

Annual Review of Sociology

Neighborhood–School Structures: A New Approach to the Joint Study of Social Contexts

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Annu. Rev. Sociol. 2023. 49:297–317

First published as a Review in Advance on
March 31, 2023

The *Annual Review of Sociology* is online at
soc.annualreviews.org

<https://doi.org/10.1146/annurev-soc-031021-110311>

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Keywords

neighborhoods, schools, neighborhood effects, school effects, segregation, social contexts

Abstract

Robust literatures separately estimate school effects and neighborhood effects on children's educational, economic, health, and other outcomes that measure well-being. A growing body of research acknowledges that both contexts matter and considers neighborhoods and schools jointly. In this review, we synthesize the array of results that emerge from these studies and critique the tendency for researchers to evaluate which matters more, neighborhoods versus schools. We propose a reorientation of this scholarship that incorporates research on neighborhood and school selection and segregation processes. We argue that contextual effects research would be enriched by considering local neighborhood–school structures: the ways that families choose neighborhoods and schools and that neighborhoods and schools mutually and cyclically constitute one another. We conclude with recommendations for bringing neighborhood–school structures to bear on both outcomes-oriented studies of neighborhood and school effects as well as studies of contextual selection and segregation.



1. INTRODUCTION

Where a child grows up shapes their future. Low-income children growing up in San Jose, CA, are three times more likely than those growing up in Charlotte, NC, to experience upward income mobility (Chetty et al. 2014). Children in the East St. Louis school district learn at rates 35% lower than the US average, while those in Palo Alto, CA, learn at rates 40% higher.¹ Research across social science disciplines concurs that social contexts outside of the family or the home—neighborhoods and schools in particular—shape children’s educational outcomes and the distribution of inequality in their chances of upward mobility.

However, scholars often focus on only one context without recognition of (*a*) how other social contexts might independently affect, mediate, or moderate the effects of their focal context on their outcome of interest or (*b*) how social contexts affect one another from a systemic perspective that considers families’ selection processes and the way policies connect contexts. Scholars have increasingly attended to the first shortcoming over the past 20 years, resulting in a burgeoning knowledge base that jointly considers neighborhood and school effects. But when scholars do take both neighborhoods and schools into account, the complexity of underlying mechanisms is too often forced into a narrow discussion of which matters more, schools versus neighborhoods, or whether the associations with one context persist when accounting for the other. Depending on the study design, as well as the timing, outcome, and measures of school and neighborhood conditions, these studies have produced varying conclusions, as we describe in this review.

This variation does not indicate lack of knowledge—one would not expect a unifying consensus that neighborhoods or schools universally matter more across all outcomes. However, research is often constrained to studies that add to the evidence on one or the other context’s dominance. We argue for a richer project of jointly studying neighborhoods and schools that accounts for the broader structure in which these social contexts are enmeshed. Specifically, we highlight important lessons from scholarship examining how neighborhood and school selection processes coincide and how the two contexts shape and reshape each other. Studies from this separate line of inquiry on segregation and selection are rarely considered in effects-oriented studies.

In this article, we identify neighborhood–school structures as local contextual formations that are shaped by policies, institutional practices, demographic forces, and responsive sorting behaviors. Neighborhood–school structures emerge as neighborhoods and schools reciprocally shape and reshape one another through the actions of families and policy makers. Schools do not merely reflect neighborhoods or serve as a mechanism through which neighborhoods could affect children; they also influence the composition and characteristics of neighborhoods via cyclical sorting processes that unfold over time. This interdependence is a structural feature of spatial stratification that influences how families navigate housing and school choice markets. Neighborhood–school structures should thus be conceptually and empirically incorporated into analyses of how contexts affect individuals and how families navigate residential and school choices.

An embrace of neighborhood–school structures paves the way for exciting new directions in research on contextual effects. We conclude with considerations researchers can and should take as they deploy increasingly sophisticated methods over creative new data sources to bring evidence to bear on how neighborhoods and schools jointly affect children’s outcomes and (re)produce contextual inequality. Neighborhoods and schools are key sites for policy intervention, and we argue that the most useful studies to inform policy will consider local neighborhood–school structures, examining the feedback effects of policy interventions in both contexts.

¹See the Educational Opportunity Project’s 2009–2018 Educational Opportunity Explorer at <https://edopportunity.org/explorer>.

2. WHAT DO WE KNOW ABOUT THE EFFECTS OF NEIGHBORHOODS AND SCHOOLS ON INDIVIDUAL OUTCOMES?

Neighborhood effects studies have proliferated in sociology over the past three decades, following seminal research on neighborhood inequality (Wilson 1987) and impactful review articles on how neighborhoods matter (Jencks & Mayer 1990, Mayer & Jencks 1989). A large body of evidence now shows that neighborhoods impact children's cognitive and behavioral development, academic achievement, educational attainment, teen fertility, physical and mental health, employment and earnings, and crime (for reviews, see Galster & Sharkey 2017, Sampson et al. 2002, Sharkey & Faber 2014).

Extant research also shows that schools affect children's development, focusing primarily on educational outcomes. The Coleman report (Coleman et al. 1966) spurred decades of debate on whether or what features of schools mattered for children's achievement and learning, but several recent lines of inquiry reiterate the importance of schools for children's outcomes (for reviews on schools' role in reducing inequality, see Domina et al. 2017, Raudenbush & Eschmann 2015). For example, seasonal learning studies reveal that socioeconomic inequalities in achievement grow less during the school year compared with the summer months, when children are not exposed to the benefits of schooling (Downey 2019; Downey et al. 2004, 2008). Recent research on school funding also demonstrates the importance of schools as contexts for children's educational development (Jackson et al. 2016, Lafortune et al. 2018). Debate persists, however, about what features of schools—e.g., peers, teachers, funding, or curricula—matter for children's outcomes and about how to measure school quality.

While both neighborhoods and schools are key ecological contexts shaping children's short- and long-term outcomes, most studies focus on a single context. Brazil (2016), for instance, found that only 5% of neighborhood effects studies published from 1990 to 1998 included school measures, while 20–25% of more recent neighborhood effects studies examined schools (Brazil 2016, Johnson 2012; see also Leventhal & Brooks-Gunn 2000). Most studies of school effects also do not consider neighborhood contexts. However, scholars increasingly acknowledge that conclusions about either schools' or neighborhoods' influence should account for the potential biasing effect of the other context. Spurred by increasing availability of datasets that link individual children to measures of both school and neighborhood conditions, more studies now take both contexts into account.

2.1. Mixed Findings from a Growing Body of Scholarship

Research aiming to understand and differentiate the influences of neighborhoods and schools on individual outcomes has been comprehensively reviewed in three recent articles (Brazil 2016, Gaías et al. 2018, Johnson 2012). We recommend these articles to readers looking for exhaustive (and insightful) takes on this literature. Here, we more concisely summarize the state of the research so that we can diagnose its shortcomings and bridge to other sociological literatures that, we argue, enhance the joint study of neighborhoods and schools. We focus our attention on quantitative studies that evaluate the influence of both neighborhoods and public schools at the K–12 (primary and secondary) level. Researchers typically evaluate how these settings impact individual academic achievement (test scores) and educational attainment (secondary school completion, college entry/completion), but some studies evaluate health and labor market outcomes in adulthood. We organize our summary into three lines of inquiry.

One line of inquiry attempts to assess the unique contribution that school and neighborhood settings each have on individual outcomes. Early work on this question used regression models to predict children's outcomes as a function of family socioeconomic variables and characteristics of

the schools that children attend and the neighborhoods (tracts, zip codes) where they live. Recent analyses of student-level administrative records have used fixed effects to estimate neighborhood effects among children attending the same schools (Burdick-Will 2016) or to estimate school and classroom peer effects on children's educational outcomes over time, net of time-stable family and neighborhood influences (Lauen & Gaddis 2013).

The findings emerging from this line of inquiry are mixed. Several studies conclude that neighborhood effects outweigh school effects on various childhood outcomes (Ainsworth 2002, Bowen & Bowen 1999, Bowen et al. 2008, Galster et al. 2016, Van Dorn et al. 2006), while others conclude, alternatively, that schools have a greater influence on individual outcomes than neighborhoods (Brazil 2016, Catsambis & Beveridge 2001, Goldsmith 2009, Jargowsky & El Komi 2011). Finally, many studies conclude that schools and neighborhoods both influence children's well-being (Benson & Borman 2010, Duncan et al. 2001, Entwisle et al. 1994, Micheltore & Rich 2022, Pong & Hao 2007, Williams et al. 2002, Woolley & Grogan-Kaylor 2006), focusing less on which context matters more and instead assessing how neighborhood and school impacts vary for different outcomes and by child characteristics [e.g., Entwisle et al. (1994) document differences by gender; Pong & Hao (2007) show variation across nativity and ethnicity]. In one of the earliest studies that examines multiple contextual effects on adolescent development, Cook et al. (2002) find that family, friend, school, and neighborhood contexts together combine to cumulatively explain student academic, behavioral, and mental health outcomes—and that different contexts matter differently depending on the outcome measured.

Two notable recent studies use innovative methodologies to isolate neighborhood and school partial effects. A spatial discontinuity study by Laliberté (2021) shows that while neighborhoods and schools together exert significant effects on educational attainment in Quebec, school quality accounts for over half that effect. Carlson & Cowen (2015) use student longitudinal data from Milwaukee, WI, to evaluate both neighborhood and school value-added effects on test score achievement, finding that one-year test score gains vary more across schools than across neighborhoods. Moreover, the authors show that controlling for school context substantially weakens estimated neighborhood effects, while the estimated school effects are less influenced by excluding controls for neighborhood context.

The estimation and comparison of school versus neighborhood effects dominate much of the research in this literature. However, a second line of inquiry investigates more specifically whether schools mediate the influence of neighborhoods on individual outcomes.² Mediation effects research draws upon institutional resource theory, which posits that because neighborhoods vary by the composition and resources of their local public schools, schools help to explain why neighborhoods matter for individual outcomes (Jencks & Mayer 1990). Two studies of registry data from European contexts, for instance, show that neighborhood effects on children's educational outcomes decline substantially when controls for school socioeconomic context are introduced [see Sykes & Musterd (2011) on academic achievement in the Netherlands and Kauppinen (2008) on college entry in Finland]. These studies conclude that school conditions explain in large part how neighborhoods shape youth outcomes.

Interestingly, these conclusions have not applied to two recent mediation analyses in the US context. In an analysis of children in the Panel Study of Income Dynamics, Wodtke & Parbst

² Some studies we categorize into the first line of inquiry use sequential modeling and note whether coefficients on neighborhood features decline when accounting for schools. Although this approach can be used to evaluate mediation effects, most of these studies do not explicitly conceptualize schools as mediators, instead treating them as potential sources of bias due to correlations between neighborhoods and schools.

(2017) estimate that changing a child's neighborhood environment from the 20th to 80th percentile of a socioeconomic advantage index would have positive effects on test scores whether or not a child's school poverty composition were simultaneously changed. In subsequent research, Wodtke et al. (2023) find that schools do not mediate neighborhood effects on test scores for children in the Early Childhood Longitudinal Study, even after incorporating a wider range of school measures. Notably, they include a measure of school quality that compares test score growth during the academic year to that during the summer. While prior research notes correlations between neighborhood disadvantage and school compositional, instructional, and achievement features (Logan et al. 2012, Owens & Candipan 2019), the explanation for Wodtke et al.'s null findings is that school features that predict test score achievement growth are not strongly correlated with neighborhood disadvantage. The absence of mediation effects suggests that although schools and neighborhoods may each contribute to children's test score growth through distinct pathways, schools are not a key mechanism through which neighborhoods affect children's test scores. As Wodtke et al. (2023) conclude, "even if elementary schools are not to blame for neighborhood-based disparities in academic achievement, they can still be part of the solution."

Finally, a third line of inquiry evaluates how neighborhood and school effects moderate one another. Rendón (2014a,b) finds that while neighborhood socioeconomic disadvantage can pull youth into counterproductive behaviors (truancy, backing peers in fights), schools and families can influence how much kids are caught up in those neighborhood dynamics—and that school racial composition, in particular, influences this process. Owens (2010) documents mixed results depending on measures of school composition, outcome (high school completion versus BA completion), and children's racial background. Negative effects of neighborhood disadvantage on educational attainment are exacerbated when students from those contexts attend schools with more White and higher-socioeconomic status (SES) peers, while positive benefits of living in advantaged neighborhoods are amplified when attending schools with higher SES and more White peers. Notably, moderation effects are evident in studies on children's educational attainment but not in studies of student development (Cook et al. 2002) or learning growth (Wodtke et al. 2023).

2.2. Overcoming Selection: Evidence from Experimental Studies

One central difficulty in this research area is that neighborhood and school characteristics—especially racial/ethnic and socioeconomic composition—correlate with family background (Cook et al. 2002). What we observe as a neighborhood effect or a school effect might represent unobserved differences between families who, through preference or constraint, prioritize one setting over others (Jencks & Mayer 1990, Lauen & Gaddis 2013). To further complicate matters, neighborhood and school conditions can often correlate with one another. This correlation, as we detail in Section 4, stems from the administrative and geographic linkages between student residence and school assignment, as well as the decisions families make about where to live and/or enroll their children.

To overcome the threat of selection bias and to disentangle the unique contribution of schools versus neighborhoods, recent research has leveraged exogenous changes to neighborhoods and/or schools. Housing mobility programs and public housing demolitions, for instance, induce shocks to children's neighborhood and school contexts that are unrelated to family selection processes. Evidence from these policy demonstration studies and natural experiments suggests that changing neighborhood environments without changing school environments often has minimal impacts on students' test scores (Fryer & Katz 2013, Jacob 2004, Oreopoulos 2012, Sanbonmatsu et al.

2006). However, results can vary across metropolitan area contexts (Burdick-Will et al. 2011), and positive effects of changing neighborhoods grow stronger when children are exposed to high-opportunity areas throughout childhood (Chetty et al. 2016).³ Several studies also evaluate the effects of exogenous policy-based changes to local schools. School desegregation orders following the *Brown v. Board of Education* (1954) decision, for instance, generated positive effects for children whose schooling environments changed even though they remained in segregated neighborhoods (e.g., Johnson 2019, Reber 2010). More recent school integration programs also benefit disadvantaged students (e.g., Domina et al. 2021). Together, these findings imply that school contexts have a more substantial impact on youth outcomes than neighborhoods and that contextual effects may be stronger for longer-term outcomes like educational attainment than test scores—a conclusion that is supported by some, though not all, of the nonexperimental studies reviewed above.

Of course, to truly disentangle the effects of neighborhoods and schools on individuals, one would ideally want to evaluate an experiment with three treatments: changing only a child's neighborhood, changing only their school, and changing both contexts. A lottery-based housing program in Montgomery County, MD, provides a valuable test of two such treatments. Schwartz (2012) compares public housing resident children who moved to inclusively zoned residences that vary by both neighborhood and school economic advantage. Children randomly assigned to low-poverty neighborhoods outperformed their peers on standardized exams over time. Importantly, this benefit more than doubled for children who also attended low-poverty schools.

Policy experiments such as these are rare, and the conclusions they generate are restricted to unique, context-specific policy changes. It is also unclear how (and at what age) the effects of neighborhoods or schools may matter for various outcomes. Differences across schools in level of student achievement and peer composition, for instance, may be particularly important for educational outcomes that are sensitive to social and cultural capital, such as high school completion and entry into selective four-year colleges (Jennings et al. 2015). However, school-level learning growth rates are only weakly correlated with neighborhood and school demographic characteristics (Hanselman & Fiel 2017) and fail to account for why neighborhoods influence student test achievement over time (Wodtke et al. 2023). Our point here is that the estimation of school and neighborhood partial effects is sensitive to the definitions of school and neighborhood context that researchers operationalize. Lack of theoretically informed consensus around which neighborhood and school characteristics matter for which outcomes—and even how we define and measure neighborhood and school quality—complicates this endeavor. But trying to reach a generalizable consensus about which context matters more is misplaced—instead, studies should rely on theoretically informed models relevant for their outcome of interest.

In sum, research seeking to identify partial, mediating, or moderating effects of neighborhoods and schools on children's outcomes supports few general conclusions—other than demonstrating that neighborhoods and schools jointly operate in complex ways and that studies should account for both contexts. But a lack of consensus does not represent a lack of knowledge; it may, rather, indicate a need for more clearly theorizing how neighborhoods and schools matter. We propose a new approach that engages sociological research about how families navigate selection processes, how neighborhoods and schools influence one another, and how these dynamics are shaped by broader policy and demographic contexts.

³Chetty et al. (2016) do not explicitly examine school quality or test achievement, instead evaluating how a voucher intervention on the “neighborhood bundle” of amenities affected children's educational attainment and early adult earnings.

3. THE NEED FOR AN EXPANDED APPROACH TO THE JOINT STUDY OF NEIGHBORHOODS AND SCHOOLS

Too much research attention has centered on identifying which context matters more for children's outcomes—neighborhoods versus schools—or on identifying the partial effects of one context by controlling for the confounding influence of the other. These research goals reflect a child-focused perspective in which children are the core units of analysis and local contexts are operationalized as distinct, separable treatment conditions (however highly correlated) that shape outcomes. Such a focus is appealing: It trains audiences concerned about childhood inequality to ask which direct policy levers might generate meaningful change. But this framework starts from a false premise by conceptualizing selection processes that influence where children live or attend school as mere statistical nuisances that threaten causal interpretation and can be overcome with better identification methods (Sampson & Sharkey 2008). To be clear, accounting for families' neighborhood or school selection mitigates one type of endogeneity. But this approach still assumes that neighborhoods and schools are exogenous to one another. As we argue in the next section, schools and neighborhoods influence one another in profound ways over time. Operationalizing children's neighborhood and school contexts as narrow treatment conditions overlooks this interdependence and fails to account for the relative position any one neighborhood or school occupies within a broader local distribution of schools and neighborhoods—a distribution that is often heavily segregated and stratified. By overlooking the broader structure, a child-centric, microlevel approach implicitly assumes that measures of neighborhood and school conditions can be understood in absolute, separable, and reducible terms rather than in relation to one another (Coleman 1994).

We advocate instead for an expanded, sociologically grounded research agenda at the nexus of neighborhoods and schools—one that understands selection processes not as statistical nuisances but as structural features of complex, stratified societies to be empirically modeled (Page 2015, Sampson & Sharkey 2008). Inequality emerges not only from the aggregation of neighborhood and school effects on individuals, but also from interlocking processes in which (*a*) families, as agents with varying resources, navigate unequal distributions of neighborhood and school options (Krysan & Crowder 2017, Lareau & Goyette 2014); (*b*) neighborhoods' and schools' compositions, resources, and quality are shaped by the children and families they serve (Bruch 2014, Logan et al. 2012); and (*c*) as institutions, neighborhoods and schools shape and are shaped by one another within a socio-structural milieu (Arum 2000). A complete understanding of neighborhood and/or school effects must consider how these interdependent social processes together influence unequal youth outcomes.

In the remainder of this article, we articulate an ecological and structural reorientation of scholarship on contextual effects on individual outcomes that embraces burgeoning quantitative and qualitative scholarship on selection and segregation processes. In particular, we argue that research should consider neighborhood-school structures: local socio-spatial arrangements that imbed schools and neighborhoods (and their effects) within historically constructed and variably segregated and unequal systems that persist and change over time.

4. NEIGHBORHOOD-SCHOOL STRUCTURES

4.1. An Ecological and Structural Perspective on Childhood Contexts

An expansive, sociological perspective on neighborhoods and schools must account for the ways that families navigate selection processes, the ways that children shape and are shaped by their contextual settings, and the ways that neighborhoods and schools, as institutions, influence one another. Bronfenbrenner's (1977, 1979) multi-tiered ecological model provides a useful starting point. Past review articles have adapted this framework to articulate how neighborhoods

and schools jointly affect individuals (Brazil 2016, Johnson 2012). Children are located within microsystems, including families, neighborhoods, and schools, that influence their outcomes. Microsystems, in turn, are located in mesosystems wherein features of one context may mediate or moderate the effects of another context. Much of the work reviewed above conceptualizes neighborhood and school effects at the intersection of microsystems and mesosystems. The third level is the exosystem, the relationships between neighborhoods and schools that constitute the broader contextual environment in which children develop. In highly segregated exosystems—as is common in many large US metropolitan areas—the composition and characteristics of children’s neighborhood and school environments reflect their families’ position within local socioeconomic and racial/ethnic hierarchies (for reviews of residential and school segregation research, see Charles 2003, Reardon & Owens 2014). We conceptualize neighborhood–school structures as locally embedded exosystems—linkages between neighborhoods and schools—that are shaped both by micro- and mesosystems, as well as by the cultural and political resources in macrosystems, Bronfenbrenner’s highest level of ecology.

Key questions in sociology ask how families contribute to and are shaped by the segregation of neighborhood and schools, and what role historical and contemporary institutional practices play in this process. Sewell’s theory of structure provides a complementary framework to the Bronfenbrenner model that helps us describe dynamic, cyclical, and mutually constitutive neighborhood–school structures (1992). Sewell’s theory is appealing because it centers human agency and provides mechanisms for structures to change or perpetuate at various levels of aggregation [see also Page (2015) on complex systems and Ray (2019) for a race-specific application]. Specifically, “structures . . . are constituted by mutually sustaining cultural schemas and sets of resources that empower and constrain social action and tend to be reproduced by that action” (Sewell 1992, p. 27). In neighborhood–school structures, cultural schemas around the meaning and value of schools and neighborhoods couple with families’ and policy makers’ economic, informational, and political resources to create bidirectional linkages between neighborhood and schools through which both contexts mutually shape and reshape one another. Individuals act within a local neighborhood–school structure in ways that may lead to its reproduction or change.

4.2. Microlevel Sorting, Macrolevel Systems

Family decisions about where to live and send children to school shape and are shaped by neighborhood–school structures. Their actions are structured by cultural schemas about whether and how contexts matter for their children’s well-being (including schools’ and neighborhoods’ reputations and stigma); by resources, including their own economic, information, and political capital; and by the demographic and economic composition of the local population, which shapes the characteristics of the neighborhood and school options families encounter (Bruch 2014). Yet family sorting also engages with administrative educational boundaries that delineate the geographic area that a local educational agency (school district) serves. Within districts, school attendance boundaries (SABs, also called catchment areas or attendance zones) determine the geographic area served by each local public school. Attentive to these boundaries, many families view houses as bundled goods that include not only unit-specific characteristics (e.g., age, bedrooms, square footage) but also access to the neighborhood and its local amenities (Lareau & Goyette 2014, Rhodes & Warkentien 2017, Tiebout 1956). In 2016, over one in five parents of children enrolled in their assigned public school reported moving to a neighborhood for its public school (Wang et al. 2019).

Not everyone prioritizes schools when making residential choices. In an analysis of low- and middle-income families in Chicago, for instance, Cuddy et al. (2020) find an income gradient

in the likelihood that families optimize on local schools when choosing where to live. Lower-income families' housing decisions were more often guided instead by family support, safety, and affordability, consistent with research showing that families with very few resources often make reactive, rather than strategic, housing decisions (Rhodes & DeLuca 2014). Low-income families may aspire for a good neighborhood-school package deal (Harvey et al. 2020, Rhodes & Warkentien 2017) but often find it is out of reach. Parental cognitive skills are also an important resource shaping whether parents consider schools when making residential choices (Schachner & Sampson 2020).

When families do incorporate schools into their residential decision process, they may be overwhelmed by multiple options and tend to (a) use simple schemas, such as attending to a single definition of quality based on test scores or racial composition (Billingham & Hunt 2016, Schneider et al. 2002); (b) rule out entire school districts they do not know about or associate with bad schools (Saporito & Lareau 1999); and/or (c) rely on the reputation of schools within their social networks (Holme 2002, Lareau 2014). In many cases, White families exhibit a pronounced tendency to evaluate schools through a prism of race (Goyette et al. 2012, Hailey 2022). Accordingly, educational boundaries and families' responsive sorting behaviors often create a tight demographic link between schools and the local neighborhoods that they serve (Bischoff & Tach 2018, 2020; Candipan 2019). At the metropolitan level, neighborhood and school segregation are highly correlated. In 2015–2016, elementary school and neighborhood segregation in large metropolitan areas were correlated at 0.91, 0.89, and 0.88 for Black–White, Hispanic–White, and Asian–White segregation, respectively.⁴

4.3. Bidirectional Neighborhood–School Links

Scholars and policy makers acknowledge that administrative boundaries link neighborhoods and schools—and their correlated compositions—but often conclude that schools operate downstream of neighborhoods. Segregation scholars discuss school segregation as *de facto*—a consequence of neighborhood segregation (despite *de jure* factors like educational administrative boundaries); neighborhood effects studies often model schools as mediators or confounders, assuming schools mirror neighborhoods; and policy research concludes “housing policy is school policy” (Schwartz 2012). However, we argue that this perspective provides an incomplete view of how neighborhood–school structures are constituted and reconstituted. Individuals' actions within local neighborhood–school structures create feedback loops between schools and neighborhoods (Tammaru et al. 2021)—eddies in a stream rather than a downstream relationship—that can both perpetuate and alter the structure.

In neighborhood–school structures, schools and neighborhoods are mutually constituted through both families' sorting choices and policy makers' decisions about where to draw educational administrative boundaries, which may reflect local struggles for power and prejudicial attitudes. Historically, separate city and suburban school districts contributed to White flight and created high degrees of segregation between school districts that remain prevalent in many metropolitan areas today (Bischoff 2008, Clotfelter 2004, Owens & Rich 2023). In Southern states where school district boundaries were drawn to coincide with county lines, White, higher-SES families have initiated campaigns to secede from large districts so they may exercise more control over their children's schools—and who attends them (Cooperstock 2022, Frankenberg et al. 2017). Today, the majority of neighborhood and school segregation occurs between rather than within school districts (Fiel 2013).

⁴These figures are based on the authors' calculations; details are available upon request.

Like school district boundaries, SABs emerge from broader cultural schemas and the power wielded by policy makers to structure a neighborhood–school link. After the *Brown v. Board* decision dismantled de jure school segregation, many districts drew SABs to intentionally produce segregated schools, reinforcing dividing lines between communities rather than cutting across them. In contrast, today, SABs in many districts are drawn in ways that are slightly integrative with respect to neighborhood racial segregation patterns (Monarrez 2023) or that follow geographic principles so that students attend the school closest to them within their school district boundaries (Richards 2014; Richards & Stroub 2015; Saporito 2017a,b; Saporito & Van Riper 2016). Where irregularly shaped SABs have been “gerrymandered,” they usually promote integration, not segregation (Saporito 2017a,b; Saporito & Van Riper 2016; but see Monarrez & Chien 2021 for evidence of exceptions).

While SABs may not be intentionally drawn to segregate schools over and above neighborhood segregation patterns, they formalize a bidirectional neighborhood–school link through which the contexts affect one another (Tammaru et al. 2021). Families often see schools as anchor institutions that facilitate social networks and determine the character of local neighborhoods (Burdick-Will 2018). Perceptions about school quality are, in turn, capitalized into housing price: Families are willing to pay higher house premiums to live on the side of a SAB with higher-achieving schools (Bayer et al. 2007, Black 1999, Nguyen-Hoang & Yinger 2011). Housing demand and supply dynamics can, in many cases, render access to attractive schools unaffordable for low-income families. Even when families do not consciously consider or prioritize schools when choosing neighborhoods, schools affect their residential choice set through their effects on the housing market.

Moreover, because schools shape housing market inequality, and because parents often do consider school preferences when choosing neighborhoods, schools affect residential segregation in the aggregate. Racial segregation among families with children is higher and more persistent than among households without children; economic segregation is also higher and has increased only among families with children since 1990 (Iceland et al. 2010; Jargowsky 2014; Owens 2016, 2017). [This is not just a US phenomenon—see Bernelius & Vilka (2019) on SAB segregation in Finland]. In metropolitan areas that are highly fragmented between many school districts, both residential and school segregation between districts tend to be higher because parents can best optimize their preferences by choosing between districts (Bischoff 2008, Owens 2016). And across metropolitan areas, levels of residential and school segregation are highly correlated when school assignment is tightly linked to neighborhood residence (Farley 1975, Frankenberg 2013, Monarrez 2018, Ong & Rickles 2004).

4.4. Durability and Change in Neighborhood–School Structures

Neighborhood–school structures are produced and reproduced in ways that perpetuate inequality, creating a durable feedback loop that can extend over generations (Sampson & Sharkey 2008, Tammaru et al. 2021). Preexisting neighborhood characteristics influence where educational boundary lines are drawn, those boundary lines affect who moves in or out, and neighborhood characteristics feed back into school contexts. But structures change as well as perpetuate (Sewell 1992). New cultural schemas and resources can emerge that alter structures. Following *Brown v. Board*, for instance, magnet schools were used to attract and retain diverse student bodies, responding to a legal and cultural impetus toward equal opportunity and weakening the neighborhood–school administrative link. In subsequent decades, a neoliberal schema valuing market competition (enabled by changes to state laws) led to the proliferation of charter schools. These forms of school choice, in addition to the long-standing availability of private schools, allow families options other than their neighborhood school.

School choice weakens administrative neighborhood–school links, but these policies do not entirely undo practical, informal connections between neighborhoods and schools. Geographic proximity is a major priority when parents consider school options (Hastings & Weinstein 2008, Pattillo 2015, Singer & Lenhoff 2022), especially given variation in student transportation availability (Chingos & Blagg 2017), though some students, especially those from neighborhoods far from attractive school options, do travel long distances to attend choice schools (Burdick-Will 2017, Schachner 2021). Additionally, many families encounter administrative hurdles and enrollment lotteries that make exercising choice outside of their assigned neighborhood school difficult, and parents’ mental health and cognitive skills also shape whether they elect to use school choice (Schachner 2021, Schachner & Sampson 2020). National survey data show that 69% of all students (and 76% of public school students) attended their assigned public school in 2016, a decline of about 5 points since 1999 (Wang et al. 2019).

Although school choice alters the specific rules of the game in local neighborhood–school structures, an underlying, bidirectional dynamic persists. Where there remains a direct residential school assignment policy, neighborhood composition directly shapes school composition. Where school choice is available, neighborhood composition indirectly influences school composition: White and higher-income families are more likely to opt out of neighborhood schools serving less White and poorer neighborhoods (Bischoff & Tach 2018, 2020; Candipan 2019, 2020; Saporito 2003; Saporito & Sohoni 2006, 2007; Schachner 2021; Sohoni & Saporito 2009). The gap between neighborhood and school racial composition is particularly large in neighborhoods experiencing socioeconomic ascent or gentrification (Bischoff & Tach 2020; Candipan 2019, 2020). As a result, neighborhood schools in ascending areas lose enrollment because of both newcomer avoidance and displacement of poor and non-White students (Keels et al. 2013, Pearman 2020). Broadly, school choice decouples neighborhood residence and school enrollment in ways that increase school segregation (Boterman 2019, Coughlan 2018, Oberti & Savina 2019, Saporito 2003), creating new escape hatches for White and higher-income families to avoid local schools serving non-White and lower-income students without necessitating a residential move.

Importantly, school choice also changes the way that schools affect neighborhoods. In places with school choice, the link between school quality and housing price is weaker, as buying one’s way into a neighborhood is no longer necessary to access desired schools (Brunner et al. 2012, Schwartz et al. 2014). When schools are a weaker part of the residential bundle, neighborhood segregation is lower (Liebowitz & Page 2014, Liebowitz 2018, Rich et al. 2021) and neighborhoods with larger shares of non-White residents are more likely to gentrify (Pearman & Swain 2017). White and higher-income families appear more willing to live in diverse or predominantly non-White neighborhoods when they can avoid neighborhood schools serving children of color (though other research shows that some White parent gentrifiers actively choose to enroll their students in diverse urban schools; see, e.g., Kimelberg & Billingham 2013, Posey-Maddox 2014).

Finally, in addition to student enrollment policies like SABs and school choice, neighborhood–school structures are also constituted by policy makers’ decisions to open or close schools. Several studies show that neighborhood SES and racial composition influence which schools close (Brazil & Candipan 2022, Burdick-Will et al. 2013, Ewing 2018). Neighborhood change also matters: Schools in urban neighborhoods experiencing socioeconomic ascent or a growing White population are also more likely to close (Brazil & Candipan 2022), and in turn, closing schools increases the probability that Black neighborhoods gentrify (Pearman & Greene 2022). In fact, policy makers may explicitly use the opening of charter schools as a way to revitalize urban cores (Cucchiara 2008, 2013), though national evidence on whether charter schools increasingly opened in neighborhoods undergoing socioeconomic ascent is mixed (Candipan & Brazil 2020).

In sum, neighborhoods and schools cyclically and mutually constitute one another. Institutional processes (and their politicization) produce formal linkages between neighborhoods and schools, leading to interdependency in the choices families make about where to live and where to enroll their children in school (whether or not families explicitly consider both contexts simultaneously). Neighborhoods and schools thus reflect one another in resources and composition, shaping how each is valued within the distribution of local options. Accordingly, we have defined “neighborhood–school structures” as locally contingent arrangements that can change when education policies alter enrollment processes or when families change the schema they use to define school or neighborhood quality. Given this complexity, we argue that scholars and policy makers must revise and expand their usual child-centric framework that conceptualizes neighborhoods and schools as discrete and separable treatments. School features are conditioned by neighborhoods, and neighborhood features are conditioned by schools, so snapshots of contexts at one point in time elide this dynamic structure. In our concluding thoughts, we provide considerations for adopting this structural perspective to account for the broader processes that cyclically shape contexts.

5. NEW DIRECTIONS FOR EMPIRICAL RESEARCH AT THE NEXUS OF NEIGHBORHOODS AND SCHOOLS

We began this review by describing the array of conclusions reached by past research on whether and how neighborhoods, schools, or both predicted children’s development. We then demonstrated that the two contexts mutually constitute one another’s key features through the actions of policy makers and families, drawing on past research on neighborhood and school selection and segregation. We argued that attempting to attribute an outcome solely to one context, conceptually or empirically, imposes a reductive view of ecological contexts. Layers of institutional and sociodemographic context—and the ways families navigate them—shape how neighborhoods and schools impact childhood outcomes. We cannot simply assume this complexity away or introduce statistical controls for local neighborhoods or schools. How, then, can researchers incorporate these insights into studies that jointly consider neighborhoods and schools? Scholars should embrace this complexity and, in particular, build into their models how local geography, population structure, administrative rules, and school choice policies link neighborhoods and schools to varying degrees. Knowing the nature of the local neighborhood–school structure is key to developing models of how families choose neighborhoods and schools—whether they see them as a package deal—and how neighborhoods and schools affect children’s outcomes.

Considering variation in local neighborhood–school structures provides insights into why the studies reviewed in Section 2 produce varying conclusions. We argue the conclusions are not necessarily contradictory—rather, they are structurally contingent. Consider, for instance, a low-income child living in a very poor neighborhood but attending a very advantaged school via school choice. The variation in their neighborhood and school settings might provide empirical leverage for disentangling the contributions of each context, but it may also reveal (a) the unique effect that attending an advantaged school has for students from a low-income background (compared with more affluent peers), (b) the unobserved positive selection bias of a family deploying informational and network advantages to access an uncharacteristically high-quality school relative to their area, or (c) the unobserved negative effect of a student’s social alienation or onerous commutes between home and school, which may counteract positive effects of high-quality instruction. Only by theorizing and operationalizing the neighborhood–school structure can researchers begin to disentangle their effects. By this same token, evaluating the strength of neighborhood–school linkages can inform how we evaluate theoretically important neighborhood characteristics, such

as social closure. If children from one community all attend a neighborhood school, for instance, they are anchored to a common institution where social ties between parents, teachers, and other adults form and strengthen over time. In contrast, areas with weak neighborhood–school ties lack an anchoring institution as children from the same block head off to varying schools (Burdick-Will 2017). Indeed, such a disconnect provides the variation needed to separate neighborhood from school effects, but the conclusions about which matters more only apply to specific policy conditions. The importance of neighborhoods for educational outcomes may depend on the strength of neighborhood–school ties—one measure of local neighborhood–school structures.

Scholars of selection and segregation should also embrace the complexity of local neighborhood–school structures. Empirical studies of residential attainment, for instance, rarely incorporate information about local school conditions into their models—implicitly characterizing local school quality as a downstream reflection of neighborhood characteristics (Krysan & Crowder 2017). Qualitative work has attended more deliberately to the ways that families incorporate local schools into their residential decisions, finding that rational, deliberate attention to local school quality is contingent on family resources and locale (Cuddy et al. 2020, Lareau 2014). Yet whether families deliberately enact school preferences, their actions (and their consequences for segregation and unequal school access) are constrained by contextual features, including the spatial distribution of attractive schools and the supply of affordable housing in the areas they serve, transportation infrastructure facilitating access to a range of schools, administrative neighborhood–school linkages (especially SABs), and enrollment flexibility enabled by local school choice policies. In short, accounting for the local neighborhood–school structure enables researchers to evaluate the contingencies that make family schooling and neighborhood preferences more salient in some exosystems than in others.

Neighborhood–school structures can be measured in several ways. First, existing quantitative data on SABs and school choice can be leveraged—e.g., using School Attendance Boundary Information Systems and School Attendance Boundary Survey data to define neighborhoods (Geverdt 2018, Saporito et al. 2013) and measuring charter, magnet, or private school presence in a district or metropolitan area (Rich et al. 2021). Efforts to maintain longitudinal SAB data should be renewed.⁵ Data on school choice regimes is particularly lacking, given the complexity and variability of district attendance policies over space and time. New data efforts are needed to create a national dataset of school choice regimes that includes both nontraditional schools (e.g., charters, magnets) and interdistrict choice among traditional public schools (e.g., open enrollment).

These data challenges point to the utility of single-locale studies, where mixed methods research can provide insights into the school and housing markets of a given metropolitan area to describe a place-specific neighborhood–school structure. Longitudinal, historical, and qualitative approaches would be particularly fruitful for understanding the recursive processes over decades or generations that produced the current structure (e.g., Ewing 2018). Of course, single-site studies provide limited generalizability. However, by replicating studies across sites, a general model could be developed to explain how variation in neighborhood–school structures shapes selection processes or contextual effects. In particular, we note that most effects-oriented and segregation/selection studies examine urban or metropolitan contexts; important differences exist across the urban–suburban–exurban–rural dimension that warrant attention (Owens & Rich 2023).

Second, scholars can assess the strength of a local neighborhood–school structure by examining contextual correlations between neighborhood and school features. For example, studies using

⁵The Longitudinal School Attendance Boundaries Study (<https://cecr.ed.psu.edu/labs>), an ongoing data collection led by Dr. Erica Frankenberg and Dr. Christopher Fowler, may be particularly useful in answering this call.

nationally representative survey data to predict children's outcomes could use geospatial techniques to determine how strongly neighborhood and school racial composition correlate, using Census or National Center for Education Statistics data on the full universe of neighborhoods and schools in a respondent's metropolitan area, and include these structural measures in hierarchical models.

Third, empirical studies of neighborhood and school effects should adopt analytical approaches that align with their motivating theories about the role these contexts play in the production and reproduction of inequality. Many studies are framed around this concern, but they conclude with reductive estimands of individual-level effects without estimating their substantive contribution to inequality more broadly. Counterfactual simulation methods may be especially useful for quantifying how much microlevel effects within complex systems ultimately contribute to aggregate outcomes (for a motivating methodological paper, see Lundberg et al. 2021). Studies of neighborhood and school selection processes could also link microlevel estimates to macroprocesses and provide estimates not just of what predicts families' residential or school choice, but of the aggregate impacts of their estimates on inequality. If White families avoid schools serving Black students, for example, what are the implications for both residential and school segregation? Finally, in lieu of individual-level data, studies can directly assess the relationship between macrolevel contextual effects and inequality in outcomes, e.g., examining the impact of residential and school segregation on racial gaps in educational outcomes (Card & Rothstein 2007, Reardon 2016).

We also encourage researchers to consider the segregation and inequality dynamics of local neighborhood-school structures when measuring neighborhood and school features. Often scholars describe neighborhoods or schools as "segregated" based on absolute measures of composition, e.g., poverty rate or economic resource level, or with nationally normed (dis)advantage indices. But segregation is a system-level feature; the salience of neighborhood and school features may depend on the local distribution. A poverty rate of 10%, for instance, would signal a low-poverty neighborhood in Detroit, MI, but a high-poverty neighborhood in San Jose, CA. Scholars should specify whether their outcome of interest depends on absolute or relative contextual features and, where appropriate, include metropolitan area measures (poverty rate, racial composition, neighborhood or school segregation) or norm neighborhood or school measures to the broader context (e.g., school deviation from average metropolitan area or district racial composition).

Ultimately, selection- and outcomes-oriented studies should think of neighborhood-school structures as an additional ecological level to incorporate and model. The effects of neighborhood or school features on shaping outcomes, attracting families, or influencing policy makers will depend on the broader context, and scholars should test relationships between microsystem, mesosystem, and exosystem processes. Accounting for the exosystem also captures, to some degree, underlying processes that produced the neighborhood-school structure that might also affect families and children operating within it. For example, more segregated metropolitan areas may be home to racist attitudes or a legacy of racial inequality (hard things to measure) that also affect how neighborhoods and schools affect children. Qualitative studies will be key in identifying the features of neighborhood-school structures not easily captured by administrative data.

We conclude by acknowledging that many studies at the nexus of neighborhoods and schools are motivated by the desire to inform policy: How might we invest public resources most effectively to reduce childhood inequality? Due to the recursive nature of neighborhood-school structures, we caution against drawing specific policy conclusions from observational studies of the individual-level effects of neighborhoods and schools that examine a static system. The most appropriate studies to directly inform policy decisions may be quasi-experimental or experimental studies of housing and educational reforms that have disrupted previous formations of neighborhood-school structures. Even in these cases, we argue, any evaluation of a neighborhood

or school intervention should examine both contexts and do so longitudinally, in acknowledgment of the ways that effects ripple between settings and alter how people sort across the exosystem. It is now a common refrain that “housing policy is school policy,” but we also argue that school policy is housing policy. For example, school interventions that improve test scores could lead to capitalization of test scores into home prices, or student assignment policy that breaks the link between neighborhood and school could change families’ residential decision-making calculus. Such interventions may take years to generate local demographic changes as new cohorts of families move in and reputations change, but other changes may be more immediate. Housing mobility programs or zoning reforms that site affordable housing in higher-income areas could immediately impact school composition and could, in turn, quickly transform neighborhood reputation and composition. The ensuing neighborhood–school feedback loops could be equalizing or segregating. Thus, studies seeking to understand the impact of interventions should consider not only effects at the microsystem or mesosystem level, but also broad effects at the level of the exosystem. To complement this effort, observational studies can provide valuable, policy-relevant contextualizing evidence, measuring structural inequality and segregation over time and decomposing exposure to neighborhood and school contexts between groups. Moreover, qualitative research can provide rich descriptive evidence about how families develop and deploy schema in their housing and school searches, how they incorporate information about options, how they respond to local school closures, and where there are breakdowns between the implementation and lived experience of policies intending to enhance access to educational opportunity.

The nexus of neighborhood and school research is an exciting and growing area for urban, education, stratification, spatial, and policy-oriented sociologists and social scientists. We encourage scholars to work across disciplines, subfields, and contextual foci and capitalize on data sources that can measure both neighborhood and school contexts at multiple ecological layers. Incorporating neighborhood–school structures allows studies to conceptualize neighborhood and school selection not as a nuisance but as a feature of locally embedded systems of stratification. This perspective, we hope, will bring the analysis of contextual effects on youth outcomes in more direct conversation with selection and segregation studies—and enhance our understanding of how neighborhoods and schools shape social life.

DISCLOSURE STATEMENT

The authors are not aware of any affiliations, memberships, funding, or financial holdings that might be perceived as affecting the objectivity of this review.

ACKNOWLEDGMENTS

The authors are extremely grateful to Kendra Bischoff, Julia Burdick-Will, Alvin Pearman, Jared Schachner, Christian Sprague, and Geoff Wodtke for providing incisive and generative feedback. The authors are indebted to the scholars cited in this piece and regret that many excellent studies are excluded due to citation limits.

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