values ≤ 0.08 , and, a non-significant χ^2 ($p>0.05$) represent acceptable model fit (Kline, 2005). However, a significant χ^2 does not always indicate a poor model fit. Kline (2005) posited that χ^2 values are often significant when large sample sizes (> 1000) are analyzed, and suggested that, a combination of the various fit indices described above be used in assessing model fit.

Results

Confirmatory Factor Analysis

The purpose of this stage was to assert the loading of the observed indicators on their respective unobserved latent constructs. The fit indices of the model (Figure 2) are at

acceptable values. The value of the GFI was 0.98, NFI was 0.95, IFI was 0.96 and CFI was 0.96. Likewise, the RMSEA was very adequate at 0.04. Moreover, the model was well identified with 66 sample moments and 27 estimated parameters. As expected in a large sample, the Chi square was significant ($\chi^2 = 39$, $p < .05$). The result as shown in Table 2 reveals that all the factors have significant loadings on their respective latent constructs.

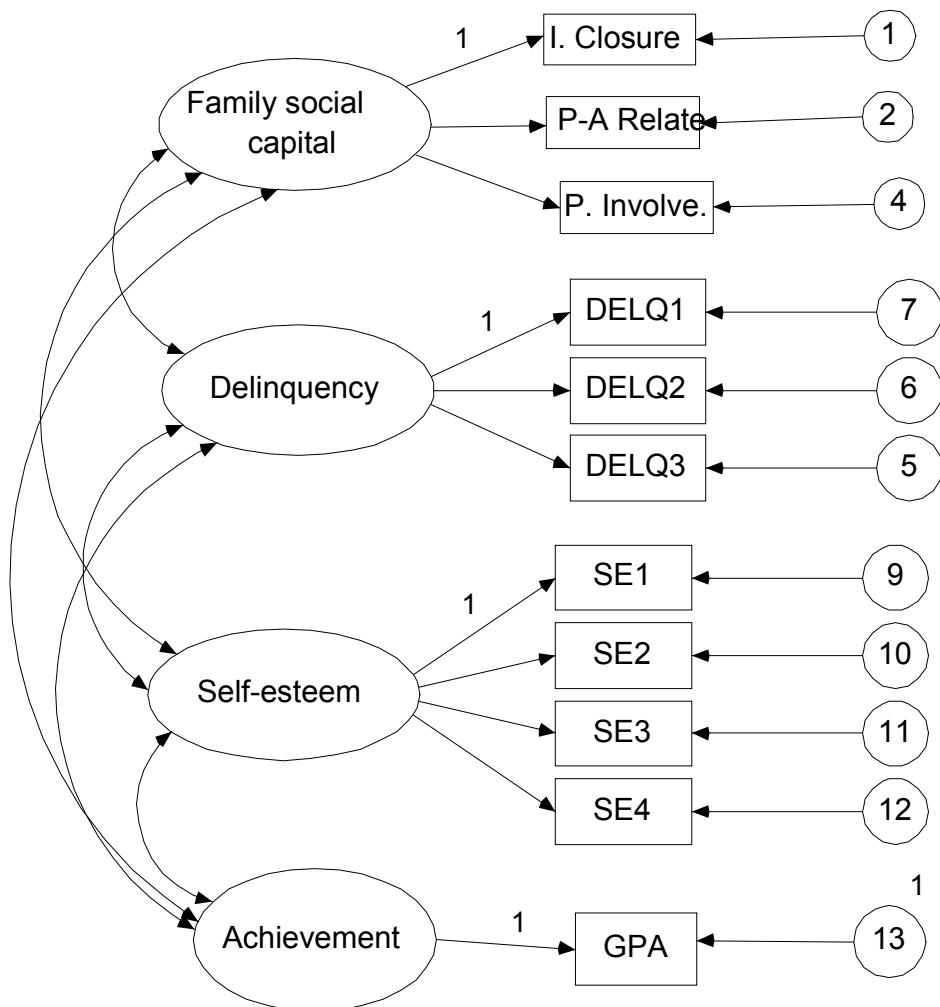


Figure 2. Measurement model for constructs and indicators in the model

Table 2. Factor Loadings of Observed Indicators on Latent Constructs

Latent Constructs	Observed indicators	Standardized estimates
Delinquency	DELQ1 (4 items of general delinquency)	.64*
	DELQ2 (6 items of fighting and violence)	.56*
	DELQ3 (3 items of stealing)	.72*
Self-esteem	SE1 ("just as good as other people")	.38*
	SE2 ("have a lot to be proud of")	.83*
	SE3 ("have lots of good qualities")	.69*
	SE4 ("like self as you are")	.62*
Family social capital	Intergenerational closure (I-closure)	.21*
	Parent-adolescent relationship (P-A relate)	.69*
	Parents' home-based involvement (P. Involve)	.28*

Estimation of the Structural Model

This stage involved the examination of the direct and indirect effects of family social capital on the students' educational achievement. Following Preacher and Hayes (2007) the test was conducted in two steps; first, the direct effect of family social capital on achievement (without self-esteem and delinquency in the model) was tested by estimating the model depicted in Figure 3. The fit statistics of the model shows acceptable fit indices with RMSEA at 0.06 while the GFI, NFI, IFI and CFI were 0.99, 0.90, 0.91 and 0.91 respectively, although χ^2 was significant ($\chi^2 = 341.70, p < .05$). The model was well identified with fifteen sample moments and eleven parameters. Also, the direct effect of family social capital on achievement was significant (regression estimate, hereafter $\beta = .23, p < .05$).

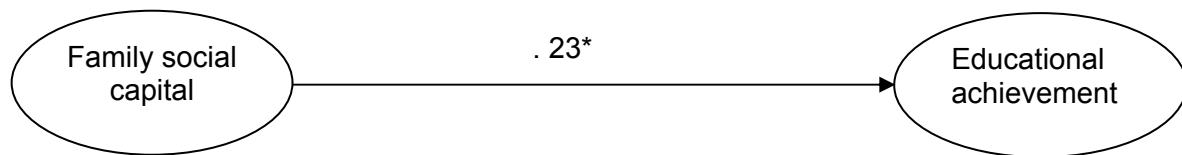


Figure 3. Direct effect of family social capital on educational achievement

Given the observed significant effect of family social capital on achievement, the analysis preceded into the second step, which is the introduction of self-esteem and delinquency as multiple mediators in the model (see Figure 4). The RMSEA was adequate at 0.05, and, the GFI, NFI, IFI and CFI were acceptable at 0.98, 0.92, 0.93 and 0.93 respectively; however, χ^2 was significant ($\chi^2 = 48, p < .05$). Also, the model was adequately identified with seventy-eight sample moments and thirty parameters. Typically, when indirect effects are calculated from a series of direct effects, the un-standardized values are used and reported (Preacher and Hayes, 2007). Hence, in Figure 4, the un-standardized coefficients are reported in normal fonts with the standardized values italicized in parentheses.

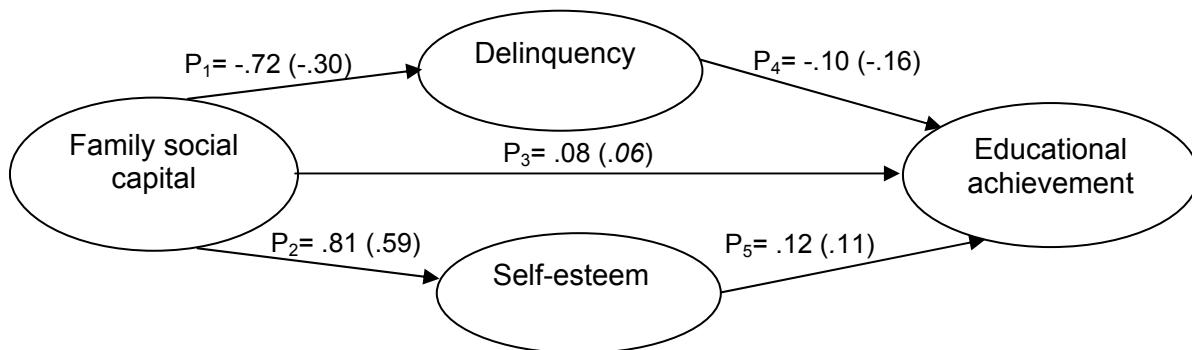


Figure 4. Estimated model depicting delinquency and self-esteem as mediators in the effects of family social capital on educational achievement

The result shows that family social capital has significant direct effects on delinquency ($P_1: \beta = -.72, p < .05$) and self-esteem ($P_2: \beta = .81, p < .05$). Also, the direct effects of delinquency ($P_4: \beta = -.10, p < .05$) and self-esteem ($P_5: \beta = .12, p < .05$) on educational achievement were significant. Moreover, with the introduction of self-esteem and delinquency as mediators, the direct effect of family social capital on achievement becomes non-significant ($P_3: \beta = .08, p > .05$), while the total indirect effect of family social capital on achievement via self-esteem and delinquency is significant ($P_1P_4 + P_2P_5: \beta = .17, p < .05$),

indicating that the combination of self-esteem and delinquency completely mediates the effects of family social capital on achievement.

When multiple mediators are involved in a model, the focus is not only on the total indirect effect, but, also on the specific indirect effects through each mediator (Preacher and Hayes, 2007). The analysis revealed that the specific indirect effect of family social capital via delinquency was significant (P_1P_4 : $\beta = .07$, $p < .05$) and the indirect effect through self-esteem (P_2P_5 : $\beta = .10$, $p < .05$) was also significant. Finally, the total effect of family social capital on educational achievement ($P_3 + P_1P_4 + P_2P_5$: $\beta = .25$, $p < .05$) was significant. Taken together, the results indicate that the emotional tone of family dynamics is strongly related to adolescents' academic achievement.

Discussion and Conclusion

The notion that family social capital enhances adolescents' educational achievement has long been a subject of research in the fields of education and sociology (Coleman 1988; Crosnoe 2004; Crosnoe and Elder, 2004). While studies abound on the direct influence of family social capital on adolescents' educational achievement, little is known about the factors that may mediate this relationship. Given this observed gap in literature, the results of this study increase the understanding of the indirect paths from family social capital to educational achievement. In particular, the study contributes to the understanding of delinquency and self-esteem as mechanisms through which family social capital might affect on rural adolescents' educational achievement.

Consistent with previous studies (Israel and Elder, 2004; Israel, Hartless and Beaulieu, 2001; Coleman, 1988), the results of the first model (Figure 3) show that family social capital has a direct influence on rural adolescents' educational achievement. This finding underscores the important roles of parents as strong influences and creators of positive and supportive environments for the academic successes of their adolescents. However, the results of the second model (Figure 4) confirm the hypothesis that self-esteem and delinquency are strong mediators of the relationship between family social capital and adolescents' achievement. When self-esteem and delinquency were introduced into the model as mediators of the relationship between family social capital and achievement, the direct effects of family social capital became non-significant while the indirect effects were significant. The results show that the impact of family social capital was completely mediated by delinquency and self-esteem, supporting McNeal's (1999) suggestion that the impact of family social capital may not be direct, but, rather indirect through the mechanisms of self-esteem and delinquency. The findings provide compelling empirical evidence that positive social interactive processes within the family facilitate the educational achievement of young people by attenuating their involvement in non-normative behaviors and enhancing their development of positive self-worth. When parents provide nurturing environments for their adolescents, the reward is not only going to be academically successful youngsters, but also, self-confident and well behaved young people who can be trusted to take leadership positions in the future.

Three important observations can be made of the indirect effects of family social capital on educational achievement. First, family social capital has strong impacts on adolescents' self-concept. Prior studies (Kilpatrick, Bell and Falk 1999; Dumont and Provost, 1999) have shown that positive-parenting and emotionally supportive and nurturing home environments where strong parent-adolescent bonds exist facilitates the development of positive self-concepts among adolescents. As posited by Vermeir and Geuens (2005), adolescents' self-esteem is strongly linked to the evaluations, acceptance and approvals they perceive from others, including their parents. Thus, the results indicate that when adolescents are in supportive home environments, they develop the sense that they are loved, wanted and appreciated by their families, which in turn facilitates the development of positive self-worth

and self-confidence. Conversely, the emotional well being of adolescents is threatened when parents and families fail to provide a safe emotional haven that promotes the development of positive self-perception.

Second, the results show that family social capital is negatively related to the incidence of delinquency. This finding resonates well with current studies (eg, Hoffman and Dufur, 2008) that view strong family relationships as effective avenues for reducing delinquent behaviors, and, delinquent adolescents as the products of families that are lacking in social cohesion. Recall that family social capital is a latent construct measured by three indicators; parental involvement, parents' home-based involvement and intergenerational closure. These indicators often serve as mechanisms of social controls of delinquent behaviors (McNeal 1999; Hill, Castellino, Lansford, Nowlin, Dodge, Bates, and Petit, 2004). For example, positive parent-adolescent relationship, open parent-adolescent communications, and, parental help with school assignments could be vital conduits for parents to model sense of responsibility and socialize their adolescents to conform to family norms and acceptable moral values, thereby discouraging delinquent behaviors.

Third, family social capital has a significant indirect effect on achievement via delinquency and self-esteem, indicating that positive family dynamics promote educational outcomes by reducing the incidence of delinquency and promoting the development of self-esteem. A lack of emotional bonding between parents and their adolescents therefore constitutes an academic risk that results in low educational achievement (Crosnoe and Elder, 2004). Further, the negative effect of delinquency on educational achievement reveals that students who participate in non-normative behaviors have lower levels of educational achievement. Likewise, the positive effect of self-esteem on achievement confirms that adolescents with high self-esteem are more "happy, healthy, successful and productive while those with low self-esteem are more prone to failure" (Vermeir and Geuens, 2005).

In conclusion, the results of this study reaffirm the important role of parents as vital influences on their adolescent's social, behavioral and academic outcomes. Evidently, disadvantages in family social capital resources make involvement in delinquency more possible and the development of favorable self-worth less likely, thereby hindering educational achievement.

The results hold some implications for research. Researchers may need to focus less on the direct effects, and, more on understanding the indirect effects of family dynamics and interactive processes on adolescents' educational outcomes. Further research is needed to explore other possible avenues through which family social capital might affect adolescents' educational outcomes. For example, supportive family environments may decrease the incidents of psychological depression, thereby improving academic success.

Although this study extends the findings of previous research, it is not without certain limitations. First, the analyses did not consider demographic differences. Further studies might explore differences between boys and girls and among racial/ethnic groups and possible interaction between gender and race/ethnicity. Second, the study used cross sectional data. Using two or more waves of data would have allowed for the examination of the relationship among family social capital and adolescents' educational outcomes over a longer period of time. In particular, using multiple waves would allow for the application of more sophisticated tools of analyses (eg, block recursive models or latent growth models) in investigating the trajectories of the effects of family social capital on self-esteem and problem behaviors, and how self-esteem and problem behaviors affect educational outcomes in turn. Third, the causal pathways tested in the models were limited. It would have been interesting to go beyond the paths tested in this study or even include some non-recursive paths.

References

- Arbuckle, J. L. (2005) *Amos (Version 6.0)* [Computer software]. Chicago: SPSS Inc.
- Bankston, C. L. III and Zhou, M. (2002) Social capital as a process: The meanings and problems of a theoretical metaphor. *Sociological Inquiry* 72, 285-317.
- Bearman, P. S., Jones, J. and Udry, J. R. (1997) *The national longitudinal study of adolescent health: Research design*. [Online] Available from: <http://www.cpc.unc.edu/addhealth>. [Accessed 17 March 2007]
- Bourdieu, P. (1986) The forms of capital, in J. G. Richardson (ed) *Handbook of theory and research for the sociology of education*. New York: Greenwood Press.
- Carbonaro, W. J. (1998) A little help from my friend's parents: Intergenerational closure and educational outcomes. *Sociology of Education* 71, 295-313.
- Chen, Z. and Kaplan, H. B. (2003) School failure in early adolescence and status attainment in middle adulthood: A longitudinal study. *Sociology of Education* 76, 110-127.
- Cleveland, H. H. and Crosnoe, R. (2004) Individual variation and family-community ties: A behavioral genetic analysis of the intergenerational closure in the lives of adolescents. *Journal of Adolescent Research* 19, 174-191.
- Coleman, J. S. (1988) Social capital in the creation of human capital. *The American Journal of Sociology* 94(Suppl.), S95-S120.
- Coleman, J. S. (1990) *Equality and achievement in education*. Boulder: Westview.
- Coleman, J. S. and Hoffer, T. (1987) *Public and private high schools: the impact of communities*. New York: Basic Books.
- Covington, M. J. (1989) Self-esteem and failure in schools: Analysis and policy implications, in A. M. Mecca, N. J. Smelser and J. Vasconcellos (eds) *The social importance of self-esteem*. Berkeley: University of California Press.
- Crosnoe, R. (2001) Academic orientation and parental involvement in education during high school. *Sociology of Education* 74, 210-230.
- Crosnoe, R. (2004) Social capital and the interplay of families and schools. *Journal of Marriage and Family* 66, 267-280.
- Crosnoe, R. and Elder, G. H. (2004) Family dynamics, supportive relationships, and educational resilience during adolescence. *Journal of Family Issues* 25, 571-602.
- Dishion, T. J. and McMahon, R. J. (1998) Parental monitoring and the prevention of child and adolescent problem behavior: A conceptual and empirical formulation. *Clinical Child and Family Psychology Review* 1, 61-75.
- Dumont, M. and Provost, M. A. (1999) Resilience in adolescents: Protective role of social support, coping strategies, self-esteem and social activities on experience of stress and depression. *Journal of Youth and Adolescence* 28, 343-363.
- Fan, X. (2003) Using commonly available software for bootstrapping in both substantive and measurement analyses. *Educational and Psychological Measurement* 63, 24-50.

- Farmer, H. S. (1985) Model of career and achievement motivation for women and men. *Journal of Counseling Psychology* 32, 363-390.
- Garg, R., Kauppi, C., Lewko, J. and Urajnik, D. (2002) A structural model of educational aspirations. *Journal of Career Development* 29, 87-108.
- Grolnick, W. S. and Sloniaczek, M. L. (1994) Parents' involvement in children's schooling: A multidimensional conceptualization and motivational model. *Child Development* 65, 237-252.
- Hill, N. E. and Craft, S. A. (2003) Parent-school involvement and school performance: Mediated pathways among socio-economically comparable African American and Euro-American families. *Journal of Educational Psychology* 95, 74-83.
- Hill, N. E., Castellino, D. R., Lansford, J. E., Nowlin, P., Dodge, K. A., Bates, J. E. and Petit, G. S. (2004) Parent academic involvement as related to school behavior, achievement and aspirations: Demographic variations across adolescence. *Child Development* 75, 1491-1509.
- Hoffmann, J. P. and Dufur, M. J. (2008) Family and school social capital effects on delinquency: Substitutes or compliments? *Sociological Perspectives* 51, 29-61.
- Huebner, A. J. and Macini, J. A. (2003) Shaping structured out-of-school time use among youth: The effects of self, family, and friend systems. *Journal of Youth and Adolescence* 32, 453-463.
- Israel, G. D. and Beaulieu, L. J. (2004) Investing in communities: Social capital's role in keeping youth in school: *Journal of the Community Development Society* 34, 2, 35-57.
- Israel, G. D., Beaulieu, L. J. and Hartless, G. (2001) The influence of family and community social capital on educational achievement. *Rural Sociology* 66, 43-68.
- Jacobsen, K. C. and Crockett, L. J. (2000) Parental monitoring and adolescent adjustment: An ecological perspective. *Journal of Research on Adolescence* 10, 65-97.
- Kilpatrick, S., Bell, R. and Falk, I. (1999) The role of group learning in building social capital. *Journal of Vocational Education and Training* 51, 129-144.
- Kline, R. B. (2005) *Principles and Practice of Structural Equation Modeling* (2nd edition). New York: Guilford Press.
- Livingston, E. H. (2004) The mean and standard deviation: What does it all mean? *Journal of Surgical Research* 119, 117-123.
- McNeal, R. B. (1999) Parental involvement as social capital: Differential effectiveness on science achievement, truancy, and dropping out. *Social Forces* 78, 117-144.
- Meier, A. (1999) *Social capital and school achievement among adolescents*. [Online] Available from: <http://www.ssc.wisc.edu/cde/cdewp/99-18.pdf>. [Accessed 6 August 2006]
- Newman, J. L. (2004) *Social capital and adolescent well-being in a national sample* (Ph.D thesis) Berkeley, California: University of California

- Owens, T. J. (1994) Two dimensions of self-esteem: Reciprocal effects of self-worth and self-deprecation on adolescent problems. *American Sociological Review* 59, 391-407.
- Parcel, T. L. and Menaghan, E. G. (1993) Family social capital and children's behavior problems. *Social Psychology Quarterly* 51, 120-135.
- Preacher, K. J. and Hayes, A. F. (2004) SPSS and SAS procedures for estimating indirect effects in simple mediation models. *Behavior Research Methods, Instruments, and Computers* 36, 4, 717-731.
- Preacher, K. J. and Hayes, A. F. (2007) *Asymptotic and resampling strategies for assessing and comparing indirect effects in simple and multiple mediator models*. [Online] Available from: <http://www.comm.ohio-state.edu/ahayes/indirect2.pdf>. [Accessed 17 June 2007]
- Rosenberg, M., Schooler, C. and Schoenbach C. (1989) Self-Esteem and adolescent problems: Modeling reciprocal effects. *American Sociological Review* 54, 1004-1018.
- Sandefur, G. D., Meier, A. M. and Campbell, M. E. (2006) Family resources, social capital, and college attendance. *Social Science Research* 35, 525-553.
- Spera, C. (2005) A Review of the relationship among parenting practices, parenting styles, and adolescent school achievement. *Educational Psychology Review* 17, 125-146.
- Trusty, J., Plata, M. and Salazar, C. (2003) Modeling Mexican Americans' educational aspirations: Longitudinal effects of variables across adolescence. *Journal of Adolescent Research* 18, 131-153.
- Vedder, P., Boekaerts, M. and Seegers, G. (2005) Perceived social support and well being in school: The role of students' ethnicity. *Journal of Youth and Adolescence* 34, 269-278.
- Vermeir, I. and Geuens, M. (2005) *Need for closure, gender and social self-esteem of youngsters*. Vlerick Leuven Gent Working Paper Series Number 33. Vlerick Leuven Gent Management School, Gent - Belgium
- Wylie, R. C. (1979) *The self-concept: Theory and research on selected topics* (Vol. 2). Lincoln: University of Nebraska Press.
- Yabiku, S. T., Axinn, W. G. and Thornton, A. (1999) Family integration and children's self-esteem. *American Journal of Sociology* 40, 1494-1524.