

Child Social Development in Context: An Examination of Some Propositions in Bronfenbrenner's Bioecological Theory

SAGE Open
April-June 2015: 1–14
© The Author(s) 2015
DOI: 10.1177/2158244015590840
sgo.sagepub.com
 SAGE

Godwin S. Ashiabi¹ and Keri K. O'Neal²

Abstract

In his later writings, Bronfenbrenner revised his ecological theory, resulting in the bioecological model that gave prominence to proximal processes and the relationship between the context and individual characteristics. Drawing on the bioecological model, we hypothesized that (a) contextual influences will be mediated by proximal processes, (b) proximal processes will have a more powerful impact on children's development than contextual factors, and (c) the effect of contextual and proximal processes will vary as a function of child characteristic and developmental outcome. Data used were from a sample of 28,064 six- to eleven-year-olds in the 2007 National Survey of Children's Health. A multigroup structural equation model that employed a process-person-context research design was used to analyze the data. In general, support was found for the mediational hypothesis and the hypothesis that the impact of contextual factors and proximal processes varies as a function of person and the developmental outcome. Partial support was found for the hypothesis that proximal processes exert a more powerful effect on development than contextual factors.

Keywords

Bronfenbrenner, bioecological theory, children, neighborhood social capital, social development

This study was designed to investigate a number of theoretical propositions based on a collection of essays by Urie Bronfenbrenner from the mid-1990s to the 2000s that highlight a metamorphosis in his ecological systems theory to a bioecological model of human development (Bronfenbrenner, 1994, 1995b, 1999; Bronfenbrenner & Ceci, 1994; Bronfenbrenner & Evans, 2000; Bronfenbrenner & Morris, 2006). One reason for our investigation is that, two relatively recent essays have drawn attention to the misunderstandings and (mis)application of Bronfenbrenner's bioecological theory (Darling, 2007; Tudge, Mokrova, Hatfield, & Karnik, 2009). Tudge et al. (2009) in a review of 25 studies that used Bronfenbrenner's ecological theory concluded that only four of those tested the more recent forms of the theory. They concluded that to avoid misleading readers, investigators should clearly specify (a) whether they are using Bronfenbrenner's "older ecological theory" or the "newer bioecological model," and (b) which portions of the older or newer model are used in an investigation.

Another reason for this examination is that not all aspects of Bronfenbrenner's (1995a, 1995b; Bronfenbrenner & Ceci, 1994; Bronfenbrenner & Evans, 2000) theory have been investigated. For example, Leventhal and Brooks-Gunn (2000) argued that there is limited research examining meso-systems; specifically, the association between neighborhoods and family/parenting—two microsystems that contain the

developing child and are salient to children's development. Consequently, we examine how aspects of the microsystem—neighborhoods, parenting, and family factors are associated. We also examine Bronfenbrenner's arguments (Bronfenbrenner, 1995a; Bronfenbrenner & Ceci, 1994; Bronfenbrenner & Evans, 2000) that proximal processes exert a more powerful influence on developmental outcomes than contextual factors, and that the influence of proximal processes vary as a function of the person, context, and developmental outcome.

We were also motivated for this undertaking by Bronfenbrenner's (1995a) suggestion that he hoped his work "would impel others to seek closure and yield scientific insights" (pp. 619-620). Thus, we are challenged to examine aspects of Bronfenbrenner's bioecological theory bearing in mind that all the varied aspects of his theory cannot be examined in a single investigation (Bronfenbrenner, 1999).

Before proceeding with our investigation, we first outline the main elements of Bronfenbrenner's bioecological theory,

¹Gulf University for Science & Technology, West Mishref, Kuwait

²California State University, Hayward, USA

Corresponding Author:

Godwin S. Ashiabi, Gulf University for Science & Technology, Block 5, Building 1, Mubarak Al-Abdullah Area, West Mishref, Kuwait City, Kuwait.
Email: ashiabi.g@gust.edu.kw



Creative Commons CC BY: This article is distributed under the terms of the Creative Commons Attribution 3.0 License

(<http://www.creativecommons.org/licenses/by/3.0/>) which permits any use, reproduction and distribution of the work without further permission provided the original work is attributed as specified on the SAGE and Open Access page (<http://www.uk.sagepub.com/aboutus/openaccess.htm>).

starting with his ecological systems view of human development to its current focus on proximal processes and suggested research designs for examining the theory. We then lay out our hypotheses for this investigation based on propositions outlined in Bronfenbrenner's theory. After that, we examine research that links the contextual aspects of Bronfenbrenner's theory to proximal processes, and ultimately, children's socioemotional development.

In its earliest inception, Urie Bronfenbrenner's ecological model (Bronfenbrenner, 1977b, 1979) gave prominence of place to the environment and divided an individual's environment into nested and interrelated systems: the microsystem, mesosystem, macrosystem, and exosystem. The microsystem is the immediate environment in which the child lives. Microsystems include any immediate relationships or organizations the child interacts with, such as, the family, peer group, or school setting. The mesosystem describes interrelationships between different microsystems. For example, parental involvement in children's schooling can have a positive influence on children's academic competence through children's valuing of academics. The exosystem level has indirect effect on an individual's developmental outcome and is the setting in which the individual does not actively participate. Examples of the exosystem include the parents' workplace. Events happening at the workplace can affect children through how parents interact with their children. Bronfenbrenner's final level is the macrosystem. It involves the society, and includes cultural values and describes the economic conditions under which families live (Bronfenbrenner, 1976), along with material resources, and opportunity structures (Bronfenbrenner, 1994). The interrelations among these nested environments allow for examination of how patterns of interactions within these systems influence each other and affect individuals' developmental outcomes (Bronfenbrenner, 1977a, 1979).

Bronfenbrenner refined and revised his theory to what would come to be known as his bioecological model. During this time, more concern was given to differentiating between the concepts of environment, the person, proximal process, and the concept of time as they relate to human development (Bronfenbrenner, 1995a, 1999; Bronfenbrenner & Evans, 2000). Specifically, Bronfenbrenner placed greater emphasis on proximal processes and called them "the engines of development" (Bronfenbrenner & Evans, 2000, p. 118).

In two interrelated propositions he outlined the centrality of proximal processes. First, Bronfenbrenner (1995a) argued that

... human development takes place through the processes of progressively more complex reciprocal interaction between an active, evolving biopsychological human organism and the persons, objects, and symbols in its immediate external environment. To be effective, the interaction must occur on a fairly regular basis over extended periods of time. Such enduring forms of interaction in the immediate environment are referred to as proximal processes. (p. 620)

In the developing child, an example of such enduring patterns of proximal processes would be parent-child interactions. Bronfenbrenner and Ceci (1994) suggested that proximal processes (a) are the mechanisms through which developmental potentials are actualized and (b) exert a more powerful influence on developmental outcomes than contextual factors.

In his second proposition, Bronfenbrenner (1995a) and Bronfenbrenner and Evans (2000) posited that

the form, power, content, and direction of the proximal processes affecting development vary systematically as a joint function of the biopsychological characteristics of the developing person; of the environment, both immediate and more remote, in which the processes are taking place; and the nature of the developmental outcomes under consideration. (p. 621)

Proposition 2 suggests that to understand the impact of proximal processes on developmental outcomes, we have to focus attention on the person, the context, and developmental outcome under consideration.

Bronfenbrenner (1999) outlined the properties of proximal processes as follows:

(a) the individual must engage in an activity, (b) to be effective, the activity must take place on a fairly regular basis over an extended period of time, and become increasingly complex, and (c) proximal processes are not limited to interpersonal interactions; they can also involve interaction with objects and symbols. (pp. 5-6)

What is evident from Bronfenbrenner's discussion is that proximal processes can take on different shapes and form—persons, objects, or activities—proximal processes have to have regularity, and be free from interruptions to become increasingly complex.

Bronfenbrenner (1995a) and Bronfenbrenner and Evans (2000) argued that an adequate test of the bioecological model requires a new form of research design that draws on the two propositions relating to (a) the nature of proximal processes and (b) how proximal processes interact with person and context to influence particular developmental outcomes. Such a research design Bronfenbrenner and Evans (2000) termed the "process-person-context-time (PPCT) model" (p. 621).

We acknowledge at the outset that given that our study relies on secondary analyses of cross-sectional data, it placed some constraints on our ability to implement all elements of Bronfenbrenner's theory. Specifically, we were unable to assess the time dimension of the theory. Consequently, we employed what may be termed a limited version of the PPCT research design. Specifically, we use a process-person-context (PPC) design to examine in a multigroup structural equation model (SEM) the associations among predictors of children's positive and negative social behaviors.

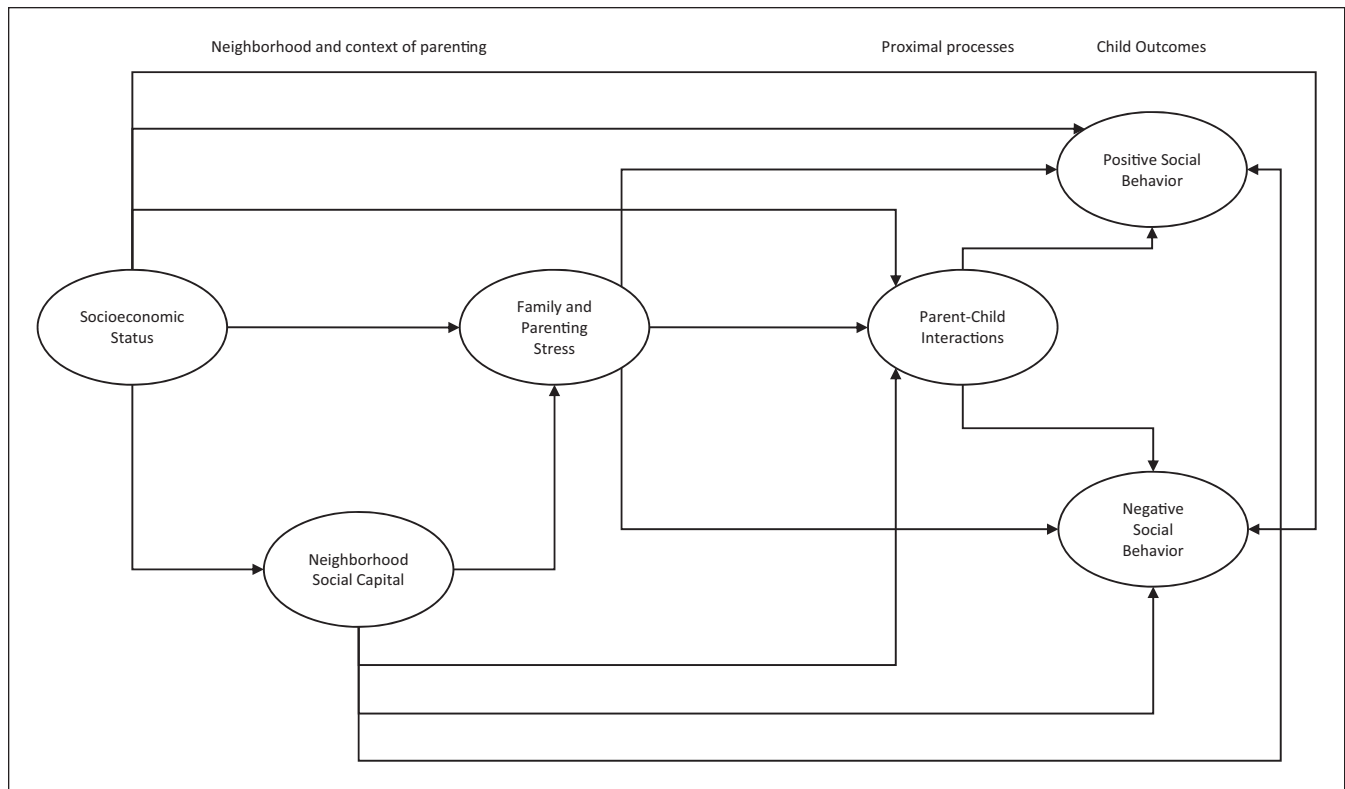


Figure 1. Hypothesized model of neighborhood, context of parenting, proximal processes, and child outcomes.

In using the PPC model (Figure 1), we examined whether the associations among socioeconomic status (SES; macro-system construct), neighborhood social capital, family and parenting stress (microsystem factors), parent–child interactions (proximal processes), and children’s positive and negative social behaviors (developmental outcomes) differed between male and female children (child characteristic).

Drawing on Bronfenbrenner’s bioecological theory, we hypothesize that (a) contextual influences (SES, a macrosystem construct, and neighborhood and parenting factors, microsystem constructs) will be mediated by proximal processes (parent–child interactions), (b) proximal processes will have a more powerful impact on children’s developmental outcomes than contextual factors, and (c) the effect of contextual and proximal processes will vary as a function of child characteristic (child gender). Our choice of childhood as a test of Bronfenbrenner’s theory is driven by the fact that younger children are heavily dependent on their parents, thus, contextual and family factors are more likely to have a greater influence on their developmental outcomes.

We now turn our attention to the examination of research linking contextual factors and proximal processes to children’s developmental outcomes. We start by examining the association among SES, family and parenting factors, and child outcomes. We then assess the links between neighborhood factors and child developmental outcomes. In examining the influence of contextual factors, we also discuss the mediating role of proximal processes.

Contextual Influences and Child Development

SES and Child Outcomes

There is a great body of evidence linking SES (a macrosystem construct) to children’s socioemotional competence, although the association is not as strong (Barajas, Philipsen, & Brooks-Gunn, 2008) and consistent as the link with cognitive development (Bradley & Corwyn, 2002). Studies of children have found associations between SES and psychological well-being (Costello, Compton, Keeler, & Angold, 2003). Children in families with limited financial resources compared with their more affluent peers are more likely to experience a variety of socioemotional difficulties, such as behavioral problems (Anthony, Anthony, Morrel, & Acosta, 2005), internalizing and externalizing symptoms (Duncan, Brooks-Gunn, & Klebanov, 1994), problematic peer relations, and disruptive classroom behaviors (Patterson, Kupersmidt, & Vaden, 1990).

SES and Family and Parenting Effects

Parents, a microsystem for their children, are also impacted by socioeconomic circumstances. Parents from lower SES backgrounds often experience higher levels of parenting stress, psychological distress, and depression (Klebanov, Brooks-Gunn, Chase-Landsdale, & Gordon, 1997; Leventhal

& Brooks-Gunn, 2000; Pearlin, Menaghan, Lieberman, & Mullan, 1981) than their higher SES counterparts. Pinquart and Sörensen (2000) identified four ways in which SES may affect adult psychological well-being via (a) positive appraisal of one's life; (b) improved quality of life; (c) low material resources that contribute to economic strain and, thus, psychological distress; and (d) the prevention of stressors and increased coping abilities through the availability of material and other resources.

Neighborhoods and Child Outcomes

Neighborhoods, a microsystem construct, are also linked with children's developmental outcomes. The associations between neighborhoods and children's behavioral and emotional problems are less consistent than those reported for cognitive and school outcomes (Leventhal & Brooks-Gunn, 2000). However, the relationship remains even after controlling for family socioeconomic circumstances and parental characteristics (Leventhal & Brooks-Gunn, 2000; Sampson, Morenoff, & Gannon-Rowley, 2002).

Children raised in poor neighborhoods are at an increased risk for a number of negative outcomes including internalizing and externalizing behavior problems (Beyers, Bates, Pettit, & Dodge, 2003; Chase-Lansdale & Gordon, 1996; Chase-Lansdale, Gordon, Brooks-Gunn, & Klebanov, 1997), delinquency, mental health issues (Evans, 2004; Leventhal, Dupere, & Brooks-Gunn, 2009; Sampson et al., 2002), conduct disorders (Aneshensel & Sucoff, 1996), and delays in their cognitive and social development (Duncan, Yeung, Brooks-Gunn, & Smith, 1998). Although the level of neighborhood social capital, that is, the resources inherent within community networks may ameliorate some of these negative outcomes, the poorest neighborhoods often have the fewest readily available resources (Murray, Berkel, Gaylord-Hardon, Copeland-Linder, & Nation, 2011; Rankin & Quane, 2002; Sampson, Raudenbush, & Earls, 1997).

Neighborhoods and Parenting

Several studies (Chung & Steinberg, 2006; Dorsey & Forehand, 2003; Rankin & Quane, 2002; Vieno, Nation, Perkins, Pastore, & Santinello, 2010) have reported associations between aspects of neighborhood and parenting behaviors. For example, Chung and Steinberg (2006) in a study of how neighborhood structural and social characteristics, parenting, and peers impacted adolescents' delinquency reported that weak neighborhood social organization had an indirect effect on delinquency via parenting behaviors and peers. Similarly, Dorsey and Forehand (2003) in a study of how social capital, neighborhood dangerousness, and positive parenting relate to child psychosocial adjustment difficulties reported that social capital related to child psychosocial

adjustment difficulties through positive parenting and neighborhood dangerousness.

Processes and Child Development

What is clear from the research on SES, neighborhoods, and child developmental outcomes is that, both SES and neighborhood characteristics exert their effects on child development via parenting and proximal processes, such as, parent-child interactions and positive parenting behaviors. These views are in line with the family stress model (Conger et al., 1992, 1993; Conger, Ge, Elder, Lorenz, & Simons, 1994; McLoyd, Jayaratne, Ceballo, & Borquez, 1994). The family stress model suggests that SES impacts children's outcomes via parental mental health and family processes, and subsequently, adversely impacting parenting behaviors (Evans, 2004; Knerr, Gardner, & Cluver, 2013), which in turn, have deleterious impacts on children's well-being (Grant et al., 2003; Repetti, Taylor, & Seeman, 2002).

Some research on neighborhood effects on child development have found a meditational path via parental psychological distress, family processes, and parent-child relationship constructs (Kohen, Leventhal, Dahinten, & McIntosh, 2008; Kotchick, Dorsey, & Heller, 2005; Law & Barber, 2007; White, Roosa, Weaver, & Nair, 2009). Kohen et al. (2008) reported that lower neighborhood cohesion was associated with maternal distress and family dysfunction, which, in turn, were correlated to poor quality parenting behaviors, and ultimately, poorer child outcomes.

The literature reviewed shows that macro- and microsystem factors may affect children's development via proximal processes. Specifically, both SES and neighborhood effects operate by affecting parenting and family processes, parenting practices, interactions between parents and their children, and ultimately child outcomes. Furthermore, the review shows that the constructs selected to test Bronfenbrenner's theory and the associations among the constructs are well grounded in the literature.

Method

Data Survey and Design

The data used were from the National Survey of Children's Health (NSCH), 2007, a national cross-sectional telephone survey sponsored by the Maternal and Child Health Bureau of the Health Resources and Services Administration (Child and Adolescent Health Measurement Initiative [CAHMI], 2007). The NSCH was intended to examine the physical and emotional health of children aged 0 to 17 years, and the factors that may relate children's well-being (Blumberg et al., 2007). The NSCH used the sampling frame on the National Immunization Survey (NIS), a large-scale random-digit-dialed (RDD) telephone

survey designed to collect immunization history for children. For a detailed description of NSCH's data survey and design see Blumberg et al. (2007).

Data Collection and Sample

Computer-assisted telephone interviewing that started in April 2007 to July 2008 resulted in 91,642 completed child-level interviews. A letter was mailed prior to telephone calls. Potential responders used this number to alert interviewers that there were no children in their household, to ask questions about the study, or to complete an interview (Blumberg et al., 2007). Consent for participation was obtained when it was determined that a household contained an age-eligible child. The respondent was the adult in the household who was most knowledgeable about the sampled child's health and health care. In a majority of households, the respondent was the child's mother, father, or male/female guardian. For the present study, data on 28,064 children aged 6 to 11 years were used (Table 1).

Measures

Person characteristics

Gender of child. We used the gender of children to indicate person characteristics because Bronfenbrenner (2005; Bronfenbrenner & Morris, 2006) argued that biological characteristics of individuals can influence proximal processes and determine their developmental outcomes.

Macrosystem. We conceptualized family SES as a macrosystem construct because it (a) affects how the microsystemic factors function (Bronfenbrenner, 1977a), and (b) describes the economic conditions under which families live (Bronfenbrenner, 1976), and includes among other variables, material resources and opportunity structures (Bronfenbrenner, 1994).

Socioeconomic status. It was measured with three items: anyone in the household employed at least 50 weeks (0 = no, 1 = yes), income-poverty partitioned into eight levels based on US Department of Health and Human Services (USDHSS) guidelines (0 = *at or below 100% of poverty* to 8 = *above 400% poverty level*), and maternal education categorized into 3 levels (0 = *less than high school* to 3 = *more than high school*).

Micro- and mesosystem links. We used two constructs (neighborhood social capital and family and parenting stress) to assess the effects of the microsystem, the most immediate setting in which a child is situated (Bronfenbrenner, 1979, 1995a). Also, mesosystem effects—the relations between two microsystems (Bronfenbrenner, 1979, 1995a)—are depicted by the association between neighborhood social capital and family and parenting stress.

Neighborhood social capital. Four items were used as indicators of this construct. The questions asked respondents to indicate their level of agreement with the following statements (people help each other out, we watch out for each other's children, people I can count on, and adults nearby I can trust) on a 4-point scale (1 = *definitely agree* to 4 = *definitely disagree*). The items were reverse-coded such that a higher score represents increased neighborhood social capital.

Family and parenting stress. This construct was assessed with four observed indicators. Of these indicators, coping with the demands was measured on a 4-point scale (1 = *very well* to 4 = *not very well at all*); the other three indicators—child much harder to care for, child does things that really bother you, and how often felt angry with child—were measured on a 5-point scale (1 = *never* to 5 = *always*). Higher scores on these indicators indicated higher levels of family and parenting stress.

Proximal processes. Bronfenbrenner conceptualized proximal processes as the driving forces of development (Bronfenbrenner, 1999; Bronfenbrenner & Evans, 2000; Bronfenbrenner & Morris, 2006). Examples of proximal processes include playing with a child or reading activities, and the relations between people and objects and symbols they come into contact with (Bronfenbrenner & Morris, 1998). In prior research, proximal processes have been assessed by using parents' disciplinary practices (Riggins-Caspers, Cadoret, Knutson, & Langbehn, 2003) and educational interventions and family functioning (Campbell, Pungello, & Miller-Johnson, 2002). We conceptualized proximal processes using a proxy measure of parent-child interactions that assessed sensitivity to the child's interest and affect, development of reciprocity and regular routines, and active participation on the part of parent (Rosenberg, Robinson, & Beck, 1986).

Parent-child interaction. Three items were loaded on this factor: How well can you and your child share ideas or talk about things that really matter (reverse-coded: 1 = *not very well at all* to 4 = *very well*); in the past week, how many days did all members of the family eat together (0-7); and, during the past 12 months, how often did you attend events your child participated in (1 = *never* to 4 = *always*). A higher score indicates higher level of parent-child interaction.

Developmental outcomes

Positive social behaviors. This factor was made up of four items that asked parents to report on a 5-point scale (1 = *never* to 5 = *always*) the frequency with which children engaged in the following behaviors: gets along with other children; tries to understand other people's feelings; tries resolve conflicts with classmates, family, or friends; and shows respect for teachers and neighbors.

Table 1. Descriptives of Variables.

	Males: 6-11 years			Females: 6-11 years		
	<i>n</i>	<i>M</i> (<i>SD</i>)	Range	<i>n</i>	<i>M</i> (<i>SD</i>)	Range
Family structure						
Two parent, biological, or adopted	9,876	—	—	9,225	—	—
Two parent, step family	1,097	—	—	997	—	—
Single mother, no father present	2,299	—	—	2,196	—	—
Other family type	966	—	—	925	—	—
Race/ethnicity						
Hispanic	1,841	—	—	1,744	—	—
White, non-Hispanic	9,599	—	—	8,800	—	—
African American, non-Hispanic	1,401	—	—	1,336	—	—
Multi/Other, non-Hispanic	1,247	—	—	1,311	—	—
Child's sex	14,323	—	—	13,429	—	—
Child's age	14,323	8.52 (1.70)	6-11	13,429	8.55 (1.71)	6-11
Maternal age						
Socioeconomic status						
Poverty level	14,323	5.86 (2.42)	1-8	13,429	5.84 (2.43)	1-8
Maternal education	14,323	2.65 (0.06)	1-3	13,429	2.65 (0.06)	1-3
Anyone employed at least 50 weeks	14,323	0.92 (0.28)	0-1	13,429	0.91 (0.28)	0-1
Neighborhood social capital						
People help each other out	14,323	1.65 (0.75)	—	13,429	1.64 (0.73)	1-4
Watch out for each other's children	14,323	1.51 (0.75)	1-4	13,429	1.50 (0.74)	1-4
People I can count on	14,323	1.46 (0.77)	1-4	13,429	1.45 (0.77)	1-4
Adults nearby I can trust	14,323	1.38 (0.73)	1-4	13,429	1.38 (0.73)	1-4
Family and parenting stress						
Coping with demands of parenting	14,323	1.44 (0.53)	1-4	13,429	1.42 (0.52)	1-4
Child much harder to care for	14,323	1.66 (0.99)	1-4	13,429	1.55 (0.93)	1-4
Child does things that bother you	14,323	2.11 (0.89)	1-4	13,429	2.02 (0.86)	1-4
How often felt angry with child	14,323	2.20 (0.75)	1-4	13,429	2.13 (0.74)	1-4
Parent-child interactions						
You and child share talk about things	14,323	1.27 (0.51)	1-4	13,429	1.24 (0.47)	1-4
Family members eat together	14,323	5.28 (1.99)	0-7	13,429	5.31 (1.96)	0-7
Attend events child participated in	14,323	3.60 (0.67)	1-4	13,429	3.57 (0.69)	1-4
Positive social behaviors						
Child gets along with other children	14,323	4.39 (0.69)	1-5	13,429	4.45 (0.66)	1-5
Tries to understand people's feelings	14,323	4.05 (0.88)	1-5	13,429	4.21 (0.84)	1-5
Child tries to resolve conflicts	14,323	3.83 (0.97)	1-5	13,429	4.01 (0.92)	1-5
Show respect for teachers/neighbors	14,323	4.61 (0.65)	1-5	13,429	4.75 (0.54)	1-5
Negative social behaviors						
Child argues too much	14,323	2.76 (1.09)	1-5	13,429	2.75 (1.10)	1-5
Child bullies or mean to others	14,323	1.52 (0.78)	1-5	13,429	1.46 (0.75)	1-5
Child is disobedient	14,323	2.24 (0.87)	1-5	13,429	2.12 (0.87)	1-5
Child is stubborn, sullen, or irritable	14,323	2.49 (0.93)	1-5	13,429	2.49 (0.91)	1-5

Negative social behaviors. This construct was made up of four items that asked parents to report on a 5-point scale (1 = *never* to 5 = *always*) the frequency with which children engaged in the following behaviors: argues too much, bullies or is cruel or mean to others, disobedient, and stubborn, sullen, or irritable. A higher score indicates that the child engages in negative social behaviors with a higher frequency.

Data Analytic Approach

A multigroup SEM was conducted using AMOS 6.0 program (Arbuckle, 2005) with maximum likelihood (ML) estimation procedures. The model incorporated the macrosystem (SES), microsystem (neighborhood social capital and family and parenting stress), and proximal process (parent-child interactions) constructs to examine gender differences in the associations

among contextual factors, proximal processes, and child developmental outcomes.

Results

Summary of Correlations

Generally, (Table 2) the indicators of SES were positively correlated with the indicators of social capital, parent-child interactions, and positive social behaviors, but were on the other hand, mostly negatively associated with the indicators of parenting and family stress and negative social behaviors. Neighborhood social capital indicators were also mostly positively correlated with parent-child interactions and positive social behaviors, and negatively with parenting and family stress and negative social behaviors.

The variables used as indicators of parenting and family stress were by and large positively associated with the indicators of negative social behaviors, but negatively correlated with the indicators of parent-child interactions and positive social behaviors. The indicators of parent-child interactions were mostly positively correlated with the indicators of positive social behaviors, but negatively associated with the indices of negative social behaviors. Finally, the indicators of positive social behaviors were negatively correlated with indices of negative social behaviors.

The Full Model

The goodness-of-fit for the unconstrained model, showed that it had a good fit to the data, $\chi^2(392\ df) = 9,100.15$, $p < .001$; Comparative Fit Index (CFI) = .95, Root Mean Square Error of Approximation (RMSEA) = .03, Test of close fit (PCLOSE) = 1.00. This implies that the hypothesized casual model of the associations among the constructs is tenable. The unconstrained model (Figure 2) explained 74% and 54% of the variation in positive social behavior for boys and girls, respectively, and 73% and 70% of the variation in negative social behavior for boys and girls, respectively.

To test for differences in slope between boys and girls, a second model with equality constraints placed on all parameters was estimated. A chi-square test of difference between the unconstrained and equality-constrained models, $\chi^2(30\ df) = 239.51$, $p < .001$, suggests that some of the paths were moderated by gender. To make interpretation of the results easier to follow and consistent with the questions investigated, we discuss the findings pertaining to each construct sequentially. In reporting the findings, we use unstandardized coefficients, because using standardized coefficients could mask any significant differences that may exist between the path coefficients boys and girls (Kline, 1998)

SES effects. The results showed that for boys and girls, living in a higher SES family was positively correlated with neighborhood social capital (boys = .49, girls = .48), and negatively

with family and parenting stress (boys = $-.13$, girls = $-.12$). Furthermore, although children living in higher SES families experienced increased parent-child interactions (boys = .13, girls = .05), there was a significant difference in such interactions ($z = 3.66$, $p < .001$); boys were more likely to benefit than girls. In addition, there appears to be an attenuation effect in the association between SES and both positive and negative child behaviors. Specifically, for both genders, the observed relation between SES and positive child behaviors in the unconstrained model was negative (boys = $-.16$, girls = $-.04$), a reversal of coefficients signs from the expected. Further exploration (data available from the authors) revealed that when only SES and neighborhood social capital are included in a submodel, the association between SES and positive social behaviors was in the expected direction (boys = .04, girls = .03).

Finally, in terms of negative child behaviors, its correlation with SES was reduced to nonsignificance in the unconstrained model (boys = $-.03$, girls = $-.02$). As before, a submodel using only SES and neighborhood social capital as predictors of negative social behaviors revealed a significant association between SES and negative social behaviors for both genders (boys = $-.24$, girls = $-.17$). These patterns of findings suggest that family and parenting stress and parent-child interaction factors may attenuate and mediate the effects of SES on child outcomes.

Neighborhood social capital effects. Neighborhood social capital was negatively associated with family and parenting stress (boys = $-.15$, girls = $-.14$), and positively with parent-child interactions (boys = .08, girls = .06), with the association being much stronger for boys than for girls ($z = 2.29$, $p = .01$). As with the attenuation effects observed with SES, there appears to be an attenuation effect regarding the association between neighborhood social capital and both positive and negative child behaviors. Specifically, for both genders, the correlation observed between neighborhood social capital and child positive behaviors in the unconstrained model was negative (boys = $-.05$, girls = $-.01$), a finding inconsistent with expectations because of the reversal of the regression coefficient signs. A submodel analysis using only SES and neighborhood social capital as predictors of child outcome showed the association between neighborhood social capital and positive social behaviors to be positive (boys = .06, girls = .05). Also, neighborhood social capital was positively associated with negative social behaviors for both genders (boys = .07, girls = .06), a finding inconsistent with expectations. A submodel analysis as previously reported revealed a negative association between neighborhood social capital and negative social behaviors (boys = $-.14$, girls = $-.12$).

Family and parenting stress effects. Family and parenting stress was negatively correlated with positive social behaviors (boys = $-.05$, girls = $-.09$) and parent-child interactions

Table 2. Correlations Among Indicators of Latent Constructs.

Observed indicators in model	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
Socioeconomic status																					
1. Highest level education of mother																					
2. Anyone worked 50 weeks or more	.19**																				
3. DIHHS poverty level	.42**	.36**																			
Neighborhood social																					
4. People help each other out	.13**	.11**	.22**																		
5. We watch out for each other's children	.06**	.08**	.14**	.63**																	
6. People I can count on	.12**	.10**	.21**	.61**	.620**																
7. Adults nearby I can trust	.09**	.08**	.17**	.50**	.57**	.64**															
Parenting and family stress																					
8. How often felt angry with child	-.01	-.02**	-.04**	-.09**	-.09**	-.09**	-.07**														
9. Child does things that really bother you	-.04**	-.06**	-.09**	-.12**	-.10**	-.11**	-.09**	.55**													
10. Child much harder to care for	-.10**	-.11**	-.14**	-.11**	-.10**	-.11**	-.09**	.34**	.45**												
11. Coping with the demands of parenting	-.01**	-.02**	-.05**	-.12**	-.11**	-.11**	-.10**	.27**	.29**	.26**											
Parent-child interactions																					
12. You and child share ideas or talk	.05**	.03**	.04**	.11**	.10**	.10**	.08**	-.23**	-.29**	-.28**	-.31**										
13. Having family meals together	-.01*	-.03**	-.06**	.06**	.07**	.06**	.04**	-.08**	-.09**	-.05**	-.12**	.14**									
14. How often attend events child in	.13**	.10**	.16**	.12**	.11**	.12**	.09**	-.07**	-.10**	-.12**	-.10**	.14**	.12**								
Positive social behaviors																					
15. Child gets along with other children	-.01*	.02**	.05**	.10**	.10**	.10**	.08**	-.23**	-.27**	-.25**	-.19**	.19**	.05**	.08**							
16. Child tries to understand others' feelings	-.01*	.01**	.02**	.09**	.09**	.09**	.07**	-.26**	-.29**	-.26**	-.20**	.29**	.08**	.10**	.32**						
17. Child tries resolve conflicts with others	.07**	.04**	.08**	.12**	.11**	.11**	.10**	-.20**	-.24**	-.25**	-.17**	.25**	.06**	.10**	.29**	.46**					
18. Child shows respect to teachers/neighbors	.03**	.03**	.06**	.09**	.08**	.09**	.07**	-.21**	-.25**	-.24**	-.17**	.21**	.08**	.11**	.34**	.29**	.25**				
Negative social behaviors																					
19. Child argues too much	-.07**	-.04**	-.10**	-.09**	-.07**	-.09**	-.06**	.44**	.45**	.33**	.23**	-.20**	-.05**	-.05**	-.25**	-.25**	-.20**	-.20**			
20. Child bullies or is cruel or mean to others	-.07**	-.06**	-.14**	-.10**	-.07**	-.089**	-.070**	.30**	.33**	.29**	.18**	-.19**	-.05**	-.09**	-.32**	-.31**	-.25**	-.26**	.36**		
21. Child is disobedient	-.03**	-.034**	-.07**	-.08**	-.08**	-.08**	-.07**	.40**	.41**	.31**	.22**	-.21**	-.06**	-.07**	-.25**	-.27**	-.22**	-.25**	.44**	.33**	
22. Child is stubborn, sullen, or irritable	-.01**	-.02**	-.05**	-.09**	-.07**	-.08**	-.06**	.39**	.42**	.31**	.22**	-.23**	-.08**	-.06**	-.27**	-.26**	-.20**	-.23**	.50**	.32**	.39**

* $p < .05$. ** $p < .001$.

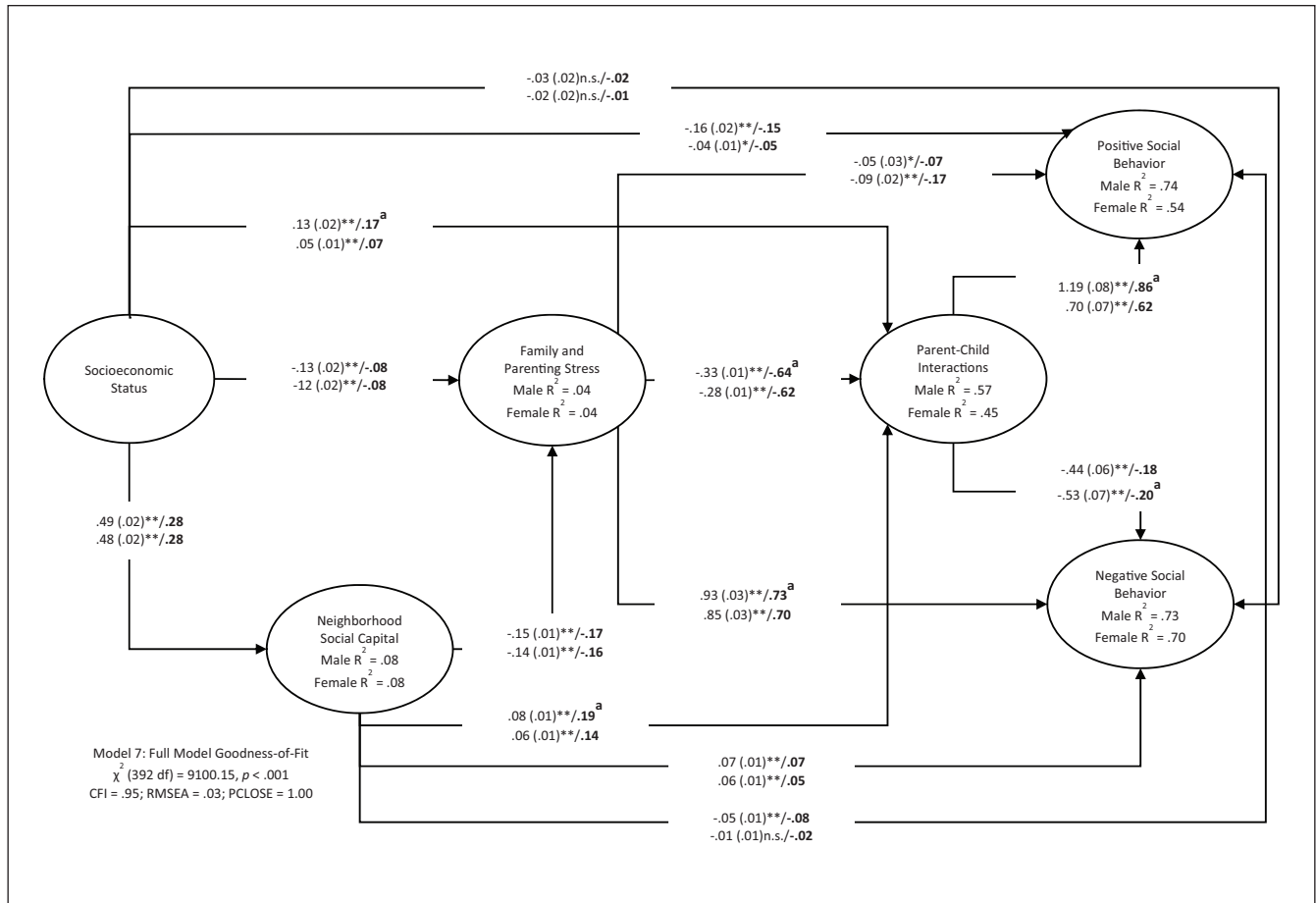


Figure 2. Model of the associations among neighborhood, context of parenting, proximal processes, and child outcomes.

Note. Unstandardized coefficients, standard errors (in brackets) and standardized coefficients (in bold) are reported.

^aPaths that are significantly different between boys and girls.

* $p < .05$. ** $p < .001$.

(boys = $-.33$, girls = $-.28$). The observed negative association with parent-child interaction was much stronger for boys than for girls ($z = -2.83$, $p = .002$). Finally, family and parenting stress was positively associated with negative social behaviors (boys = $.93$, girls = $.85$), with the effect being much stronger for boys than for girls ($z = 1.96$, $p < .05$).

Effects of parent-child interactions. Parent-child interactions was positively linked with positive social behaviors (boys = 1.19 , girls = $.70$) and negatively with negative social behaviors (boys = $-.44$, girls = $-.53$). The association with positive social behaviors was much stronger for boys than for girls ($z = 4.81$, $p < .001$), whereas the correlation with negative social behaviors was much stronger for girls than for boys ($z = -2.20$, $p < .05$).

The power of proximal processes. We examined the standardized total effects to investigate our hypothesis that proximal processes will have a more powerful effect on child positive

and negative social behaviors than contextual factors. For negative social behaviors, we found family and parenting stress ($b = .85$ for boys, $b = .83$ for girls) to have the most powerful effect, with proximal processes (parent-child relations) being the second most powerful ($b = -.18$ for boys, $b = -.20$ for girls). Conversely, in terms of positive social behaviors, parent-child interactions had the most powerful effect ($b = .86$ for boys, $b = .62$ for girls), whereas family and parenting stress had the second most powerful effect ($b = -.63$ for boys, $b = -.55$ for girls).

Discussion and Conclusion

The current study investigated a number of propositions based on Bronfenbrenner's bioecological theory. Specifically, we hypothesized that (a) contextual influences—SES, neighborhood, and parenting factors—will be mediated by proximal processes—parent-child interactions, (b) proximal processes will have a more powerful impact on children's

developmental outcomes than contextual factors, and (c) the effect of contextual and proximal processes will vary as a function of child characteristic. In general, we found support for these hypotheses.

We discuss our findings by examining the associations among the contextual constructs, proximal processes, and developmental outcomes. In accordance with our hypothesis, we found that the effects of SES (a macrosystem construct) on child positive and negative social behaviors was mediated through its association with neighborhood social capital and family and parenting stress (microsystem factors), and parent–child interactions (proximal processes). The mediational hypothesis is also consistent with the family stress model's (Conger et al., 1992; Conger et al., 1994; McLoyd et al., 1994) view that SES is associated with children's outcomes via parental mental health and family processes, and subsequently, adversely impacting parenting behaviors (Evans, 2004; Knerr et al., 2013), and ultimately, children's outcomes. The fact that part of the effect of SES on children's developmental outcomes was mediated by its association with neighborhood social capital suggests that among parents, their experiences with social relationships within neighborhoods can buffer economic conditions by reducing parental stress and distress and improving parenting (Cook, Shagle, & Degirmencioglu, 1997).

Also, consistent with Bronfenbrenner's views (Bronfenbrenner, 1995a; Bronfenbrenner & Evans, 2000) that child characteristics may interact with contextual factors, we found that the association between SES (a macrosystem construct) and parent–child relations (proximal processes) was stronger for boys than for girls. The observed differential relations may suggest that given that male children are at an increased risk of engaging in negative social behaviors (Griffin, Botvin, Scheier, Diaz, & Miller, 2000), parents may intentionally increase their interactions with their male children while they are younger to create bonds that build bridges as children get older. With such bonds between parents and their male children, the influence of peers on negative social behaviors may be minimized.

The findings also revealed that the association between SES and positive social behaviors may be attenuated; whereas, the effects of SES on negative social behaviors was found to be nonsignificant. Taken together, these results are consistent with the view that although SES may be associated with children's socioemotional competence, the association may not be as strong (Barajas et al., 2008; Bradley & Corwyn, 2002). Specifically, it suggests that other factors may partially or wholly explain the association between family socioeconomic circumstances and child developmental outcomes. It also highlights Bronfenbrenner's arguments that contexts and processes that are closer to children, and in which children actively participate have a more salient influence on their developmental outcomes (Bronfenbrenner & Morris, 1998).

Furthermore, consistent with our hypothesis, the associations between neighborhood social capital and child positive

and negative behaviors appeared to be attenuated by family and parenting stress and parent–child relations. The attenuation effect may explain the view that the associations between neighborhoods and children's behavioral and emotional problems are less consistent than those reported for cognitive and school outcomes (Leventhal & Brooks-Gunn, 2000). Specifically, the associations between neighborhood social capital and child positive and negative behavior were mediated by its links with both family and parenting stress and parent–child interactions. The observed mediation is consonant with reports that the effects of neighborhoods on child socioemotional development are mediated by parental psychological distress, family processes, and parenting behaviors (Kohen et al., 2008; Kotchick et al., 2005; White et al., 2009).

The observed stronger association between neighborhood social capital and parent–child relations (proximal processes) for boys compared with girls may reflect differential parenting behaviors toward boys and girls (Chaplin, Cole, & Zahn-Waxler, 2005), and may buttress the aforementioned point that parents increase their interactions with their male children while they are younger to create bonds that build bridges as they get older.

In line with our hypothesis and Bronfenbrenner's argument (Bronfenbrenner, 1995a; Bronfenbrenner & Ceci, 1994; Bronfenbrenner & Evans, 2000) that proximal processes (parent–child interactions) will mediate the effect of microsystem factors (family and parenting stress), we found that the effect of family and parenting stress on positive and negative child behavior was mediated by parent–child interactions. Specifically, consistent with findings in the family stress tradition (Conger et al., 1992, 1993; Conger et al., 1994; McLoyd et al., 1994), we found that increased family and parenting stress diminishes parent–child interactions, which, in turn, affected child positive and negative social behaviors.

Furthermore, consistent with Bronfenbrenner's (Bronfenbrenner, 1995a; Bronfenbrenner & Ceci, 1994; Bronfenbrenner & Evans, 2000) argument that the context interacts with child characteristics to influence developmental outcomes, we found that higher levels of family and parenting stress was more deleterious to boys' positive social behaviors than it is for girls. That is to say, when family and parenting stress increases, it has more of a negative effect on boys' positive social behaviors than it does for girls. Simply put, increased family and parenting stress put boys at risk for diminished positive social behaviors. Furthermore, increased levels of family and parenting stress had a greater impact on boys' engagement in negative social behaviors than it did for girls. Taken together, these findings suggest that family and parenting stress may be more detrimental for boys by adversely affecting the quality of their interactions with parents, which, in turn, increases their engagement in negative social behaviors. This finding may lend some credence to an earlier argument that the reason why SES and neighborhood social

capital may be associated with a significant increase in interactions between parents and their male children compared with their female children may be the realization by parents that decreasing interaction with sons increases the risk of engagement in negative social behaviors and decreases the probability of engaging in positive social behaviors.

In support of Bronfenbrenner's view (Bronfenbrenner, 1995a; Bronfenbrenner & Evans, 2000) that the impact of proximal processes is a function of the person and developmental outcome, the findings showed that association between parent-child interactions (proximal process) and child positive and negative social behaviors varied as a function of child characteristics (gender). Specifically, we found that increased levels of parent-child interactions promoted boys' positive social behaviors to a greater extent than girls'. In addition, increased levels of parent-child interactions were more beneficial to reducing girls' negative social behaviors than that of boys. These findings are also consonant with Bronfenbrenner's views (Bronfenbrenner, 1995a) that the specific impact of proximal processes on developmental outcomes may differ depending on the developmental outcome in question (Bronfenbrenner, 1995a, 2005).

In using the standardized total effects of each factor as indicator of strength, we found partial support for our hypothesis that proximal processes will have a stronger effect on child outcomes than contextual factors. Specifically, we found that depending on the developmental outcome, contextual factors—in this instance family and parenting stress—were stronger in predicting negative social behaviors. Alternatively, in terms of positive social behaviors, parent-child interactions (proximal processes) was a stronger predictor. These findings could mean that (a) our measure of parent-child interactions was not sensitive enough or (b) depending on developmental outcome, contextual factors may be more salient.

Limitations of the Study

Although the present study adds to the existing literature, there are some limitations worth mentioning. First, given that this was a secondary analysis of survey data, it has the limitations encountered when using pre-existing data. For example, the measure of parent-child interactions utilized in the study may not capture many dimensions of the construct of interest because of its restricted range. Second, the study was cross-sectional, thus it cannot address the pathways through which neighborhood and contextual factors affect child positive and negative social behaviors. As such, the fourth component of Bronfenbrenner's PPCT model, time, cannot be addressed. Furthermore, although the hypothesized model tested was supported, it is not exhaustive; equivalent models with different paths and constructs than those included in this study also could account for the variation observed. Another limitation was that the data used represent different age groups, thus limiting the generalizability of the

findings. Given these limitations, it would be useful to examine the model using a more diversified sample in a longitudinal analysis study to Bronfenbrenner's hypotheses.

Conclusion

As Bronfenbrenner and Evans (2000) noted, the bioecological model is not a theory about how human beings develop, but rather, it aims to improve our understanding about the conditions and processes that influence human development. In that regard, we believe that this present enterprise has furthered our knowledge about the contextual conditions and processes that influence children's positive and negative social development. An outline of the main conclusions of our study is as follows: First, the effects of contextual factors—macro- and microsystem variables (SES, neighborhood social capital, and family and parenting stress)—on child social development were partially mediated by proximal processes (parent-child interactions). Second, as was theorized by Bronfenbrenner, some of the effects of contextual factors on child social development were modified (moderated) by child gender. As well, the effects of proximal processes on child positive and negative social behaviors differed significantly by child gender. Finally, we found partial support for the hypothesis that proximal processes will have a more powerful effect on development than the context in which it occurs.

We conclude with the observation by Bronfenbrenner (1995a) that he hoped his work "would impel others to seek closure and yield scientific insights" (pp. 619-620). We also hope that our undertaking will engage others to explore different domains and questions utilizing Bronfenbrenner's bioecological theory.

Declaration of Conflicting Interests

The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

Funding

The author(s) received no financial support for the research and/or authorship of this article.

References

- Aneshensel, C. S., & Sucoff, C. A. (1996). The neighborhood context of adolescent mental health. *Journal of Health and Social Behavior, 37*, 293-310.
- Anthony, B. J., Anthony, L. G., Morrel, T. M., & Acosta, M. (2005). Evidence for social and behavior problems in low-income, urban preschoolers: Effects of site, classroom, and teacher. *Journal of Youth and Adolescence, 34*, 31-39. doi:10.1007/s10964-005-1334-y
- Arbuckle, J. L. (2005). *Amos 6.0 users guide*. Spring House, PA: Amos Development Corporation.
- Barajas, R. G., Philipsen, N., & Brooks-Gunn, J. (2008). Cognitive and emotional outcomes for children in poverty. In D. R.

- Crane & T. B. Heato (Eds.), *Handbook of families and poverty* (pp. 311-333). Thousand Oaks, CA: SAGE.
- Beyers, J. M., Bates, J. E., Pettit, G. S., & Dodge, K. A. (2003). Neighborhood structure, parenting processes, and the development of youths' externalizing behaviors: A multilevel analysis. *American Journal of Community Psychology, 31*, 35-53. doi:10.1023/A:1023018502759
- Blumberg, S. J., Foster, E. B., Frasier, A. M., Skalland, B. J., Nysse-Carris, K. L., Morrison, H. M., . . . O'Connor, K. S. (2007). *Design and operation of the National Survey of Children's Health, 2007* (Vital Health Stat 1). National Center for Health Statistics. Retrieved from ftp://ftp.cdc.gov/pub/Health_Statistics/NCHS/slats/nsch07/2_Methodology_Report/NSCH_Design_and_Operations_052109.pdf
- Bradley, R. H., & Corwyn, R. F. (2002). Socioeconomic status and child development. *Annual Review of Psychology, 53*, 371-399. doi:10.1146/annurev.psych.53.100901.135233
- Bronfenbrenner, U. (1976). The experimental ecology of education. *Educational Researcher, 5*(9), 5-15. doi:10.3102/0013189X005009005
- Bronfenbrenner, U. (1977a). Lewinian space and ecological substance. *Journal of Social Issues, 33*, 199-212. doi:10.1111/j.1540-4560.1977.tb02533.x
- Bronfenbrenner, U. (1977b). Toward an experimental ecology of human development. *American Psychologist, 32*, 513-531. doi:10.1037/0003-066X.32.7.513
- Bronfenbrenner, U. (1979). *The ecology of human development: Experiments in nature and design*. Cambridge, MA: Harvard University Press.
- Bronfenbrenner, U. (1994). Ecological models of human development. In T. Husen & T. N. Postlethwaite (Eds.), *International encyclopedia of education* (2nd ed., Vol. 3, pp. 1643-1647). Oxford, UK: Pergamon Press.
- Bronfenbrenner, U. (1995a). Developmental ecology through space and time: A future perspective. In P. Moen, G. H. Elder, Jr., & K. Luscher (Eds.), *Examining lives in context: Perspectives on the ecology of human development* (pp. 619-647). Washington, DC: American Psychological Association.
- Bronfenbrenner, U. (1995b). Ecological models of human development. In T. Husen & T. N. Postlethwaite (Eds.), *International encyclopedia of education* (2nd ed., Vol. 3, pp. 1643-1647). Oxford, UK: Pergamon Press.
- Bronfenbrenner, U. (1999). Environments in developmental perspective: Theoretical and operational models. In S. L. Friedman & T. D. Wachs (Eds.), *Measuring environments across the lifespan: Emerging methods and concepts* (pp. 3-28). Washington, DC: American Psychological Association.
- Bronfenbrenner, U. (2005). The bioecological theory of human development. In U. Bronfenbrenner (Ed.), *Making human beings human: Bioecological perspectives on human development* (pp. 3-15). Thousand Oaks, CA: SAGE.
- Bronfenbrenner, U., & Ceci, S. J. (1994). Nature-nurture reconceptualized in developmental perspective: A bioecological model. *Psychological Review, 101*, 568-586. doi:10.1037/0033-295X.101.4.568
- Bronfenbrenner, U., & Evans, G. W. (2000). Developmental science in the 21st century: Emerging questions, theoretical models, research designs, and empirical findings. *Social Development, 9*, 115-125. doi:10.1111/1467-9507.00114
- Bronfenbrenner, U., & Morris, P. A. (1998). The ecology of development of development processes. In W. Damon (Series Ed.) & R. M. Lerner (Vol. Ed.), *Handbook of child psychology: Vol. 1. Theoretical model of human development* (pp. 993-1027). New York, NY: John Wiley.
- Bronfenbrenner, U., & Morris, P. A. (2006). The bioecological model of human development. In W. Damon (Series Ed.) & R. M. Lerner (Vol. Ed.), *Handbook of child psychology: Theoretical model of human development* (pp. 793-828). New York, NY: John Wiley.
- Campbell, F. A., Pungello, E. P., & Miller-Johnson, S. (2002). The development of perceived scholastic competence and global self-worth in African American adolescents from low-income families: The roles of family factors, early educational intervention, and academic experience. *Journal of Adolescent Research, 17*, 277-302. doi:10.1177/0743558402173004
- Chaplin, T. M., Cole, P. M., & Zahn-Waxler, C. (2005). Parental socialization of emotion expression: Gender differences and relation to child adjustment. *Emotion, 5*, 80-88. doi:10.1037/1528-3542.5.1.80
- Chase-Lansdale, P. L., & Gordon, R. A. (1996). Economic hardship and the development of 5-and 6-year olds: Neighborhood and regional perspectives. *Child Development, 67*, 3338-3367. doi:10.1111/j.1467-8624.1996.tb01917.x
- Chase-Lansdale, P. L., Gordon, R. A., Brooks-Gunn, J., & Klebanov, P. K. (1997). Neighborhood and family influences on the intellectual and behavioral competence of preschool and early school age children. In J. Brooks-Gunn, G. J. Duncan, & J. L. Aber (Eds.), *Neighborhood poverty: Context and consequences for children* (Vol. 1, pp. 79-118). New York, NY: Russell Sage Foundation.
- Child and Adolescent Health Measurement Initiative. (2007). *DRC Indicator Dataset: 2007 National Survey of Children's Health*. Data Resource Center for Child and Adolescent Health, Baltimore, MD.
- Chung, H. L., & Steinberg, L. (2006). Relations between neighborhood factors, parenting behaviors, peer deviance, and delinquency among serious juvenile offenders. *Developmental Psychology, 42*, 319-331. doi:10.1037/0012-1649.42.2.319
- Conger, R. D., Conger, K. J., Elder, G. H. J., Lorenz, F. O., Simons, R. L., & Whitbeck, L. B. (1992). A family process model of economic hardship and adjustment of early adolescent boys. *Child Development, 63*, 526-541. doi:10.2307/1131344
- Conger, R. D., Conger, K. J., Elder, G. H. J., Lorenz, F. O., Simons, R. L., & Whitbeck, L. B. (1993). Family economic stress and adjustment of early adolescent girls. *Developmental Psychology, 29*, 206-219. doi:10.1037/0012-1649.29.2.206
- Conger, R. D., Ge, X., Elder, G. H. J., Lorenz, F. O., & Simons, R. L. (1994). Economic stress, coercive family process, and developmental problems of adolescents. *Child Development, 65*, 541-561. doi:10.1111/j.1467-8624.1994.tb00768.x
- Cook, T. D., Shagle, S. C., & Degirmencioglu, S. M. (1997). Capturing social process for testing meditational models of neighborhood effects. In J. Brooks-Gunn, G. J. Duncan, & J. L. Aber (Eds.), *Neighborhood poverty, Vol. 2: Policy implications in studying neighborhoods* (pp. 94-119). New York, NY: Russell Sage Foundation.
- Costello, E. J., Compton, S. N., Keeler, G., & Angold, A. (2003). Relationships between poverty and psychopathology: A natural experiment. *Journal of the American Medical Association, 290*, 2023-2029. doi:10.1001/jama.290.15.2023

- Darling, N. (2007). Ecological systems theory: The person in the center of the circles. *Research in Human Development, 4*, 203-217. doi:10.1080/15427600701663023
- Dorsey, S., & Forehand, R. (2003). The relation of social capital to child psychosocial adjustment difficulties: The role of positive parenting and neighborhood dangerousness. *Journal of Psychopathology and Behavioral Assessment, 25*, 11-23. doi:10.1023/A:1022295802449
- Duncan, G. J., Brooks-Gunn, J., & Klebanov, P. K. (1994). Economic deprivation and early childhood development. *Child Development, 65*, 296-318. doi:10.1111/j.1467-8624.1994.tb00752.x
- Duncan, G. J., Yeung, W. J., Brooks-Gunn, J., & Smith, J. R. (1998). How much does childhood poverty affect the life chances of children? *American Sociological Review, 63*, 406-423. doi:10.2307/2657556
- Evans, G. W. (2004). The environment of childhood poverty. *American Psychologist, 59*, 77-92. doi:10.1037/0003-066X.59.2.77
- Grant, K. E., Compas, B. E., Stuhlmacher, A., Thurm, A., McMahon, S., & Halpert, J. (2003). Stressors and child and adolescent psychopathology: Moving from markers to mechanisms of risk. *Psychological Bulletin, 129*, 447-466. doi:10.1037/0033-2909.129.3.447
- Griffin, K. W., Botvin, G. J., Scheier, L. M., Diaz, T., & Miller, N. L. (2000). Parenting practices as predictors of substance use, delinquency, and aggression among urban minority youth: Moderating effects of family structure and gender. *Psychology of Addictive Behaviors, 14*, 174-184. doi:10.1037/0893-164X.14.2.174
- Klebanov, P., Brooks-Gunn, J., Chase-Landsdale, P. L., & Gordon, R. A. (1997). Are neighborhood effects on young children mediated by features of the home environment? In J. Brooks-Gunn, G. J. Duncan, & J. L. Aber (Eds.), *Neighborhood poverty, Vol. 1: Context and consequences for children* (pp. 119-145). New York, NY: Russell Sage Foundation.
- Kline, R. B. (1998). *Principles and practice of structural equation modeling*. New York, NY: The Guilford Press.
- Knerr, W., Gardner, F., & Cluver, L. (2013). Improving positive parenting skills and reducing harsh and abusive parenting in low- and middle-income countries: A systemic review. *Prevention Science, 14*, 352-363. doi:10.1007/s11121-012-0314-1
- Kohen, D. E., Leventhal, T., Dahinten, V. S., & McIntosh, C. N. (2008). Neighborhood disadvantage: Pathways of effects for young children. *Child Development, 79*, 156-169. doi:10.1111/j.1467-8624.2007.01117.x
- Kotchick, B. A., Dorsey, S., & Heller, L. (2005). Predictors of parenting among African American single mothers: Personal and contextual factors. *Journal of Marriage and Family, 67*, 448-460. doi:10.1111/j.0022-2445.2005.00127.x
- Law, J. H. J., & Barber, B. K. (2007). Neighborhood conditions, parenting, and adolescent functioning. *Journal of Human Behavior in the Social Environment, 14*(4), 91-118. doi:10.1300/J137v14n04_05
- Leventhal, T., & Brooks-Gunn, J. (2000). The neighborhoods they live in: The effects of neighborhood residence on child and adolescent outcomes. *Psychological Bulletin, 126*, 309-337. doi:10.1037/0033-2909.126.2.309
- Leventhal, T., Dupere, V., & Brooks-Gunn, J. (2009). Neighborhood influences on adolescent development. In R. M. Lerner & L. Steinberg (Eds.), *Handbook of adolescent development* (Vol. 2, pp. 411-443). Hoboken, NJ: John Wiley.
- McLoyd, V. C., Jayaratne, T. E., Ceballo, R., & Borquez, J. (1994). Unemployment and work interruption among African-American single mothers: Effects on parenting and adolescent socioemotional functioning. *Child Development, 65*, 562-589. doi:10.1111/j.1467-8624.1994.tb00769.x
- Murray, V. M., Berkel, C., Gaylord-Hardon, N. K., Copeland-Linder, N., & Nation, M. (2011). Neighborhood poverty and adolescent development. *Journal of Research on Adolescence, 21*, 114-128. doi:10.1111/j.1532-7795.2010.00718.x
- Patterson, C. J., Kupersmidt, J. B., & Vaden, N. A. (1990). Income level, gender, ethnicity, and household composition as predictors of children's school-based competence. *Child Development, 61*, 485-494. doi:10.1111/j.1467-8624.1990.tb02794.x
- Pearlin, L. I., Menaghan, E. G., Lieberman, M. A., & Mullan, J. T. (1981). The stress process. *Journal of Health and Social Behavior, 22*, 337-356.
- Pinquart, M., & Sörensen, S. (2000). Influences of socioeconomic status, social network, and competence on subjective well-being in later life: A meta-analysis. *Psychology and Aging, 15*, 187-224. doi:10.1037/0882-7974.15.2.187
- Rankin, B. H., & Quane, J. M. (2002). Social contexts and urban adolescent outcomes: The interrelated effects of neighborhoods, families, and peers on African-American youth. *Social Problems, 49*, 79-100. doi:10.1525/sp.2002.49.1.79
- Repetti, R., Taylor, S. E., & Seeman, T. E. (2002). Risky families: Family social environments and the mental and physical health of offspring. *Psychological Bulletin, 128*, 330-366. doi:10.1037/0033-2909.128.2.330
- Riggins-Caspers, K. M., Cadoret, R. J., Knutson, J. F., & Langbehn, D. (2003). Biology-environment interaction and evocative biology-environment correlation: Contributions of harsh discipline and parental psychopathology to problem adolescent behaviors. *Behavior Genetics, 33*, 205-220. doi:10.1023/A:1023434206261
- Rosenberg, S. A., Robinson, C. C., & Beck, P. J. (1986). Measures of parent-infant interaction: An overview. *Topics in Early Childhood Special Education, 6*(2), 32-43.
- Sampson, R. J., Morenoff, J. D., & Gannon-Rowley, T. (2002). Assessing neighborhood effects: Social processes and new directions in research. *Annual Review of Sociology, 28*, 442-478. doi:10.1146/annurev.soc.28.110601.141114
- Sampson, R. J., Raudenbush, S. W., & Earls, F. (1997). Neighborhoods and violent crime: A multilevel study of collective efficacy. *Science, 277*, 918-924. doi:10.1126/science.277.5328.918
- Tudge, J. R. H., Mokrova, I., Hatfield, B., & Karnik, R. B. (2009). Uses and misuses of Bronfenbrenner's bioecological theory of human development. *Journal of Family Theory & Review, 1*, 198-210. doi:10.1111/j.1756-2589.2009.00026.x
- Vieno, A., Nation, M., Perkins, D. D., Pastore, M., & Santinello, M. (2010). Social capital, safety concerns, parenting, and early adolescents' antisocial behavior. *Journal of Community Psychology, 38*, 314-328. doi:10.1002/jcop.20366
- White, R. B., Roosa, M. W., Weaver, S. R., & Nair, R. L. (2009). Cultural and contextual influences on parenting in Mexican American families. *Journal of Marriage and Family, 71*, 61-79. doi:10.1111/j.1741-3737.2008.00580.x

Author Biographies

Godwin S. Ashiabi received his doctoral degree in Child Development/Family Studies with Statistics from the University of Tennessee, Knoxville. He teaches psychology at the Gulf University for Science & Technology, Kuwait. His current research interests include child and adolescent health and socioemotional well-being, and food security.

Keri K. O'Neal received her Master's degree in Human Development from Arizona State University and her Ph.D. in Human Development from Texas Tech University. She is currently an associate professor at California State University, East Bay in the department of Human Development and Women's Studies. Her research interests focus on adolescent risk-taking behaviors, prevention and intervention programs, and gender.