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Abstract approved:

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Megan M. McClelland

Self-regulation skills lay the foundation for short- and long-term school success, and strengthening these skills in early childhood can have significant implications for immediate and future life outcomes (e.g., Blair & Diamond, 2008; McClelland, Acock, Piccinin, Rhea, & Stallings, 2013). A large body of literature has investigated how characteristics of the individual and family, including demographic risk factors, influence the development of self-regulation (e.g., Li-Grinning, 2007; Wanless, McClelland, Tominey, & Acock, 2011). Few studies, however, have examined whether features in the broader environment, such as community resources, can support children's self-regulation (Evans & English, 2002; Richters & Martinez, 1993; Roy, McCoy, & Raver, 2014; Sharkey, Tirado-Strayer, Papachristos, & Raver, 2012). Moreover, the link between community-level indicators and children's self-regulation has typically been described from a deficit perspective. The present study adopted a strength-based approach to explore: (1) the unique profiles of community resources available to children from low-income families; (2) if community profile membership predicted self-regulation upon entry to

preschool, beyond the effect of demographic risks; and (3) if the association between community profile membership and self-regulation was moderated by English-Language Learner (ELL) status. Results from an exploratory latent profile analysis suggested that subgroups of community resources captured variability in the contexts that low-income children reside in. Specifically, three latent profiles of community resources fit the data best: (1) *high affordances*; (2) *mixed affordances*; and (3) *low affordances*. These profiles were described in further detail. Multi-level random effects models demonstrated that low-income children who were most likely to reside in the *mixed affordances* community profile, characterized by offering high human capital resources, low structural resources, and high social service resources, displayed significantly lower self-regulation at entry to preschool than low-income children in the *low affordances* community profile, characterized by offering low human capital resources, low structural resources, and low social service resources, across two outcomes of self-regulation. An interaction effect for ELLs was not observed, which suggests that all children from low-income families can benefit from the same community contexts, regardless of the constellation of their sociodemographic risks.

Profiles of Community Resources and their Influence on Self-Regulation at
Preschool: A Focus on Children from Low-Income Families

by
Jennifer K. Finders

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I understand that my thesis will become part of the permanent collection of Oregon State University libraries. My signature below authorizes release of my thesis to any reader upon request.

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Jennifer K. Finders, Author

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Megan McClelland provided ample feedback and assistance at all points of the manuscript. John Geldhof assisted with the interpretation of analyses and provided feedback on the method and results. Bridget Hatfield advised on the introduction and provided guidance on the overall organization of the manuscript.

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Chapter 1. Introduction

Accumulating evidence suggests that self-regulation skills lay the foundation for short-
and long-term success. Consistent with a "skills beget skills" model (Cunha & Heckman, 2007;
Heckman, 2008), the development of self-regulation tends to be cumulative, and children who
struggle with these skills at preschool may experience increasing difficulty throughout their
schooling (Blair & Razza, 2007; Entwisle & Alexander, 1993; Fuhs, Nesbitt, Farran, & Dong,
2014; McClelland, Acock, & Morrison, 2006; McClelland & Cameron, 2011; McClelland et al.,
2007; McClelland, Morrison, & Holmes, 2000; Ponitz, McClelland, Matthews, & Morrison,
2009; McClelland et al., 2013; Pagani et al., 2008). Described as an upward spiral for regulated
children, each turn of the spiral results in behaviors that elicit reactions from individuals that
enhance their child's regulatory potential, and those interactions help to maintain a
developmental course of strong regulation (Blair & Diamond, 2008; p. 901). Yet, many children
enter preschool without the self-regulation skills necessary to be successful in the formal
schooling environment (McClelland et al., 2000; Rimm-Kaufman, Pianta & Cox, 2000). In fact,
it has been estimated that as many as 50% of children exhibit difficulties regulating their
behavior in the classroom (Rimm-Kaufman et al., 2000).

Given the evidence to support the importance of self-regulation for predicting academic
achievement, researchers have become increasingly interested in understanding the factors that
promote these skills in early life (e.g., Bernier, Carlson, & Whipple, 2010; Blair & Diamond,
2008; Mistry, Benner, Biesanz, Clark, & Howes, 2010). Over the past decade, several
demographic factors have been identified that predict early self-regulation (e.g., Duncan et al.,

2007; Razza, Martin, & Brooks-Gunn, 2010; Welsh, Nix, Blair, Bierman, & Nelson, 2010).

Family income, education, and English-Language Learner status appear to be strongly linked to

differences in self-regulation (e.g., Blair, 2010; Blair & Raver, 2012; Brooks-Gunn & Duncan,

1997; Hanson et al., 2011; Sektnan, McClelland, Acock, & Morrison, 2010; Wanless et al.,

2011). In particular, children from low-income families are especially at-risk for experiencing

deficits in self-regulation at the beginning of preschool (Duncan, Morris, & Rodrigues, 2011;

Evans & English, 2002; Evans & Kim, 2013; Evans & Rosenbaum, 2008; Raver, Blair, &

Willoughby, 2013; Wanless et al., 2011).

Although the bulk of developmental research has focused on the influence of the most

proximal environments to young children, specifically the family, peer group, and school,

Bronfenbrenner's Bioecological model suggests that environments more distal to the child, such

as the neighborhood and community, can also play an important role in children's opportunities

and readiness to learn in the early years (Bronfenbrenner, 2009). Few studies, however, have

examined whether features of the neighborhood and community characteristics influence

children's development of self-regulation (Evans & English, 2002). Furthermore, only links

between neighborhood *risks* and self-regulation have been investigated (e.g. Martinez &

Richters, 1993; Roy et al., 2014; Sharkey et al., 2012).

The present study adopts a strength-based approach to examining what community

resources (e.g. social capital and institutional resources) promote the development of self-

regulation at preschool entry for children from low-income families. This study aims to explore

(1) the unique profiles of community resources available to children from low-income families;

(2) how membership in community profiles differentially predicts self-regulation upon entry to

preschool, above- and beyond- the effect of demographic risks; and (3) if the relation between

community profile membership and self-regulation is moderated by English-Language Learner (ELL) status. Furthering our knowledge of how profiles of community resources predict outcomes for young children has significant implications for understanding the contexts within which children from low-income families reside and can inform interventions and programs aimed toward supporting children's success in the early years and beyond.

Chapter 2. Literature Review

The Importance of Self-regulation in Early Childhood

Self-regulation in early childhood has been defined as the conscious control of thoughts, feelings, and behaviors (McClelland, Cameron, Messersmith, & Tominey, 2010) necessary to effectively carry out planful and goal-oriented tasks (Blair & Ursache, 2011). In the present study, self-regulation is operationalized as the coordination of three executive function components: *inhibitory control* (i.e., the ability to stop an automatic response in favor of a more adaptive behavior; Dowesett & Livesy, 2000) *working memory* (i.e., holding multiple rules in mind; Gathercole, Pickering, Knight, & Stegmann, 2004), *and attentional flexibility* (i.e. focusing on a task while simultaneously ignoring distractions; Rothbart & Posner, 2005). Although these components may operate independently at the neurological level, it has been suggested that self-regulated behavior, measured in early childhood, also requires their integration (Lerner & Lonigan, 2014; McClelland et al., 2010).

Self-regulation has been identified as a fundamental capacity that enables individuals to select from multiple possible paths and to navigate complex and changing environments (McClelland et al., 2010; McClelland et al., 2014). The preschool classroom places considerable demands and expectations on young children, and it is often the first experience children have in a structured learning environment. Furthermore, dramatic changes involving physiology, physical characteristics, cognition, emotion, and behavioral capacities, accompany the important contextual transition, making this a critical period for the development and utilization of self-regulation skills (Mischel, Shoda, & Peake, 1988; Mischel, Shoda, & Rodriguez, 1989). For example, children need to form new relationships, control their impulses, focus and pay attention, communicate their needs appropriately, and simultaneously engage with learning

material (Portilla, Ballard, Adler, Boyce, & Obradovic, 2014). Even the most well-adjusted children experience challenges succeeding these specific demands, and children who experience difficulties with self-regulation may not have the necessary skills to benefit from the complex learning environment of a preschool classroom (Howse, Lange, Farran, & Boyles, 2003; McClelland et al., 2000).

Indeed, a large body of literature underscores the importance of self-regulation in early childhood for a number of positive outcomes throughout the life course. Evidence suggests that self-regulation predicts school readiness (Blair & Razza, 2007; McClelland et al., 2007; Morrison, Ponitz, & McClelland, 2010), academic achievement (Duncan et al., 2007; Gathercole & Pickering, 2000; McClelland & Cameron, 2011; McClelland et al., 2000; McClelland et al., 2007; McClelland & Wanless, 2012), and social competence (Blair & Diamond, 2008; Rhoades, Greenberg, & Domitrovich, 2009) in early childhood. Moreover, these relations persist into adolescence and adulthood, such that children who are able to regulate their behaviors and emotions have better long term health and education outcomes (Casey et al., 2011; Duncan et al., 2007; Graziano, Kelleher, Calkins, Keane, & O'Brian, 2013; McClelland et al., 2006; McClelland et al., 2013; McClelland & Cameron, 2011; McClelland et al., 2007; Moffitt et al., 2011). On the contrary, children who struggle with these skills often experience increasing difficulty throughout their schooling (Blair & Razza, 2007; Entwisle & Alexander, 1993; Galindo & Fuller, 2010; McClelland et al., 2006; McClelland et al., 2007; McClelland et al., 2000; McClelland et al., 2013; Pagani et al., 2008).

Taken together, research suggests that self-regulation forms a foundation for learning throughout life. Moreover, self-regulation skills accumulate across the life course, and deficits in early self-regulation can be linked to later performance in educational institutions and beyond

(Cunha & Heckman, 2007; Evans & Rosenbaum, 2008; Heckman, 2008,). Therefore, strengthening these skills in early childhood can have significant implications for immediate and future life outcomes.

Communities as a Context for Development

The Bioecological model has remained a predominant approach for considering child development within multiple contexts (Bronfenbrenner, 1979; Bronfenbrenner & Morris, 1998). Within this theory, Bronfenbrenner acknowledges four crucial elements that facilitate development: Person, Process, Context, and Time (PPCT). The PPCT proposition of Bioecological model, in its entirety, is important and often underrepresented (Tudge, Mokrova, Hatfield, & Karnik, 2009). However, in the interest of linking community characteristics to child development without explicitly describing or testing for a specific pathway, and given the cross-sectional nature of the study, only the person – context piece of Bronfenbrenner's bioecological theory is most relevant to this study.

Person. Although the biological and genetic aspects of the person are important (Bronfenbrenner, 2005; Bronfenbrenner & Ceci, 1994), Bronfenbrenner devotes more attention to the personal characteristics that individuals call upon in multiple contexts (Bronfenbrenner, 1993, 1995; Bronfenbrenner & Morris, 1998). Indeed, variations in personal characteristics explain why particular developmental effects are likely to differ from person-to-person, despite experiencing a similar environment. Bronfenbrenner cites self-regulation in early childhood as a quality of the individual that is particularly relevant for shaping development (Bronfenbrenner, 1995). As a demand characteristic, having strong self-regulation allows individuals to play an active role within their contexts (Masten & Coatsworth, 1998; McClelland, Geldhof, Cameron, & Wanless, 2015; Tudge et al., 2009), but only within environments that promote proximal

processes of development. Proximal processes are defined as enduring, reciprocal interactions between an active organism and characteristics of the immediate environment (Bronfenbrenner & Morris, 1998). Specifically, effective proximal processes that support self-regulation are greater in socioeconomically advantaged contexts (Bronfenbrenner & Ceci, 1994).

Context. Just as there are multiple levels of organization within the individual (e.g., genes, organs, systems) that influence one's developmental course, the social ecology comprises multiple different levels of organization (e.g., families, schools, and neighborhoods), each of which contributes to an individual's development. A basic premise of the Bioecological model is that development is a function of forces emanating from numerous settings and from the relations among these settings (Bronfenbrenner & Morris, 2006). These interconnected systems, or ecologies, with which individuals interact have been coined the microsystem, mesosystem, exosystem, and macrosystem (Bronfenbrenner 1977, 1979).

Bronfenbrenner describes the microsystem as the setting within which the individual behaves at a given moment in her or his life. For example, the effects of family environmental factors, such as the presence of stimulating learning materials, family routines, and maternal mental health, are well-documented with respect to young children's developmental outcomes (e.g. Bradley & Corwyn, 2002). The mesosystem is the set of microsystems constituting the individual's developmental niche within a given period of development, or interconnections among microsystems. The exosystem is composed of contexts that, either directly or indirectly involving the developing person, have an influence on the person's behavior and development. Formal and informal social structures of the exosystem include neighborhoods and the availability of services (Cicchetti & Lynch, 1993). Finally, the macrosystem is the grandest level

of the ecology of human development that involves culture, macroinstitutions, law, and public policy.

Although the idea of interconnected systems has been readily accepted in developmental theory, the bulk of research has focused on the most proximal environments to young children. Specifically, the family, peer group, school, and other influential institutions have predominantly been referenced as meaningful "contexts" that shape children's development (e.g. Brophy-Herb, Lee, Neivar, & Stollak, 2007; Mashburn et al., 2008; Peisner-Feinberg et al., 2001; Rimm-Kaufman & Pianta, 2000; Trentacosta et al., 2008). However, Bronfenbrenner's model suggests that environments more distal to the child, such as neighborhood and community, can also play an important role in children's opportunities and readiness to learn in the early years (Bronfenbrenner, 2009). What's more, environmental conditions and events originating outside of the family are likely to be powerful and pervasive shapers of proximal processes affecting development. Yet, the promise of resources in the community has not been considered a contributing context for developmental outcomes, particularly in the early childhood years (Aber, Gephart, Brooks-Gunn, & Connell, 1997).

Person–Context. Importantly, Bronfenbrenner's theory stresses the interrelations between the developing person and their context (Tudge, Gray & Hogan, 1997), and the processes that which can explain the connection between the latter and an outcome of interest (Tudge et al., 2009). The benefits of community resources may be actualized through both indirect influences on parents, as well as by the direct experiences of children (Chase-Lansdale & Gordon, 1996; Klebanov, Brooks-Gunn, McCarton, & McCormich, 1998; Leventhal & Brooks-Gunn, 2000). In the present study, neighborhood resources form a constellation of social structures and activities that is consistent with Bronfenbrenner's notion of the macrosystem

(Bronfenbrenner, 1994). In this light, neighborhood's effects on children are indirect and mediated through immediate settings with which the child interacts. For example, Lamison-White (1997) suggests that macro social policies that ensure equal employment opportunities, access to health care, nutritious food, quality housing, schools, and neighborhoods would promote proximal processes in more immediate system levels and enhance children's development. Therefore, the impact of community resources on children' self-regulation development is considered a function of policies, opportunities, and the culture related to such resources.

No particular process underlying community influences on children's development is defined, but it is assumed that neighborhood and community resources most likely impact the development of self-regulation at the macrosystem level. One reason for this is that there is no way to know whether parents in the present study are actually utilizing the resources present in their communities. If this were known, then community resources may be considered functions of the exosystem. Instead, the availability of community resources, such as child care and neighbors' education and income, are generally out of parents' control. Nevertheless, both define the culture and dynamics of a community, and their influence filters down through the exosystem, mesosystem, and microsystem. As such, they have the potential to impact the proximal processes within the immediate environment that children develop.

In many ways, children are uniquely situated in the ecological environment compared to older age groups. For instance, neighborhood characteristics may be especially salient to young children because of their dependency on others. Furthermore, children, more so than adolescents and adults, are influenced by factors in their respective neighborhoods due to restricted mobility. Finally, it is likely that the environment imparts its strongest contribution at the points in time

when a particular developing characteristic has its most rapid development (e.g., Bloom, 1964).

For example, Klebanov and colleagues (1998) found no evidence of a direct effect of

neighborhoods on children's developmental outcomes at ages 1 and 2.   By age 3, however,

neighborhoods significantly impacted IQ, when controlling for family-level risks and processes

(Klebanov et al., 1998). Thus, communities are expected to have the greatest impact on the

development of self-regulation in early childhood, when the prefrontal cortex is the most

sensitive to environmental stimuli (Wikström & Sampson, 2003).

Demographic Risk Factors and Self-Regulation

Given the ample evidence to support the importance of self-regulation for predicting

academic achievement, researchers have become increasingly interested in understanding the

factors that promote these skills in early life (e.g., Bernier et al., 2010; Blair & Diamond, 2008;

Mistry et al., 2010).   Demographic factors, such as family income and education, appear to be

strongly linked to differences in self-regulation (Blair, Raver, Granger, Mills-Koonce, & Hibel,

2011; Blair, 2010; Blair & Raver, 2012; Brooks-Gunn & Duncan, 1997; Evans & Kim, 2013;

Evans, Gonnella, Marcynyszyn, Gentile, & Salpekar, 2005; Hackman & Farah, 2009; Hackman,

Gallop, Evans, & Farah, 2015; Noble, McCandliss, & Farah, 2007; Sektnan et al., 2010; Wanless

et al., 2011). In particular, children who are from low-income families are more likely to

struggle with self-regulation and academic achievement (Duncan & Chase-Lansdale, 2001;

Evans & English, 2002; Evans & Kim, 2013; Evans & Rosenbaum, 2008; McClelland &

Wanless, 2012; Raver et al., 2013; Wanless et al., 2011), and several studies support the strong

association between SES and the neurocognitive systems underlying higher-order cognition (e.g.,

Farah & Noble, 2005; Hackman, Farah, & Meaney, 2010; Noble, Norman & Farah, 2005).

Similarly, while learning dual languages in the early years, English Language-Learners (ELL)s experience considerable deficits in self-regulation and academic achievement compared to their monolingual peers (Hanson et al., 2011; Swanson, Saez, Gerber, & Leafstedt, 2004; Wanless et al., 2011). This disparity is not a result of learning English, but rather a result of learning dual languages, when one of those languages is the native language. Hence, they are often referred to as emergent bilinguals, and as bilinguals, these same children often outperform monolingual children on a variety of self-regulation tasks (Bialystok, 2005, 2009; Bialystok, Craik, & Freedman, 2007; Wodniecka, Craik, Luo, & Bialystok, 2010).

Demographic risk factors are often interrelated (Bradley & Corwyn, 2002; Duncan & Magnuson, 2005; Evans & Kim, 2013; Ingoldsby, Shaw, Owens, & Winslow, 1999; Piggot & Cowen, 2000), and experiencing an accumulation of risks results in even greater self-regulatory deficits (Evans & English, 2002; Lengua, 2002; Roy & Raver, 2014; Pratt et al., 2015). In particular, cumulative risk scores are generally higher for children who live in poverty and children who are ethnic and racial minorities compared to their Caucasian counterparts, and the presence of cumulative risk appears to have an adverse impact on children's development of self-regulation skills (Lengua, Honorado, & Bush, 2007; Shonkoff & Phillips, 2000) and IQ (Liaw & Brooks-Gunn, 1994). Provided the person–context relations of the Bioecological theory, it is possible that two groups of children may experience the same type of physical environment, but their differences in demographic factors may alter the way the lived environment influences individual development. Therefore, it is important to consider whether neighborhood characteristics affect all social and demographic groups in the same way (South, 2001), and under which conditions children who are ELLs thrive compared to their non-ELL peers.

Researchers have suggested that low stimulating, resource poor environments, often marked by chronic stress and low quality interactions, can influence maladaptive brain functioning, and this may affect children's abilities to self-regulate their behavior in the classroom and to perform complex academic tasks (Blair & Raver, 2012; Shonkoff & Phillips, 2000). Sektnan and colleagues (2010) tested the latter part of this hypothesis and found that self-regulation is a key mechanism mediating the relation between demographic risk and school adjustment for children from families with low resources. Therefore, one strategy for alleviating the negative impacts of family demographic risk on academic achievement and later outcomes is to strengthen the self-regulatory resources of children early in life (Evans & Fuller-Rowell, 2013). In fact, several intervention studies have aimed to do so and have shown positive effects on improved self-regulation, behavior outcomes, and school success (e.g., Diamond & Lee, 2011; Pears et al., 2014; Raver et al., 2011; Schmitt, McClelland, Tominey, & Acock, 2015). However, there is mounting evidence to suggest that the influence of demographic characteristics is not the only contributor to self-regulation. Few studies have sought to understand how broader, ecological factors explain the development of self-regulation in children from low-income families. The focus of this study is to understand development in light of the resources present in the community (characteristics of the macrosystem), and taking into account contemporaneous proximal demographic risk factors (characteristics of the microsystem).

Community Risk Factors and Self-Regulation

Independent of individual and family attributes, neighborhoods and communities significantly impact children's development (Aber et al., 1997; Brooks-Gunn, Duncan, Klebanov, & Sealand, 1993; Caspi, Taylor, Moffitt, & Plomin, 2000; Connell, Spencer, & Aber, 1994; Lamborn, Dornbusch, & Steinberg, 1996; Leventhal & Brooks-Gunn, 2000; Sampson & Laub,

1994). Although family-level variables tend to be more strongly associated with individual

outcomes than neighborhood-level variables (e.g., Fishbein, Warner, Krebs, Trevarthen,

Flannery, & Hammond, 2009; Gibson, Sullivan, Jones, & Piquero, 2010), neighborhood effects

still account for between 5 and 10 percent to of the variance in child outcomes, after controlling

for a host of family-level characteristics (Levanthal & Brooks-Gunn, 2000). Hence,

neighborhood community variables can explain differences in children's self-regulation beyond

those contributed by the child and family (Hanson et al., 2011; Roy et al., 2014; Roy & Raver,

2014). Investigating how children's outcomes vary as a function of their neighborhood contexts

offers a more comprehensive lens from which to view development.

Research in the last two decades has adopted a multidisciplinary perspective in order to

test the potential links between neighborhood characteristics and child development. Across

studies of neighborhood effects, three neighborhood dimensions have been examined most

frequently: income or SES, racial/ethnic diversity, and residential instability (Leventhal &

Brooks-Gunn, 2000; Brooks-Gunn, Duncan, & Aber, 1997). These contexts appear to be

associated with a range of outcomes in young children and adolescents, including IQ (Brooks-

Gunn et al.,1993), academic achievement (Hanson et al., 2011), socio-emotional development

(Caspi et al., 2000; Chase-Lansdale & Gordon, 1996; Hanson et al., 2011), and positive youth

development (Theokas & Lerner, 2006; Urban, Lewin-Bizan, & Lerner, 2009; Urban, Lewin-

Bizan, & Lerner, 2010).

Community risk factors, such as neighborhood violence, residential crowding,

neighborhood crime, and lower residential quality have all been associated with poorer self-

regulation skills in preschool and school-aged children (Evans & English, 2002; Martinez &

Richters, 1993; McCoy, Raver, & Sharkey, 2015; McCoy, Roy, & Raver, 2015; Roy et al., 2014;

Sharkey et al., 2012; Wikström & Sampson, 2003). For example, children who live in consistently high poverty neighborhoods and children who experience higher rates of crime in their neighborhood context tend to display weaker self-regulation in the elementary years (McCoy et al., 2015b; Roy et al., 2014). In addition, links between community risk factors for children also experiencing family demographic risks have shown indirect effects. Specifically, the mediating role of self-regulation in models of ecological risk, family poverty, and children's development has been investigated (Aber, Jones, & Cohen, 2000; Maughan & Cicchetti, 2002). One study found an indirect pathway from proximity to violence to Head Start children's academic performance, operating through self-regulation (Sharkey et al., 2012). These studies suggest that children from adverse backgrounds who also experience compromised communities may be developing weaker regulatory processes, making managing the unique stressors and demands of their contexts more challenging.

Community Resources and Self-Regulation

Jencks and Meyer (1990) argue that healthy development can be promoted through access to neighborhood resources and services that provide stimulating learning and social environments. Indeed, the presence of concentrated resources, such as the proportion of affluent neighbors, rather than the influence of concentrated disadvantage, such as the percentage of low-income neighbors, appears to matter most for developmental outcomes (Brooks-Gunn et al., 1993; Chase-Lansdale, Gordon, Brooks-Gunn, & Klebanov, 1997; Duncan, Brooks-Gunn, & Klebanov, 1994; Klebanov, Brooks-Gunn, Chase-Lansdale, & Gordon, 1997; Klebanov et al., 1998; Leventhal & Brooks-Gunn, 2000). Thus, the common method of focusing on neighborhood risks, (i.e. poverty, unemployment, crime and violence rates, etc.) may obscure the

potential protective effects of neighborhoods rich in social service resources (i.e. receipt of supportive services).

The present study builds on the aforementioned studies by adopting a strength-based approach to examining what community *resources* (e.g. human capital resources, structural resources, and social service resources), as opposed to neighborhood *risks*, promote the development of self-regulation at preschool entry for children residing in low-income households who may be experiencing additional demographic risks. In the present study, community resources align with Pierre Bourdieu's notion of social capital, which he defines as "the aggregate of the actual or potential resources which are linked to possession of a durable network of more or less institutionalized relationships of mutual acquaintance and recognition" (Bourdieu, 1986, p. 248). Bourdieu emphasizes the collective resources of groups that can be drawn upon by individual group members for procuring benefits and services in the absence of, or in conjunction with, their own economic capital (Bourdieu, 1986). As such, institutional social networks provide individuals with the opportunity to draw upon actual or potential resources in order to pursue a variety of goals.

Bourdieu (1986) and Jencks and Meyer (1990) share a common approach to studying community influences on development with models of ecological assets that promote optimal contexts for development across the life span. Each of these sources specifies that the mechanisms or necessary conditions for positive development and for the promotion of positive social experiences can be conceived of within individuals, in the physical space, and emerging in the dynamic between the two (Theokas & Lerner, 2006). These models are based on the assumption that positive development occurs when there is a match between the developing person and their capacities with a supportive ecology or context (Benson, Scales, Hamilton, &

Sesma, 2006; Eccles & Midgley, 1989). Therefore, one might hypothesize that neighborhoods matter most when other risk factors are present, such as family poverty and related demographic risks (Shonkoff & Phillips, 2000). When children experience less than favorable home and neighborhood conditions, intervening at the child level is a practical approach to improving developmental outcomes. However, given the person–context premise of the Bioecological model, it is also feasible that modifying the broader ecology around children and families, including the neighborhood and community contexts within which they reside, can impart unique and significant impacts on self-regulation development.

To date, no studies have examined whether resources in the community have the potential to support the development of self-regulation in young children from low-income families. The present study fills this gap by exploring the ways in which unique combinations of community resources are predictive of children's self-regulation upon entry to preschool. In the present study, community resources are characterized by eight census tract and county-level variables (education, income, labor force participation, child care availability, preschool attendance, prenatal care, public assistance income, and WIC). Consistent with Bourdieu's Social Capital theory, these resources represent conditions of geographically defined institutional networks that may facilitate the development of young children's self-regulation skills in the absence of family income resources and other sociodemographic strengths (Mendenhall, DeLuca, & Duncan, 2006).

High income and education. Living in an affluent neighborhood has been found to benefit children's school readiness and school achievement (Chase-Lansdale et al., 1997; Leventhal & Brooks-Gunn, 2000), and research shows that children who grow up in socioeconomically poor neighborhoods generally have less favorable outcomes (Jencks &

Mayer, 1990; Leventhal & Brooks-Gunn, 2003). For example, children who reside in low-SES neighborhoods perform less well in school than children who reside higher income neighborhoods, regardless of their own household's income (Brooks-Gunn et al., 1993; Leventhal & Brooks-Gunn, 2000). The processes underlying neighborhood income that drive these developmental differences include well-functioning communities with substantial economic resources, positive adult role models, and monitoring of children and youth by adults in the community (Brooks-Gunn et al., 1993; Duncan, Brooks-Gunn, & Klebanov, 1994). Therefore, measures of community-level SES, such as income and education, may indicate the amount of resources available in a given neighborhood that can positively impact children's development of self-regulation.

Large labor force participation. Economic infrastructures (i.e., job availability and reasonable wages for work) within a community are instrumental in advancing human development (Benson, Leffert, Scales, & Blyth, 2012). Jencks and Mayer (1990) have suggested that employment opportunities are a proxy for the availability of economically successful and socially competent adults that can serve as role models and socializing agents. Indeed, access to positive adult role models is an important ingredient for supporting children's development (Brooks-Gunn et al., 1993; Duncan et al., 1994). When considering the alternative, scholars have argued that joblessness at the neighborhood level, in terms of both macrostructural constraints and the behavior of jobless families in neighborhoods, exerts the strongest influence on children's development (Wilson, 1991). For example, one study found that the percentage of unemployed individuals in the community is associated with children's self-control, indirectly through parenting styles and nurturing (Gibson et al., 2010). Thus, communities with high concentrations of employed families are more likely to have the resources necessary to develop

and sustain high-quality institutions and organizations (Aber et al., 1997). In turn, participation

in local organization and informal social networks may provide access to positive socializing

agents for young children's self-regulation skill development.

        Child care availability and high preschool attendance. The accessibility,

affordability, and quality of child care available to families within a neighborhood are important

resources that may affect young children's outcomes. The characteristics of child care available

in the community have implications for children's learning experiences, behavioral functioning,

and physical health (e.g. Hatfield, Lower, Cassidy, & Faldowski, 2015). Moreover, high-quality

child care and early intervention programs have been shown to have long-term positive effects

on children's cognitive and socioemotional outcomes (Barnett, 1995; Belsky et al., 2007;

Peisner-Feinberg et al., 2001; Vandell, Belsky, Burchinal, Steinberg, & Vandergrift, 2010).

Work by several scholars indicates that the quantity and quality of child care in poor

neighborhoods is highly variable (Fuller, Kagan, Caspary, & Gauthier, 2002; LiGrining & Coley,

2006) and can be especially problematic for children's school readiness (Burchinal, Nelson,

Carlson, & Brooks-Gunn, 2008). Examining how community contexts shape access to quality

early childhood programs and services is important (Hatfield et al., 2015), and there is evidence

to suggest that community characteristics effect school choice (Lauen, 2007). Thus, the

neighborhood that a child lives in may determine the set of child care centers and preschools

available (Ellen & Turner, 1997), as well as whether families must compete for this vital

resource.

        High receipt of prenatal care. Prenatal care, in the broadest sense, encompasses

community-based programs that provide support for pregnant moms, promote a healthy lifestyle,

foster linkages with health and social services, and add to existing social support networks

(Sword, 1999). There is strong evidence to suggest that receiving prenatal care improves

birthweight, especially for socioeconomically disadvantaged groups (Edgerley, El-Sayed,

Druzin, Kiernan, & Daniels, 2007, for a review), and early initiation of prenatal care can reduce

the risk of having a low-birthweight infant (O'Campo, Xue, Wang, & Caughy, 1997).

Unfortunately, the risk of low birth weight is double in poor areas (Egbuonu & Starfield, 1982;

Kleinman & Kessel, 1987; McGauhey & Starfield, 1993), suggesting that women may not be

accessing prenatal care within a timely manner (e.g. the first trimester). Furthermore, numerous

studies have established links between low birth weight and grade failure, receipt of special

education, lower school achievement, behavior problems, cognitive deficits, and the like

(Klebanov, Brooks-Gunn, & McCormick 1994a, 1994b; McCormick, Brooks-Gunn, Workman-

Daniels, Turner, & Peckham, 1992; McCarton et al. 1997).

Neighborhood context influences mothers' access to prenatal care and which trimester

the initiation of prenatal care occurs (Nesbitt, Connell, Hart, & Rosenblatt, 1990; Perloff &

Jaffee, 1999). Ecological barriers to accessing prenatal care include lack of social networks,

transportation challenges, language incompatibilities, child care problems, and the need for an

appointment (Edgerley et al., 2007; Harvey & Faber, 1993; Sable, Stockbauer, Schramm, &

Land, 1990; Sword, 1999). Therefore, whether mothers receive prenatal care in the community

may be an indicator of the structural resources that are in place to support children's birth weight

and other key developmental outcomes.

High receipt of public assistance income and WIC. To the extent that social service

resources provide parents with more economic resources, afterschool programs and other

community resources become more affordable. Moreover, "social capital" connections secured

from neighbors and families-the-like receiving financial support may further connect families

with community resources (Duncan & Chase-Landsdale, 2001). For instance, research has

documented that, for parents receiving welfare and other financial resources, changes in

activities outside the family – afterschool programs, child care, and community programs –

appear to be just as or slightly less important in accounting for improved child well-being than

changes within the family (Morris, Huston, Duncan, Crosby, & Bos, 2001). This is because

parents may use their increases in resources to invest in structured programs for their children's

experiences outside of the home (Duncan & Chase-Landsdale, 2001). Thus, the receipt of social

service resources may be related to engagement in otherwise unavailable social network

opportunities that may increase social capital. Social capital is seen as the resource potential of

social networks, and a large amount of research has established a connection between social

capital and child and youth outcomes (e.g., Coleman, 1988; Lareau, 2011; Sampson,

Raudenbush, & Earls, 1997).

 Taken together, this research suggests that education, income, employment, child care

availability, education, prenatal care and social service receipt indicators at the community-level

may be uniquely and individually important for children's development of self-regulation in the

early years. However, no previous work has examined how these resources relate to each other

in neighborhood environments for children from low-income families. The present study aims to

do so.

Modeling Profiles of Community Resources

 Bronfenbrenner's principle of nested contexts contributes to the accessibility of the

Bioecological framework for demonstrating how features of the community may protect children

against the detrimental effects of demographic risk factors. Furthermore, there has been growing

interest in examining how the accumulation of complex and interrelated factors result in adaptive

or maladaptive child and family outcomes. Recently, several investigators have adopted a latent variable approach to modeling these relations using *Latent Profile Analysis* (LPA). This strategy has offered an alternative to traditional approaches by modeling the complexity of factors in an informative way. LPA is used to identify qualitative differences between groups of variables (Collins & Lanza, 2010). For example, in previous research this approach has allowed for the identification of subgroups of children experiencing similar combinations of risk factors, thereby providing a more holistic picture of environmental risk and offering insight into potential points of intervention. Moreover, a small number of studies have examined the risk profiles of children—identified using a combination of sociodemographic risk factors— in order to determine their significance for self-regulation (Pratt et al., 2015; Rhoades, Greenberg, Lanza, & Blair, 2011; Roy & Raver, 2014). This type of analysis has not been utilized to explore the profiles of community resources available to children from low-income families who may be experiencing demographic risk. Given that risk and protective factors occur at multiple levels – individual, family, and community – (Rutter, Champion, Quinton, Maughan, & Pickles, 1995; Klebanov et al., 1998; Liaw & Brooks-Gunn, 1994) it is important to understand how community-level resources might protect children in disadvantaged circumstances. Adopting a LPA approach to studying environmental supports will inform a more nuanced view of how contextual influences operate to influence development.

Current Study

The influence of children's home and neighborhood contexts are evident prior to their entrance into school. Understanding how these contexts contribute to the development of children's self-regulation skills provides an avenue for prevention efforts during a sensitive transition period; that is, before entering the formal school environment.   The present study

explores variability in community resources around children from low-income families, given

the abundant evidence to suggest that this group of children is the most at risk for deficits in self-

regulation. In particular, this study will examine the unique profiles of eight community

resources that are available to children from low-income families, and whether community

profile membership upon the entry to preschool is predictive of concurrent self-regulation skills

when children are 3 -5 years old. Finally, the current study will investigate whether community

profile membership predicts self-regulation differently for ELLs compared to their monolingual,

English speaking peers.

   A strength-based approach will be utilized to examine eight community resources

(education, income, labor force participation, child care availability, preschool attendance,

prenatal care, public assistance income, and WIC) that may help define community profiles and

support the development of self-regulation upon entry to preschool. All children in the sample

belong to low-income families, which thereby increases the likelihood that they may be

experiencing an accumulation of demographic risk factors (e.g. also having a parent with low

education and being an English Language Learner). Therefore, all the community characteristics

will be used to represent the degree to which beneficial resources are being utilized in the

community surrounding children and families facing hardships. The present approach is in

keeping with developmental researchers' recognition of the importance of multiple ecological

contexts of the child (Bronfenbrenner, 1979) and with Bourdieu's (1986) emphasis on the

protective nature of acquiring collective resources of groups in the absence of individual social

capital.

   This study will investigate three research questions:

1. *What are the unique profiles of community resources available to children from low-income families?*

This is the first study that has aimed to classify subgroups of community resources surrounding children from low-income families. Therefore, an exploratory approach to data analysis will be implemented in order to elicit naturally occurring profiles of community resource variables. As such, the number and characteristics of the community profiles are not specified, although it is anticipated that there will be a profile with high community resources and a profile with low community resources.

2. *For children from low-income families, does community profile membership predict self-regulation upon entry to preschool, above and beyond the influence of demographic risk factors?*

Regarding the second research question, it is hypothesized that children from low-income families will benefit most from communities that are rich in resources, while adjusting for other potential demographic risk factors. More specifically, children living in resource-rich communities are expected to exhibit better self-regulation skills than children living in resource-poor communities, even after controlling for individual- and family- sociodemographic factors. However, given the exploratory nature of the first research question, this study cannot speculate as to which combinations of resources will matter most for low-income children's self-regulation at entry to preschool.

3. *Is the association between English-Language Learner status and self-regulation moderated by community profile membership for children from low-income families?*

Research suggests that low-income children who are from ethnic minority families likely experience a difference set of risk factors than low-income children from Caucasian families, and

that neighborhood characteristics may not affect both groups in the same way (South, 2001).

Effect modification is important to explore because ELLs, predominately from minority families,

are often positioned within unique sociodemographic backgrounds compared to their non-ELL

peers, and this variability may account for differences self-regulation at preschool. It is

hypothesized that some communities may be especially beneficial for ELL's self-regulation,

while others may be less influential. For example, the availability of child care in the community

and access to preschool programs may indicate a community climate that is rich in resources that

support high quality, early learning experiences. These resources are assumed to have a positive

impact on all children. The receipt of social service resources, such as WIC and public

assistance income, may be especially important for children who experience an accumulation of

demographic risk factors. For example, in previous work, children who are ELLs had

significantly lower parent education compared to their monolingual peers, and when considered

simultaneously with their low-income status, this put them at an increased risk for displaying

self-regulation deficits (Schmitt et al., 2015). However, it should be noted that these children

made significantly greater gains in self-regulation from an intervention focused on strengthening

these skills in the classroom than their low-income, non-ELL peers. Therefore, it is reasonable

to suggest that, when provided the proper contextual supports such as greater access to social

service resources, ELLs may benefit.

Chapter 3. Materials and Methods

Participants

Participants were recruited from local preschools participating in two longitudinal studies focused on understanding and promoting children's self-regulation. The combined sample included 462 total children (50% female) from low-income families. Children ranged in age from 37.98 to 66.04 months ($M = 53.84$, $SD = 6.02$) at the time of data collection, and all participants attended Head Start preschools. Children were White (42%); Latino (41%); African American (1%); Asian (1%); Middle Eastern (1%), multi-racial (12%), and other ethnic groups (2%). The average parent education level was approximately slightly less than a high school degree and ranged from no education to a PhD ($M = 11.28$ years, $SD = 2.88$).

Procedures

Data from two larger studies were combined to create a more diverse sample, both in terms of geographic location and demographic indicators. Data from an intervention study focused on improving self-regulation were collected in the fall of preschool in 2011, pre-intervention, and combined with data from two cohorts of a longitudinal study collected in the fall of preschool in 2011 and 2012.

Participants' addresses at the fall of preschool were used to determine census tract locations. Census tracts are subdivisions of counties that generally have stable boundaries that normally follow visible features. They are designed to be units with similar population characteristics, economic status, and living conditions, and average about 4,000 inhabitants. Census tract data and county-level data with relevant community variables were merged into a combined dataset. Children resided in 70 census tracts within 7 counties in Oregon.

Written consent was obtained from parents/primary caregivers prior to participation, and children gave verbal assent to participate in the assessments. Parents filled out a background questionnaire to provide demographic information, and direct assessments of children's self-regulation were collected by trained research assistants. The primary guardian who provided consent for their child to participate in the study received a $20 gift card.

Measures

Demographic risk factors. In the current study, English Language Learner (ELL) status and low parent education were considered demographic risk factors because each variable has been negatively associated with children's self-regulation in previous research (e.g. Blair et al., 2011; Blair, 2010; Blair & Raver, 2012; Duncan & Brooks-Gunn, 1997; Evans et al., 2005; Evans & Rosenbaum, 2008; Hackman & Farah, 2009; Noble et al., 2007; Sektnan et al., 2010; Wanless et al., 2011). Teachers identified the primary language of children as either English or Spanish for research assistants (assessed in Spanish = 1, assessed in English = 0), and 30% of children in the sample were considered English Language Learners. Parents self-reported on the highest number of total years of education they had completed (M = 11.28 years of education, SD = 2.88). Only 68% of parents in the sample reported their education level (n = 313), and the mean was slightly less than a high school degree. Nevertheless, 60% of children who were ELLs belonged to families in which their parent received less than a high school degree.

Community resources. The present study is confined by the developmentally relevant variables available in the American Community Survey (ACS) and other publicly available datasets. County- and census tract- level data were extracted from the ACS, department of human services, and state health and employment departments using a community reporter tool. Community median household income, education (percent of residents with a college degree or

higher), the proportion of adults who participated in the labor force, the percent of households who received public assistance income, and the proportion of 3- and 4-year olds who were enrolled in preschool originated from the ACS and represent census tract-level differences. These data were collected at one single time point from each census tract between the years 2008 and 2012, and therefore represent 5-year estimates. Given the small population size of census tracts, in conjunction with the low response rates of communities, using 5-year estimates ensures that the data are the most representative of a census tract at any given time within the 5-year period.

The proportion of pregnant women who received WIC, the percent of women who received prenatal care in the first trimester, and the number of child care slots available for every 100 children were obtained from various state departments and represent year, county-level differences. In the present study, the 2012 estimates are utilized to line up with the 5-year census tract estimates. The eight community characteristics are reported as continuous percentages, with the exception of median household income. Descriptive statistics for these variables can be found in Table 1.

Self-Regulation. Children's self-regulation was assessed using three measures that capture different dimensions of underlying executive function skills. The Day-Night Stroop task (Gerstadt, Hong, & Diamond, 1994) is an inhibitory control measure that is more sensitive to variability at the low end of underlying executive function abilities (e.g., Schmitt, Finders, & McClelland, 2014). During the Day-Night Stroop task, children viewed 16 cards with a picture of either a moon or a sun and were asked to respond with the opposite of what they saw (e.g., say "day" when the card has a picture of a moon). No response and incorrect responses were coded 0, self-corrected or similar responses were coded 1, and correct responses were coded 2. Scores

ranged from 0-32 ($M = 20.21$, $SD = 9.95$). In this sample, the Day-Night Stroop had a

Cronbach's alpha of 0.91.

The Dimensional Change Card Sort task (Zelazo, 2006) is a cognitive flexibility measure

where children are presented with target pictures that vary along three dimensions (e.g., shape,

color, and size). During the Dimensional Change Card Sort task (DCCS), participants matched a

series of test pictures (e.g., large, red, dog and small, blue, bird) to the target pictures, first on 6

items according to one dimension (e.g., color) and then on 6 more items according to another

dimension (e.g., shape), followed by 6 more items according to the last dimension (e.g., size).

The final 6 items require children to internalize a new rule and sort accordingly (i.e., pictures

with black border are sorted by size and pictures without black border are sorted by color).

Scoring is based on the number of correctly sorted cards for each of the four test sections.

Scores ranged from 1-22 ($M = 9.84$, $SD = 5.74$). This version of the DCCS has been shown to

be reliable in previous work (Hongwanishkul, Happaney, Lee, & Zelazo, 2005; Zelazo, 2006;

Cepeda & Munakata, 2007), and had a Cronbach's alpha of 0.82 in the present sample.

Last, the Head-Toes-Knees-Shoulders task (McClelland et al., 2014) requires the

integration of inhibitory control and cognitive flexibility. The Head-Toes-Knees-Shoulders

(HTKS) is a direct assessment of behavioral self-regulation. In this game, children are instructed

to do the opposite of what the research assistant says. For example, if the research assistant

instructs them to touch their head (or their toes), instead of following the command, children are

directed to do the opposite and touch their toes (head). The rules are then applied to knees and

shoulders. In the last testing section, the rules change once more, so that children have to

remember new pairs (i.e. head goes with knees, and shoulders go with toes). In the current

analyses, the four practice trials with feedback were given followed by 10 test trials. Final scores

for the task were the sum of children's performance on the 30 testing items. Scores ranged from

0-56 ($M = 8.70$, $SD = 13.20$). In previous work, the HTKS had strong predictive validity to

academic outcomes in young children. In the present sample, the HTKS had a Cronbach's alpha

of 0.96.

Covariates. Children's age and gender are included as covariates in the model, as past

research has demonstrated a strong association between each variable and children's self-

regulation (Matthews, Cameron Ponitz, & Morrison, 2009; Hongwanishkul et al., 2005).

Children's age was captured at the time of their direct assessment in the fall of preschool and

was represented in months.

Analytic Plan

Analyses were conducted in three steps using both Stata and MPlus.

Step 1. First, the eight community-level resource variables at the census tract-level ($n =$

70) were modeled in a latent profile analysis using MPlus. The latent profile model produces a

categorical latent variable from continuous manifest indicators (Lazarsfeld & Henry, 1968).

Latent profile analysis (LPA) statistically derives mutually exclusive profiles that maximize

between-group variance and minimize within-group variance based on model fit criteria (Collins

& Lanza, 2010). Furthermore, LPA attempts to estimate the statistical likelihood of the

distribution of variables for each profile, and estimates the probability that each observation falls

into each profile. Within all latent profiles, each variable is assumed to be statistically

independent of every other variable. Accordingly, LPA derives non-observable subgroups that

represent distinct categories of, in this case, community resources. Although the latent profiles

do not represent "true" communities, they are statistically significant, unique combinations of

resources that are more likely to group together, based on the directly observed characteristics of each variable.

Given the exploratory nature of the research question, an inductive approach was taken to determine the number of profiles that most appropriately fit the data. Solutions for all possible numbers of profiles were tested and compared on the Bayesian Information Criterion (BIC), Lo-Mendell-Rubin likelihood ratio test (LMR), profile sizes, entropy, and interpretability of the profiles, until the most parsimonious model was reached.

Step 2. Once the LPA model was defined, census tracts were assigned to their respective profile based on the maximum posterior probability of class membership (Cooper & Lanza, 2014). It is important to note that likely latent profile membership is conditional on the response patterns of each census tract, independently of one another. Therefore, when there is a high degree of certainty in the classification of the most likely profile membership (e.g., as indicated by a high entropy statistic), a given census tract will have a large probability of membership in one profile and a low probability of membership in the remaining latent profiles (Collins & Lanza, 2010). In the present study, the most likely community profile membership was linked with child-level data to complete the final step of the analysis.

Step 3. In order to account for non-independence of the data (children nested within census tracts), three multilevel (i.e. random intercept) models with covariates were run. Multilevel models permit partitioning the variance of self-regulation at the between- and within-census tract-levels, and permit the modeling of correlated data. In this case, they account for the nonindependence of children's observations within census tracts. The final models assessed whether community profile membership could explain observed variation in three self-regulation measures across census tracts, above and beyond demographic risk factors, and to what extent

variation in self-regulation could be explained by the cross-level interaction between profile membership and ELL status. Thus, the results are interpreted as effects of communities on children's development, above and beyond influences at the child- and family-level.

The three multilevel models were run in Stata 12.0 using the xtmixed command with the maximum likelihood estimator option to handle missing data. Each outcome of self-regulation (Head-Toes-Knees-Shoulders, Day-Night Stroop, and Dimension Change Card Sort) was regressed on children's demographic factors (parent education level and ELL status), the maximum posterior probability of their profile membership, and the interaction between their ELL status and most likely profile membership. Gender and child age were also included as covariates in the models.

Chapter 4. Results

Correlations among community resource variables, demographic variables, covariates, and self-regulation variables are presented in tables 2 and 3. Preliminary intraclass correlations (ICCs) were run with children clustered at the census tract-level to ensure feasibility of investigating community-level influences on self-regulation. Approximately 6% of the variance in Day-Night Stroop scores, 7% of the variance in Head-Toes-Knees-Shoulders scores, and 7% of the variance in Dimension Change Card Sort scores were due to children residing in different census tracts, when controlling for demographic factors (i.e., ELL status and parent education). These findings are consistent with neighborhood and community literature (Leventhal & Brooks-Gunn, 2000), and suggest the variation due to census tract membership should be taken into consideration in subsequent analyses (Julian, 2001).

Step 1. Fit statistics for a series of latent profile models with 1-4 classes were compared until the optimal model was reached. The solution with 5 profiles could not be sufficiently modeled with these data because the maximum log-likelihood value would not replicate with multiple sets of starting points. Model exploration stopped after attempting to run the 5-profile solution.

First, the BIC for profiles 1-4 were considered. Lower values of information criteria suggest better balance between fit and parsimony. The BIC for the 3-profile solution was slightly larger than the BIC for the 4-profile solution, and the BIC for the 2-profile solution was larger than the BIC for the 3-profile solution (3637.91 for 2-profile vs. 3403.33 for 3-profile and 3366.77 for the 4-profile). Thus, the BIC suggested that the 4-profile model was superior.

Next, the LMR tests were considered. A significant LMR test with a p-value <.05 indicates the "higher profile" solution fit the data better (e.g., 2-profile better than 1-profile).

The LMR p-values comparing each model to their "lower profile" were not statistically significant ($p > 0.05$), and therefore, added no additional knowledge to model fit criterion. Given this information, the number of observations assigned to each profile and the interpretability of the profiles were considered. The 3-profile model was chosen because it had reasonable profile sizes, greater parsimony, and its parameter estimates presented a solution with a defensible interpretation of community profiles. The means, sample sizes, and proportions of the 3-profile solution are located in Table 4 and a graphical representation of the profiles are located in Figure 1.

Consistent across all three profiles, a few of the community resources were behaving similarly, in terms of the availability and quantity of the resources that residents in the profiles were accessing. For example, if a profile displayed a high percentage of mothers receiving prenatal care in the first trimester, it was more likely that the profile would also display a high availability of child care slots and/or percent of 3- and 4- year olds enrolled in preschool. However, these three indicators were not necessarily as related to the amount of public assistance and/or WIC that residents received in the same community profile. Three broad categories were created to describe the unique contribution that these combinations of resources had in defining the community profiles, based on the parallels in the behaviors of variables and how well they grouped together in the profiles. Children from low-income families in the present study experienced three subgroupings of resources in their communities, labeled *human capital resources, structural resources,* and *social service resources*.

The first latent profile in the 3-profile solution was characterized by having high human capital resources, as its members had the highest mean income ($48,659.00) and highest education, in terms of the percent of community members with a college degree or greater

(47%). In addition, this profile had high structural resources, with the highest proportion of 3-

and 4- year olds enrolled in preschool (49%), highest percent of mothers receiving prenatal care

(79%), and highest availability of child care slots (16%). On the other hand, this community

profile had low utilization of social service resources, as its members accessed and utilized the

least amount of public assistance income (3%) and WIC (37%). Twenty-seven percent of census

tracts fit into this subgroup ($n = 19$ census tracts). For simplicity, this profile was labeled as the

high affordances community.

The majority of census tracts (47%) were represented in the second latent profile ($n = 33$

census tracts). This profile was also characterized by having high human capital resources, with

slightly above average income ($46,631.00) and the highest labor force participation rate (64%).

However, this profile also had low structural resources, with the lowest percent of mothers

receiving prenatal care (71%) and the lowest proportion of 3- and 4- year olds enrolled in

preschool (33%). Finally, the second latent profile had high utilization of social service

resources, as its members accessed the greatest amount of public assistance income (5%) and

WIC (60%). This profile was labeled as the *mixed affordances* community.

The third latent profile was characterized by having low human capital resources, as its

members had the lowest mean income ($43,465.00), lowest labor force participation rate (60%),

and lowest education, in terms of having a college degree or greater (18%). In addition, this

profile was characterized by having low structural resources, with a lower than average percent

of 3- and 4- year olds enrolled in preschool (33%) and the lowest percent of child care slots

(13%). Moreover, this profile had low utilization of social service resources*,* with slightly below

average WIC receipt (48%) and public assistance receipt (4%). Twenty-six percent of census

tracts fit into this subgroup (*n* = 18 census tracts)*,* which was labeled as the *low affordances* community profile.

Step 2. In the present study, the 3-profile model reached entropy of 1.00, suggesting that the 3 profiles were classified with nearly 100% certainty (Collins & Lanza, 2010). Entropy represents the weighted average of census tracts' posterior probabilities, and the closer entropy is to 1, the greater the probability that there was little-to-no error associated with assigning census tracts to their respective latent profiles. A categorical variable representing profile membership, (1) *high affordances;* (2) *mixed affordances, and* (3) *low affordances*, was used in each of the multilevel regression models to predict children's self-regulation.

Step 3. Results from the multilevel random effects models yield support for a main effect of community profile membership and English-Language Learner status on self-regulation for some outcomes, and no overall interaction effect. As a result, the interaction was dropped and the main effects were explored in the final set of analyses (Table 5). ELL status and community profile membership were associated with children's Head-Toes-Knees-Shoulders scores at the trend level (*b* = -3.09, *SE* = 1.75, *z* = -1.77, *p* < 0.10)*,* after adjusting for demographic factors and controlling for gender and child age. Given the moderate correlation between ELL status and community profile membership, either one of these estimates may have reached statistical significance if the other was pruned out. Thus, these trend-level effects are important to consider in conjunction with the significant findings.

ELL status significantly predicted Day-Night Stroop scores*,* but not Head-Toes-Knees-Shoulders or Dimension Change Card Sort scores. Specifically, low-income children who were English-Language Learners scored approximately 4.5 points higher on the Day-Night Stroop task compared to low-income children who were non- English-Language Learners (*b* = 4.50, *SE*

= 1.38, , $z = 3.27$, $p < 0.01$). In addition, community profile membership significantly predicted Day-Night Stroop scores and Dimension Change Card Sort scores. Low-income children who were most likely to reside in the mixed affordances community profile scored approximately 2 points lower on the Dimension Change Card Sort task ($b = -1.87$, $SE = 0.76$, , $z = -2.45$, $p < 0.05$), and 4 points lower on the Day-Night Stroop task ($b = -4.07$, $SE = 1.39$, , $z = -2.94$, $p < 0.01$), compared to low-income children who were most likely to reside in the low affordances community. Low-income children who were most likely to belong to the high affordances community did not have significantly better self-regulation than low-income children who were most likely to belong to the mixed affordances or the low affordances community profiles.

Table 1

Descriptive Statistics for Major Study Variables

Child-Level			
Continuous Variables	*N*	*M (SD)*	**Range**
Age (months)	451	53.84 (6.02)	37.98 – 66.04
Day-night Score	414	20.21 (9.95)	0 – 32
DCCS Score	417	9.84 (5.70)	1 – 22
HTKS Score	404	8.70 (13.20)	0 – 56
Categorical Variables	*N*	% Yes	Range
Gender (female)	462	50 (.50)	0 – 1
Demographic-Level			
Continuous Variables	*N*	*M (SD)*	**Range**
Parent Education	319	11.28	0 – 19
Categorical Variables			
English Language Learner	509	30 (70)	0 – 1
Community-Level			
Continuous Variable	*N*	*M (SD)*	**Range**
Median household income	70	46367.54 (16257.54)	14183 – 79531
Percentages	*N*	*M (SD)*	**Range (%)**
Percent child care slots per 100 children	70	14.57 (1.65)	13 – 24
Percent pregnant mothers receiving WIC	70	50.56 (10.27)	32 – 62
Percent college degree or greater	70	27.56 (16.21)	7.72 – 67.42
Percent 3 & 4 year olds enrolled in preschool	68	36.80 (30.00)	0 – 100
Percent mothers receiving prenatal care	70	74.77 (3.63)	71.22 – 80.92
Percent households on public assistance income	70	3.96 (3.01)	0 – 14.43
Percent population in labor force	70	62.04 (8.32)	30.00 – 76.32

Note. HTKS = Head, Toes, Knees, Shoulders Sum Score; DCCS = Dimension Change Card Sort task

Table 2

Correlations among Community Resource Variables, Demographic Variables, and Covariates

Variables	1	2	3	4	5	6	7	8	9	10	11	12
1. Child Age (months)												
2. Child Female	.05											
3. Child ELL	.05	.04										
4. Parent education	.01	-.02	-.50***									
5. Median household income	.00	.03	-.19***	.12*								
6. Child care slots	.04	.08	-.02	-.06	.13**							
7. Pregnant women WIC	.35***	-.04	.03	.20***	.50***	-.01						
8. College degree	.10*	.02	-.21***	.50***	.58***	-.46***	-.52***					
9. Preschool enrollment	.06	-.01	-.07	.25***	.18***	.39***	-.15**	.31***				
10. Prenatal care	.37***	.04	-.04	.06	-.02	.39***	-.98***	.45***	.12**			
11. Public assistance	-.00	.01	.13**	-.12*	-.39***	-.22***	.16***	-.53***	-.12**	-.12**		
12. Labor force participation	.03	.05	-.14**	.09	.35***	.06	.03	.20***	.38***	-.05	.17***	

Note: *p <.05, **p <.01, ***p <.001

Table 3

Correlations among Community Resource Variables and Self-Regulation Outcomes

Variables	1	2	3
1. Day-Night			
2. DCCS	.18*		
3. HTKS	.28*	.43*	
4. Median household income	-.11*	.14*	.05
5. Child care slots	-.02	.05	.06
6. Pregnant women WIC	-.17*	-.24*	-.23*
7. College degree	-.05	.13*	.10*
8. Preschool enrollment	-.08	-.02	.03
9. Prenatal care	.18*	.26*	.25*
10. Public assistance	.04	-.08	-.09
11. Labor force participation	-.09	.01	.00

Note: *p <.05, **p <.01, ***p <.001

Table 4

Three Profile Latent Solution of Community Resource Variables (*n = 70)*

Community Variable Means	First Profile	Second Profile	Third Profile
Census Tract-Level			
Median Household Income	48,659.00	46,631.00	43,465.00
Labor Force Participation	60.584	63.873	60.235
College Degree	46.837	21.438	18.425
Public Assistance	2.799	4.645	3.943
Preschool Enrollment	49.021	32.545	33.077
County-Level			
Child Care Slots	16.421	14.121	13.444
Prenatal Care	79.700	71.240	76.050
Pregnant women WIC	36.579	60.061	47.889
Profile Size	19	33	18
Proportion	27%	47%	26%

Figure 1

Line Graph Representing Three Profile Latent Solution of Community Resource Variables (n = 70)
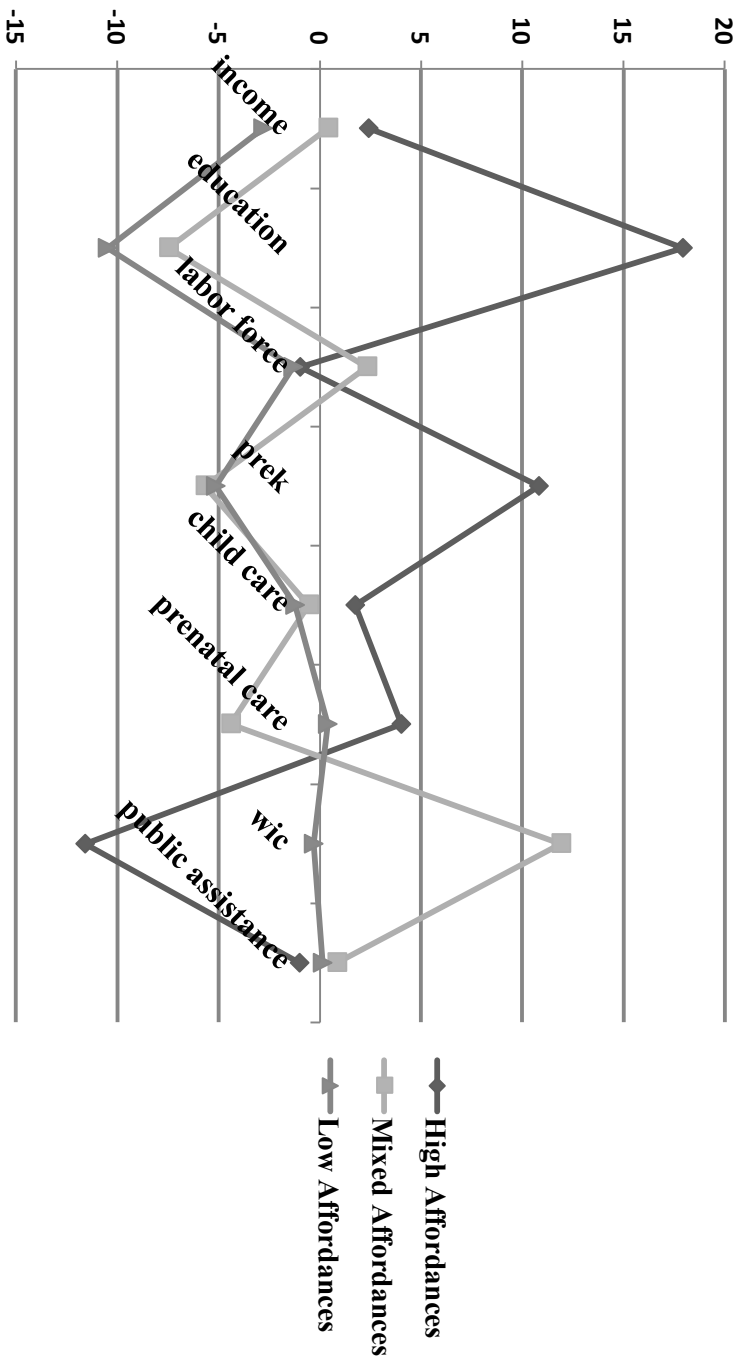
Table 5

Main Effects of Latent Profile Membership and English-Language Learner Status on Self-Regulation

	Day-Night Stroop		Dimension Change Card Sort		Head-Toes-Knees-Shoulders	
	b	SE	b	SE	b	SE
ELL	4.50**	1.38	-.21	0.75	-3.09^t	1.75
Community Profile						
high versus mixed	3.33^t	1.78	1.65^t	0.97	3.73	2.42
high versus low	-0.74	1.82	-0.22	0.99	-0.15	2.52
mixed versus low	-4.07**	1.39	-1.87*	0.76	-3.87^t	1.98
Parent Education	0.34	0.23	0.08	0.12	0.28	0.29
Female	1.77	1.14	0.77	0.62	2.13	1.46
Age	0.21	0.11	0.26***	0.06	0.35*	0.15

Note. * = $p < 0.05$; ** = $p < 0.01$; *** $p < 0.001$; ^{t} $p < .10$

Chapter 5. Discussion

The purpose of this study was to explore the subgroups of community resources available to children from low-income families, whether membership in specific community profiles at entry to preschool predicted children's concurrent levels of self-regulation, and if the relation between community profile membership and self-regulation was moderated by ELL status. The findings from this investigation indicate that, although children were somewhat homogenous in their family income (e.g. they were all from low-income families), they experienced considerable differences in the broader community contexts within which they resided. In addition, community profile membership was, in some cases, significantly related to low-income children's self-regulation at preschool entry. Although the effect of community profile membership on children's self-regulation did not differ as a function of ELL status, there was evidence that profile membership and ELL status were independently related to self-regulation at the start of preschool. Taken together, these results provide partial support that variability in resources at the community-level helps to explain self-regulation differences beyond those contributed by demographic characteristics. In other words, the unique combinations of community resource variables accounted for additional variance on dependent measures of self-regulation, above and beyond those contributed by characteristics of the child (e.g. gender, age, and ELL status) and family (e.g. parent education). The findings from this study are consistent with Bronfenbrenner's Bioecological model, and have implications for programs and policies that influence the broader ecology within which children develop.

Community Profiles of Resources

The first research question explored what unique profiles of community resources were available to children from low-income families. Results from an exploratory analysis suggested

that community resources were best captured by three distinct profiles: (1) *high affordances;* (2) *mixed affordances; and* (3) *low affordances*. These findings indicate that communities offer significant differences in the type and quantity of resources available to children from low-income families. Specifically, children experience considerable differences in access to human capital, structural, and social service resources, based on the census tract they reside in.

Children who resided in census tracts that were most likely to belong to the *high affordances* latent subgroup of community resources represented the smallest profile ($n = 66$ children). This community profile was characterized by offering the most child care, highest preschool enrollment, and greatest amount of prenatal care to residents who had the greatest amount of social capital resources (e.g. income and education). Thus, families in this community generally would not need to rely on social services because of the surplus of diverse resources and social network supports available to them. These results support the hypothesis for the first research question, and suggest that some children from low-income families may reside in a community type that is rich in resources.

As expected, a resource-poor community profile also emerged in the results. Children who resided in census tracts that were most likely to belong to the *low affordances* latent subgroup of community resources represented the second largest profile ($n = 140$ children). This community profile was characterized by offering the lowest availability of child care slots and lower than average preschool enrollment to families who had the least amount of employment, education, and income. Having a greater proportion of adult residents in caregiving roles may partially explain the low labor force participation rate, lower income, and lower education attainment. To illustrate, in a study of all low-income families, researchers found that about half of the children between the ages of two and five were cared for by relatives inside or outside of

the home, or nonrelatives outside of the home (Li-Grining & Coley, 2006). Alternatively, low

rates of child care and education utilization for families with lower income and labor force

participation may indicate the presence of barriers in access to child care subsidies, such as lack

of knowledge regarding subsidy regulations and eligibility (Shlay, Weinraub, Harmon, & Tran,

2004). In general, research suggests that, as the share of families receiving subsidized child care

rises (Collins, Layzer, Kreader, Werner, & Glantz, 2000), institutional practices may become

more influential in determining which families are allocated slots in centers or child care

vouchers (Loeb et al., 2004).

The majority of children in the current study resided in census tracts that were most likely

to belong to the *mixed affordances* latent subgroup of community resources ($n = 258$ children).

This community was characterized by having high human capital resources, low structural

resources, and high social service resources. Adults in this profile had slightly above-average

income and the highest labor force participation rate. Yet, members of this community received

the least amount of prenatal care, had low preschool enrollment, and utilized the highest amount

of WIC and public assistance income. These results suggest that there may be decent paying

jobs available to residents in this community, but a lack of structural supports, in the form of

early child care, health, and education. Intuitively, one would expect pregnant women in the low

affordances community profile to be more likely to utilize WIC than pregnant women in the

mixed affordances community profile, based on the income, education, and labor force

discrepancy. The same expectation would hold for the use of public assistance income.

However, other research has reported that families in poverty are very likely to have at least one

worker, and only about one in five poor families during the mid-1990s depended solely on

welfare for financial support (Blank, 1997). In other words, this profile may represent the

working poor; families where at least one adult is working, and thus raising the income to slightly above what is required to receive social services, such as child care subsidy, but not programs such as WIC which serves families 200% below the poverty line. Indeed, one condition of almost all welfare programs is employment. Therefore, it is not too surprising that the mixed affordances community profile had a higher percentage of working adults and simultaneously utilized a greater amount of WIC and public assistance income, compared to the low affordances community profile.

To the author's knowledge, this study represents the first attempt to classify variability in community resources that are available to children from low-income families. The latent profile analysis from this study suggested that children in this sample resided in census tracts whose resources group together in three ways: a *low affordances community*, a *mixed affordances community*, or a *high affordances community*. When generalized to the broader population, these findings provide evidence that low-income families are uniquely positioned within the broader ecology, despite experiencing similarities in their immediate family context. Specifically, low-SES families are likely to demonstrate variability on a number of levels, including in the communities in which they tend to live.

Community Profiles and Self-Regulation

The second research question investigated whether community profile membership predicted children's self-regulation upon entry to preschool, when accounting for demographic risk factors (e.g. parent education and ELL status). An inductive approach to data analysis was administered, and it was hypothesized that low-income children who resided in census tracts that were most likely to belong to community profiles rich in resources would have stronger self-regulation at preschool entry, compared to children who resided in census tracts that most likely

belonged to community profiles with limited resources. This was assumed, in part, because of the literature reviewed regarding the benefits that the resources in this study could provide to children from low-income families (e.g. Aber et al., 1997; Duncan & Chase-Landsdale, 2001; Leventhal & Brooks-Gunn, 2000).

Results indicated that variability in community resources significantly predicted children's inhibitory control and attentional flexibility, as measured by the Day-Night Stroop task and Dimension Change Card Sort task. However, contrary to the hypothesis, children who resided in census tracts that were most likely to belong to the high affordances community profile, characterized as offering high human resources, high structural resources, and low social service resources, did not have significantly better self-regulation than children who resided in census tracts that were most likely to belong to the mixed affordances or low affordances community profiles. Instead, children who resided in census tracts belonging to the low affordances community profile, characterized by offering low human capital resources, low structural resources, and low social service resources, displayed significantly better self-regulation compared to children who resided in census tracts belonging to the mixed affordances community profile, characterized by offering high human capital resources, low structural resources, and high social service resources.

In regards to this unexpected finding, children who resided in census tracts belonging to the mixed affordances community (e.g. above average education, income, and labor force participation, below average child care slots, preschool enrollment, and prenatal care receipt, and above average public assistance income and WIC receipt), displayed significantly lower inhibitory control and attentional flexibility than their peers who resided in census tracts belonging to the low affordances community (e.g. below average education, income, labor force

participation, child care slots, preschool enrollment, prenatal care receipt, public assistance income, and WIC receipt). Both the mixed affordances community profile and low affordances community profile shared the common characteristic of offering low structural resources, in terms of the availability of child care slots, the proportion of 3- and 4- year olds enrolled in preschool, and mothers' receipt of prenatal care in the first trimester. The mixed affordances community profile and low affordances community profile did differ, however, in the amount of human capital resources and social service resources they offered to residents. Specifically, the mixed affordances community profile was characterized by offering high human capital resources and high social service resources, and the low affordances community profile was characterized by offering low human capital resources and low social service resources.

One would expect that having high human capital resources (e.g. education, income, labor force participation) as compared to low human capital resources would yield better child outcomes (Shonkoff & Phillips, 2000; Theokas & Lerner, 2006). Similarly, one would expect that receiving a greater amount of social service resources (e.g. public assistance income and WIC), would result in better outcomes for children from low-income families (Duncan & Chase-Landsdale, 2001; Morris et al., 2001). Yet, children who resided in census tracts that most likely belonged in the mixed affordances community, offering higher than average human capital resources and social service resources, displayed significantly lower inhibitory control and attentional flexibility compared to children who resided in census tracts that most likely belonged in the low affordances community, offering lower than average human capital resources and social service resources.

One explanation for this finding may be that distal markers of human capital resources and social service resources are potentially less influential for children's outcomes when

proximal demographic risk factors, such as low parent education and ELL status, are present.

Indeed, a major proposition of the Bioecological model is that proximal processes, rather than

distal contexts, are considered the driving forces of development (Bronfenbrenner & Morris,

2006). To test this theory, the profiles were examined in a post-hoc analysis to explore whether

they differed by children's ELL status and whether they came from a family with low parent

education (classified as less than a high school degree). The results suggested that ELL status

and low parent education did not significantly explain whether children were more likely to

belong to the mixed affordances community profile or the low affordances community profile.

These findings are consistent with the multi-level regression model and confirm that the effects

of community profile membership are most likely independent of family-level indicators.

Therefore, low-income children who resided in census tracts that were most likely to belong to

the mixed affordances community profile arrived to preschool with significantly worse self-

regulation than their peers, and this may be in part due to the availability of human capital and

social service resources present in their community.

Another plausible explanation for why children who belonged to the low affordances

community profile displayed stronger self-regulation compared to children who belonged to the

mixed affordances community profile is that the receipt of social service resources, such as WIC

and less prenatal care, may be representing a greater degree of disadvantage within the

community. Consequently, receiving social services alongside high human capital resources, as

was the case in the mixed affordances community profile, may have the opposite effect than

what would be expected based on previous research (Vanderbilt-Adriance & Shaw, 2008).

Consider, for example, the working poor family scenario. Results from the New Hope study, an

intervention designed to increase parents' employment and access to high quality child care,

suggested that children whose families were assigned to the treatment group spent more time in formal, center-based care and afterschool programs, and less time in home-based care than children whose families were assigned to the control group (Huston et al., 2003). However, despite spending more time in high quality child care environments, the children in the New Hope program did not fare any better than their peers in the control group when compared on measures of academic achievement, motivation, behaviors, or social relationships (Huston et al., 2003). These results are consistent with previous research and suggest children may not experience developmental benefits when families in poverty leave welfare programs to work (McGroder, Zaslow, & Moore, 2000).

In light of these findings, it is important to note that he impacts of welfare- to- work programs are influenced by the quality of child care in a given area (Loeb et al., 2004). For example, states and counties vary widely in their funding for center-based programs and the quality across centers (Fuller et al., 2002), and opportunities for high-quality child care in areas surrounding poor families (working or non-working) may be few and far between (Tudge et al., 2009). In addition, low-income families are often unable to take advantage of subsidy programs because of multiple barriers, such as flexibility of programs and participating centers (Lowe & Weisner, 2004). Therefore, children's opportunities for learning and growth in the early years may be better supported in a home environment when low-income parents are equipped with the necessary resources to provide positive and consistent interactions with their children, as opposed to when their children attend a child care center. Future work should examine whether policies that support low-income families to stay at home with children have greater impacts on children's development of self-regulation in the early years that policies that promote labor force participation, such as welfare- to- work programs.

It may also be the case that community-level variables not represented within the community profiles, but that distinguish the communities from one another, are responsible for the differences self-regulation that were observed. In the absence of additional community resource variables, the community profiles were mapped onto their respective census tracts to explore whether a geographic representation could add explanatory information about the profiles. The map produced an interesting picture; the three profiles were clustered around remote or urban areas. For example, the census tracts that comprised the mixed affordances profile of community resources were mostly located around a major city. At first this might suggest the potential for greater access to resources, because families are not required to travel as far, for example. In addition, a city may have more systems in place to facilitate the use of resources. However, it may also be the case that when the majority of children belong to a profile clustered around a city, these families must compete with a greater proportion of low-income families for vital resources. This may partially explain why, although children who belonged to the mixed affordances community profile resided in more urban census tracts, they entered preschool with significantly weaker self-regulation skills. Alternatively, the census tracts that comprised the low affordances profile of community resources were almost all rural. Although accessing resources may be more challenging because of transportation issues and lack of systems to reach families, the degree of competition would be considerably lower.

Finally, the mixed affordances community profile consisted of the largest proportion of children in the sample, which introduced the potential for greater intra-profile variability. In other words, even though the variances were fixed across profiles in the LPA, it is likely there was be more variability within the mixed affordances community profile, which may have contributed to the ability to detect significant differences in the multi-level regression analysis.

Regardless of the many potential circumstances described, it was not possible to account for variability in additional exogenous variables across children, such as the degree of poverty, ruralness of neighborhoods, features of the home environment, or quality of Head Start centers because these variables were not available in the dataset. Future research should explore the processes by which resources influence children within these three types of communities, and investigate variability of family and child care characteristics within the community profiles to see how family-level and community-level variables interact.

Community Profiles, ELL Status, and Self-Regulation

The third research question investigated whether the association between community profile membership and self-regulation was moderated by English-Language Learner status. The interaction between community profile membership and ELL status was not significant for any of the self-regulation outcomes. Despite speculations (South, 2001), it appears that community environments impact all children in the same way, regardless of their sociodemographic positions. These findings provide support for equalizing neighborhood opportunities to all low-income families, regardless of the constellation of their sociodemographic risks. Offering vital resources to families experiencing heterogenous circumstances may be one route to narrowing the school readiness gap. Finally, a main effect for ELL status was observed for the Day-Night Stroop task, indicating that ELLs displayed better inhibitory control at the start of preschool compared to their monolingual peers. This result is consistent with previous research, whereby bilingual speakers have demonstrated advanced inhibitory control skills compared to their monolingual counterparts (Bialystok, 1999; Carlson & Meltzoff, 2008; Poarch & Hell, 2013). Researchers have speculated that while children are learning dual languages (i.e. English Language Learners), both languages are constantly active during language processing. The

added benefit is received when children must inhibit interference from the non-relevant language while processing and responding (Bialystok, 2001). However, results are mixed as to whether or not this benefit transfers to other self-regulation skills.

Implications

The emergence of three subgroups of community resources has implications for how programs and policies are designed to meet the needs of low-income families. Specifically, these findings may be used to identify which types of communities could benefit most from additional human, structural, and social supports, and rather, which families within these communities could benefit from additional resources. When children and families experience a lack of access and availability to important resources that promote healthy development, the gaps already in place due to demographic differences may be exacerbated. Thus, neighborhood and community differences can be considered a source of tremendous support, or alternatively, they may constitute an additional risk (Brooks-Gunn et al., 1993), generating cumulative disadvantage (Arditti, Burton, & Neeves-Botelho, 2010; Ceballo & Hurd, 2008; Puckering, 2004; Williams & Collins, 1995). Understanding the flow of resources from outside the community to low-income families within communities is an important step for determining at which point along the process interventions and programs should focus their efforts.

Multilevel models provided substantive evidence that the aggregate of the actual or potential resources within a community played a role in facilitating the development of young children's self-regulation skills, in the absence of family income resources and other sociodemographic strengths (Mendenhall et al., 2006). The fact that the community profile membership significantly predicted children's self-regulation at preschool entry, after adjusting for child-level (ELL status, gender, and age) and family-level (parent education and income)

demographic characteristics is noteworthy. Children are influenced by factors in their respective

neighborhoods, and realizing the processes that drive the impact of community resources on

development is an important next step. In addition, these findings can be used to inform where

and how improvements in multiple contexts should be made, in order to make up for the lack of

resources at the family- and community-level. For example, the Bioecological Model posits that

protective factors can exist at both proximal and distal levels in the broader environment. In

particular, low-income children tend to begin their schooling with great disparities, which

maintains the need for supports to begin before children enter the formal schooling system.

Targeted interventions in the home and neighborhood aimed at supporting families are

particularly warranted for families living in stressful circumstances and for providing enriching

early learning opportunities (Hanson et al., 2011). Furthermore, preschool curricula and

classroom best practices should be tailored to support children who are known to experience a

lack of human, structural, or social service resources in their community.

Limitations and Future Directions

This study is not without shortcomings. First and foremost, family selection into

communities cannot be accounted for in the analyses, given that access to all variables related to

community membership are not available. The issue of selection bias is pervasive in

neighborhood research, where decisions around moving are nonrandom and motivated by a wide

range of economic factors, psychosocial stressors, and family circumstances. This issue cannot

be ruled out as an explanation as to why children who resided in census tracts belonging to the

low affordances community profile displayed significantly better self-regulation than children

who resided in census tracts belonging to the mixed affordances community profile. All children

in the study were from low-income families, based on their Head Start attendance. In addition,

mother's education, which has been used as a proxy for wages, was controlled for (Jackson, Brooks-Gunn, Huang, & Glassman, 2000). However, it is possible that there was something unique about the families who most likely belonged to the mixed affordances profile that contributed to why they chose to live in particular neighborhoods. The same could be said for families in the low affordances community profile. Without having access to additional family-level variables, this question was not possible to investigate. Moving forward, researchers should continue to explore factors that motivate families' decisions to live in particular communities and capitalize on methodological approaches that are robust to selection bias in order to strengthen causal claims. Despite this limitation, community effects were found after controlling for differences in demographic factors, which supports the premise that neighborhood effects are not completely due to the characteristics of families who reside in certain neighborhoods.

The complexity of examining the mechanisms by which neighborhood effects may be transmitted has been acknowledged by many scholars and deserves attention in future work (South, 2001). Understanding the processes that underlie the influence of ecological contexts on children is an important next step for researchers who are interested in promoting the development of self-regulation. For instance, community impacts on child development are likely mediated by family-level variables, including parenting behaviors, supervision, or monitoring (Leventhal & Brooks-Gunn, 2000). It is beyond the scope of this study to test how family variables mediate the relation between community influences on child outcomes. Furthermore, it's impossible to know whether children and families in the current sample were those in the community who were drawing upon the collective resources to procure benefits and services in the absence of their own economic capital (Bourdieu, 1986). Nevertheless, future

work should investigate the mediating role of family characteristics and how resources may be

accrued through both indirect influences on parents as well as by these direct experiences of

children (Duncan & Raudenbush, 2001). Likewise, family-level risk factors should be

incorporated *within* the profiles, based on evidence that the *combination* of risk and protective

factors have important implications for child outcomes (Dearing, Berry, & Zaslow, 2006; Evans,

Kim, Ting, Tesher, & Shannis, 2007).

In addition, future work should continue to explore the mechanisms within communities

that result in negative outcomes for children. The investigation of such social processes is a

fruitful area for developmental researchers (Benson et al., 2012; Gibson et al., 2010). More

recently, the collective efficacy model has received increased attention. Leventhal and Brooks-

Gunn (2000, 2003) and Jencks and Mayer (1990) argue that children residing in different

neighborhoods will develop, on average, different levels of self-control due to collective

socialization and informal control efforts (or a lack of) in their communities. That is, regardless

of parenting factors and individual differences, children residing in neighborhoods where the

community has a strong potential to collectively act for the common good of their children, and

has their best interest in mind, will develop more self-control than will those residing in

neighborhoods with less concern for children. Indeed, Wikström and Sampson (2003) found that

the extent of informal social control mechanisms in a neighborhood and the degree to which

residents monitor and supervise children's behavior in communities is an important predictor of

children's self-control.

Additional variables that may explain community profile classification should be

included in future models. It is possible that some unknown indicators associated with the

variables specified in the present analysis are driving underlying differences in the LPA. In turn,

these looming community indicators may partially account for the effects of community profile membership on children's self-regulation. For example, independent variables such as race and ethnicity, or needs-to-services ratio may explain differences in the education, income, labor force participation, receipt of prenatal care, and/or preschool attendance of members in particular community, and are also likely to impact children's development of self-regulation.

Community profile membership predicted low-income children's inhibitory control (Day-Night Stroop task) and attentional flexibility skills (Dimension Change Card Sort task), but only reached trend level for their integrated self-regulation (Head-Toes-Knees-Shoulders task). Using a diverse group of measures to assess children's self-regulation at the start of preschool is important for capturing differences attributed to child-level characteristics (e.g. ELL status) and variability that can be explained by the neighborhoods they come from (e.g. community resources). Future studies should investigate the predictive validity of additional measures of self-regulation, and extend this work by exploring relations between community resources and other developmental domains, such as academic achievement and socioemotional competence.

Although entropy reached 1.00, the analytic procedure assumes that profile membership is not certain and the inference in the outcome analysis may be biased to the extent that there is uncertainty in latent profile membership (Lanza, Tan, & Bray, 2013). This method was chosen in the proposed study for ease of interpretability of results and as a first approximation of the data. Future studies that build on this work should investigate the question at hand with weighted-probability models to compare and contrast the results. For example, Lanza and colleagues (2013) suggest a three-step approach that provides less biased estimates and greater effect sizes by utilizing subjects' probabilities of membership in each latent profile, instead of selecting the most likely class membership for a subsequent analysis.

Finally, future studies should explore the relations between community variables and children's self-regulation longitudinally (Theokas & Lerner, 2006). Do community effects on self-regulation become weaker or stronger in middle-childhood and adolescence? Does membership in specific community profiles consistently predict self-regulation over the primary school years? Do children stay in the same types of communities through their development, and similarly, do communities remain constant in the resources they offer children and families over time? The impact of neighborhood residence is also to vary across development; however, because much of the neighborhood research is cross-sectional or based on neighborhood residence at a single point in time, this issue has not been adequately addressed (Leventhal & Brooks-Gunn, 2003). One might expect that as a result of an increasing agency through childhood (i.e., increasing physical and mental powers to intentionally make things happen) individuals become generally more active and selective in relation to their environment, and therefore gradually enhance their potential to influence their own course of development. These are important questions to answer for understanding the time-varying effect of communities on development, at what point in the lifespan living in a particular neighborhoods matters most for development, and to whom it matters most for.

Chapter 6. Conclusion

Variations in the contexts within which development unfolds must be appreciated to progress theory and research on the fundamental dynamics of development (Aber et al., 1997). This investigation represents the first attempt to characterize variability in community contexts that children from low-income family experience in the early years. The findings indicate community resources are interrelated and interact in complex ways that may not be captured through traditional variable-centered approaches. Furthermore, this study replicates previous research that has found independent relations between community-level variables and children's self-regulation outcomes (Hanson et al., 2011; McCoy et al., 2015a/2015b; Roy et al., 2014; Roy & Raver, 2014). It also extends on this work in two important ways: (1) by investigating how profiles of community resources operate to influence development, and (2) by exploring whether this relation differs for English-Language Learners. Results from this study support the Bioecological model of human development and suggest that communities have the potential to both promote and hinder low-income children's development of self-regulation through the opportunities they offer children and families.

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