Pathways to positive youth development: Identifying family, school, and neighborhood influences on civic involvement in emerging adulthood

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ABSTRACT

Guided by Bronfenbrenner's ecological theory of human development and social capital theory, this study examined the pathways that link childhood neighborhood assets, adolescent family and school social capital, and civic involvement in emerging adulthood. Three waves of data from the *National Longitudinal Study of Adolescent Health (Add Health)* and multi-level structural equation models were used to examine the hypotheses set forth in this study. Findings revealed that adolescent family and school social capital were shown to have unique influences on reports of civic involvement in emerging adulthood, and the effect of childhood neighborhood assets was mediated by the degree of family cohesion in the adolescents' home. Moreover, the expression of neighborhood, family and school pathways to civic involvement in emerging adulthood were found to differ by neighborhood groups, gender and race. These results help to illustrate the importance of examining multi-contextual influences on civic involvement in emerging adulthood. In addition, the results from this study can inform efforts to strengthen the theory of adolescent civic engagement and policies on how to educate youth and communities on civic engagement and its benefits.

CHAPTER 1: INTRODUCTION

Rationale for the Current Study

Everyone can be great, because everyone can serve.

~ Dr. Martin Luther King, Jr.

Having positive civic beliefs and values paired with civic involvement behaviors such as volunteering, voting, and participating in school or community organizations have been espoused as the necessary and sufficient conditions to help adolescents grow into active citizens and maintain a democratic society (Furstenberg, 2005; Kirshner, 2007; Putnam, 1995; Watts & Flanagan, 2007). Indeed, the research on adolescent civic involvement has cited many positive outcomes such as the development of identity and critical consciousness (Kirshner, 2007; Watts & Flanagan, 2007), increased academic achievement (Carbonaro, 1998; Morgan & Sorensen, 1999; Scales et al., 2006), life satisfaction (Park, 2004), self-esteem (Pancer, Pratt, Hunsberger, & Alisat, 2007) and decreased delinquent behaviors (Coley, Morris, & Hernandez, 2004; Feldman & Matjasko, 2005; Pancer et al., 2007). Additionally, there is political support for civic involvement as seen with the Obama administration's nationwide "United We Serve" initiative and the passing of the Edward M. Kennedy Serve America Act of 2009 (The Corporation for National and Community Service, 2010). Together these policies promote civic involvement as a way to meet the needs of the nation and its citizens. Nevertheless, despite the research and political support behind civic involvement, the answers to what optimal antecedents to adolescent civic involvement are and the mechanisms through which they work are still incomplete (Moore, Lippman, & Brown, 2004; Scales, 1999).

Some research suggests that the seeds of civic involvement may be planted in childhood through the development and transmission of family and school social capital (Flanagan, 2004). According to social capital theory, social capital captures the resources individuals gain through their social relationships (Coleman, 1988; Portes, 1998, 2000). Furthermore, there are two types of social capital: bonding and bridging social capital (Coleman, 1988; Coffee & Geys, 2007; Leonard, 2005; Offer & Schneider, 2007). The former reflects a closed network of relationships amongst people of similar backgrounds. For example, the relationships within a family would be considered bonding social capital. Bridging social capital emphasizes the relationships that bring people in contact with diverse groups (Coffe & Geys, 2007; Widmer, 2006), such as a child's peer relationships.

This study examined both types of social capital. First, bonding social capital was measured and defined by adolescents' reports on their relationships within their families and schools separately. The current literature finds that the presence of social capital within families and schools helps to build a shared system of norms, values, and beliefs that promote psychosocial well-being and academic achievement (Coffe & Geys, 2007; Colclough & Sitaraman, 2005; Furstenberg, 2005; Offer & Schneider, 2007). Anderson, Sabatelli, and Kosutic (2007) and Fredricks and colleagues (2002) also discuss how adolescents who are highly connected with their family and non-parental adults show higher levels of positive adjustment. Less research has explored the association between social capital and civic involvement specifically; thus, in this study, civic involvement in emerging adulthood was the primary outcome of interest. It was hypothesized that adolescents' family and school social capital would also act as important antecedents to civic involvement in emerging adulthood.

Second, as aforementioned, bridging capital reflects the extent to which social networks interact and facilitate the action of individuals (Bankston & Zhou, 2002; Coleman, 1988; Furstenberg, 2005) such as civic involvement (Benson et al., 1998; Jekielek et al., 2002; Karcher et al., 2006; Parra et al., 2002; Rhodes et al., 2006). In this study, bridging social capital was measured and defined by the pathway between family and school social capital during adolescence. The interaction between social networks, however, extends beyond moderating relationships; bridging capital is more concerned with the nature of the connections, or pathways, between social networks (Bankston & Zhou, 2002; Coleman, 1988). In other words, it is less about how the influence of adolescent family social capital on civic involvement is contingent upon school social capital and more about the process of how family and school social capital relates to each other and civic involvement in emerging adulthood. Moreover, this study built upon the literature base that frames the family as the epicenter for social capital generation and transmission (Becker, 1964; Becker & Tomes, 1986; Benson et al., 1998; Coleman, 1988; Furstenberg, 2005). It was hypothesized that bridging capital begins with the bonding capital within families, which then transfers to schools over time. Specifically, family social capital was conceived as an antecedent to school social capital during adolescence, and both were conceived as antecedents to civic involvement in emerging adulthood.

Families and schools are in turn nested within neighborhoods; thus the influence of neighborhood characteristics on family and school social capital and civic involvement in emerging adulthood must also be considered. Bronfenbrenner's ecological theory of human development helps to explain these nested relationships and is described in more detail in the following chapter. In brief, during adolescence, youth become more directly exposed to their

neighborhood environment, which influences opportunities for social relationships, healthy and otherwise (Leventhal & Brooks-Gunn, 2000; Sampson, Morenoff, & Earls, 1999). The neighborhood can also influence civic involvement given that opportunities for involvement are often tied to the neighborhood's resources and institutions (Leventhal & Brooks-Gunn, 2000). Specifically, neighborhood adversity can determine whether adolescents feel safe in and connected to their neighborhood, and subsequently develop meaningful civic roles and behaviors (Portes, 2000; Sampson, 1991; Sampson et al., 1999). Often, the influence of the neighborhoods can be traced back to childhood as well (Wickrama & Noh, 2009).

In this study, the neighborhood's influence was given a positive spin to align with a positive youth development framework and its potential longitudinal influence was considered. As such, neighborhood adversity was refashioned to reflect childhood neighborhood assets and were measured and defined by a lack of community poverty, residential stability, and ethnic homogeneity in the adolescents' neighborhood when they were children. It was hypothesized that childhood neighborhood assets would positively influence civic involvement in emerging adulthood. In addition, the effect of childhood neighborhood assets was also hypothesized to be mediated by the pathway between adolescents' family and school social capital. This mediation pathway reflects briding social capital. Moreover, research has shown that neighborhoods with structural adversities limit access to social capital by discouraging the formation of a shared system of norms, values, and beliefs (Coffe & Geys, 2007; Colclough & Sitaraman, 2005; Furstenberg, 2005; Offer & Schneider, 2007); this study adapted these findings to hypothesize that neighborhoods with greater assets would encourage the development of bonding and bridging capital within and between families and schools, respectively.

While the connections between civic involvement in emerging adulthood, adolescent family and school social capital, and childhood neighborhood assets can be extrapolated from the current literature, the research as a whole lacks a cohesive framework. For example, while extant literature has linked neighborhood adversity to family social capital (Wickrama & Bryant, 2003; Wickrama & Noh, 2009), neighborhood adversity to school outcomes (Connell & Halpern-Felsher, 1997; Halpern-Felsher & Connell, 1997; Duncan, 1994; Garner & Raudenbush, 1991; Leventhal & Brooks-Gunn, 2000), family social capital to school social capital and outcomes (Leonard, 2005; Offer & Schneider, 2007; Bankston & Zhou, 2002; Crosnoe, 2004; Portes, 2000; Carbonaro, 1998), and civic involvement to family and school social capital (Lerner, Brentano, Dowling, & Anderson, 2002; Park, 2004; Benson, Leffert, Scales, & Blyth, 1998; Theokas et al., 2005) separately, research has yet to integrate these findings to demonstrate the pathways that link family and school social capital, neighborhood assets, and civic involvement in emerging adulthood simultaneously. The emphasis on pathways is important to highlight as this study aimed to identify the mechanisms through which neighborhood assets and family and school social capital longitudinally influence civic involvement in emerging adulthood. Multi-level structural equation modeling was utilized to identify these pathways.

In addition, the use of multi-level structural equation models addressed the methodological gap in the research particularly with regards to the pathways between family and school social capital (Benson et al., 1998; Furstenberg, 2005). The current literature on bridging capital argues that sustained and congruent networks (e.g., family and school) of social capital predict more positive outcomes; however, the research examines bridging capital as a cross-sectional phenomenon (Bankson & Zhou, 2002; Coleman, 1998;

Carbonaro, 1998; Son & Lin, 2008; Theokas et al., 2005). Cross-sectional studies fail to effectively capture the process. To effectively illustrate these pathways, longitudinal models linking family and school social capital and civic involvement in emerging adulthood must be measured.

Research has also failed to account for the role of neighborhood assets on bridging capital and civic involvement simultaneously (Coffe & Geys, 2006; Offer & Schneider, 2007; Portes, 1998). For instance, Offer and Schneider (2007) hypothesized the role of neighborhood structural characteristics without providing empirical validation of the links between neighborhood adversity, social capital and civic involvement. Thus, there is a need for research that uses multi-level models to account for the nested nature of neighborhood, family, and school social capital and civic involvement in emerging adulthood, and research that looks beyond the negative influence of neighborhoods. This study is one of the first studies to address the conceptual and methodological gaps in the current research.

The present study addressed the gaps by performing multi-level structural equation models using three waves of the *National Longitudinal Survey of Adolescent Health* (*ADD Health*). Because the dataset comes from a nationally representative and longitudinal survey, the study can elucidate the mechanisms and longitudinal implications of adolescents' environments on their future civic involvement. This is important in light of the current administration's support of civic involvement; in other words, this study may help to inform policy makers on the most effective ways to build and encourage civic involvement during adolescence. It is expected that this study will add to the existing literature by providing a more comprehensive investigation of the processes involved in adolescent civic involvement. To that end, the following research questions provide the framework for this study:

1. How do childhood neighborhood assets shape civic involvement in emerging adulthood?
2. What is the association between adolescent family and school social capital and how does that shape civic involvement in emerging adulthood?
3. What are the longitudinal mechanisms that link childhood neighborhood assets, adolescent family and school social capital and civic involvement in emerging adulthood?
4. Are there differential effects of childhood neighborhood assets, and adolescent family and school social capital on civic involvement based on the gender and ethnicity of the adolescent?

Dissertation Organization

This dissertation will be organized following the traditional dissertation format. The theoretical framework guiding this proposal as well as the literature review will be discussed in Chapter 2. Chapter 3 describes the sample, procedure, measures and analytic approach for this proposal. The results are detailed in Chapter 4, and a general discussion is provided in Chapter 5.

CHAPTER 2: LITERATURE REVIEW

The current study adds to the literature by examining the antecedents of and pathways to civic involvement in emerging adulthood. The literature review begins with a discussion of the theoretical framework that guides this study. Second, civic involvement is discussed. Third, family and school social capital are defined and their effects reviewed separately. Fourth, neighborhood assets are discussed. Finally, neighborhood assets are discussed with respect to how it links to family and school social capital and civic involvement in emerging adulthood.

Theoretical Framework

This study is set in Bronfenbrenner's ecological theory of human development (Bronfenbrenner, 1979) and social capital theory (Coleman, 1988), with the goal of understanding and explicating the influence of family, school, and neighborhood characteristics on civic involvement in emerging adulthood. Together these theories highlight the role of environments and the processes that occur within and between them. Specifically, the language of social capital theory (mainly bonding and bridging capital) is superimposed on the basic concepts of Bronfenbrenner's ecological framework to provide a more detailed description of the hypothesized processes between childhood neighborhood assets, adolescents' family and school social capital, and civic involvement in emerging adulthood.

First, ecological theory asserts that development is a function of the interplay between the developing person and his/her environments. Furthermore, the "nonsocial" (Bronfenbrenner, 1979, p. 18) as well as the social aspects of these environments must be considered to yield substantive conclusions about how environments influence behavior and

development. In this study, the nonsocial aspects are captured in the childhood neighborhood assets which reflect objective properties of the developing person's environment, while the social aspects of the environment are captured by the experiences and perceptions of social capital within the family and school. The outcome of interest is the development of civic involvement in emerging adulthood.

In addition, the "ecological environment" (Bronfenbrenner, 1979, p. 22) is arranged as nested structures containing the micro-, meso-, exo-, and macrosystems. The microsystem is defined as the developing person's immediate environment. There are three microsystems included in this study: the home (family), school, and neighborhood. The mesosystem is defined as the interrelations among two or more microsystems. In this study, the mesosystem is defined by the pathways between the home, school, and neighborhood environments. Exosystems are those environments that do not contain the developing person, but still have an influence on the person's development. For example, the parent's workplace if the developing person is a child or the parenting practices of the child's friend. Macrosystems refer to the larger sociocultural context. This study focuses primarily on the effects of the micro-, and meso-systems. It is beyond the scope of this study to examine the influence of the exo- and macro- systems on civic involvement in emerging adulthood.

With specific regards to the mesosystem, ecological theory states that "multisetting participation is the most basic form of interconnection between two settings" (Bronfenbrenner, 1979, p. 209). In other words, the developing person need only be an active participant in more than one microsystem. This is the point at which social capital theory is incorporated into the theoretical framework of this study: social capital theory supplements the discussion by specifying how individuals can become involved and the product of that

involvement, chiefly the ability to facilitate action. This study argues that at the family and school microsystem level, developing persons gain bonding capital through their relationships with parents, peers, and teachers. Bonding capital at the neighborhood level is represented by objective qualities of the neighborhood. In other words, bonding capital is a characteristic that is self-sustained within one microsystem. The transaction of these characteristics over time and the extent to which childhood neighborhood assets and family and school social capital encourage civic involvement in emerging adulthood reflects bridging social capital and how mesosystems are defined in this study. Thus, ecological theory provides the justification for the inclusion of multiple environments such as the home (family), school, and neighborhood, while social capital theory helps to define the characteristics of interest within those environments (i.e., childhood neighborhood assets, and family and school social capital) and the linkages between those environments.

The theoretical concepts and study-specific measures are incorporated into a model, which is illustrated in Figure 1. First, the neighborhood, family, and school are three separate microsystems. These microsystems are specifically defined by childhood neighborhood assets (as measured by lack of community poverty, residential stability, and ethnic homogeneity), family social capital, and school social capital in adolescence. Each of these microsystems is hypothesized to have a direct influence on civic involvement in emerging adulthood. Next, the model distinguishes four time frames: childhood neighborhood assets (1990), initial reports of family and school social capital (1995), reports of school social capital one year later (1996), and reports of civic involvement in emerging adulthood (2002). Given this sequence and the theoretical framework, the influence of childhood neighborhood assets on civic involvement in emerging adulthood is hypothesized to be primarily distal and

indirect through the presence of family and school social capital in adolescence. In turn, it is hypothesized that adolescents' family social capital will predict changes in school social capital, and that this relationship will be influenced by the neighborhood assets in childhood. The combined links are hypothesized to positively predict civic involvement in emerging adulthood.

Conceptualizing Civic Involvement in Emerging Adulthood

The Current Landscape

Researchers of adolescent development and emerging adulthood identify the transition into an active and contributing citizen as an important developmental marker of adulthood. However, the extant literature on the developmental precursors of civic engagement is lacking, which results in discontinuous transitions into citizenship roles (Sherrod & Lauckhardt, 2009). For instance, the right to vote at 18 can almost be seen as a rite of passage between adolescence and adulthood; however, youth lack the opportunities and experience to adequately fulfill these new responsibilities.

In the positive youth development literature, "contribution," defined as the sixth "C" of positive youth development (Lerner, 2005), is argued to emerge out of the five other proposed aspects of individual development, mainly the development of character, competence, caring, confidence, and connections (Sherrod & Lauckhardt, 2009; Lerner, 2004; Roth & Brooks-Gunn, 2003). In other words, "contributions" to - which includes civic involvement in - one's community is an expression of the adolescents' successful and healthy development. Unfortunately, trends of youth civic involvement, traditionally indicated by participation in voluntary organizations, voting, and newspaper readership, show a decline. Indeed, since the 1970s, often considered the peak of civic involvement (given the

introduction of the Peace Corps), civic involvement has decreased, with only 20% of youth aged 15-25 years reporting that they volunteer (Census Current Population Survey).

Recently, perhaps as a response to the perceived community or political disaffection, President Obama signed the Edward M. Kennedy Serve America Act of 2009, which re-ignited a call to national and community service by reauthorizing and expanding national service programs administered by the Corporation for National and Community Service. Approximately $1.1 billion was allocated to the Corporation to implement their existing service programs, which include Americorps, Summer of Service, and the National Day of Service and Remembrance on September 11th with the hopes of building the capacity of individuals, communities and the national infrastructure. Unfortunately in February 2011, the funding itself is in jeopardy with the United States Congress considering a bill which would eliminate funding for the Corporation for National and Community Service.

Foundations of Civic Involvement

Research on adolescent civic engagement spans multiple disciplines such as political science, sociology, and the developmental sciences. Moreover, civic engagement has multiple components such as cognitive, emotional, and behavioral engagement (Flanagan, 2004; Harre, 2007; Kirshner, 2007; Watts & Flanagan, 2007) which are defined as the knowledge, attachment to, and involvement in, civic activities, respectively (Sherrod & Lauckhardt, 2009). This study focuses primarily on the behavioral component of civic engagement, which is defined as civic involvement. The reason for the specific focus on civic involvement is due to the measures available in the dataset that are used for the analysis. Generally, civic involvement is characterized by activities such as voting, volunteering, and/or involvement in school, after-school, political or community groups (Duke, Skay,

Pettingell, & Borowsky, 2009; Flanagan, 2004; Watts & Flanagan, 2007). In this study, civic involvement was defined and measured by involvement in volunteer or community service work, whether the individual is a registered voter and voted in the last election, whether the individual is a registered donor or donated blood, plasma, or platelets within the past 12 months, and participated in political activities. The following sections provide an overview of the discussion in the literature regarding the roots of civic involvement particularly in adolescents and emerging adulthood.

Political science roots. Political socialization focuses on how adolescents develop their political values and beliefs (Flanagan, 2004; Walts & Flanagan, 2007). Trust in the government and government officials build the affective foundation of political loyalties (Flanagan, 2004), with civic education in schools teaching youth about how government works (Langton & Jennings, 1968; Merelman, 1972; Ehman, 1980; Niemi & Sobieszek, 1977). Adolescence is seen as a defining period for political socialization as youth begin to individuate from their families and experiment with identities and roles (Flanagan, 2004; Merelman, 1972). True to its name, the scope of political socialization research is limited to political involvement and spotlights schools as a vehicle to shape civic knowledge and citizenship, which capture more cognitive components of civic development. While this study acknowledges that there are cognitive components to civic development, this study focuses on the behavioral dimension of civic development, specifically involvement in civic activities such as volunteering, community service and voting.

Sociological roots. As Putnam argues in his seminal article “Bowling Alone” (1995), the decline of involvement in bowling leagues, community organizations, and other leisure activities results in disconnected individuals that puts democracy in jeopardy. Thus,

connecting youth to political, economic, and social resources is seen as important precursors for civic involvement and the maintenance of democracy (Benson et al., 1998). Indeed, some research has defined social capital as the level of civic-ness in communities (Benson et al., 1998; Portes, 1998), and having an active and connected citizenry a necessity to promote collective goals (Schneider, 2007; Son & Lin, 2008). Thus, unlike the political socialization perspective, research using a social capital framework tends to conceptualize civic involvement with a more altruistic quality and looks more at community-level influences and the importance of social networks and dynamics. In their current chapter on citizenship, Sherrod and Lauckhardt (2009) argue that building social capital is a means to promoting civic involvement.

Developmental roots. Defining optimal civic outcomes in adolescents is still a nascent field in developmental psychology and the related developmental sciences (Moore et al., 2004; Scales, 1999). Indeed, as aforementioned, there is a general lack of research on civic involvement, or engagement in general in the child and adolescent literature (Sherrod & Lauckhardt, 2009). However, there is a wealth of research that has attempted to formulate an answer by identifying developmental assets (Scales, Benson, Leffert, & Blyth, 2000; Scales et al., 2006) or defining components of positive youth development (Lerner, Brentano, Dowling, & Anderson, 2002; Lerner et al., 2005; Theokas et al., 2005). Taken together, the research has found that there is a gap in defining appropriate variables to reflect social competencies, which includes adolescent civic involvement. There is agreement, however, that civic involvement is as an important developmental task as adolescents to transition into adulthood and become contributing members of society (Flanagan, 2004; Kirshner, 2007; Lerner et al., 2003; Youniss, McLellan, & Yates, 1997). The latter is particularly important

within the developmental sciences and the positive youth development perspective, which works under the assumption that youth are as much resources to their families, schools, and communities as adults.

Consequences of Civic Involvement

Research has cited many positive consequences of civic involvement for youth including: the development of identity and critical consciousness (Watts & Flanagan, 2007; Kirshner, 2007); increased academic achievement (Carbonaro, 1998; Morgan & Sorensen, 1999; Scales et al., 2006); life satisfaction (Park, 2004); self-esteem (Pancer et al., 2007) and decreased delinquent behaviors (Coley, Morris, & Hernandez, 2004; Fauth, Roth, & Brooks-Gunn, 2003; Feldman & Matjasko, 2005; Pancer et al., 2007; Perkins et al., 2007). Beyond benefits for the developing person, having informed and involved citizens has been cited as a necessary condition for a successful democratic society (Putnam, 1995; Sherrod & Lauckhardt, 2009).

In addition to human capital benefits, adolescents who are civically involved strengthen social competencies and capital (Jarrett et al., 2005). This specific competency creates opportunities for youth to interact with positively oriented peers and adults, which helps to develop the skills and resources necessary to appropriately code social cues and, subsequently, choose more prosocial options rather than risky ones (Anderson-Butcher, Newsome & Ferrari, 2003; Catalano, Berglund, Ryan, Lonczak & Hawkins, 2004a; Eccles, Barber, Stone & Hunt, 2003; Riggs, 2006; Rose-Krasner et al., 2006; Youngblade et al., 2007). Additionally, civic involvement is argued to reflect and be a result of social capital (Sherrod & Lauckhardt, 2009). A further discussion of social capital, specifically family and school social capital follows.

Demographic considerations. In a recent research study, Zaff et al (2010) determined that the expression of civic engagement differed by gender. Specifically, through multiple group second-order confirmatory factor models, the authors found that girls had higher averages on civic engagement compared to boys. Extant research confirms these findings that girls tend to have a more prosocial orientation and thus are more civically involved than boys (Alozie, Simon, & Merrill, et al., 2003; Flanagan, Johnsson, Csapo, & Sheblanova, 1998; Kuhn, 2004; Sherrod & Lauckhardt, 2009). However, the researchers acknowledge a lack of research that determines the mechanism through which these gender differences manifest. This study offers a preliminary exploration of how gender may moderate the hypothesized pathways between childhood neighborhood assets, and family and school social capital.

Research has also shown that ethnicity can influence an individual's propensity to be civically involved. Specifically, the literature supposes that experiences of race discrimination can substantially influence a person's attitudes and behavior, and may encourage certain patterns of socialization (i.e., taking pride and identifying with one's ethnic group) that in turn might influence civic attitudes and involvement (Flanagan, Cumsille, Gill, & Gallay, 2007; Metzger & Smetana, 2008; Sherrod & Lauckhardt, 2010). Furthermore, ethnic minority adolescents and emerging adults may have different opportunities to express their civic involvement due to differential socialization or simply a lack of access to civic activities in their community (Hughes & Chen, 1997, Leventhal & Brooks-Gunn, 2000; Sherrod & Lauckhardt, 2009). This idea is discussed in further detail in this study in the section about neighborhood assets. This study also examined the potential moderating relationship between race, childhood neighborhood assets, and family and school social capital in adolescence.

Family Social Capital

Family social capital greatly influences whether or not adolescents experience positive socio-emotional and behavioral outcomes (Baumrind, 1991; Eccles, 2004). Moreover, the family is often conceptualized as the central location for generating social capital (Coleman, 1988; Furstenberg, 2005; Portes, 1998) via sustained and positive interpersonal interactions. Although the family research has shown robust links to psychosocial adjustment, increased academic achievement and decreased behavioral problems (Baumrind, 1991; Darling & Steinberg, 1993; Eccles et al., 1997; Steinberg, Lamborn, Dornbusch, & Darling, 1992) less research has been done exploring the association between family social capital and civic involvement. Therefore the relationship between adolescents' family social capital and civic involvement in emerging adulthood was extrapolated from the current literature on the influence of family social capital on adolescent well-being. In this study, family social capital was defined by the parent-child bond, shared family activities, and family cohesion.

The literature on the impact of the family on adolescent development, often includes measures of connectedness with one's family (Resnick, Ireland, & Borowsky, 2004; Scales & Leffert, 1999), parent-child communication (Crouter, Head, McHale, & Tucker, 2004; Darling & Steinberg, 2003), the emotional climate of the parent-child relationship (Resnick, Ireland, & Borowsky, 2004; Scales & Leffert, 1999), and time spent with the family (Eccles et al., 1997; Collins & Laursen, 2004; Crouter et al., 2004; Larson et al., 1996). In this study, these qualities were conceptualized as indicators as family social capital and represented by the parent-child bond (capturing connectedness and communication), shared family activities

(time spent with the immediate family), and family cohesion (the emotional climate in the home with parents).

Research has found that when children experience more social capital within the family, they are more likely to improve their school achievement and performance (Steinberg et al., 1992), increase prosocial behaviors (Collins & Laursen, 2004) and decrease problem behaviors (Baumrind, 1991; Eccles et al., 1997; Operario et al., 2006). Given the robust and positive benefits of family social capital, it is hypothesized that this type of bonding capital also contributes positively and directly to the development of civic involvement in emerging adulthood.

Family Demographics

While most of the literature on civic involvement, as well as related topics such as prosocial behavior (Carlo, Crockett, Randall, & Roesch, 2007a; Carlo, Fabes, Laible, & Kupanoff, 1999; Carlo, McGinley, Hayes, Batenhorst, & Wilkinson, 2007b ; Penner, Dovidio, Piliavin, & Schroeder, 2005) and positive youth development (Lerner et al., 2002, 2005; Scales, 1999; Scales et al., 2006) have focused on dimensions of family social capital, there is some literature highlighting the influence of some family demographic characteristics on civic involvement in emerging adulthood. For instance, higher family socioeconomic status has been consistently linked to a higher likelihood of civic, social or associational involvement (e.g., school clubs, community organizations, group leisure activities) in youth (Carlo et al., 2007a, 2007b; Chan & Elder Jr., 2001; Lerner et al., 2005; Penner et al., 2005; Scales, 1999; Watts & Flanagan, 2007). Having educated parents and living in two-parent heterosexual households also predicts positive youth outcomes such as civic involvement and prosocial behavior (Chan & Elder, 2001; Penner et al., 2005; Watts & Flanagan, 2007). In

each instance, the positive relationship between income, education, family structure and involvement is tied to having more leisure time and access to resources (Penner et al., 2005).

Another family demographic characteristic tied to civic involvement is race/ethnicity. Borrowing from the literature on positive youth development and adolescent prosocial behavior, previous research has found that minority youth are less likely to be civically involved than their White peers (Watts & Flanagan, 2007; Lerner et al., 2005; Penner et al., 2005; Carlo et al., 1999). Families of different ethnic origins might practice different parenting styles and espouse different values regarding the importance of the common good, which in turn influences if and how an adolescent may become civically involved. In addition, ethnic minorities may feel marginalized or discriminated against, which would in turn diminish their trust in the community-at-large and decrease their likelihood of being civically involved in the community (Carlo et al., 1999; Penner et al., 2005; Watts & Flanagan, 2007). Research has found that different ethnicities also conceptualize community differently, which in turn influences their perceptions, attitudes, and behaviors toward civic involvement (Chavez, 2005). As such, race was included in the present study as a covariate, along with parents' education and family structure.

School Social Capital

Next to the family, the school environment is one of the main contexts of development for adolescents. Indeed, research has suggested that school social capital is one of the most prominent sources for extra-familial relationships and socialization (Crosnoe, 2004; Eccles, 2004; Lohman, Kaura, & Newman, 2003; Morgan & Sorenson, 1999) with benefits such as decreasing the likelihood of deviant behavior (Crosnoe, Erickson, & Dornbusch, 2002; Goodenow, 1993), increasing academic achievement (Carbonaro, 1998;

Eccles, 2004; Manke et al., 1995; Portes, 2000), and facilitating the development of new social competencies (Karcher et al., 2006; Parra et al., 2002).

In examining school social capital specifically, Dika and Singh (2002) and Eccles (2004) reiterate the importance of school-based social capital because it creates a normative environment for achievement. The creation of a normative environment illustrates the bonding social capital potential in schools and reflects the human need to feel socially included (Eccles, 2004). These characteristics may be particularly salient during adolescence when youth are experimenting with identities and creating social reference groups (Baumrind, 1991). Research has found that having bonds to one's peers, teachers, and school lays the foundation for a supportive learning environment, which in turn increases academic achievement, social skill development and decreases problem behaviors (Catalano, Haggerty, Oesterle, Fleming, & Hawkins, 2004b; Eccles, 2004; Libbey, 2004). Involvement in school activities and groups can also provide structured opportunities for positive peer group interactions and socialization (Barber, Eccles, & Stone, 2001; Coley et al., 2004; Dworkin, Larson, & Hansen, 2003; Fredricks et al., 2002; Holland & Andre, 1987; Raymore, Barber, & Eccles, 2001), which contribute to the development of bonding social capital within schools and between students.

However, the research linking school social capital to civic involvement in emerging adulthood, specifically, is scarce. Understanding social capital within the school is important to the study of civic involvement as schools often provide civic education curriculum. Rather than examining the extent to which a civic-oriented curriculum influences civic behaviors and involvement, this study argues that the social capital generated by the adolescents' relationships with his/her peers, teachers, and school-at-large influences the development of

future civic involvement. Specifically, it is hypothesized that school social capital will have a direct and positive influence on civic involvement in emerging adulthood.

Neighborhood Assets

Families and schools are in turn nested within neighborhoods; thus, neighborhood characteristics must also be considered when describing the pathways toward civic involvement. First, during adolescence, youth become more directly exposed to their neighborhood environment where they must determine their roles and identity within a larger social context that may include the presence of harmful and threatening elements (Sampson et al., 1999). For instance, Spencer, Cole, Jones and Swanson (1997) discuss how poor, urban neighborhoods increase opportunities for youth to engage in risky experimentation rather than constructive activities, such as civic involvement. Furthermore, as aforementioned, Sampson et al. (1999) found that minority adolescents do not feel as connected to their community, which hinders their ability to develop meaningful civic roles and engage in positive civic-oriented activities. Therefore, the neighborhood is an important environment to consider in civic involvement research as opportunities for involvement are often tied to the neighborhood's resources and institutions (Leventhal & Brooks-Gunn, 2000). Specifically, the neighborhood environment can determine whether adolescents not only feel safe in and connected to their neighborhood, but also develop meaningful civic roles and behaviors (Sampson, 1991; Sampson et al., 1999).

Consequences for Civic Involvement

The lack of ties and neighborhood connectedness discourages civic involvement (Flanagan et al., 2007; Kim & Ball-Rokeach, 2006). In this study, the converse proposition is

espoused: that the presence of neighborhood ties and bonds encourages civic involvement in emerging adulthood. When considering civic involvement in particular, it is important to include a discussion of neighborhood assets because during adolescence, youth become more directly exposed to their neighborhood environment, which influences opportunities for social interactions (Leventhal & Brooks-Gunn, 2000; Sampson et al., 1999). Extant research has found that involvement in youth programs - what Putnam (1995) would consider an example of civic involvement - provide youth with a context for self-generated development (Larson et al., 2007; Pettit et al., 1999). Youth programs that are more structured give adolescents an opportunity to spend time in supervised settings, enrichment lessons, and with adults who can act as positive role models or mentors (Posner & Vandell, 1994). These opportunities may bear particular significance for adolescents exposed to neighborhood adversity given their limited access to such activities. Thus, it was hypothesized that resources and assets within the neighborhood will have a direct and positive influence on civic involvement in emerging adulthood.

Influences on Social Capital

Research has shown that neighborhood environments with structural adversities also hinder the formation of shared system of norms, values, and beliefs that promote adolescents' psychosocial well-being and greater access to social capital (Coffe & Geys, 2007; Colclough & Sitaraman, 2005; Furstenberg, 2005; Offer & Schneider, 2007). Sampson and colleagues (1999) define structural adversities as the physical capital of the community and include elements such as neighborhood poverty, unemployment, residential instability and ethnic heterogeneity. These characteristics have been consistently linked to negative outcomes in children and families (Caughy et al., 1997; Connell & Halpern-Felsher, 1997; Fauth et al.,

2007; Klebanov et al., 1997; Leventhal & Brooks-Gunn, 2000). Again, this study refashions the influence of neighborhood in a positive light and defines neighborhood assets as a lack of community poverty, residential stability and ethnic homogeneity.

Neighborhood assets support positive outcomes because it implies that the neighborhood provides opportunities for simulating and safe learning environments, and access to quality resources. In their comparison of resource-rich and resource-poor neighborhoods, Klebanov and colleagues (1997) found that resource-poor neighborhoods were characterized by a higher incidence of single female headed households, unemployment, and lower parenting quality. Resource-rich neighborhoods, on the other hand, were characterized by higher socioeconomic (SES) residents, low unemployment, less ethnic diversity, and more positive parenting. While research has consistently linked neighborhood adversity to a lack of individual and family social capital (Caughy et al., 1997; Coffee & Geys, 2006; Fauth et al., 2007; Leventhal & Brooks-Gunn, 2000; Klebanov et al., 1997; Sampson, 1991; Portes, 1998), not as much research has been devoted to the positive aspects of neighborhoods. To that end, it was hypothesized that neighborhood assets will also positively influence the development of adolescents' family and school social capital.

Bridging Capital: Linking Families, Schools, and Neighborhoods

While the experiences of social capital within families and schools, and neighborhood assets individually capture unique microsystems that are hypothesized to have direct influences on civic involvement, it is also important to consider the relationships among the three microsystems and the potential indirect influences on civic involvement. These relationships are defined as bridging social capital and are examined through the

hypothesized meditating pathways. Bridging social capital reflects the transfer of social capital amongst diverse environments and has been shown to benefit adolescent outcomes (Carbonaro, 1998; Morgan & Sorensen, 1999; Portes, 2000; Scales & Leffert, 1999). For adolescents in particular, bridging social capital is a way to link youth and adult relationships across families and schools (Coffe & Geys, 2007; Jarrett et al., 2005; Leonard, 2005). As such, bridging social capital operates transactionally; it is a property of the relationship between two or more microsystems.

However, when looking at the bridging social capital between families and schools specifically, the research has focused on parental involvement in schools (Morgan & Sorenson, 1999; Portes, 2000; Scales & Leffert, 1999) or knowledge of their child's friends (Bankston & Zhou, 2002; Carbonaro, 1998l; Cleveland & Crosnoe, 2004; Manke et al., 1995; Portes, 2000). This situates the adolescent almost passively in the pathway between the family-school bridge and adolescent outcomes. This study argues that the adolescents' reports of family and social capital, essentially adolescents' experiences of the relationships within families and schools, is the mechanism through which families and schools influence civic involvement in emerging adulthood. This reflects a basic premise of social capital theory, which conceptualizes social capital as a resource to individual actors (Coleman, 1988). Moreover, positive youth development research suggests that a sense of agency in adolescence can draw in further social capital from peers and other adults into the family (Cleveland & Crosnoe, 2004; Leonard, 2005; Offer & Schneider, 2007), especially since children begin to spend twice as much time with people outside of the family during adolescence (Manke et al., 1995).

Thus, it is hypothesized that the influence of bridging social capital on future civic involvement should be the most optimal when adolescents are embedded in and have experiences of neighborhoods, families, and schools with high levels of social capital (Bronfenbrenner & Morris, 1998; Lohman et al., 2007). Specifically, it is hypothesized that the presence of high neighborhood assets will positively contribute to the development of family social capital during adolescence, which in turn will contribute to the development of the adolescent's school social capital. Together, childhood neighborhood assets and family and school social capital are hypothesized to indirectly influence civic involvement in emerging adulthood through the aforementioned pathway. This argument extends the findings from the positive youth development literature that finds that the greater the number of external supports and opportunities, the increase in prosocial outcomes and decrease in the probability of risk behaviors (Anderson et al., 2007; Scales & Leffert, 1999).

Central Aims and Hypotheses

In sum, the overall purpose of this study is two-fold: 1) to frame the concepts of adolescent family and school social capital, childhood neighborhood assets, and civic involvement in emerging adulthood under one cohesive theoretical framework; and 2) to advance the empirical evidence for the associations between families, schools, neighborhoods, and civic involvement. Guided by Bronfenbrenner's ecological theory of human development and social capital theory, the study aimed to examine the pathways that link childhood neighborhood assets, family and school social capital, and civic involvement in emerging adulthood. Based on the literature review provided, the following hypotheses are posed:

1. Direct pathways
    a. Childhood neighborhood assets are hypothesized to have longitudinal associations with civic involvement in emerging adulthood.
    b. High levels of family social capital are hypothesized to be positively linked to civic involvement in emerging adulthood.
    c. Increases in school social capital will be positively linked to civic involvement in emerging adulthood.
2. Mediating pathways
    a. Childhood neighborhood assets are hypothesized to indirectly influence civic involvement in emerging adulthood through family social capital and increases in school social capital in adolescence.
    b. Family social capital is hypothesized to indirectly influence civic involvement in emerging adulthood through increases in school social capital.
3. Moderating pathway
    a. Childhood neighborhood assets are hypothesized to moderate the association between family social capital and changes in school social capital.
    b. There will be differential effects of childhood neighborhood assets, and adolescent family and school social capital on civic involvement in emerging adulthood by gender.
    c. There will be differential effects of childhood neighborhood assets, and adolescent family and school social capital on civic involvement in emerging adulthood by race.

Previous research has yet to account for the influence of families, schools, and neighborhoods on civic involvement in emerging adulthood simultaneously. Longitudinal implications have not been rigorously considered as well. The use of data from the *National Longitudinal Study of Adolescent Health* (Add Health) helps to expand the research on civic involvement by allowing for a thorough understanding of the complex associations that exist among families, schools, neighborhoods, and civic involvement in a nationally representative sample. It is expected that this study will add to the literature on civic involvement in emerging adulthood by addressing the conceptual and methodological gaps in the current research.

CHAPTER 3: METHODS

Sample

Data were drawn from the first three waves (1995-2002) of the in-home (core) sample of the *National Longitudinal Study of Adolescent Health* (Add Health; Harris et al., 2009). Add Health is a multi-stage, school-based, stratified random sample of 7^{th}-12^{th} graders in the United States. In the first stage, a school sample was obtained by taking a stratified, random sample of all high schools in the United States. Eligible high schools included an 11^{th} grade with a minimum enrollment of 30 students and were stratified into 80 clusters by region of country, urbanicity, size, type and ethnicity. More than 70% of the original eligible high schools participated in the survey with a total of 132 schools and 90,118 students participating in the in-school questionnaire.

In the second stage, all students who completed the in-school questionnaire plus those listed on a school roster, but who did not complete an in-school questionnaire were eligible to be selected for the in-home sample. Approximately 200 adolescents were then selected from each of the participating schools. Special oversamples were also taken based on ethnicity, school size, disabled status, and biological relatedness for supplementary samples. The total sample size for the total in-home sample was N = 20,745; this study only used data from the core in-home sample (N = 12,105). The core in-home sample is representative of adolescents in grades 7-12 during the 1994-1995 school year in the U. S. The second wave of data for the core in-home sample was drawn from the Wave 1 pool of participants. The sample included most of the same students from the Wave 1 sample, minus adolescents who completed the 12^{th} grade, as these students exceeded the grade eligibility to yield a core in-home sample size of 9,278 at Wave 2 (1996). Wave 1 participants who could be located and

were at least 18 years old were re-interviewed six years later for the third wave of the in-home interview (2001-2003). Of those re-interviewed at Wave 3, 7,260 had interviews for all three waves and were part of the in-home core sample. The response rates for Wave 1, 2, and 3 are 78.9%, 88.2% and 77.4%, respectively.

The Add Health data set also includes neighborhood information that was gathered using data from the 1990 Census. The authors of the dataset selected and compiled contextual variables which were then linked to the respondent IDs. When possible, respondents' locations were geocoded in order to match them to the correct block group. Block groups are the smallest geographic unit for which Census data is publicly available. Information on Census tracts is also available, and will be used in this study. Census tracts are small homogeneous geographic regions which are designed based on population characteristics, economic status, and living conditions with the intent that the boundaries are relatively permanent (U. S. Census Bureau, 1997). These tracts vary in size from 1,000 to 8,000 people, with an average of roughly 4,000 individuals each. There are over 1,200 Census tracts in the Add Health core adolescent sample.

The sample for this study was created by applying three selection filters. First, to control for unit nonresponse, this study included only adolescents who were part of the core in-home sample and interviewed at all three waves (N = 7,260); thus, only adolescents who completed surveys and interviews in all three waves were considered. Second, adolescents with item nonresponse on the dependent variable were removed (N = 15). Finally, because this study investigated multi-level models, only those adolescents with valid (i.e., not missing) census tract variables were included (final N = 7, 209). An outline of how the final sample was selected is presented in Appendix A. In the final study sample, there were 1240

census tracts occupied with an average cluster size of 5.81 in the study sample. As shown in Table 1, the adolescents in the sample were predominantly female (54%), Non-Hispanic White (63%), and live in two-parent households (68%). Table 2 displays the correlations amongst the continuous study variables. The correlation table shows that adolescent civic involvement is positively correlated with a lack of community poverty, residential stability, and ethnic homogeneity and positively correlated with all the family and school social capital indicators. The correlations amongst the study variables are in the expected directions.

Given that approximately 60% of the original core in-home sample was assessed in the final study sample, attrition analyses were performed on those adolescents in the study sample and those who were not, but had complete survey data across the three waves. As shown in Table 3, no statistically significant differences were found between adolescents with missing data in our study sample and those with complete data. This falls in line with a more comprehensive attrition analysis performed on Add Health; a very small estimated attrition bias was found in Wave 3 for Wave 1 data (Chantala, 2006; Chantala, Kalsbeek, & Andraca, 2004).

Procedure

For the in-home questionnaire, adolescents completed interviews covering information on their family composition and dynamics, relationship histories, educational achievement and expectations, delinquency, nutrition and health status amongst other topics. Adolescents completed surveys using a Computer Assisted Personal Interview (CAPI), which allows trained field interviewers to enter responses into a laptop during the interview process. Furthermore, adolescents used an Automated Computer Assisted Survey Interview (ACASI) when answering potentially sensitive questions like those related to drug and

alcohol use. ACASI allows the respondents to enter answers directly into the laptop computer, while listening to questions on headphones, and has been shown to increase the response rate and validity of reporting on sensitive topics (Turner et al., 1998).

Relevant to this study, adolescents answered the same set of questions about family and school relationships in Waves 1 and 2 as well as demographics. Prior to the interview, care was taken to screen the respondents' age and experience so that only appropriate questions were asked. Interviews lasted one to two-hours depending on the initial screen. Wave 1 in-home interviews were conducted in 1995, with follow-up in-home face-to-face interviews with adolescents conducted in 1996.

In 2001-2002, the third wave of data for the in-home interview was collected. It includes interviews with original adolescents, who were now emerging adults between 18 and 26 years old, and their partners. Most of the interview questions remained unchanged from the Wave 1 in-home questionnaire; however, there were changes made to questions regarding the social contexts of the adolescents' lives, such as questions about college or work. Relevant to this study, emerging adults answered questions about their civic involvement and citizenship. Interviews lasted an average of 134 minutes and followed the same procedures as the previous two waves. Most of the interviews were conducted in the respondents' homes.

An application for the Institutional Review Board (IRB) approval for the use of this dataset was submitted to the Iowa State University IRB in December of 2010 (IRB number 10-587). The Iowa State University IRB responded with a letter noting that the project "has been declared exempt from the requirements of the human subject protections regulations". A copy of the official IRB approval is provided in the Appendices.

Measures

Dependent Variable

Civic involvement in emerging adulthood. Emerging adults responded to six items regarding their civic involvement. These questions were asked in wave 3 only. Specifically, the items asked if the emerging adult: (1) regularly participates in volunteer or community service work; (2) performed any unpaid volunteer or community service work during the last 12 months; (3) donated blood, plasma, or platelets during the last 12 months; (4) is a registered organ donor; (5) is a registered voter; or (6) voted in the most recent presidential election. Emerging adults responded either yes (1) or no (0). The responses were then summed to create a composite with higher scores reflecting more civic involvement.

Due to the binary nature of the six items, a joint correspondence analysis was performed in STATA 10.0 to examine the internal consistency of the measure. A total inertia of 0.067 was calculated suggested that there is tight clustering of the items. The 6 items accounted for 83.44% of the variance and all the items had factor loadings above 0.80. A scatterplot for the joint correspondence analysis is shown in Appendix B. As illustrated in the scatterplot, emerging adults' yes and no responses were clustered together suggesting that the composite appropriately captures civic involvement in emerging adulthood.

Independent Variables

Adolescent family social capital. Measures of family social capital were taken from the Wave 1 in-home survey (1995). First, a total of 42 items were drawn from the "relations with parents", "personality and family", and "protective factors" sections of the survey. Second, a principal components analysis with promax rotation was conducted to identify the most theoretically and statistically sound indicators reflecting family social capital. The

exploratory factor analysis yielded four components based on observed eigenvalues; however, upon further investigation, only three indicators were extracted based on factor loadings and theoretical judgment. A composite for the parent-child bond was created by summing the adolescents' reports of closeness to and communication with their resident mother and father (16 items, $\alpha = 0.84$). A composite for shared family activities was created by summing the adolescents' reports of activities they did with their resident mother and father (22 items, $\alpha = 0.67$). A composite for family cohesion was created by summing across the adolescents' reports of how much they thought their family cared for and understood them (4 items, $\alpha = 0.77$). For all indicators, the summed score for single parent families was calculated by doubling the scores of the one parent (Crosnoe, 2004; Duke et al., 2009). Means and standard deviations of these variables are presented in Table 1. Specific items and response categories are available in Appendix C. Past research using the Add Health dataset have found, created, and used similar family measures (e.g., Bankston & Zhou, 2002; Crosnoe, 2004; Duke et al., 2009; Resnick, Ireland, & Borowsky, 2004; Zweig, Phillips, & Lindberg, 2002).

Adolescent school social capital. Measures of school social capital were taken from Wave 1 (1995) and Wave 2 (1996) of the in-home survey. First, a total of 7 items were drawn from the "academic and education", and "protective factors" section in each wave. Second, a principal components analysis with promax rotation was conducted to identify the most theoretically and statistically sound indicators reflecting school social capital at each wave. One indicator was extracted based on the observed eigenvalues (eigenvalue $_{w1} = 2.99$, eigenvalue $_{w2} = 2.90$) and a composite was created by taking the sum of the adolescents' reports on their relationship within their school (6 items, $\alpha_{w1} = 0.79$, $\alpha_{w2} = 0.78$). One item

was not utilized in the construction of the composite. Means and standard deviations of these variables are presented in Table 1. Specific items and response categories are available in Appendix C. Similar measures have been used in past research regarding these measures as well (e.g., Crosnoe, 2004; Duke et al., 2009; Resnick, Ireland, & Borowsky, 2004; Zweig, Phillips, & Lindberg, 2002).

Childhood neighborhood assets. Guided by the rational provided in previous studies (Gorman-Smith, Tolan, & Henry, 2000; Wickrama & Bryant, 2003) childhood neighborhood assets were represented by three composites reflecting a lack of community poverty, residential stability, and ethnic homogeneity. A lack of community poverty was measured by summing three variables corresponding to census tract information from the 1990 Census. Those variables include: 1) the proportion of families not living below poverty; 2) the inverse proportion of female headed-households; and 3) the male employment rate (3 items, α = 0.84). Residential stability was measured by summing two Census variables: 1) the percent owner-occupied housing; and 2) the inverse of mobility rates (2 items, α = 0.61). Finally, ethnic homogeneity was measured by summing three Census variables on the proportion of households in linguistically non-isolated environments, the racial dispersion of the neighborhood, and percent of white residents (3 items, α = 0.62). All three measures were generated by summing the indicators corresponding to their census tract information.

Demographics

Age. Adolescents' age was calculated at Wave 1 by using the interview completion data and date of birth variables. Specifically, the adolescents' month, day, and year of birth were subtracted from the month, day, and year of the interview.

Gender. Gender information was obtained from a single question asking adolescents to identify themselves as male (1) or female (0).

Race. Adolescent's race was represented in four categories: Non-Hispanic White, African-American, Hispanic, and other. The other category includes those adolescents who identified as Native American, Asian, mixed, or other. Each category was dummy coded with membership in a group represented with a 1, and non-membership represented with a 0. The White group was omitted as the referent group.

Family structure. Family structure is a dichotomous variable indicating whether the adolescent lives with two parents (1 = *yes*, 0 = *no*). The variable was created by examining adolescent-reported household rosters (Crosnoe, 2004; Brown, 2006). Both biological and non-biological parents are defined as parental figures. Persons identified as relatives or non-relatives were not considered parents.

Parents' education. Following the rationale provided in previous studies (Wickrama & Byrant, 2003; Bankston & Zhou, 2002), the residential parents' education was measured by summing the adolescents' reports of their residential mother's and father's years of formal education. Adolescents responded on a scale from 0 (*never went to school*) to 9 (*professional training beyond college*). The summed education score for single parent families was calculated by doubling the scores of the one residential parent.

Analytic Approach

The purpose of the current study was to examine the characteristics and pathways that link childhood neighborhood assets, adolescents' family and school social capital, and civic involvement in emerging adulthood. Because the adolescent-level data on family and school social capital are nested within neighborhoods, individual error terms may be correlated

within neighborhoods, so ordinary least squares estimates and standard errors may be biased (Raudenbush & Bryk, 2002). Thus, to account for the nested nature of the data, multilevel structural equation models were estimated.

The models had two levels, level 1 was the within part of the model and included the family and school social capital variables as well as adolescent characteristics. All of the family, school, and adolescent variables were used as single indicator constructs and were stepped into the model separately. In this part of the model, the intercepts in the regression were random effects that vary across neighborhoods; fixed slope models were tested because it was hypothesized that family and school social capital will have a uniform and positive influence on civic involvement in emerging adulthood across neighborhoods (preliminary analyses also showed inadequate interclass correlations for the family and school measures, suggesting a lack of variation in family and school social across neighborhoods). The full equation for the level 1 model is presented below and captures the hypothesized relationships between civic involvement, and family and school social capital *within* each neighborhood:

$$\text{Civic Involvement (CI)} = \beta_{0j} + \beta_{1j}\,(\text{parent-child bond}) + \beta_{2j}\,(\text{shared activities}) + \beta_{3j}\,(\text{family cohesion}) + \beta_{4j}\,(\text{change in school social capital}) + \beta_{5j}\,(\text{demographics}) + r_{ij}$$

Level 2 is the between part of the model and specifies the regressions of the random intercepts of the within models across neighborhoods on the childhood neighborhood asset characteristics. The indicators of childhood neighborhood assets (lack of community poverty, residential stability, and ethnic homogeneity) were used as multiple indicators of the neighborhood asset latent construct to explain the variance in the level 1 adolescent family and school social capital variables as well as the outcome variable, civic involvement in

emerging adulthood. The second level equation is provided below and captures the hypothesized relationships between civic involvement, and family and school capital *across* all neighborhoods:

$$\beta_{0j} = \gamma_{00} + \gamma_{01}\,(\text{childhood neighborhood assets}) + U_{0j}$$

$$\beta_{kj} = \gamma_{k0} \quad \text{where k=1-4}$$

The combined equation is as follows:

$$(CI)_{ij} = \gamma_{00} + \gamma_{01}(\text{neighborhood assets}) + \gamma_{10}\,(\text{parent-child bond}) + \gamma_{20}\,(\text{shared activities}) + \gamma_{30}\,(\text{family cohesion}) + \gamma_{40}\,(\text{changes in school social capital}) + \gamma_{50}(\text{demographics}) + \zeta_{0j} + \varepsilon_{ij}$$

In addition to accounting for the nested nature of the data, multilevel structural equation models allow for the current study to test the hypothesized mediating pathways simultaneously, that is a model was tested that included all the direct and indirect pathways between childhood neighborhood assets, adolescent family and school social capital, and civic involvement in emerging adulthood. The second step in the mediation analysis is to examine the pathways individually. In the present study, mediation was tested using the approach described by Baron and Kenny (1986). Specifically, path coefficients among the mediating factors were estimated to determine whether the following conditions were met for mediation: 1) the independent variable was significantly associated with the dependent variable when the mediating variable was not included; 2) the independent variable was significantly associated with the mediating variable; 3) the mediating variable was significantly associated with the dependent variable; and 4) the association between the independent variable and dependent variable become non-significant with the inclusion of the mediating variable.

Finally, to explore potential moderating effects of different neighborhoods, gender, and race, multiple group structural equation models were utilized. In the multiple group SEM analysis, a first model was tested where path coefficients were allowed to be different between the groups. A second model was analyzed in which the path coefficients were constrained to be equal. According to Bentler and Bonnet (1980) a χ^2 difference can be calculated for model 2 subtracted from model 1. The χ^2 difference will have degrees of freedom equal to the degrees of freedom of model 2 minus model 1 and will be normally distributed. As such, the χ^2 difference test allows for the test of significance for any significant moderations between the groups.

All models were estimated using MPlus (version 6) software and the TYPE=TWOLEVEL command to account for the nested nature of the data. Furthermore, because the dependent variable is continuous, MPlus uses full information maximum likelihood with robust estimation that allows for random intercepts and slopes, missing data, and non-independence (Muthen & Muthen, 2004). The full information maximum likelihood (FIML) procedure estimates the model parameters directly from the available data using an iterative expectation-maximization algorithm, rather than doing imputations of the missing data first as with other estimation procedures (Acock, 2005; Muthen & Muthen, 2004). Because it does not impute values for individually missing data, the FIML procedure performs a full analysis that avoids distortion from imputation (Muthen & Muthen, 2004).

The FIML with robust estimation procedure also accounts for the non-independence amongst observations created from cluster sampling designs (Muthen & Muthen, 2004). Given this, post-sampling weighting was performed via the estimation procedure. Indeed, because FIML already corrects for non-response bias and non-independence, the use of

population weights may overly bias or inflate the coefficients (Horowitz & Manski, 1998). Finally, models were evaluated using absolute (Root Mean Square Error, RMSEA) and relative fit (Comparative Fit Index, CFI) indices. The absolute indices are a measure of the residuals between the observed and predicted covariances, while the normed fit indices capture the proportionate reduction of error in the chi-square. Acceptable values for CFI are greater than 0.9 and for RMSEA are less than 0.05 (Levendosky, Leahy, Bogat, Davidson, & von Eye, 2006).

CHAPTER 4: RESULTS

Descriptive Overview

Civic Involvement

Descriptive statistics of the adolescents in the sample are provided in Table 1. With regards to the main variable of interest, mainly civic involvement in emerging adulthood, the participants in this sample were involved in an average of 2.44 activities. When looking at the demographic breakdown of civic involvement, results from simple descriptive analyses (not shown) found that girls were more civically involved than boys (t (7207) = -5.45, p < .001). Additionally, there were significant differences in civic involvement by race (F (5, 7204) = 29.33, p < .001). Using Bonferroni's correction, post hoc analyses showed that White adolescents were more civically involved than all of the minority adolescents. Within the minority groups, only Hispanic adolescents were found to be more civically involved than Black adolescents. Adolescents living with both biological parents were also found to be more civically involved than those adolescents who were not (t (7207) = 9.34, p < .001). Correlations (Table 2) between civic involvement and parent education showed that increases in parents' education is positively and significantly associated with civic involvement in emerging adulthood.

Correlations (Table 2) amongst civic involvement and the other study variables indicate that there are significant, positive relationships between civic involvement in emerging adulthood and each indicator of childhood neighborhood assets, family social capital, and school social capital during adolescence. Thus, greater childhood assets and higher levels of family and school social capital are linked to greater civic involvement in emerging adulthood.

Finally, an unconditional random intercept model was tested (not shown) to examine the between- and within-community variability of civic involvement in emerging adulthood. This is the first step in establishing the appropriateness of testing a multilevel model. The population mean for adolescent civic engagement was found to be significant ($\gamma_{00} = 2.42$, $p < .001$), indicating that there is variability across groups and justifies the use of multilevel models. Between- and within-community level variances of adolescent civic engagement were 0.22 and 2.24, respectively. This yields an interclass correlation of 0.09; although somewhat low, both variance estimates were significant ($p < .001$).

Family Social Capital

Bivariate analyses found that boys reported stronger parent-child bonds (t (7207) = 3.876, $p < .001$) and family cohesion (t (7207) = 4.29, $p < .001$) than girls, while girls reported more shared family activities (t (7207) = -8.59, $p < .001$) than boys. Significant differences were also reported by race with respect to the parent-child bond (F (5, 7204) = 29.25, $p < .001$), shared family activities (F (5, 7204) = 61.58, $p < .001$), and family cohesion (F (5, 7204) = 25.07, $p < .001$). Using Bonferroni's correction, post-hoc analyses showed that Black adolescents had stronger parent-child bonds compared to all other ethnic groups, and Asian adolescents reported stronger parent-child bonds compared to Hispanic and White adolescents. White adolescents reported more shared activities with their family compared to Hispanic and Asian adolescents, and Black adolescents reported more shared activities compared to Hispanic and Asian adolescents. Black adolescents also reported greater family cohesion compared to Native American adolescents. Finally, adolescents in two parent-households reported weaker parent-child bonds (t (7207) = -21.51, $p < .001$), and less shared family activities (t (7207) = -9.96, $p < .001$), but greater family cohesion (t (7207) = 7.78, p

< .001). Correlations (Table 2) among the other study variables and the three indicators of family social capital are in the expected directions.

School Social Capital

Bivariate analyses found significant differences in reports of school social capital by race, family structure, and grade level. First, significant differences in school social capital in 1995 (F (5, 7204) = 10.83, $p < .001$) and 1996 (F (5, 7204) = 10.37, $p < .001$) were reported by race. Post-hoc analyses using Bonferroni's correction found that White adolescents reported more school social capital in 1995 compared to Black and Native American adolescents. Asian adolescents also reported greater school capital in 1995 compared to Black and Native American adolescents. In 1996, White and Asian adolescents reported greater school social capital compared to Hispanic, Black, and Native American adolescents. Second, adolescents in two parent households reported greater school social capital in 1995 (t (7207) = 10.51, $p < .001$) and 1996 (t (7207) = 11.33, $p < .001$) as well.

Finally, developmental research has documented declines in reports of student engagement through middle/junior high school, and high school (Marks, 2000). Findings from descriptive analyses of school social capital by grades in this study are consistent with the literature: significant differences in reports of school social capital were found by grade in 1995 (F (5, 7204) = 19.43, $p < .001$) and 1996 (F (7, 7202) = 5.92, $p < .001$). For reports of 1995 school social capital, post-hoc analyses found that seventh graders reported greater school social capital compared to eighth, ninth, tenth and eleventh graders. Eighth graders reported greater school social capital compared to ninth, tenth and eleventh graders. And high school seniors (twelfth graders) showed greater school social capital compared to tenth

and eleventh graders. In 1996, only eighth graders were found to report greater school social capital compared to ninth, tenth and eleventh graders.

A next step in analyzing differences between grades included testing whether school transitions influenced changes in reports of school social capital between 1995 and 1996; this was tested by fitting a measurement model for the residualized change score between the two waves of school social capital constructs. Through χ^2 difference testing (Bentler & Bonett, 1980), a model constraining factor loadings and a model not constraining factor loadings between the two waves were tested. The end result was a χ^2 difference of 29.8 with 5 degrees of freedom. This is significant, which means that we reject the notion that the factor loadings are equal at both waves. In other words, the reports (and experiences) of school social capital differ between the two waves, despite being only separated by one year.

In this study, school transitions were examined to determine whether they influence changes in school social capital. Transitions were hypothesized to happen between grades 8 and 9 (i.e., transition from middle school to high school) or grades 9 and 10 (i.e.,, transition from junior high to high school). The change in school social capital was measured by subtracting the 1995 reports from the 1996 reports. T-tests between those adolescents with hypothesized school transitions and those adolescents without school transitions found that adolescents who transitioned between grades 8 and 9 actually reported a smaller decrease in school social capital (t (7207) = 7.64, $p < .01$); similarly, adolescents who were hypothesized to experience a school transition between grades 9 and 10 reported a smaller decrease in school social capital (t (7207) = 21.02, $p < .001$). Correlations (Table 2) among the other study variables and school social capital are in the expected directions.

Direct Pathways

The first set of hypotheses set forth in this study pertained to the direct pathways between childhood neighborhood assets, adolescent family social capital, and changes in adolescent school social capital on civic involvement in emerging adulthood. A summary of the results from the incremental multi-level SEM models of civic involvement in emerging adulthood are provided in Table 4. All models included a latent variable of childhood neighborhood assets as a predictor. A discussion of each model follows.

First, as shown in the base model (Model 0), childhood neighborhood assets were significantly related to civic involvement in emerging adulthood ($\beta = 0.51$, $p < .001$), whereby a one unit increase in childhood neighborhood assets results in a 0.51 standard deviation increase in civic involvement in emerging adulthood. This also provides preliminary support for the first hypothesis that childhood neighborhood assets have longitudinal associations with civic involvement in emerging adulthood. These assets account for 28% of the between-community variance in civic involvement in emerging adulthood.

In Model 1, adolescent and family demographic characteristics were included in the model. Males were less civically involved compared to females ($\beta = -0.08$, $p < .001$), which supports the findings from the simple descriptive analyses. Compared to White adolescents, Hispanic adolescents and adolescents of other minority status were found to be less civically involved ($\beta = -0.04$, $p < .01$, $\beta = -0.04$, $p < .01$, respectively). Adolescents living with both biological parents ($\beta = 0.07$, $p < .001$) and parents with higher levels of education ($\beta = 0.30$, $p < .001$) were found to be more civically involved as well. Again, the findings from the multi-level SEM models align with the results from simple descriptive analyses. The direct

influence of childhood neighborhood assets on civic involvement in emerging adulthood became non-significant, providing support for the hypothesized mediating pathways, which are discussed in the next section.

In Model 2, family social capital variables were added. As hypothesized, high levels of family social capital were positively linked to civic involvement in emerging adulthood. Specifically, having strong parent-child bonds ($\beta = 0.07$, $p < .001$) and greater levels of shared family activities ($\beta = 0.12$, $p < .001$) positively predicted civic involvement in emerging adulthood six years later. The influence of family cohesion on civic involvement was not found to be significant. The demographic predictors maintained their significance, and the influence of childhood neighborhood assets on civic involvement was still non-significant once family social capital was included in the model as well.

After controlling for adolescent and family demographic characteristics, and family social capital, changes in school social capital were found to significantly and positively predict civic involvement in emerging adulthood (Model 3). As hypothesized, increases in school social capital positively predicted civic involvement in emerging adulthood. The influence of family social capital, and the demographic characteristics remained unchanged after adding the school social capital variables.

Mediating (Indirect) Pathways

The second set of hypotheses set forth in this study pertained to the mediating pathways between childhood neighborhood assets, adolescent family social capital, and changes in adolescent school social capital on civic involvement in emerging adulthood. Specifically, it was hypothesized that: (a) Childhood neighborhood assets would have an indirect effect on civic involvement in emerging adulthood through family social capital and

subsequent increases in school social capital in adolescence; and (b) family social capital would have an indirect effect on civic involvement in emerging adulthood through increases in school social capital.

As discussed in the previous section, once the demographic characteristics (Model 1), family social capital variables (Model 2), and school social capital variables (Model 3) were included in the models, the influence of childhood neighborhood assets was reduced by 73% between Model 0 and Model 1, and 11%, between Model 1 and Model 2. There was no further reduction in the coefficient of childhood neighborhood assets between Model 2 and Model 3. There were also no reductions in the effects of family social capital on civic involvement in emerging adulthood once the school social capital variables were included (Model 2 to Model 3). This provides evidence for the mediating hypotheses. Furthermore, between Model 1 and Model 3, within (individual and family level) variance explained increased 6% to 9%, and between (community level) variance remained at 73% (Raudenbush & Bryk, 2002). In order to elucidate these mediations, remaining path coefficients among mediating factors were estimated. These models are presented level in Table 5, and are based on Model 3.

First, in looking at the mediation of childhood neighborhood assets, the results in Table 5 demonstrate that childhood neighborhood assets are significantly and negatively linked to family cohesion ($\beta = -0.31$, $p < .05$). In turn, family cohesion was the only family social capital variable that was shown to be associated with childhood neighborhood assets and increases in school social capital ($\beta = 0.43$, $p < .001$) as well. Recall, in the incremental multi-level SEM analyses (Table 4), family cohesion was the only measure of family social capital that did not significantly predict civic involvement in emerging adulthood. Moreover,

family cohesion did not show any significant bivariate correlations with the three indicators of childhood neighborhood assets (Table 2). This suggests a potential suppressor affect that needs to be further decomposed, and only partial support for the hypothesis that childhood neighborhood assets indirectly influence civic involvement in emerging adulthood through family social capital and subsequent increases in school social capital in adolescence.

Similarly, the path coefficients in Table 5 did not provide evidence that the influence of family social capital would be mediated through increases in school social capital. The influence of the parent-child bond and shared family activities remained unchanged when the school social capital variables were included in Model 3, and the path coefficients in Table 5 show that the parent-child bond and shared family activities only predicted school social capital in 1995 ($\beta = 0.10$, $p < .001$; $\beta = 0.04$, $p < .01$, respectively), not changes into 1996. However, these results do provide further support for the direct effect hypothesis for family social capital on civic involvement in emerging adulthood.

Moderating Pathways

As shown in Figure 2, significant differences in civic involvement were found by neighborhood group, gender, and race. To explore these differences, multiple group and subgroup analyses were utilized and explained in further detail in the following sections.

Neighborhood Groups

Final analyses included tests of the moderation effects of childhood neighborhood assets to address the moderating hypothesis set forth in this study. Specifically, it was hypothesized that the influence of family and school social capital on civic involvement in emerging adulthood would be contingent on childhood neighborhood assets. A multiple

group multi-level SEM model was used to determine how the influence of family and school social capital, and the demographic characteristics (Model 3 as shown in Table 4) differed between adolescents living in neighborhoods defined as having low assets and neighborhoods having high assets. The two groups of neighborhoods were defined according to the asset scores (sum of the three neighborhood indicators) received for each of the neighborhoods. Lower asset neighborhoods were ones that had asset scores that were less than or equal to a standard deviation below the mean (n = 1125), whereas higher asset neighborhoods were ones that had asset scores greater than or equal to one standard deviation above the mean (n = 1012); 4811 cases captured the range in-between one standard deviation below and one-standard deviation above the mean and were omitted in from the analysis.

To determine the potential moderating effect of neighborhood assets, χ^2 difference testing (Bentler & Bonett, 1980) between a model that constrained path coefficients and a model that did not constrain path coefficients between low neighborhood asset and high neighborhood asset groups were tested. The end result was a χ^2 difference of 315.48 with 12 degrees of freedom. This is significant at $p < .001$, which means that the null hypothesis that the path coefficients are equal for both groups is rejected. In other words, the relationships among adolescent family and school social capital, and civic involvement in emerging adulthood are expressed differently between neighborhood asset groups. As shown in Table 6, there are differential effects of family and school social capital, and demographic characteristics on civic involvement in emerging adulthood by neighborhood asset grouping. Specifically, for those adolescents whose childhood neighborhood environments were characterized as having lower assets, strong parent-child bonds ($\beta = 0.08$, $p < .05$), high levels of shared family activities ($\beta = 0.11$, $p < .001$), school social capital in 1995 ($\beta = 0.06$,

$p < .05$) and 1996 ($\beta = 0.06$, $p < .05$), and higher levels of parent education ($\beta = 0.21$, $p < .001$) positively predicted civic involvement in emerging adulthood. Being male ($\beta = -0.11$, $p < .001$), Hispanic ($\beta = -0.16$, $p < .001$), or other ethnic minority status ($\beta = -0.18$, $p < .001$) negatively predicted civic involvement in emerging adulthood for those adolescents whose childhood neighborhood environments were characterized as having low assets.

For those adolescents whose childhood neighborhoods were characterized as having high assets, higher levels of shared family activities ($\beta = 0.12$, $p < .001$), school social capital in 1996 ($\beta = 0.02$, $p < .05$), living with both biological parents ($\beta = 0.11$, $p < .01$), and having parents with higher education ($\beta = 0.23$, $p < .001$) positively predicted civic involvement in emerging adulthood. Being male ($\beta = -0.11$, $p < .001$) was associated with lower civic involvement in emerging adulthood. Compared to the lower asset neighborhoods, ethnicity did not predict civic involvement in the higher asset neighborhoods.

Post-hoc descriptive analyses found important differences in the demographic make-up of the low and high asset neighborhoods that must also be considered. Chi-square tests between the neighborhood grouping and ethnicity found that White adolescents were disproportionately represented in the high asset neighborhoods, while ethnic minority students were more likely to live in the neighborhoods with lower assets (χ^2 (5, N = 2399) = 1422.94, $p < .001$). Adolescents in high asset neighborhoods were also more likely to live in two parent households (χ^2 (1, N = 2399) = 229.73, $p < .001$), and have parents with higher education (t (2397) = -11.16, $p < .001$).

Demographic Groups

To explore how childhood neighborhood assets, adolescent family and school social capital, and the demographic characteristics influence civic involvement in emerging

adulthood differently by gender and race (Model 3 as shown in Table 4), multi-level SEM models were run separately for each subgroup. Multiple group analysis was not performed on the demographic groups because gender and race are adolescent-level (i.e., within-level) characteristics. For multiple group analysis, groups need to contain independent observations, and using a within-level grouping variable violates this independence (Muthen & Muthen, 2004). Table 7 shows the results from these models.

Differences in the influence of childhood neighborhood assets, and adolescent family and school social capital were found for males and females. For males, childhood neighborhood assets maintained a direct effect on civic involvement in emerging adulthood, while for females no significant effect of the neighborhood was found. At the family-level, greater family cohesion negatively predicted civic involvement for males ($\beta = -0.05$, $p < .05$), while for females a greater parent-child bond during adolescence positively predicted civic involvement six years later ($\beta = 0.08$, $p < .001$). Differences in the influence of school social capital were also found whereby, school social capital in both 1995 and 1996 positively predicted civic involvement in emerging adulthood for males, but only school capital in 1996 positively predicted civic involvement in emerging adulthood for females. Differences in school social capital were also found between racial groups with school social capital in 1995 and 1996 positively predicting civic involvement in emerging adulthood for White adolescents, but only school social capital in 1996 positively predicting civic involvement in emerging adulthood for minority (e.g., Black, Hispanic, Asian, Native American, and other) adolescents. This study is one of the first to explore gender and race differences in family, school, and neighborhood influences on civic involvement in emerging adulthood.

CHAPTER 5: DISCUSSION

This study contributes to the current literature by: 1) framing the concepts of adolescent family and school social capital, childhood neighborhood assets, and civic involvement in emerging adulthood under one cohesive theoretical framework; 2) being one of the first studies to explore the developmental antecedents of citizenship; and 3) advancing the empirical evidence for the associations between families, schools, neighborhoods, and civic involvement. Guided by Bronfenbrenner's ecological theory of human development and social capital theory, the study helped to examine the pathways that link childhood neighborhood assets, family and school social capital, and civic involvement in emerging adulthood. A summary of the hypotheses and findings is first discussed, followed by the implications of the findings on the existing literature, limitations of the study, and policy implications and future directions.

Summary of Hypotheses and Findings

The major findings from this study are illustrated in Figure 3 and the corresponding hypotheses are given in the parentheses. First, as indicated by the double-line arrows, the hypotheses regarding the direct effects of childhood neighborhood assets (1.a), adolescent family social capital (1.b), and early and changes in adolescent school social capital (1.c) had direct effects on civic involvement in emerging adulthood was supported. However, as the figure illustrates, only specific aspects of adolescent family social capital had a direct effect on civic involvement in emerging adulthood, mainly the parent-child bond and shared activities. Thus, it can be argued that the overall effect of neighborhoods, families and schools on civic involvement in emerging adulthood is primarily direct.

The effect of family cohesion (the third indicator of adolescent family social capital used in this study) on civic involvement was primarily indirect through changes in adolescent school social capital. This lends support to the hypothesis that the influence of family social capital on civic involvement in emerging adulthood would be mediated through changes in school social capital (2.b). It also highlights the fact that different dimensions of family social capital may exert an influence on civic involvement in different ways.

There is further support for the mediation pathway hypothesis as indicated by the dashed-line arrows connecting childhood neighborhood assets, family cohesion, changes in school social capital and civic involvement in emerging adulthood (Figure 1). In other words, while a direct effect of childhood neighborhood assets on civic involvement in emerging adulthood was found, that pathway became non-significant upon the addition of the demographic, family, and school characteristics. As such, the hypothesis that childhood neighborhood assets indirectly influence civic involvement in emerging adulthood through family social capital and subsequent increases in school social capital in adolescence was supported (2.a).

The final set of hypotheses addressed potential moderating effects of childhood neighborhood assets, gender, and race. First, with respect to the neighborhood assets (3.a), the vertical dashed line in Figure 3 represents the idea that differential effects of adolescent family and school social capital on civic involvement in emerging adulthood were found for different neighborhood groups. Specifically, those adolescents who had lived in childhood environments characterized as having lower neighborhood assets were not only more likely to be from an ethnic minority group, but also the parent-child bond and early school social

capital influenced their later civic involvement. These two indicators did not predict the civic involvement of emerging adults from higher asset neighborhoods.

Gender (3.b) and race (3.c) were also found to influence the relationship between childhood neighborhood assets, adolescent family and school social capital, and civic involvement in emerging adulthood. As discussed in more detail in the previous results section, the effect of childhood neighborhood assets and adolescent family and school social capital were expressed differently between males and females, and White and minority adolescents.

In sum, most of the hypotheses proposed in this study were supported: Adolescent family and school social capital were shown to have unique influences on reports of civic involvement in emerging adulthood, and the effect of childhood neighborhood assets was mediated by the degree of family cohesion in the adolescents' home. Moreover, the expression of neighborhood, family and school pathways to civic involvement in emerging adulthood were found to differ by neighborhood groups, gender and race. These results help to illustrate the importance of examining multi-contextual influences on civic involvement in emerging adulthood.

Implications of Findings on Existing Literature

Developmental Considerations

Understanding civic involvement in adolescence and emerging adulthood specifically is indeed a re-emerging and important field of research in the social and behavioral sciences. Particularly in the developmental field, which bears importance for this particular dissertation study, the disparate nature of the research contributes to developmentally discontinuous transitions for adolescents to becoming engaged citizens in adulthood (Larson, 2000; Sherrod

& Lauckhardt, 2009). Likewise, Putnam (1995) and Larson (2000) recognized the waning levels of engagement among youth, and recent statistics from the United States Bureau of Labor (2011) identified emerging adults in their early twenties as the least likely to volunteer. Coupled with the Obama administration's call for social responsibility, not only is it important to examine the consequences of civic engagement, but also the precursors to civic engagement.

As described in the literature review, the research on civic engagement spans multiple disciplines such as political science, sociology, and the developmental sciences, with each field defining civic engagement and its developmental roots in multiple ways. However, a common finding across all the disciplines is an understanding of the importance of affective ties and connections with people (Benson et al, 1998; Flanagan, 2004; Putnam, 1995, Portes, 1998; Youniss, McLellan, & Yates, 1997). For instance, using data from the *National Educational Longitudinal Survey* (NELS), Smith (1999) found that interpersonal connections through family, religious institutions (not addressed in this particular study), and extracurricular activities were significantly related to civic involvement in young adulthood. Research from the Search Institute's *Profiles of Student Life* (PSL-AB; e.g., Benson et al., 1998; Scales et al., 2000, 2006) and *4-H Study of Positive Youth Development* (4-H Study; e.g., Jelicic et al., 2007; Lerner et al., 2005; Theokas et al., 2005) have also found that multiple connections to family members, people at school, and people in the community facilitated greater engagement in and contributions to the family, community, and society.

This study contributes to this field of research by examining similar precursors to civic involvement in emerging adulthood using another established national dataset – the *National Longitudinal Study of Adolescent Health* (Add Health). It is important to examine

the exact or similar pathways to civic involvement to gain a comprehensive understanding of that developmental outcome. Indeed, although there are similarities across the datasets, the datasets differ with respect to sampling method and thus the cohort of youth captured; and finding similar results across different cohorts of youth enhances the external validity of those particular results. For instance, the NELS, 4-H study and Add health are all longitudinal panel designs. Specifically, the NELS followed the same group of adolescents from 1988 – 2000, so the adolescents were followed from eighth grade to emerging adulthood (about 26 years of age). The 4-H study was started in 2002 with a group of fifth-grade adolescents and data are still being collected. As described in the methods section in this dissertation, Add Health data followed a group of seventh-graders from 1995 – 2001. The PSL-AB uses a cohort-sequential design and collects data from sixth to twelfth graders in an annual survey.

In each of these datasets the social connections adolescents made with their family, school, and neighborhoods were linked to greater engagement in those areas of the adolescents' lives. Given the different samples, the results from this particular study can provide further evidence for the role that interpersonal relationships and connections (i.e., social capital) across multiple contexts play in the development of civic engagement in emerging adulthood. In other words, the fact that social capital in the family and school during adolescence were found to positively contribute to the development of civic involvement in emerging adulthood in this study strengthens the case for the role of interpersonal connections as important developmental roots of civic engagement in general.

Demographic Considerations

As discussed in the literature review, the expression of civic involvement has been shown to differ by gender and race (Alozie, et al., 2003; Flanagan et al., 1998, 2007; Hughes & Chen, 1997; Kuhn, 2004; Metzger & Smetana, 2008; Sherrod & Lauckhardt, 2009; Zaff et al., 2010). The research, however, has been limited to outcome-base comparisons; in other words, the research available on gender and race differences simply discusses which subgroup is more or less civically involved compared to the other, and not really the reason for these discrepant findings.

Where this study advances the existing literature is by being one of the first to specifically explore why and how the development of civic involvement in emerging adulthood differs by gender and race. In other words, the current study is able to detail not only that females and White adolescents are more civically involved, but also how the predictors to civic involvement differ for males and females, and White and minority adolescents. Indeed, results from this study illustrate how different neighborhood, family, and school mechanisms predict civic involvement within each gender and race subgroup.

Theoretical Considerations

The results of the current study reaffirm the findings of previous research on social capital. Consistent with social capital theory, the findings showed that adolescent family social capital, as measured by the parent-child bond and shared family activities, have a unique influence on civic involvement in emerging adulthood. Likewise, early and changes in adolescent school social capital were positively and independently related to civic involvement in emerging adulthood. In this way, the bonding capital adolescents gain through their relationships with parents and school members have unique contributions to the development of civic involvement. It is plausible then to suggest that both family and school

social capital exert independent and long-term influences on civic involvement in emerging adulthood.

While these unique influences are consistent with the research on bonding capital, the results do not provide robust support for the role of bridging capital. Recall, bridging capital defines the relationships that bring people in contact with diverse groups; that definition was applied in this study via the mediating pathways between neighborhoods, families, and schools. Only one significant mediating pathway was found from childhood neighborhood assets to family cohesion to increases in school social capital to civic involvement in emerging adulthood. Despite the limited results for significant mediations, the current study still contributes to the existing literature by synthesizing the research that has used social disorganization theory and the positive youth development framework to conceptualize the developmental precursors to civic involvement in emerging adulthood.

Moreover, this study is one of the first to put a positive spin on the influence of neighborhoods on outcomes in adolescence and emerging adulthood. Indeed, much of the research that has considered the role of neighborhoods and subsequently utilized multilevel modeling techniques have been based in social disorganization theory (e.g., Leventhal & Brooks-Gunn, 2000; Sampson et al., 1999; Spencer et al., 1997; Wickrama & Bryant, 2003) and focused on the impact of neighborhood adversity on health and well-being. Meanwhile, the positive youth development research has focused on potential "ecological assets" (Theokas et al., 2005); however, the influence of ecological assets has been limited to individual perceptions of those assets. When considering civic involvement in particular, it is important to include a discussion of structural neighborhood assets because during adolescence, youth become more directly exposed to neighborhood environments and the

presence of resources and neighborhood bonds can encourage civic involvement in emerging adulthood (Benson et al., 1998; Portes, 1998). Thus, by including structural neighborhood characteristics (a nod to social disorganization research), but conceptualizing them as assets (a nod to the positive youth development framework), this dissertation is able to provide a novel way of examining the ecological influences on the development of adolescents and emerging adults, in particular their civic development.

Limitations of the Study

The findings of the study, however, cannot be considered without recognition of the limitations of the study. First, the discussion is limited to the behavioral component of civic engagement, mainly civic involvement, and not civic engagement as a whole. The measure of civic participation and citizenship in the *Add Health* dataset does not include items that reflect the cognitive and emotional components of civic engagement and is only captured at one wave. Second, while the study distinguishes three time frames to capture childhood neighborhood assets, family and school social capital in adolescence, and civic involvement in emerging adulthood, there are not enough time points to model trends beyond linear relationships. Compared to growth models, this technique does not effectively capture potential curvilinear trajectories within and between those constructs over time; however, family and school social capital may follow curvilinear trends during adolescence (Bankston & Zhou, 2002; Gutman & Eccles, 1997). Likewise, the use of early neighborhood measures (1990 Census) is another potential limitation given that neighborhood environments change over time and these changes can influence adolescent outcomes. Demographically, the definition of family structure may be biased against ethnic minority families given that relatives and non-relative were omitted. Future research should consider the heterogeneity of

family structure and how it could contribute to the differences in the pathways. Another measure-related limitation is the use of adolescents' self-reports for both the family and school social capital constructs, rather than include parent and teacher reports of social capital as well. The omission of parent and teacher reports may create collinearity issues between the measures and the inability to assess bias due to reporting error.

Given these limitations, this study presupposes that the adolescents' reports of family and social capital, essentially adolescents' experiences and perceptions of the relationships within families and schools, is the mechanism through which families and schools influence adolescents' reports of their own civic involvement. Indeed, Coleman (1988) defines social capital as a resource available to a particular individual and positive youth development emphasizes the role of adolescent agency. The study also recognizes the transitory nature of family, school, and neighborhood influences on adolescent outcomes. Overall, the use of adolescents' reports and the proposed multi-level model are anticipated to provide insights on the precursors and pathways to adolescent civic involvement.

Policy Implications and Future Directions

As aforementioned, there is political support for civic involvement as seen with the Obama administration's nationwide "United We Serve" initiative and the passing of the Edward M. Kennedy Serve America Act of 2009 (The Corporation for National and Community Service, 2010). Together these policies promote civic involvement as a way to meet the needs of the nation and its citizens. However, where the policies and programs currently fall short is the ability to provide a cogent definition of civic engagement and, subsequently, comprehensive programs that encourage the development of civic attitudes,

values, and behaviors. Indeed, civic engagement, at large, is a multi-faceted concept that naturally marries the fields of political science, sociology, developmental psychology, and education. Synergy amongst these disciplines is necessary to translate the mission of the civic agenda presented by the current administration into effective implementation. However, the research has been disparate with respect to discipline-specific concepts. The aim of this study was to provide at least one way to synthesize the terms, concepts, and ideas across the disciplines and operationalize the civic engagement process in youth.

Based on this study's framework, the main take home message is that positive and supportive social relationships in the home and school are crucial for development of civic involvement in emerging adulthood. In other words, positive and supportive social relationships must precede the implementation of civic programs and policies to effectively inform and encourage adolescents and emerging adults to become civically involved. This idea is particularly important given that the current conversation on civic education tends to focus on institutional-level policies and change.

Nevertheless, more research, both quantitative and qualitative, is needed to provide evidence-based approaches to informing these policy and program changes. For instance, basic research on the definitions and dimensions of civic engagement are needed. On the quantitative side, confirmatory factor analysis or item response theory can help with scale development and construct validation. On the qualitative side, focus group discussions may be particularly helpful to elucidate the common ideas and attitudes children, adolescents, and adults have about and toward civic engagement. Additionally, mixed method approaches may contribute to the evaluation and assessment of current civic education programs. Taken

together, future research should work to define, implement, and evaluate civic engagement as a construct, policy and program.

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Figure 1.

A model illustrating pathways connecting childhood neighborhood assets with family and school social capital, and civic involvement in emerging adulthood

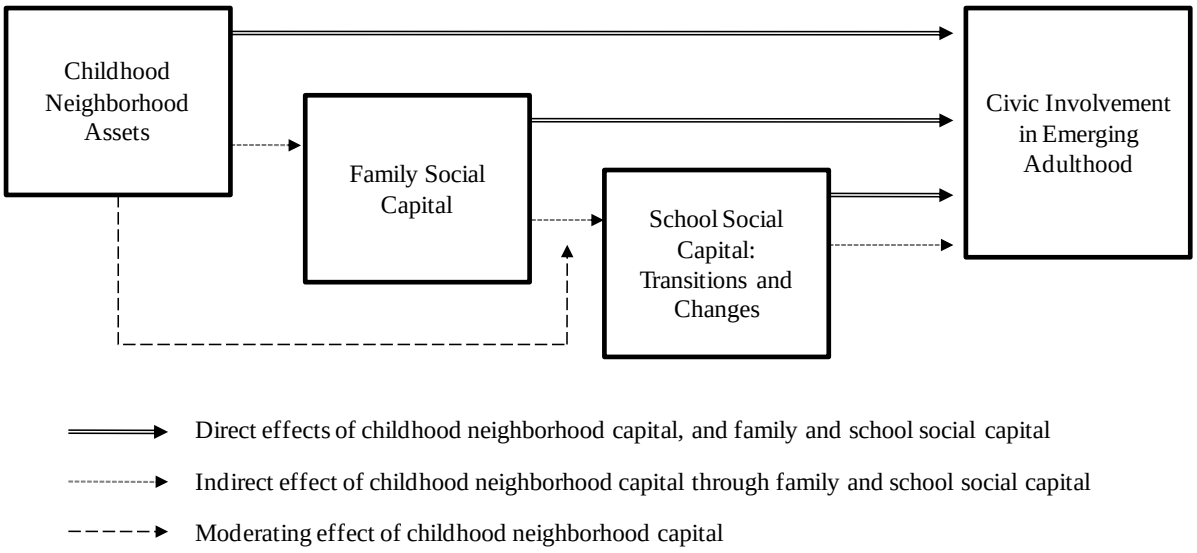


Figure 2.

A plot of civic involvement by groups: gender, race, and childhood neighborhood assets

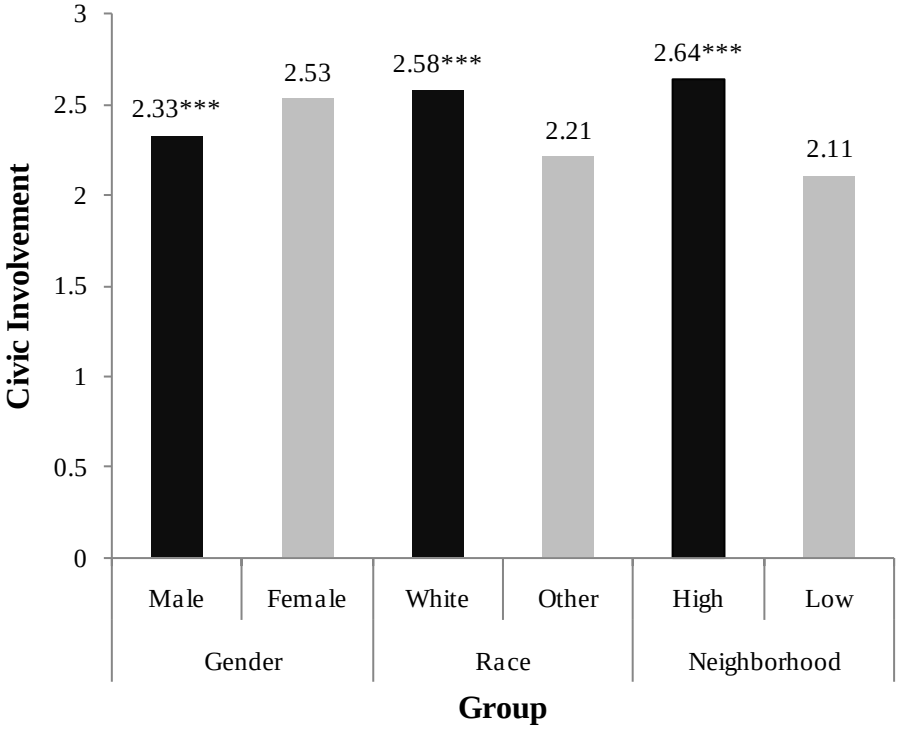


Figure 3.

Illustration of direct and indirect pathways linking childhood neighborhood assets, adolescent family and school social capital, and civic involvement in emerging adulthood

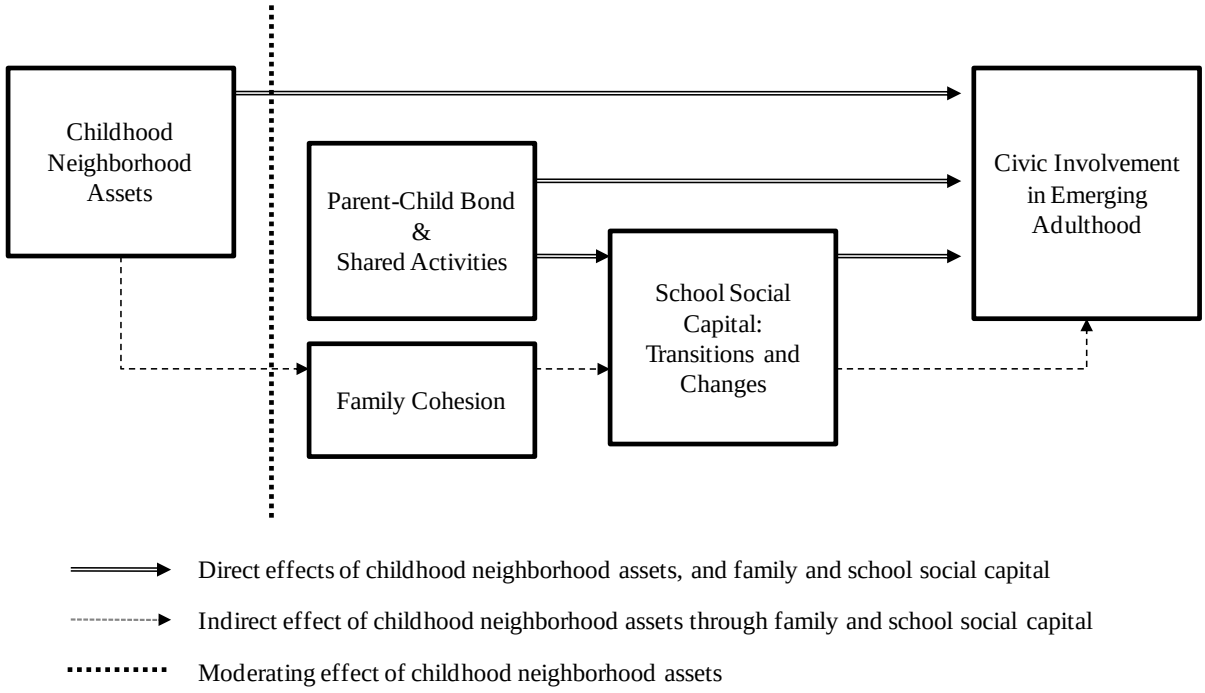


Table 1.

Descriptive statistics of study variables (N=7209)

	Min	Max	Mean	SD	Skew	ICC
Civic Involvement	0	6	2.44	1.57	0.19	0.09
Childhood Neighborhood Assets						
Lack of Community Poverty	1.38	2.94	2.64	0.25	-1.72	
Residential Stability	0	1.76	1.22	0.27	-0.85	
Ethnic Homogeneity	1.07	3	2.48	0.47	0.64	
Family Social Capital						
Parent-Child Bond	18	236	71.11	10.34	-0.02	0.04
Shared Activities	2	20	7.43	3.59	0.50	0.03
Family Cohesion	3	20	16.11	2.74	-0.78	0.03
School Social Capital						
Capital (1995)	1	30	21.94	4.80	-1.12	0.06
Capital (1996)	1	30	21.19	5.93	-1.44	0.05
Demographics						
Age (1995)	11.39	21.19	15.56	1.59	0.10	
Gender (male)	0	1	0.46	0.50	0.16	
Race						
White	0	1	0.63	0.48	-0.52	
Black	0	1	0.18	0.39	1.65	
Hispanic	0	1	0.11	0.32	2.47	
Other	0	1	0.08	0.27	3.09	
Two-parent household	0	1	0.68	0.47	-0.76	
Parent education	0	18	10.99	4.43	-0.15	

Table 2.

Correlation coefficients amongst study variables (N = 7209)

	1	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*
1. Civic Inv	-								
2. Lack of Poverty	**.12**	-							
3. Res. Stability	**.07**	**.35**	-						
4. Eth. Homogeneity	**.11**	**.58**	**.41**	-					
5. Parent-Child bond	**.11**	**-.08**	-.00	**-.06**	-				
6. Shared Activities	**.19**	**.04**	.02	**.03**	**.28**	-			
7. Family Cohesion	**.09**	-.01	-.00	-.02	**.50**	**.20**	-		
8. School (1995)	**.16**	.07	**.06**	.06	**.25**	**.13**	**.37**	-	
9. School (1996)	**.17**	.07	**.05**	**.04**	**.16**	**.10**	**.27**	**.48**	-
10. Age (1995)	**-.03**	**-.04**	-.02	-.01	**-.15**	**-.06**	**-.16**	**-.14**	**-.18**
11. Gender (male)	**-.06**	**.04**	.01	.02	**.05**	**-.10**	**.05**	.02	.00
12. White	**.12**	**.41**	**.29**	**.62**	**-.07**	**.03**	-.00	**.06**	**.07**
13. Black	**-.02**	**-.49**	**-.10**	**-.45**	**.14**	.02	**.03**	**-.05**	**-.05**
14. Hispanic	**-.12**	**-.06**	**-.24**	**-.26**	-.01	**-.04**	.01	.02	**-.04**
15. Other	**-.04**	**.03**	**-.10**	**-.16**	**-.06**	**-.03**	**-.04**	**-.02**	-.01
16. Two-parent HH	**.11**	**.24**	**.11**	**.17**	**-.25**	**-.12**	**.09**	**.12**	**.13**
17. Parent Education	**.32**	**.24**	**.05**	**.14**	**.09**	**.16**	**.05**	**.11**	**.14**

Notes. bolded coefficients are significant at $p < .05$

Table 2 cont'd.

Correlation coefficients amongst study variables (N = 7209)

	10	*11*	*12*	*13*	*14*	*15*	*16*	*17*
10. Age (1995)	-							
11. Gender (male)	**.06**	-						
12. White	**-.28**	.00	**-**					
13. Black	.02	**-.03**	**-.61**	-				
14. Hispanic	**.03**	.02	**-.46**	-.17	-			
15. Other	-.01	.01	**-.38**	**-.14**	**-.11**	-		
16. Two-parent HH	**-.06**	.02	**.20**	-.27	-.01	**.04**	-	
17. Parent Education	**-.08**	**.04**	**.16**	**-.03**	**-.23**	.02	**.11**	-

Notes. bolded coefficients are significant at $p < .05$

Table 3.

Descriptive Statistics for Each Stage of the Sample Selection Process

Measures	Core Wave 1	Filter 1	Filter 2	Filter 3	t/χ^2
Age (years) at Wave 1	16.03	15.56	15.56	15.59	1.789
Age (years) at Wave 3	-	21.42	21.42	21.42	1.568
Gender (male)	0.48	0.46	0.46	0.46	0.173
Non-Hispanic White	0.61	0.63	0.63	0.63	0.017
Two-Parent Household	0.65	0.68	0.68	0.68	1.397
Parent Education	10.83	10.99	10.99	10.99	-0.398
Family Social Capital					
Parent-child bond	70.92	71.11	71.12	71.11	0.937
Shared activities	7.29	7.42	7.43	7.43	1.040
Family cohesion	16.03	16.11	16.11	16.11	-0.314
School Social Capital (1995)	21.77	21.95	21.94	21.94	-0.473
School Social Capital (1996)	-	21.18	21.18	21.19	1.466
n	12, 105	7,260	7, 245	7, 209	

Notes. * $p < .05$; Filter 1 represents those adolescents who were interviewed and completed surveys in all three waves; Filter 2 represents those adolescent in filter 1 with valid measures on adolescent civic involvement; Filter 3 represents those adolescents in filter 2 with valid census tract data; Independent samples t-test or chi-squares were performed between adolescents in filter 1 and filter 3.

Table 4.

Testing theoretical model: standardized coefficients of multilevel model with fixed slopes predicting civic involvement in emerging adulthood

	Model 0: Neighborhood Assets	Model 1: Neighborhood & Demographics	Model 2: Neighborhood & Family	Model 3: Neighborhood, Family, & School
1. Childhood Neighborhood Assets	0.51***	0.25	0.25	0.24
2. Family Social Capital				
Parent-Child bond			0.07***	0.06***
Shared activities			0.12***	0.12***
Family cohesion			0.01	-0.03
3. School Social Capital				
Capital (1995)				0.06***
Capital (1996)				0.09***
4. Demographics				
Age		0.00	0.02	0.04**
Gender (male)		-0.08***	-0.07***	-0.07***
Race				
White (omitted)				
Black		0.01	0.03	0.01
Hispanic		-0.04**	-0.04**	-0.04**
Other		-0.04**	-0.03*	-0.03*
Two-parent household		0.07***	0.10***	0.09***
Parent education		0.30***	0.27***	0.26***
CFI	1.00	1.00	1.00	0.95
RMSEA	0.00	0.00	0.00	0.05
R^2 (level 1)		0.11	0.13	0.14
R^2 (level 2)	0.26	0.06	0.06	0.05

Notes: *** $p < .001$, ** $p < .01$, * $p < .05$

Table 5.

Standardized coefficients of associations among predictors of the complete model (Model 3) shown in Table 4

	Family Outcomes			School Outcomes	
	Parent-Child Bond	Shared Activities	Family Cohesion	Capital (1995)	Capital (1996)
1. Childhood Neighborhood Assets	-0.27	0.29	-0.31*	0.20	-0.06
2. Family Social Capital					
Parent-Child bond				0.10**	0.01
Shared activities				0.04**	0.02
Family cohesion				0.30***	0.09***
3. School Social Capital					
Capital (1995)					0.43***
Capital (1996)					
4. Demographics					
Age	-0.16***	-0.05***	-0.14***	-0.06***	-0.10***
Gender (male)	0.06***	-0.10***	0.05***	0.00	-0.00
Ethnicity					
White (omitted)					
Black	0.06***	-0.00	0.04*	-0.02	-0.02
Hispanic	0.02	0.00	0.02	-0.01	-0.02
Other	-0.04***	-0.03*	-0.04**	-0.02	-0.00
Two-parent household	-0.25***	-0.15***	0.09***	0.10***	0.07***
Parent education	0.11***	0.18***	0.05**	0.05***	0.07***

Notes: *** $p < .001$, ** $p < .01$, * $p < .05$

Table 6.

Standardized coefficients of moderation among predictors of the complete model (Model 3) shown in Table 4

	Lower Assets	Higher Assets
1. Family Social Capital		
Parent-Child bond	0.08*	0.05
Shared activities	0.11***	0.12***
Family cohesion	-0.06	0.02
2. School Social Capital		
Capital (1995)	0.06*	0.04
Capital (1996)	0.06*	0.08*
3. Demographics		
Age	0.04	0.00
Gender (male)	-0.11***	-0.11***
Ethnicity		
White (omitted)		
Black	-0.05	-0.04
Hispanic	-0.16***	0.00
Other	-0.18***	-0.02
Two-parent household	0.04	0.11**
Parent education	0.21***	0.23***

Notes: *** $p < .001$, ** $p < .01$, * $p < .05$; Model characteristics: χ^2(df) = 57.153 (14), CFI = 0.96, RMSEA = 0.05

Table 7.

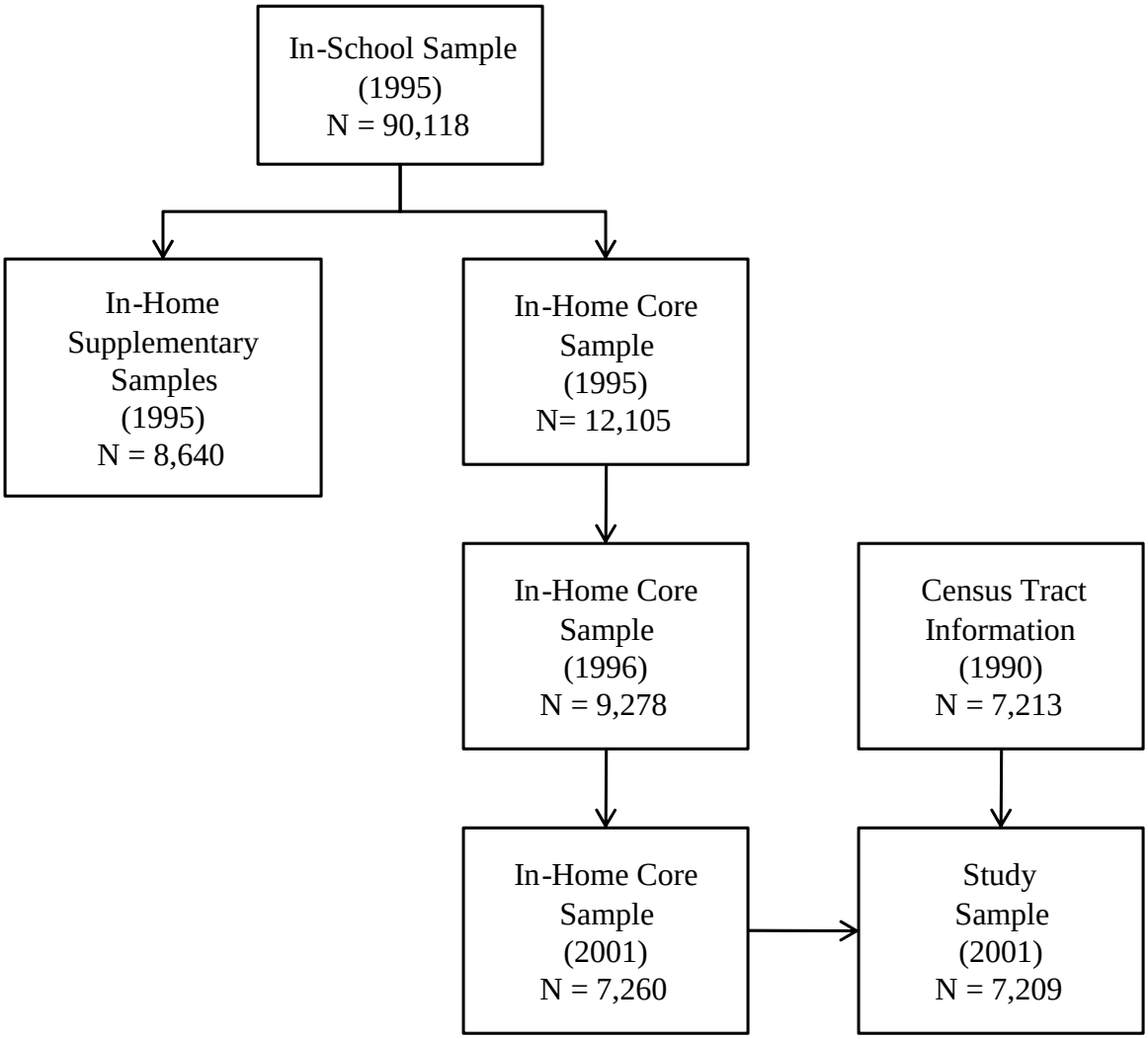
Standardized coefficients the complete model (Model 3) shown in Table 4 by gender and race

	Males (N = 3310)	Females (N= 3899)	White (N= 4514)	Other (N= 2695)
1. Childhood Neighborhood Assets	0.42*	0.13	-0.00	0.28
2. Family Social Capital				
Parent-Child bond	0.03	0.08***	0.04*	0.08***
Shared activities	0.12***	0.11***	0.12***	0.10***
Family cohesion	-0.05*	-0.02	-0.02	-0.04
3. School Social Capital				
Capital (1995)	0.08***	0.03	0.07***	0.03
Capital (1996)	0.10***	0.09***	0.08***	0.11***
4. Demographics				
Age	0.03	0.04*	0.04**	0.02
Gender (male)			-0.06***	-0.09***
Ethnicity				
White (omitted)				
Black	-0.01	0.03		
Hispanic	-0.05*	-0.03		
Other	-0.03	-0.04		
Two-parent household	0.08***	0.10***	0.10***	0.05*
Parent education	0.20***	0.30***	0.28***	0.22***
CFI	0.94	0.96	0.94	0.95
RMSEA	0.06	0.05	0.07	0.06
R^2 (level 1)	0.11	0.17	0.16	0.10
R^2 (level 2)	0.18	0.02	0.00	0.08

Notes: *** $p < .001$, ** $p < .01$, * $p < .05$

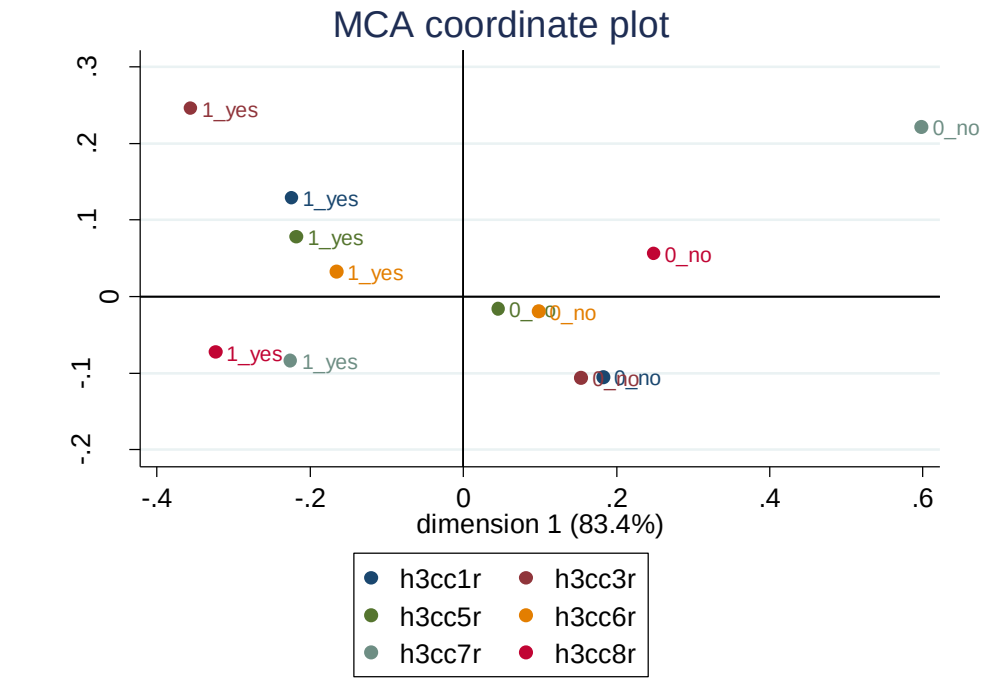
APPENDIX A

Flow chart illustrating sample size selection



APPENDIX B

Scatterplot of Category Points of Multiple Correspondence Analysis for Adolescent Civic Involvement



APPENDIX C

Items Used as Indicators for Family and School Social Capital Composites

Indicator	Item(s)
Parent-Child Bond (1995)	How close do you feel to your {Mother/Adoptive Mother/Stepmother/Foster Mother/ etc.; Father/Adoptive Father/Stepfather/Foster Father/etc.}? How much do you think she/he cares about you? 1 = not at all, 2 = very little, 3 = somewhat, 4 = quite a bit, 5 = very much On a scale of 1 to 5, where 1 is low and 5 is high, how disappointed would she/he be if you did not graduate from college? From high school? Most of the time, your {mother/father} is warm and loving toward you; You are satisfied with the way your {mother/father} and you communicate with each other; Overall you are satisfied with your relationship with your {mother/father}. 1 = strongly disagree, 2 = disagree, 3 = neither agree or disagree, 4 = agree, 5 = strongly agree Your mother encourages you to be independent; When you do something wrong that is important, your mother talks about it with you and helps you understand why it is wrong. 1 = strongly disagree, 2 = disagree, 3 = neither agree or disagree, 4 = agree, 5 = strongly agree
Shared Activities (1995)	Which of the things on this card have you done with you {Mother/ Adoptive Mother / Stepmother / Foster Mother/ etc; Father/Adoptive Father / Stepfather / Foster Father/ etc.}: gone shopping; played a sport; gone to a religious service or church-related event; talked about someone you're dating, or a party you went to; gone to a movie, play, museum, concert, or sports event; had a talk about a personal problem you were having; had a serious argument about your behavior; talked about your school work or grades; worked on a project for school; talked about other things you're doing in school; none 0 = no, 1 = yes
Family Cohesion (1995)	How much do you feel that your parents care about you; that people in your family understand you; that you want to leave home; that you and your family have fun together; that your family pays attention to you? 1 = not at all, 2 = very little, 3 = somewhat, 4 = quite a bit, 5 = very much
School Social Capital (1995, 1996)	How much do you feel that your teachers care about you? 1 = not at all, 2 = very little, 3 = somewhat, 4 = quite a bit, 5 = very much You feel close to people at your school; You feel like you are a part of your school; You are happy to be at your school; The teachers at your school treat students fairly; You feel safe in you school 1 = strongly disagree, 2 = disagree, 3 = neither agree or disagree, 4 = agree, 5 = strongly agree

APPENDIX D

Statement from IRB

Originally deemed not HSR on 4/14/10 AE

IOWA STATE UNIVERSITY
OF SCIENCE AND TECHNOLOGY

Institutional Review Board
Office for Responsible Research
Vice President for Research
1138 Pearson Hall
Ames, Iowa 50011-2207
515 294-4566
FAX 515 294-4267

Date: 2/23/2011

To: K.A.S Wickrama
2625 N Loop Dr, Suite 2500

From: Office for Responsible Research

Title: The National Longitudinal Study of Adolescent Health (ADD Health)

The Co-Chair of the ISU Institutional Review Board (IRB) has reviewed the project noted above and determined that the project:

☒ Does not meet the definition of research according to federal regulations.

☒ Is research that does not involve human subjects according to federal regulations.

Accordingly, this project does not need IRB approval and you may proceed at any time. We do, however, urge you to protect the rights of your participants in the same ways you would if IRB approval were required. For example, best practices include informing participants that involvement in the project is voluntary and maintaining confidentiality as appropriate.

Please also know that **any change** to this project must be communicated to the IRB to determine if the project has become research with human subjects requiring IRB approval.