MAKING SENSE OF MINORITY STUDENT IDENTIFICATION IN SPECIAL EDUCATION: SCHOOL CONTEXT MATTERS

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Since the inception of special education, researchers have identified higher proportions of minority students with disabilities than expected. Yet, relatively few studies have considered the contributions of the school context on a large scale to the identification of students with mental retardation (MR), emotional disturbance (ED), and learning disabilities (LD). The present study examined the extent to which race and gender of 1,394,024 students, alone and nested within 2,104 schools, predicted identification in the special education categories of MR, ED, and LD. Results revealed that, alone, student race and gender significantly predicted identification in all three categories. However, when student race and gender were nested within school context variables, they were not significant predictors; school variables alone predicted identification. School variables that were significant included school attendance rate, for all three special education categories. For MR, school mobility rate, teacher education, adequate yearly progress, and size and locale of the district were also significant predictors. The proportion of students from low income families and average teacher salaries were significant predictors for ED, and district size, as well as ratio of pupils to certified staff were significant predictors for LD. Results are discussed in the context of previous work in the field.

Bronfenbrenner's (1977; 1979; 1992) theory of nested ecological systems and their importance for human development provides an ideal framework for understanding the successful development of children and adolescents in multiple social contexts. The framework permits us to study continuity and change in children's development (i.e., physical, cognitive, social, emotional) in the places where they live and learn, rather than in isolation. Implicit assumptions about context in Bronfenbrenner's theory include interactions and relationships among the person, the process, and the context itself (places and groups for development), all happening over time and within spaces. We employed Bronfenbrenner's theory in pursuit of understanding the complex influence(s) of the larger school context on minority student identification in special education. To do that, we cast a wide net to examine student and teacher demographics, characteristics of families from the perspective of the schools, national school policies and local funding levels, the structure and locale of the school, and community variables such as district size and community poverty.

This study is important because, although most of the above school factors have been considered previously in the study of minority students in special education, these factors have not been explicitly linked to the particular schools that minority students attend. That is, previous research using large sample sizes has focused on the *social address* characteristics of individuals: race, gender, and social class (Bronfenbrenner, 1992), alongside descriptive school and community variables, rather than as nested variables: students within schools. These studies find that one's social address is all important for special education identification (Artiles, Rueda, Salazar, & Higareda, 2005; Coutinho & Oswald, 1998;

Coutinho & Oswald, 2005; Coutinho, Oswald, Best, & Forness, 2002; Donovan & Cross, 2002; Oswald et al., 2002; Oswald, Coutinho, Best, & Nguyen, 2001; Oswald, Coutinho, Best, & Singh, 1999; Skiba, Poloni-Staudinger, Simmons, Feggins-Azziz, & Chung, 2005). In fact, research that has sought to connect students with their schools and pursue a deeper understanding of the person-process-context-time of special education reveals that school characteristics contribute directly to minority students' identification in special education (Harry & Klinger, 2006; Harry, Klinger, & Hart, 2005). It was our goal, then to build upon previous research by (a) nesting all students within their schools and then uncovering which individual and school factors contributed to minority students' increased risk of special education identification.

Bronfenbrenner provided us with the framework to do this; by allowing us to examine *the immediate settings containing the developing person*, as well as *the larger social contexts, both formal and informal, in which these settings are embedded* (Bronfenbrenner, 1977, p. 513). Immediate settings for children include the home, school, peer group, and neighborhood (*microsystem*), whereas larger social contexts include interactions among these settings (*mesosystem*), as well as the effects of systems that impinge on the life of the child, such as government policies and how they play out (*exosystem*). Broadest of all influences are those that include the economic, social, educational, legal, and political (*macrosystem*).

Research across developmental periods in special education has revealed the importance of contexts beyond the individual child to his or her development, including the development of a disability. Social contexts for development include families, peers, schools, cultures, and communities (Artiles, 2003; Artiles & Bal, 2008; Barth, Dunlap, Dane, Lochman, & Wells, 2004; Estell, Jones, Pearl, Van Acker, Farmer, & Rodkin, 2008; Fleming, Cook, & Stone, 2002; Kellam, Ling, Mersica, Brown, & Ialongo, 1998; Pianta & Walsh, 1996; Talbott & Fleming, 2003; Wang, Haertal, & Walberg, 1990). Researchers have acknowledged that the processes resulting in disproportionate identification of minority students in special education *are complex, interactive, and perhaps contradictory* (Skiba, Simmons, Ritter, Kohler, Henderson, & Wu, 2006, p. 1452); that the *placement of minority students in special education is far more complex than a disability prevalence quandary* (Artiles & Bal, 2008, p. 6). Such complexity argues strongly for research that seeks to understand identification from the perspective of a nested ecological model, to understanding contexts beyond the individual child and family, especially as exploration of the layers considered by Bronfenbrenner can contribute to intervention.

Variables associated with the school context are particularly critical for understanding school experiences of minority students, given the likelihood that they attend schools that are less well-funded and more segregated than those of their Caucasian peers (Artiles, 2003; Darling-Hammond, 2006). School-based risks disproportionately experienced by minority children and youth extend to special education. Over time, minority children and youth are more likely to be exposed to lower quality teachers, materials, and curricula (Darling-Hammond, 2006), which can certainly affect the development of a *soft* disability (such as MR, ED, and LD). Thus, although minority children and youth enter schools with a range of experiences associated with the rich sociohistorical context(s) of home and family (Artiles, 2003; Artiles & Bal, 2008), their families are often blamed for the emergence of disabilities, with the quality of instruction rarely considered (Harry & Klinger, 2006). Such a view completely ignores the responsibility of schools in educating children over the course of time.

Historically, disabilities have been seen to reside largely within the child, with a focus on personal, individual attributes and family characteristics (Harry & Klinger, 2006). Yet this view is simplistic, ignoring the intersection between students' culture and school culture, as well as systems of educational support (or lack therof) experienced by an increasingly diverse population of youth (Artiles & Bal, 2008). Although a significant body of work has sought to address the issue, the full complexity of minority students' disproportionate representation in special education is still not fully understood (Artiles & Bal, 2008; Skiba, Simmons, Ritter, Gibb, Rausch, Cuadrado, & Chung, 2008). In the present study, we expand upon previous research in minority students' representation in special education by (a) application of Bronfenbrenner's nested ecological model and (b) use of hierarchical linear modeling (HLM) techniques to test the model, with a particular focus on students nested within schools, which are then described by a wide range of previously tested variables.

Our ability in the present study to locate students within their schools, as we simultaneously examine the effects of individual (race and gender) as well as school and district level characteristics in the context of

Bronfenbrenner's model, contributes an additional layer of complexity to the study of disproportionality in special education. We begin here with a review of key variables at each level of Bronfenbrenner's nested system.

Microsystem

First, at the level of the microsystem, are race and gender. Across multiple chapters in the Losen and Orfield (2002) volume on racial inequity in special education, and in studies using multiple indicators of risk for identification in special education (i.e., Artiles et al., 2005), as well as research using large samples at the national and state levels, race and gender have emerged as powerful predictors, typically seen as operating at the level of the individual, or microsystem (Coutinho & Oswald, 1998; Coutinho & Oswald, 2005; Coutinho et al., 2002; Oswald et al., 2002; Oswald et al., 2001; Oswald et al., 1999; Skiba et al., 2005).

Indeed, in a statewide study examining the effects of race and poverty at the school district levels, Skiba and colleagues found that race was the all-important variable, trumping poverty in predicting special education status (Skiba et al., 2005). At all economic levels, African-American males were overrepresented in the special education categories of MR and ED (Skiba et al., 2005). Our study builds upon Skiba and colleagues' research by including many of the same types of measures in the model (i.e., race of students in the school, percentages of students receiving free or reduced lunch, teacher salaries, per pupil expenditures, and measures of achievement); we expand upon this research by looking at individual students' race nested within the schools they attend, and including these very same measures within the model.

Indeed, we view race and gender effects as very much operating within the schools, beginning at the mesosystem level. Many African American and Latino children, particularly those students living in lower-income urban communities, attend racially segregated schools. Approximately 45% of children who live in cities attend schools where more than 75% of children are African American or Latino (U.S. Department of Education, 2008). These children have historically lacked access to excellent educational opportunities and continue to be among the least well-served by American schools. The National Research Council, NRC (Donovan & Cross, 2002) employed a nested ecological model along the lines of Bronfenbrenner's to explicate the contextual influences on minority student representation in special education. In this model, the NRC authors focused solely on the individual and school contexts, examining policy influences at the school level. The NRC clearly indicated that risks associated with growing up in poverty were exacerbated by experiences with poor schooling. In fact, the NRC report concluded that *the school experience itself contributes to racial disproportion in academic outcomes…that lead to placement in special education* (p. 358).

Also reviewed by the NRC, and at the heart of the social context at the level of the microsystem, are relationships and interactions between teachers and students (Hamre & Pianta, 2001; Harry & Klinger, 2006). Such relationships, beginning in the early grades, can have lasting influences (both positive and negative) on student outcomes, including special education identification, and may or may not be influenced by student age, race, and teacher-student race match (Saft & Pianta, 2001; Harry & Klinger, 2006). For example, Saft and Pianta (2001) found that child age and race and teacher-child race match were consistently related to teachers' perceptions of children, so that when teachers and students shared the same race, teachers rated their relationships with children more positively. Our study included a measure of teacher-student race match, albeit at the level of the mesosystem. Teachers' race in our study was only available at the district level, whereas student race was measured at the school level. Although this was a less-than-sensitive measure of the match we were seeking, we found this to be an opportunity to obtain a measure of district-level policy regarding teacher and student race, which could affect minority students' special education status. Our study thus builds upon previous research in using this measure of district level policy regarding race, a first in the large sample studies of disproportionality.

At the heart of the microsystem is teacher quality: regarding both effective classroom management strategies and quality academic instruction. Harry and Klinger (2006) found that quality of teaching played a role in students' identification in special education (Harry & Klinger, 2006). Quality of classroom management is a powerful and lasting characteristic that can significantly affect the behavior of the most aggressive students over the course of five years of schooling (Kellam et al., 1998). We were not able to examine student-teacher relationships or quality of teacher instruction and classroom management in the present study; yet they may be indirectly influenced by factors we do measure, such

as teacher education levels and resources available to the schools, which affects schools' abilities to recruit and retain the best teachers (Darling-Hammond, 2006).

Mesosystem

The classroom setting has its own contextual influences at the level of the mesosystem (relationships among family, school, and peers). Ethnic makeup of the school (particularly when large portions of students are from minority backgrounds) is inextricably correlated with student outcomes (Blanchett, 2006; Darling-Hammond, 2006). Whereas predominately African American schools do not contribute disproportionate numbers of African American students to special education at the school level, they do contribute to disproportionality overall, and reflect the disparate quality of education experienced by students of color in American schools (Blanchett, 2006; Harry & Klinger, 2006). The present study contributes to previous research by assessing the contribution of the racial composition of schools to special education identification, again a first in large sample studies of disproportionality.

Families' involvement in their children's education is clearly a necessary component to student success (Fantuzzo, McWayne, Perry, & Childs, 2004**;** Pianta & Walsh, 1996). The family context is rich, diverse in structure, and often supportive of children in ways that are hidden to the school. Yet, parents of minority children can be harshly stereotyped by school professionals, blamed for their children's difficulties in school, and disenfranchised by the school (Harry & Klinger, 2006). Ironically, the school context can be a source of risk rather than resilience for minority children and their families. Our selection of parent and family variables at the mesosystem level reflects connections between families and schools at a broad level, and from the perspective of the schools: parent involvement, student attendance and mobility, student truancy, and family income (Epstein & Sheldon, 2002; Heinlein & Shinn, 2000). As such, we widen the lens beyond the close and careful look taken by Harry and colleagues at families as sources of resilience and strength for children with regard to their special education experience (Harry & Klinger, 2006). Our study advances the literature by selecting variables that schools can address, on a large scale, to improve the overall achievement of minority students, specifically by building and maintaining relationships with families (Epstein & Sheldon, 2002). School professionals agree that student attendance and mobility are significant factors in children's success in school, and in their ability to serve children (Skiba et al., 2006). We see these factors as part of the schools' responsibility, rather than solely that of families.

Exosystem

At the exosystem level, teachers and children are influenced by policy decisions that impinge upon children's achievement, particularly high-stakes testing associated with the standards-based reform movement in education (Heubert, 2002). Although minority students and students with disabilities have the potential to gain from policies driven by high-stakes testing, they are also most likely to suffer without access to a rigorous, high quality education (Heubert, 2002). Our study expands upon previous research by ascertaining the extent to which those No Child Left Behind (NCLB) variables affect the identification of minority students in special education. That is, are minority youth more likely to be shunted into special education classes when their schools fail to make adequate yearly progress, and/or need improvement, particularly over a period of time? Will these high standards help provide the political and legal leverage needed to improve school resources, or will high stakes testing policies be associated with higher proportions of minority students with disabilities (Heubert, 2002)? Our theoretical commitment here, and the strength of the present study, is to examine the effect of high-stakes testing associated with NCLB on minority student identification in special education, within particular *soft* categories.

At the same time that schools experience increase pressure to improve test scores, Title 1 schools (with at least 40% of students receiving free or reduced lunch) can receive extra support from the federal government, in the form of supplemental instruction in reading and math and funds to support family-school connections. In the latter case, Harry and Klinger (2006) reported that the schools participating in their study used Title 1 resources to hire a community involvement specialist to facilitate parent involvement in the child study and special education process, with nearly 100% of parents complying. Our study builds upon previous research by considering whether Title 1 status of a school (and the percentages of students receiving free or reduced lunch) may serve as a source of resilience for minority students, providing them with the resources they need without referral to special education.

Teacher characteristics, measured in our study at the district level, were seen as operating within the level of the exosystem. Teacher quality clearly matters; it has a profound effect on student outcomes (Darling-Hammond, 2006), including identification in special education. Teachers must integrate knowledge of subject matter, students, and context in making instructional decisions, engaging students in active learning, and reflecting on practice (Youngs, Odden, & Porter, 2003). Teachers who are most successful at achieving all of this are likely to be certified and also hold advanced degrees (Harry & Klinger, 2006).

Pianta and colleagues defined teacher quality as those characteristics affecting student development: teacher management of time and activities; interactions between teachers and students; and emotional climate in the classroom (Pianta, La Paro, Payne, Cox, & Bradley, 2002). These researchers found wide variability in teachers' implementation of activities associated with quality, with students' social and academic competence higher when teachers demonstrated high quality instruction (Pianta et al., 2002). Parrish (2002) sees schools depending upon special education as a resource for underachieving minority children, rather than improving the quality of instruction delivered by the schools. Yet, special education services are not a panacea for minority students, if they are consistently underfunded (Parrish, 2002). We sought to include district finances at the exosystem level, building upon previous research by examining funding at the district level for both general and special education services (Parrish, 2002; Skiba et al., 2005).

Our theoretical commitment to teacher quality was at the exosystem level, and was associated with years of teaching, teachers holding masters degrees and appropriate certification, teacher salaries, and extent of support services provided to students. At the same time, we were interested in the extent to which the racial backgrounds of teachers mattered. In that way, in measuring characteristics associated with both teacher quality and teacher race in a school district, we built upon previous research hypothesizing that both factors would be sources of resilience for minority children avoiding identification with *soft* disabilities in special education (Harry & Klinger, 2006).

Macrosystem

At the level of the macrosystem, poverty and ethnicity have been powerful variables in predicting identification in special education (Donovan & Cross, 2002). In their analysis of national data from the Office for Civil Rights of the U.S. Department of Education, Coutinho and Oswald and colleagues identified two significant predictors of MR and ED identification, working separately and in interaction: African American race and demographic variables such as poverty, income, and percentages of African Americans in the population (Coutinho, & Oswald, 1998; Coutinho & Oswald, 2005; Coutinho et al., 2002; Oswald, et al., 2002; Oswald, Coutinho, Best, & Nguyen, 2001; Oswald, Coutinho, Best, & Singh, 1999). Our theoretical commitment here was that effects of poverty are particularly strong at the community (macrosystem) levels, and that these effects ultimately find their way to the schools. Our study built upon the findings of this previous research by including measures of poverty, in isolation and interacting with school structure (elementary, middle, high school) and school race as predictors of students' identification in special education categories. In fact, previous research has found that English language learners were underrepresented in the special education categories MR, LD, and speech and language disabilities at the elementary grade levels and overrepresented in the same special education categories at the secondary grade levels (Artiles et al., 2005). Thus, we expected increasing numbers of minority students to be identified with disabilities as grade level increased.

District size may also significantly predict identification in special education, given its influence on student achievement. The largest districts in the nation are likely to be those in urban and rural schools, which struggle with a host of factors in supporting students' achievement (Darling-Hammond, 2006). Driscoll et al. (2003) explored the contribution of district size to student achievement in California's school districts, and found district size to be a powerful predictor of student achievement, having a greater impact than school size, class size, proportions of children enrolled in private school, and population density. District size was a significant and negative predictor of student achievement (Driscoll et al., 2003). Because of multiple issues associated with educating children in urban schools, we included district size and locale as variables from the macrosystem. Urban, low income schools in particular can have difficulty recruiting and retaining excellent teachers to serve the neediest students (Darling-Hammond, 2006; Harry & Klinger, 2006; Krei,1998). In addition, negative publicity associated with schools' failure to meet NCLB standards can make the strongest teachers leave city schools Our study expands upon previous research by including all of these variables.

For the present study, we elected to focus on a set of variables at the levels of microsystem, mesosystem, exosystem, and macrosystem to help make sense of the identification of minority youth in special education, with a particular focus on the influence of schools that students attend. Our goal was to provide a broad picture, within social contexts, of environments that contribute to special education identification. Our efforts could then guide and extend research in contexts beyond those of the individual child, to make changes in special education practice at the school level.

The Illinois State Context

Since the passage of the Individuals with Disabilities Education Act (IDEA) in the mid-1970s, states have been required to carefully monitor the provision of intervention services for students with disabilities. Historically, Illinois has tended to serve a greater percentage of students with disabilities than the national average; although, like many states, many of these children were typically served in separate classrooms or separate school facilities than general education students. In 1998, following the well-known *Corey H.* lawsuit filed on behalf of children with disabilities in Chicago Public Schools (CPS), CPS and the Illinois State Board of Education (ISBE) were found to be in violation of the IDEA mandate to educate children with disabilities in the least restrictive environment (Designs for Change, 1998). As a result of the *Corey H.* settlement agreement, efforts have been made to change policy and practices at the state and local levels to increase schools' capacity to serve children with disabilities in the least restrictive environment. For the past decade, Illinois school districts have been under more stringent reporting requirements related to the identification of students with disabilities and the settings in which they are provided with services, as well as in carefully monitoring for disproportionate representation of ethnic minority students in special education (ISBE, 2005).

In compliance with the 2004 reauthorization of IDEA and the *Corey H.* settlement, the state publishes an annual report on special education performance. In 2004-05 (the year of this study's data), 15.4% of students in Illinois received special education services through Individual Education Plans (IEPs) at their public schools. Although this was an increase over the previous year, the highest incidence disabilities (learning disabilities, speech and language impairments, emotional disturbance, and mental retardation) saw a decrease in students receiving services, while Other Health Impairments and Autism showed an increase. Both White and African American students were over-represented among students receiving special education services, while Latino and Asian American students were underrepresented (ISBE, 2005). Although the state saw a slight increase in the overall percentage of students receiving services in the general education classroom, Illinois continued to serve students in less inclusive settings than the national average. Indeed, more than three-fourths of students with Mental Retardation (MR) were served outside of the general classroom or in a separate facility; similarly, approximately 30% of students with Emotional Disturbance (ED) were served in special facilities. In addition, African American students received special education service in less integrated settings than any other ethnic group, with nearly 9% of Black students receiving services in a separate educational facility (ISBE, 2005). The implications of these policies and practices are discussed in the study results below.

Research Questions and Hypotheses

Our specific research questions were as follows:

1) How do gender, race, and their interactions predict identification in special education (MR, ED, LD), independent of school and district level variables?
2) How do race and gender and their interactions predict identification in special education for students nested within schools, when considered with school and district level variables?

We hypothesized that in our prediction of special education identification using individual characteristics only (question one) we would find patterns comparable to those identified by previous research: that boys and African American students would be overrepresented in all categories and that Asian American and Latino students would be underrepresented. We also expected that interactions between race and gender would predict special education identification in all categories, particularly in the case of African American males.

With regard to question two, exploring the effects of individual student characteristics (race and gender and their interactions) in conjunction with school and district data, we hypothesized the following effects. At the microsystem level, we expected that race and gender would continue to be significant and positive predictors of special education identification. At the mesosystem level, we expect that school

race would have a significant effect, with majority Black and majority Latino schools acting as positive predictors for special education identification. Although we anticipated that student-teacher race match might act as a significant predictor of special education identification, we were cautious about this prediction because student race was measured at the school level, whereas teacher race was only available at the district level. We also expected that parent and family variables would act as significant predictors of special education identification, with parent involvement and family income acting as negative predictors and attendance, truancy, and mobility acting as positive predictors.

At the exosystem level, we expected variables associated with NCLB to be significant predictors in predicting special education identification, with school made AYP a negative predictor, and the remaining NCLB variables positive predictors (school needs improvement, years in school improvement). We expected that variables measuring family income at school and district level financing variables would be positive predictors. We expected characteristics associated with teacher quality (certification, experience, advanced degrees) to be negative predictors of special education identification. Teacher race at the school level may reflect district and school level policies about the education of minority students; thus, we included this variable in the model.

At the macrosystem level, we expected school structure (elementary, middle, high) to be significant predictors of special education identification, with elementary and middle school status acting as positive predictors, and high school acting as a negative predictor. We expected poverty to be a negative predictor of special education identification, and were interested to see whether poverty would interact with school structure and race. With regard to community structure, we expected large city and rural areas to be significant, positive predictors of special education identification.

The Use of Hierarchical Linear Modeling

The majority of studies in ethnic disproportionality using large samples have employed linear regression techniques; yet those techniques are limited, in that they require investigators to assume that individuals function independently from their schools and communities. Yet, students clearly function within the context of their schools, and hierarchical linear modeling (HLM) can account for this (Duncan & Raudenbush, 1999; Raudenbush & Bryk, 2002). HLM explicitly accounts for individuals' dependency within schools and the fact that students tend to cluster within schools (Raudenbush & Bryk, 2002). As a result, the HLM provides a means to better estimate individual level effects and to draw more accurate conclusions from the results (Raudenbush & Bryk, 2002).We tested two models using HLM. The first, model one, employed student characteristics only to predict identification in the three special education categories. For model two, we considered student characteristics (gender, race, and their interactions) in conjunction with school and district characteristics to predict special education identification.

Method

Subjects

Subjects in the study were 1,394,024 students who attended 2,104 elementary, middle, and high schools in Illinois during the 2004-05 school year. Data describing the race and gender of students with MR, ED, and LD, as well as school enrollment data, was provided to us by the Office for Civil Rights (OCR) in the United States Department of Education. Table 1 presents descriptive information about the student population in the present study.

Data Sources

Every two years, the Office for Civil Rights (OCR) collects responses to the Elementary and Secondary School survey from a nationally representative sample of school districts across the country (U.S. Department of Education, Office for Civil Rights, 2005). For the purpose of this study, we used student enrollment, race, gender, and disability status in the state of Illinois from the 2004-2005 school year to create our individual level data file; these were the most recent data available from the OCR during the time we conducted the study. The OCR provided data for 2,447 schools in Illinois from that year. Data describing the schools were retrieved from the Illinois State Board of Education (ISBE) School Report Cards (http://www.isbe.state.il.us). ISBE provided data for 3,854 schools from the 2004-2005 school year. Additional school community data, such as school locale (large city, urban fringe, rural, etc.) and median family income were drawn from the Common Core of Data of The National Center for Educational Statistics (NCES) for the same year (http://nces.ed.gov/ccd). The Common Core of data contains information on 15,041 school districts across the country. Datasets were linked using NCES

school and district identification codes and Illinois state school IDs. Variables included in the model and measured at each of the levels of Bronfenbrenner's model are described in Table 2.

Examining Individual and Contextual Influences with Hierarchical Linear Modeling

To address our research questions, we used a series of models to examine individual versus contextual variables. Model one addressed Question 1, examining how gender, race, and their interactions predicted identification in special education (for MR, ED, and LD) without controlling for Level 2 school context variables (i.e., assuming that all Level 2 variables provide nonsignificant predictors). At the student level, we including an indicator of male (1=male, 0=female), indicators of Asian, Latino, African-American, and White (zeroes in these four race categories indicate Native American), and all possible pairwise interactions between all these indicators.

Table 1. Distribution of cases by gender, race, and disability category

Girls

Race	MR	ED	LD	NONE	TOTAL	%
African American	4110	1592	9648	161253	176603	12.7%
Asian American	180	48	374	27292	27894	2.0%
Latino	1434	417	7445	143488	152784	11.0%
Native American	11	9	59	1155	1234	0.1%
White	3171	2172	15505	300901	321749	23.1%
Total	8906	4238	33031	634089	680264	48.8%

Boys

Race	MR	ED	LD	NONE	TOTAL	%
African American	5776	5125	17793	150206	178900	12.8%
Asian American	214	152	709	29232	30307	2.2%
Latino	1851	1510	13258	142996	159615	11.4%
Native American	20	17	90	1207	1334	0.1%
White	4489	6597	28139	304379	343604	24.6%
Total	12350	13401	59989	628020	713760	51.2%

Table 2. Study variables within Bronfenbrenner's nested ecological system (1977; 1979)

System Level	Variable Group	Variable Name
Microsystem	Student Characteristics	Gender Race
Mesosystem	School Race	Majority Black student body Majority Latino student body Majority White student body Diverse student population (no majority) Limited English Proficient students (%)
	Student-teacher race match (interactions)	Majority Black students x majority White teaching staff Majority Black students x majority teachers of color Majority Latino students x majority White teaching staff Majority Latino students x majority teachers of color Majority White students x majority teachers of color
	Parent and family	Parent involvement (school %) Student attendance rate (school %) Student mobility rate (school %)

		Student truancy rate (school %)
		Mean family income (dollars)
Exosystem	School academic & NCLB	Low Income students (% free/reduced lunch)
		School achievement (composite % meets/exceeds)
		School made AYP
		School on needs improvement status
		Number of years on school improvement status
		Schools in district on improvement status (%)
		Title1 schools in district (%)
	Teacher Characteristics (district-level)	Majority teachers of color
		Majority White teachers
		Majority Black teachers
		Diverse teaching staff (no majority)
		Male teachers (%)
		Average years teaching experience
		Teachers with Masters degrees (%)
		Pupil:certified staff ratio
		Average teacher salary (dollars)
		Teachers with emergency certificates (%)
		Support services available (%)
		Classes taught by not-highly qualified staff (%)
	District finances	District per pupil expenditure (dollars)
		District support services per pupil expenditure (dollars)
Macrosystem	School structure	Elementary school
		Middle school
		High school
		Enrollment
	School structure by Poverty (interactions)	Poverty (% free/reduced lunch) x Elementary school
		Poverty (% free/reduced lunch) x Middle school
		Poverty (% free/reduced lunch) x High school
	District size	Small district
		Medium district
		Large district
Macrosystem	Community	Large city
		Urban fringe
		Midsize city
		Town
		Rural community
		Population below poverty level (%)
	School Race by Poverty (interactions)	Majority White students x Poverty (% free/reduced lunch)
		Majority Black students x Poverty (% free/reduced lunch)
		Majority Latino students x Poverty (% free/reduced lunch)

Note. Unless otherwise noted, categorical variables were dummy coded determining inclusion, such that 1=yes (i.e., for elementary school); 0=otherwise.

To address our second question, examining how race and gender and their interactions predict identification in special education when considered with a range of school and district factors, we performed a two level multinomial logit HLM analysis, with students nested within schools. The technical details about this approach to HLM are available in Raudenbush and Bryk (2002, Chapter 10). Having described the student level and school level variables, the aim of the HLM analysis was to

identify which of these variables would significantly predict student identification in either MR, ED, LD, compared to no disability (the referent category), and to characterize the relationship between these predictors with student identification. To maintain interpretability in data analysis, we decided to construct a two-level model that includes student-level predictors at level one and both school-level and district level variables at level two.

In the HLM analysis, parameters were estimated via maximum likelihood, and we used a variable selection algorithm to identify significant predictors. In particular, we used an iterative, backward elimination algorithm, where at the first stage, all predictors were included in the model. At each iterative stage, a likelihood-ratio test was performed between an HLM model that included the predictor having the smallest |t| value (t denotes the t ratio), against an HLM model that excluded that predictor. If the test was not significant at the .05 level, we proceeded to the next stage using an HLM that excluded this predictor and performed a different likelihood-ratio test involving a new the predictor having the smallest |t| value. Otherwise, if the test was not significant, the iterative process stopped. The HLM model determined at the end of this iterative process was identified as the model containing only the variables that provide significant predictors of student identification in MR, ED, or LD, compared to no disability (a referent category).

Among the 3,854 schools, there was a small percentage of missing data for each of the 45 school level predictor variables. Assuming the data were missing at random (i.e., the occurrence of missing values depended on the observed values of the school level predictors), we imputed these missing values using predictions from a multivariate normal model fitted to the observed (non-missing) values (Little & Rubin, 2002). For the HLM analysis, we were able to analyze 2,104 of the 3,854 schools, because there were 1,750 *missing* schools providing no student level data. This sample represents about two-thirds of public schools in Illinois in the 2004-05 school year. These data are indicative of the representative sampling of schools by OCR every two years (Oswald et al., 2002), compared with the complete set of Illinois public schools with ISBE School Report Cards. Table 3 presents the descriptive statistics of all the school level variables for the 2,104 non-missing schools. We also performed a separate logistic regression analysis of all the 3,854 schools, with the dependent variable indicating whether the indicator whether the school was missing. We found that compared to the missing schools, the non-missing schools set had significantly fewer majority Black schools, fewer Title 1 schools, and fewer schools in the district in school improvement status, as well as lower levels of student mobility, family income, and teaching experience. Non-missing schools had significantly more schools in small and large districts. In addition, these schools tended to have somewhat greater enrollments, higher teacher pay, and more years in school improvement status than schools with missing data. Considering the impact of factors such as family income, achievement status, and teacher experience on identification of students with disabilities, these differences suggest a possible under sampling of students with disabilities in the current sample. As a result, we felt it important to examine the distribution of students with disabilities in the study sample compared with incidence rates reported by the state. Results from this analysis are reported below.

Results

Analysis of data from the 2,104 available schools included 1,394,024 student cases. Overall, our sample included 9.5% of students across the three disability categories of mental retardation, emotional disturbance, and learning disabilities. The percent of students in each disability category was 1.53%, 1.27%, and 6.67% for MR, ED, and LD, respectively. The published Illinois Special Education Profile for the 2004-05 school year noted incidence rates of 1.73%, 1.22%, and 7.13%. Statistical comparison of the distribution of students with disabilities in the study sample with expected proportions reported by for the state revealed no significant differences, $\chi 2\ (3, N = 8) = 0.72, p > .05$.

Model I: Student level Predictors of Special Education Identification

Table 4 presents the results from model one, as well as the intermediate analyses between models one and two, showing the odds ratios with and without school predictors in the model. We selected a .05 significance level for this analysis. A variable with a positive coefficient indicates that an increase in the variable is associated with an increase in the probability of classifying a student in the given category, while controlling for all other significant predictors in the model. A variable with a negative coefficient indicates that an increase in the variable is associated with a decrease in the probability of classifying a student in the given category, while controlling for all other significant predictors in the model. The HLM analysis allowed us to address how the student level variables predicted student identification in the special education categories of mental retardation (MR), emotional disturbance (ED), and learning

disabilities (LD), compared to the no disability category (the referent category). As expected, race and gender were significant predictors of disability status across all categories in model one. Asian students, in general, were significantly less likely to be identified for special education across all categories. In contrast, African American and White boys were significantly more likely to be classified as MR. For the category of ED, Asian and Latino students, overall, were less likely to be identified. However, the interaction between race and gender revealed a significantly greater likelihood of Latino boys being classified as emotionally disturbed. For the category of LD, race and gender continued to be significant predictors, with African American students and boys having significantly greater odds of being identified as learning disabled.

Table 3. Descriptive statistics for the school level predictors.

Variable	Mean	s.d.	Variable	Mean	s.d.
Elementary School	.61	.49	Support services available	29.82	6.41
High School	.20	.40	School achievement	70.97	15.53
Small District	.17	.37	School made AYP	.84	.37
Large District	.35	.48	School needs improvement	.06	.25
Majority White Students	.81	.39	Years on improvement status	.19	.81
Majority Black Students	.06	.24	Title 1 Schools in district	59.72	30.76
Majority Latino Students	.03	.17	Schools in district on improvement status	7.83	20.54
Enrollment	360.97	199.72	Large city	.02	.14
LEP Students	2.85	7.72	Urban fringe	.38	.49
Low Income Students	31.14	22.93	Midsize city	.10	.30
Parent Involvement	97.47	5.87	Rural community	.38	.49
Student Attendance	94.80	2.18	Per-pupil expenditure	9230.39	2463.18
Student Mobility	14.74	11.38	Support service expenditure	325.12	210.03
Student Truancy	1.45	3.63	Mean family income	56253.50	20936.70
Majority teachers of color	.01	.11	Percent below poverty	13.35	9.41
Male teachers	20.90	8.65	Majority Black students x majority white teachers	.04	.18
Teaching Experience	14.42	2.62	Majority Latino students x majority white teachers	.02	.15
Teachers with Masters Degrees	39.87	17.21	Majority Latino students x majority teachers of color	.001	.03
Pupil:Staff Ratio	13.22	2.08	Maj White students x poverty	9.75	7.97
Teacher salary	48045.29	8647.84	Maj. Black students x poverty	1.60	7.86
Emergency Certificates	.92	2.83	Maj. Latino students x poverty	.62	3.79
Classes with Non-Highly Qualified Teachers	.78	4.83	Poverty x Elementary School	7.89	9.65
			Poverty x High School	3.09	7.45

Note. Variables that appear in Table 1 but do not appear in Table 3 served as referent categories for the dummy coded variables (i.e., middle school served as referent for elementary and high school).

Model II: Individual and Contextual Predictors of Special Education Identification

Table 5 presents the results of the significant predictors of identification in MR, ED, and LD categories, after application of the HLM analysis with the backward variable-selection algorithm described in the previous section. Because of the large numbers of variables, we selected a $p < .01$ level for this analysis. As was the case in model one, a variable with a positive coefficient indicates that an increase in the

variable is associated with an increase in the probability of classifying a student in the given category, while controlling for all other significant predictors in the model. A variable with a negative coefficient indicates that an increase in the variable is associated with a decrease in the probability of classifying a student in the given category, while controlling for all other significant predictors in the model.

The HLM analysis allowed us to address how the student level and school level variables predicted student identification in the special education categories of mental retardation (MR), emotional disturbance (ED), and learning disabilities (LD), compared to the no disability category (the referent category).

In contrast to model one, results revealed that race, gender, and their interactions did not significantly predict student identification with ED, LD, or MR once students were nested within their schools and school level variables were considered in the model. However, a number of school level variables were found to significantly predict identification in each of the three disability categories. School attendance rate was a significant negative predictor for all three special education categories; as attendance rate increased among schools, the probability of students being classified in each of the special education categories decreased.

For the category of MR, school mobility rate was a significant positive predictor; as the school mobility rate increased, the probability of students being classified with MR also increased. In addition, teacher education and adequate yearly progress (AYP) was significant negative predictors for MR identification; students were less likely to be classified with MR in schools with a greater percentage of teachers who had Masters Degrees and in schools making AYP. Finally, size and locale of the district in which the school was located were both significant negative predictors for MR; among schools in large and midsize cities and schools on the urban fringe, the probability of students being classified with MR decreased. Students in rural schools were also less likely to be identified with MR.

For the category ED, the proportion of students from low income families was a significant negative predictor; as the percentage of low income students increased, the probability of students being classified with ED decreased. In addition, average teacher salary for the district was a significant positive predictor of ED; schools with higher average teacher salaries were associated with a greater likelihood of ED identification.

For the category LD, district size was a significant predictor. For schools in small districts, the probability of students being classified with LD increased, whereas among schools in large districts, the probability of students being classified with LD decreased. Pupil-to-certified staff ratio was a negative predictor for LD; as pupil to certified staff ratios increased, the probability of students being classified with LD decreased.

What is particularly striking is the stability of odds ratios from the first model to the second. Odds ratios, which are also indicators of effect size, do not change much from model one to model two. Yet what do change are the levels of significance of race and gender predictors from the first model to the second. Across special education categories in model one, categories of race and gender are significant; with school predictors in the second model, those categories become nonsignificant, even as odds ratios remain the same.

Table 4. Predictors of special education identification: A comparison of results for two multinomial logit models. The first model contains only level-1 student predictors. The second model adds chosen school-level predictors, presented in the final model of Table 5.

Predictors of Identification in Mental Retardation					
	Without School Predictors			With School Predictors	
	Coefficient(S.E.)	p-value	Odds	Odds	p-value
Intercept	-4.08 (.35)	0	0.02	59.19	0.03
African American	.36 (.35)	0.31	1.43	1.23	0.89
Asian	-1.17 (.36)	0	0.3	0.4	0.56
Latino	-.67 (.36)	0.06	0.51	0.57	0.71
White	-.55 (.36)	0.12	0.58	0.57	0.71
Male	-.68 (.50)	0.18	0.51	0.52	0.8
African American Male	1.08 (.50)	0.03	2.95	2.89	0.68
Asian Male	.82 (.50)	0.1	2.27	2.18	0.77
Latino Male	0.96 (.50)	0.06	2.6	2.5	0.72
White Male	1.01 (.50)	0.04	2.75	2.66	0.7
Predictors For Identification in Emotional Disturbance					
	Without School Predictors			With School Predictors	
	Coefficient(S.E.)	p-value	Odds	Odds	p-value
Intercept	-4.95 (.36)	0	0.01	2.39	0.748
African American	0.20 (.37)	0.59	1.22	1.2	0.94
Asian	-1.40 (.41)	0	0.25	0.2	0.52
Latino	-1.02 (.37)	0.01	0.36	0.41	0.7
White	-0.09 (.37)	0.8	0.91	0.82	0.93
Male	0.37 (.46)	0.43	1.44	1.44	0.9
African American Male	0.84 (.46)	0.07	2.32	2.37	0.77
Asian Male	0.64 (.51)	0.21	1.89	1.9	0.84
Latino Male	0.90 (.46)	0.05	2.46	2.47	0.76
White Male	0.68 (.46)	0.14	1.97	1.98	0.82
Predictors of Identification in Special Learning Disability					
	Without School Predictors			With School Predictors	
	Coefficient(S.E.)	p-value	Odds	Odds	p-value
Intercept	-2.95 (.20)	0	0.05	79.13	0
African American	0.13 (.20)	0.5	1.14	0.96	0.97
Asian	-1.35 (.21)	0	0.26	0.27	0.16
Latino	-0.01 (.20)	0.97	0.99	1	1
White	-0.02 (.20)	0.93	0.98	1	1
Male	0.37 (.16)	0.02	1.45	1.46	0.73
African American Male	0.31 (.16)	0.06	1.36	1.37	0.78
Asian Male	0.21 (.17)	0.23	1.23	1.22	0.87
Latino Male	0.21 (.16)	0.2	1.23	1.23	1
White Male	0.21 (.16)	0.19	1.24	1.23	0.85

Note. All coefficients reported are unstandardized, and reported with robust standard errors (S.E.). For the first and second model, the p-value is based on a t-statistics with 32,171 and 32,156 degrees of freedom, respectively.

Table 5. Maximum-likelihood estimates of the coefficients in the HLM multinomial-logit model, which included the significant predictors of student identification.

Significant predictors of Mental Retardation (MR) identification			
Predictor	Coefficient (S.E.)	p-value	Odds Ratio
Intercept	4.80 (.74)	.00	121.50
Student Attendance	-.08 (.01)	.00	.92
Student Mobility	.01 (.00)	.00	1.01
Teachers with Masters degrees	-.01 (.01)	.01	.99
School made AYP	-.51 (.10)	.00	.60
Large City	-.97 (.17)	.00	.37
Urban fringe	-.71 (.16)	.00	.49
Midsize city	-.51 (.17)	.00	.60
Rural community	-.71 (.25)	.01	.49

Significant predictors of Emotional Disturbance (ED) identification			
Predictor	Coefficient (S.E.)	p-value	Odds Ratio
Intercept	2.86 (.64)	.00	17.38
Low Income Students	-.006	.00	.99
Student Attendance	-.09 (.01)	.00	.91
Teacher salary	.00003 (.00)	.00	1.00

Significant predictors of Learning Disability (LD) identification			
Predictor	Coefficient (S.E.)	p-value	Odds Ratio
Intercept	4.83 (.30)	.00	124.61
Small district	.33 (.09)	.00	1.39
Large district	-.27 (.04)	.00	.77
Student Attendance	-.07 (.00)	.00	.93
Pupil:Staff Ratio	-.03 (.01)	.00	.97

Note. All coefficients reported are unstandardized, and reported with robust standard errors (S.E.). All p-values are based on t-statistics with 32,183 degrees of freedom.

Discussion

We employed Bronfenbrenner's (1977; 1979; 1992) theory of nested ecological systems to better understand the complex influence(s) of the larger school context on minority student identification in special education. We looked predominately at the broad contextual influences of schools with a large number of students within the multilevel system that is Bronfenbrenner's model. We found that when one considers students nested within schools, which are then described by variables from these multilevel contexts, with all variables entered simultaneously in a model to predict special education identification, that school variables — not race and gender — become the significant predictors of MR, ED, and LD.

Previous research had focused on characteristics of the individual child and family as responsible for the development of disabilities (see Harry & Klinger, 2006), with race and gender, particularly in the categories of MR and ED, all significant. Yet our results reveal that race and gender of individuals do not tell the whole story; that indeed school factors from multiple levels of influence can explain the identification of children and youth with disabilities. Our application of Bronfenbrenner's multilevel theoretical model coupled with HLM analyses helped us to see student race and gender within the schools, guide our selection of multilevel variables to describe the schools, and ultimately identify which variables in a multilevel system contributed to special education identification.

Previous quantitative research had focused solely on odds ratios or other risk indices (Artiles et al., 2005; Losen & Orfield, 2002) or included individual student characteristics alongside school predictors (Coutinho & Oswald, 1998; Coutinho & Oswald, 2005; Coutinho et al., 2002; Oswald et al., 1999, 2001, 2002, 2003; Skiba et al., 2005), without first nesting students within the schools they attend. Previous qualitative research had of course nested students within their schools (Harry & Klinger, 2006), and indicated the potential power of school effects, particularly at the microsystem level. The NRC report had pointed to the potential for school policies to drive minority student identification in special education (Donovan & Cross, 2002); and Darling-Hammond (2006) had drawn the attention of the nation to the *savage inequalities* of American schooling for minority children compared to their White peers (Kozol, 1991).

In our initial HLM analysis using race, gender, and their interactions only as predictors, race and gender continued to contribute to identification for special education. Our hypotheses about the predictive value of race and gender across disability categories only held in some cases. As expected, Asian American students were less likely to be identified across all categories, while Latino students were only significantly underrepresented in ED. With respect to gender, male was significant for the LD category only. We had expected that interactions between race and gender would be significant, particularly for African American males. However, this only held true for African American males in the category of MR. Odds ratios do indicate that African American males were at greater risk for identification with ED and LD, but the finding did not reach significance. This particular pattern of findings could be due to our sampling of fewer predominately Black and lower income schools.

However, our findings from model two that school variables from multiple theoretical levels were significant predictors of special education identification clearly deviated from previous research. In the second HLM analysis, we did not find race and gender acting as significant predictors of student identification in MR, in ED, and in LD. Instead, school factors from multiple levels were significant. Furthermore, and in line with previous research, significant school level predictors differed for the MR, ED, and LD categories (with the exception of school attendance rate).

Following Bronfenbrenner's model, we found that significant school effects occurred at the level of the mesosystem (school attendance and mobility), exosystem (resources provided to schools as measured by whether schools made AYP, whether teachers held Masters degrees, and the ratio of pupils: certified staff), and macrosystem (school district size and type of community). In previous research, individual social address (particularly race and gender) had largely driven minority student representation in special education.

A methodological reason for our findings may be the sheer ability of so many variables from the school level to absorb variance in the model. A substantive explanation is that school and school policy contexts within Bronfenbrenner's model dwarfed the effects of individual characteristics of race and gender, given the well-established finding that minority students are more likely than their White peers to attend poorer, less well funded schools (Darling-Hammond, 2006).

Our findings have the potential to shift the focus from blaming minority children and their families for the emergence of low achievement and disabilities to placing greater responsibility on schools and school policies that directly affect them (Harry et al., 2005). Some theorists see this as an improvement over *blaming the victim* (McDermott & Varenne, 1995); we see this as an essential path to intervention for minority children and youth. School is the setting where important policy decisions are aimed at addressing disproportionate representation of minority students in special education (Hosp, 2009). Yet educational policy tends to focus on punishing students and teachers for failing to meet academic standards (Heubert, 2002), rather than supporting schools, teachers, and students by providing them with access to high quality, certified teachers in schools, where parents want their children to attend and remain. Urban schools in large districts are most likely to be on the punishing end of national school policies; despite spending more money, they obtain less in the way of buying power for the money they do spend (Parrish, 1996). Urban schools, then, are currently less able than their suburban counterparts to hire and retain qualified teachers (Darling-Hammond, 2006). These are the schools that minority students disproportionately attend.

Previous work had found that poverty was not a significant predictor of special education identification for minority students (Skiba et al., 2005), or that income levels mattered only when proportions of

African Americans in the population were also considered (Oswald et al., 1999). Our study extended these findings, by discovering that predictors associated with resources to schools were significant, whereas variables directly measuring poverty and income were not. In that way, our study provides evidence to support one component of the NRC model of student achievement: policy influences on teachers. In their report, Donovan and Cross (2002) identified certification requirements, as well as resources for salaries and professional development having influences on teaching; our results directly support that part of their model. Furthermore, our work was a direct response to the question posed by the NRC, regarding *whether the school experience itself contributed to racial disproportion in academic outcomes and behavioral problems that lead to placement in special and gifted education* (Donovan & Cross, 2002, p. 358). Our results answered that question in the affirmative.

Limitations

The present study did focus on the effects of broad, multilevel school context variables on minority student identification in special education. Yet, we were not able to address important variables likely to affect disproportionate representation in the present study, especially those at the microsystem level. These include quality of classroom instruction and class management (Harry & Klinger, 2006); quality of teacher-student relationships (Decker et al., 2007; Hamre & Pianta, 2001; Harry & Klinger, 2006); culturally responsive teaching (Gay, 2000) and the use of appropriate assessment methods, particularly for English language learners (Harry & Klinger, 2006). In addition, our measurement of teacher ethnicity at the district level and student ethnicity at the school level did not create a sound theoretical match, thereby possibly obscuring a potentially powerful finding. These variables, largely all occurring at the level of the microsystem, need further exploration, particularly in the context (as our study reveals) of varying levels of resources provided to the schools. In addition, we did have missing data for 1,750 of the schools from our original sample. These missing schools did differ significantly from non-missing schools on important variables and consisted of a slight undersampling of students with learning disabilities, which may have affected our overall findings.

Significance of School Attendance Rate

In our second HLM model, school attendance rate was a significant, negative predictor for all three special education categories; meaning that, as attendance rate increased in a given school, the probability of students' identification in each of the three categories decreased. This finding extends previous research that has focused on the role of the family in the special education process at the level of the microsystem (Harry et al., 2005; Harry & Klinger, 2006). Harry and colleagues have interviewed, observed, and visited families in the home, offering a unique perspective on their experiences. We selected student attendance rate as a family measure at the mesosystem level, which is a variable that schools can track and are required to report. Attendance turns out to be a powerful variable, indicative of important components of a school's functioning. First, student attendance has the potential to affect the learning environment of an entire school, because school funding is often directly tied to the number of students who regularly attend (Epstein & Sheldon, 2002). Students who attend regularly outperform their peers on standardized tests, thereby contributing to a school's ranking and success (Lamdin, 1996; Sheldon, 2007).

Student attendance can also be indicative of the quality of the classroom context, including the extent to which classes are chaotic or well organized. Likewise, student attendance can reflect the quality of student-teacher relationships (Epstein & Sheldon, 2002). Finally, student attendance may be strongly associated with parent involvement in a school. Epstein and colleagues have found that across 39 elementary schools, the quality of family, school, and community partnership programs was associated with rates of student attendance (Epstein, Clark, Salinas, & Sanders, 1997). Furthermore, Epstein and Sheldon have found that attendance in both urban and rural schools significantly improves through interventions focused on boosting family and community involvement (Epstein & Sheldon, 2002; Sheldon, 2007).

Not only is rate of attendance an important predictor of special education identification, it also appears to be a risk factor for students with disabilities. Attendance appears to be a powerful variable, reflecting important processes within schools and families and likely reflecting, in part, strong school and community partnerships. Most important, unlike race, poverty, and gender, student attendance is a school and community level variable that can be changed. Of course, student attendance becomes a risk factor when it is viewed as solely the responsibility of families, rather than as a shared responsibility of families and schools.

Significant Predictors of Mental Retardation

In the first HLM model, we found that the categories female of other race and Asian students served as negative predictors of MR, whereas African American and White Male students served as positive predictors. These are patterns of identification by race and gender that we would expect to find. Yet, when multiple school variables were included in the second model, we found that race and gender were no longer significant predictors.

In addition to attendance rate, we found four more positive predictors of MR identification in the second model. Two of the four significant school predictors (i.e., positive association with mobility rate and negative association with whether schools made AYP) appear to indicate a pattern of association with student achievement and family income. We found that, as school mobility rates increased, the probability of students being classified with MR increased. This finding also extends previous research that has focused on the family in the special education process at the level of the microsystem (Harry et al., 2005; Harry & Klinger, 2006). School mobility has had strong, consistent associations with student achievement (Heinlein & Shinn, 2000). In a large sample of urban youth followed from third through sixth grades, Heinlein and Shinn (2000) found a strong, negative association for high levels of student mobility with reading and math achievement in sixth grade. In fact, students who moved two-to-three times within a given school year were likely to experience declining achievement test scores of 20 or more percentile points from third to sixth grades (Heinlein & Shinn, 2000). Furthermore, early mobility appeared to be more disruptive than later mobility, with mobility prior to third grade a more potent predictor than later mobility (Heinlein & Shinn, 2000). Like attendance, student mobility becomes a significant risk factor when it is viewed as the sole responsibility of families. When families feel connected to schools and schools are serving their children well, they will be less likely to move.

Similarly, we found a negative association between whether schools made adequate yearly progress (AYP) and identification of students as MR, indicating that if schools did not make AYP, the probability of students being classified as MR increased. However, we also found a negative association between whether schools were located in the urban fringe or in large cities and identification of students with MR. The significance and direction of these two variables appears to be contradictory, with large cities more frequently associated with poverty and lower achievement in schools (Driscoll, Halcoussis, & Svorny, 2003) and urban fringe more frequently associated with higher income and achievement. Yet the urban fringe is heterogeneous, and in the Chicago area, densely populated.

Population density may provide some insight to our findings. Driscoll et al. (2003) found that population density was a key factor in predicting student achievement across all schools in California, with urban schools having a more difficult time producing adequate-to-high levels of student achievement. It could be that schools in both large cities and on the urban fringe in Illinois share characteristics of population density that can affect identification of students with MR. Not only are these the districts most likely to be populated by minority students, they are also the districts that spend the most per student and get the least per dollar in the way of buying power (Parrish, 1996). Our work extends findings from previous research by making a connection between large, urban schools in densely populated centers and identification of children with MR.

Significant Predictors of Emotional Disturbance

In the first HLM model, we found that the categories female of other race and Asian students served as negative predictors of ED, whereas the category of Latino served as a negative predictor, and the category of Latino Male served as a positive predictor. This is intriguing, given that in the second HLM model, we found patterns of school and demographic characteristics for identification of students with ED closely matching findings from previous research with African American students (i.e., Oswald et al., 1999). In addition to a negative association between attendance rate and the probability of student identification with ED, we found that school low income status had a negative association and average teacher salary for the district had a positive association with ED identification. Our work extends the findings of Oswald and colleagues (1999) who found similar patterns related to district income for predicting identification as ED, particularly for African American students in low poverty, more affluent districts. For example, in lower poverty school districts with few African-American students, African-Americans were much more likely than non African-American students to be identified with ED (Oswald et al., 1999). Granted, we did not find a contribution for race at the individual or school level in the second model, nor for their interaction. But significant findings for identification of Latino youth in the first model suggest that increased rates in school population of Latinos in the past ten years may be

contributing to their disproportionate representation in the ED category in Illinois, ten years after the Oswald study. Stigmas for children and youth with ED and mental health problems clearly persist; and the identification of these youth appears directly tied to sociodemographic variables.

Significant Predictors of Learning Disabilities

In the first HLM model, we found that the categories female of other race and Asian students served as negative predictors of LD, whereas the category of Male served as a positive predictor. Again, when multiple school variables were included in the second model, we found that race and gender were no longer significant predictors of LD. In the second HLM model, in addition to a negative association between attendance rate and the probability of student identification with LD, we found significant associations with district size and the probability of students being classified with LD (small districts having a positive association and large districts having a negative association), as well as a significant negative association between pupil:certified staff ratio in the district and the probability of students being classified with LD.

These findings for prediction of LD at the macrosystem level (district size, pupil:staff ratio) may simply be an indirect measure of wealth of the district. Skiba et al. (2005) found that richer districts tended to have higher rates of ethnic disproportionality in LD. Our work builds on this finding by connecting an indirect level of resources to student identification with LD. This is not unlike the pattern of findings we obtained for the prediction of ED.

Principals and teachers in smaller districts may have the resources and support to be more innovative and flexible in serving children with LD; they may simply have fewer layers of bureaucracy; they may simply know their students better. The negative association we found between pupil:certified staff ratio in the district and identification of students with LD suggests that the academic needs of students are being well met in these districts, perhaps obviating the need for LD services.

Our study addressed an additional layer of the complexity of minority student identification in special education. We used a multilevel theoretical model to consider school influences, applying HLM methods to nest students within schools, then simultaneously apply the contribution of school variables to their identification with MR, ED, and LD. The process of identification to date has been described as complex, interactive, and contradictory (Skiba et al., 2006), and as more than a disability prevalence quandary (Artiles & Bal, 2008). We concur. Bronfenbrenner's theory suggests the importance of looking beyond the microsystem to unravel this complexity. We have done this, going beyond individual social address characteristics to consider the multiple layers of the school context.

Clearly, there is a long literature and history of minority students being overrepresented in special education. We do not disagree; rather, we are looking beyond the microsystem to explore what other factors may be responsible for the phenomenon of minority student identification in special education: factors that can be changed. Schools are clearly poised to serve as a source of either risk or resilience for minority children and youth, improving the quality of education and reducing the need for special education.

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