Title
Neighborhood Ethnic Density as an Explanation for the Academic Achievement of Ethnic Minority Youth Placed in Neighborhood Disadvantage

Journal
Berkeley Review of Education, 1(1)

ISSN
1947-5578

Authors
Madyun, Na'im, Dr.
Lee, Moosung, Dr.

Publication Date
2010-02-01

Peer reviewed

Available online at http://escholarship.org/uc/ucbgse_bre

Neighborhood Ethnic Density as an Explanation for the Academic Achievement of Ethnic Minority Youth Placed in Neighborhood Disadvantage

Na'im Madyun[a] and Moosung Lee[b1]

[a] University of Minnesota
[b] Hong Kong Institute of Education

Abstract

The underachievement of ethnic minority youth from disadvantaged neighborhoods is a pervasive educational issue this nation is facing. Based on an ecological perspective, we examined the contextual effects of neighborhood ethnic density and neighborhood disadvantage on the academic achievement of Hmong immigrant youths. Utilizing hierarchical linear modeling techniques in analyzing 3,185 Hmong and White students (for comparisons) across 79 neighborhoods, we found when we controlled for student demographics, Hmong students in the most disadvantaged neighborhoods (high-crime and high-poverty) performed better academically than their ethnically identical peers in the more safe and affluent neighborhoods. Further, with student demographics held constant, Hmong adolescents in the most disadvantaged neighborhoods academically outperformed their White counterparts with the same neighborhood conditions. These intriguing findings resulted from ethnic density in that the predictor of the Hmong population percentage in each neighborhood appeared to absorb the significant effect of neighborhood types. Hmong students would be more likely to achieve highly when they were surrounded by more Hmong residents in their neighborhoods. The logic behind ethnic density functioning as a positive factor for Hmong students within neighborhoods high in disadvantage is discussed along with the implications of this finding for policy.

Keywords: Neighborhood Ethnic Density, Neighborhood Disadvantage, Hmong Immigrant Youth, Academic Achievement, Social Mobilization, HLM

Introduction

Serious neighborhood disadvantage impacting individual development is often identified from large urban areas (Shaw & McKay, 1942; Wilson, 1987) that are becoming more multiracial or multiethnic (Charles, 2000). In those areas, some ethnic minority groups are more likely to collectively reside in ethnic enclaves[2] rather than into

---

[1] Corresponding author: Department of Educational Policy and Leadership, The Hong Kong Institute of Education, 10 Lo Ping Rd. Tai Po, NT, Hong Kong; Tel: +852-2948-7333; Fax: +852-2948-7619; Email: mslee@ied.edu.hk

[2] In this study we prefer the term "neighborhood ethnic density" rather than "ethnic enclave" to be consistent with the characteristic of the variable, which represents the proportion of Hmong population in a particular neighborhood. Alejandro Portes and Leif Jensen (1987) pointed out that the term "ethnic enclave" does not merely mean ethnic concentration in a particular area. It is a concept, more associated with enclave participation by place of work rather than by place of ethnic residence.

Black and White groups. Given these observations, it is important to uncover the neighborhood influences on recently-immigrated ethnic minority youths that are not explored by extant research. Research addressing both neighborhood ethnic density and neighborhood disadvantage as it influences educational outcomes is relatively unexplored in the literature. We believe that the conventional effects of neighborhood disadvantage facing poor Black or Hispanic neighborhoods would not be uniformly applied to all ethnic minority groups because the ethnic concentration could function differently as a neighborhood characteristic for recent immigrants.

Therefore, this study aims to examine the association between neighborhood ethnic density and neighborhood disadvantage and how this density/disadvantage linkage influences the academic achievement of ethnic minority adolescents. In investigating the linkage, we chose Hmong adolescents because their social contexts have been less explored by educational researchers. In brief, our research focuses on examining how Hmong student achievement is related to the contextual effects of neighborhood disadvantage and neighborhood ethnic density.

This article consists of five sections. The first section reviews 1) existing research and theories on neighborhood disadvantage and its effects on educational outcomes and 2) the characteristics of Hmong neighborhoods and educational outcomes. The second section provides our research hypothesis and methods. The third section describes hierarchical linear modeling (HLM) analyses, testing the contextual effects of neighborhood disadvantage and ethnic density on achievement. Based on our HLM results, the fourth and fifth sections provide implications for research and policy by discussing the function of neighborhood ethnic density for Hmong students.

Theoretical Background

Neighborhood Disadvantage Stemming from Social Disorganization Factors

Research has consistently explored neighborhood disadvantage by focusing on either neighborhood poverty (or neighborhood socio-economic status (SES)), neighborhood crime, or racial-ethnic diversity. This is consistent with Shaw and McKay's (1942) social disorganization theory which is built on a logic that the above three neighborhood factors function as an index of a community's capacity for formal and informal social control[3] of individual development.

Specifically, neighborhood poverty has been reported most consistently as the primary indicator of neighborhood disadvantage influencing child and youth development in the social disorganization literature (Lee & Madyun, 2009). Along with neighborhood poverty, research mostly camped in social disorganization theory has revealed the negative neighborhood effect of crime on individual social conduct and well-being (Kubrin & Weitzer, 2003; Sampson & Groves, 1989; Shaw & McKay, 1942; Wilson, 1987). Because neighborhood concerns were centered on high crime rates, drug

---

[3] There are two forms of neighborhood social control: informal (Sampson, 1987) and formal (Kornhauser, 1978). Informal control is established through private and public interpersonal networks (Kubrin & Weitzer, 2003). Collective norms are supported by friends, parents and groups monitoring and modeling prosocial behaviors. Through neighborhood authorities (e.g., pastor, community leader, law enforcement) formal social control is exercised. The quality of informal control and formal control of a neighborhood is dependent upon a community's efficacy in establishing and enforcing norms over its accumulated capacity to do so (Lee & Madyun, 2009).

use, violence, and other similar societal ills, researchers viewed crime itself as the best index of social disorganization. For example, Shaw and McKay (1942) noticed that these societal ills were most prevalent in poor Chicago neighborhoods. Therefore, they argued that the exogenous factors undermined a community's ability to pool the resources necessary to enforce social norms. Although prevalent as a social factor in the literature, less has been charted about how neighborhood crime can link with individual demographics such as race to influence educational outcomes. That is, while recognizing neighborhood crime as a key indicator of neighborhood disadvantage over the last three decades, a considerable number of studies have tended to focus on the association of neighborhood crime with individual psychological well-being, behavioral problems, or community stability (e.g., Peeples & Loeber, 1994, Welsh, Greene, & Jenkins, 1999). With a few exceptions, research on a larger scale exploring the effect of neighborhood crime on academic achievement is rare, especially with race as a factor.[4]

Finally, racial-ethnic diversity, which is the primary interest of this research, has been viewed as a disorganization factor that could disrupt social control. When individuals are from different racial-ethnic backgrounds, it cannot be assumed that they will acknowledge the same social or educational goals. This potential barrier could be compounded with differing perspectives on methods of goal attainment. Even if all educational goals and methods of goal attainment are identical, social control may still be reduced through difficulty in establishing strong social ties across cultural barriers (Sampson & Groves, 1989).

Hmong Ethnic Neighborhood Based on Social Mobilization Mechanism and its Possible Impact on Hmong Students' Academic Achievement

Some research based on social mobilization perspectives has posed alternative views from social disorganization theory by illuminating positive neighborhood mechanisms in disadvantaged neighborhoods (Feagin, 1970; Hogan, Hao, & Parish, 1990; Lamborn & Nguyen, 2004; Lee, Campbell, & Miller, 1991; Pattillo, 1998; Rankin & Quane, 2000; Stack, 1974). While the concept of social mobilization has not been well developed as a theory,[5] compared to the concept of social disorganization, research based on social mobilization perspectives has been growing over the last decades. Janowitz (1967) and Suttles (1972) noted that residents in poor neighborhoods tended to trigger their limited resources by activating neighborhood involvement when faced with serious neighborhood disorganization, called "the community of limited liability" (as cited in

---

[4] Weller-Clarke (2002) conducted a study on neighborhood crime and the self-reported attitudes regarding schooling of emotional/behavioral disordered (E/BD) students and non- E/BD students. Weller-Clarke (2002) found that E/BD students were much more likely to attribute low grades and skipping school to neighborhood crime. Compared to non-E/BD students, E/BD students were also more likely to develop their friendship networks with non-classmates. Recently, Madyun and Lee (2008) expanded Weller-Clarke's research by examining the effect of neighborhood crime on the achievement gap between Black and White E/BD students. Despite these several studies, there are still only a few quantitative studies on a larger scale that explore the effect of neighborhood crime on student achievement.

[5] This may be partly because the phenomenon of social mobilization in disadvantaged neighborhoods is not much common as that of social disorganization. This also could be because researching social mobilization mechanisms embedded in neighborhoods is relatively more difficult than investigating social disorganization effects, which can be conducted by using existing data such as neighborhood poverty, racial diversity, residential mobility, crime rate, proportion of single-parent households, etc. In brief, theorizing social mobilization in neighborhood effect research is a growing area that should be further developed.

Rankin & Quane, 2000, p. 157). This phenomenon has been particularly noted from poor African-American neighborhoods. For example, African Americans' greater use of kinship support is consistently viewed as a mobilization strategy within their limited socio-economic resources. In a classical study of African-American families placed in a high poverty community, Stack (1974) illustrated how resource mobilization based on cooperative kin networks plays a key role in child-rearing. More recently, Lamborn and Nguyen (2004) found that informal kinship support is especially critical for the development of African-American youth with a poor family background (e.g., low-income and low parental education level). Along with social mobilization through kinship support, African Americans with neighborhood disadvantage tend to mold an informal neighboring style through friendships. For example, Feagin (1970) identified that African Americans who married females residing in a Boston ghetto area tended to have more intensive contact with friends in the forms of neighboring networks than other urbanites. In a similar vein, Lee, Campbell, and Miller (1991) found that African Americans in Nashville were more likely to be in touch with their neighbors than their White counterparts, and their neighboring was primarily based on instrumental needs such as information exchange and mutual assistance. Rankin and Quane (2000) also revealed that African Americans tend to participate more in community activities when the neighborhoods are poor, low in resources, and even gang-infested. This can be explained by social mobilization perspectives. In summary, social mobilization perspectives have captured neighborhood mechanisms of how and why neighborhood disadvantage may paradoxically encourage individuals to mobilize their limited socioeconomic resources to cope with their social marginalization (Wheaton, 1985, as cited in Schieman, 2005). In this regard, social mobilization perspectives provide one alternative explanation for why people with neighborhood disadvantage sometimes excel in marginalized neighborhood conditions.

Despite research based on social mobilization perspectives above, less is known about how social mobilization is associated with educational outcomes and possible variation across ethnicity. A majority of previous studies above mainly targeted African-American populations (e.g., Feagin, 1970; Hogan, Hao, & Parish, 1990; Lamborn & Nguyen, 2004; Lee, Campbell, & Miller, 1991; Pattillo, 1998; Rankin & Quane, 2000; Stack, 1974). With respect to Hmong students, research addressing the educational experiences with neighborhood disadvantage in general and examining the academic achievement with social mobilization perspectives in particular are rarely found.[6] This is true despite the Hmong's collective settlement in the U.S. and the presence of social

---

[6] Lee (2001) showed how individual or neighborhood poverty in part shapes Hmong adolescents' attitudes toward school, yet her main purpose was to present the variation of school experience of Hmong students beyond the stereotype of model minorities or delinquents. Thao (1999) and Timm (1994) investigated the negative influence of gang involvement on Hmong American youth. Unfortunately, less has been charted about how crime exposure in communities interacts with the academic achievement of Hmong adolescents in their studies. Most prior studies on Hmong adolescents looked at the educational experience through the lens of intergenerational conflict between 1.5 generation and second generation (Lee, 2001), gang involvement (Thao, 1999; Timm, 1994), high residential mobility (Vang & Flores, 1999), racism (Lee, 2001; Vang & Flores, 1999), poor acculturation (Moore, 1990; Vang & Flores, 1999), gender disparity in educational attainment (McNall, Dunnigan, & Mortimer, 1994), early marriage (Hutchison & McNall, 1994), masculinities (Lee, 2004), school racial proportion (Lee & Madyun, 2008), etc. Despite the great contributions of these studies to the issue of Hmong student achievement, the critical factor of neighborhood conditions has not been given the necessary attention.

mobilizing features within their ethnic neighborhoods.

Hmong Americans mostly immigrated to the United States as refugees under parole with a tendency for collective settlement (Teranishi & Mulholland, 2004). There were approximately 186,310 Hmong in the U.S. as of 2000 (Carroll & Udalova, 2005). According to Census 2000, Hmong Americans have formed ethnic enclaves in California, Minnesota, North Carolina, and Wisconsin (Yau, 2005). This collective residency results in spatial segregation. Given previous research on residential segregation and educational outcomes (see Orfield & Lee, 2006), academic performance could be influenced by this residential reality. This research could suggest that for Hmong Americans the consequence of residential separation is multifold (e.g., socio-economical isolation through concentrated poverty and linguistic segregation). For example, linguistic isolation associated with segregation in neighborhoods seems to be one of the most important problems facing newly-immigrant ethnic minority groups. Research has shown that collective residence of ethnic minority groups in the U.S. plays a negative role in obtaining English language skills for ethnic minority groups (e.g., Lazear, 1995).

However, while residential segregation by race (and ethnicity) should surely be dealt with in a race-conscious policy discourse, given that it tends to reinforce socio-economic inequality in the U.S. context, spatial separation is not always a priori of neighborhood deficiency for Hmong people. As mentioned above, research camped in a social mobilization perspective has consistently reported that racial-ethnic minority communities "sometimes" encourage the residents to mobilize for sustainability reasons. That is, individuals with neighborhood disadvantage tend to cope with the lack of socio-economic resources and stressful events by actively mobilizing a collective resource embedded in their durable social ties within homogeneous groups (e.g., race, ethnicity, religion, etc.). In this sense, social mobilization is the flipped side of the social disorganization coin. Serious social disorganization ironically provokes social mobilization within disadvantaged neighborhoods. The remaining question is while some ethnic minority groups placed in disadvantaged neighborhoods suffer persistently from social disorganization factors, why do other ethnic minority groups attempt to mobilize social resources from similarly disadvantaged neighborhood conditions? We speculate that one of the key reasons may be related to cultures embedded in ethnic communities. Hmong ethnic communities have been strengthened by their unique culture, known as "the Hmong clan," which usually consists of both immediate and extended family members under the heading of one surname (Keown-Bomar, 2004). Research has particularly found that Hmong people tend to receive socio-economic resources from their ethnic neighborhood based on their clans (Vang & Flores, 1999; Watson, 2001). According to Keown-Bomar (2004), Hmong's extended household based on clans (or kin networks) is a major "mechanism for newly-arrived Hmong refugee families to pool resources, find jobs, secure housing, and basically find their way in the United States" (p. 89). Currently, there are approximately 18 to 25 clans whose major roles are to provide mutual socio-economic assistance and define the social relationships (Vang & Flores, 1999; Watson, 2001). Importantly, those clan-based social relationships are often spatially grounded on Hmong ethnic neighborhoods. These relationships serve to reduce the initial stress of refugee settlement (Miyares, 1997) by allowing for the development of the necessary social venues to actively mobilize resources and informally regulate social life for cultural adjustment. In other words, Hmong Americans' co-ethnic ties based on their ethnic neighborhoods tend to bring informal social control for Hmong adolescents. Lee (2001) effectively captured this phenomenon in her ethnographic study:

> Most 1.5-generation students report that their parents have *close ties* to the Hmong community that support parental authority. May [Hmong adolescent], for example, reports that the *Hmong community monitors* her actions and that this prevents her from straying from her parents' ways. (p. 513, emphasis added)

Lee's (2001) study shows how the Hmong ethnic community informally passes on norms and expectations. Collective supervision of the children is encouraged because the academic success of one child is viewed as the collective success of the entire Hmong clan (Keown-Bomar, 2004). In addition, Hmong students are likely to feel safe from stressful social events (e.g., neighborhood crime) and be protected from neighborhood poverty by virtue of their collective residence. Therefore, despite their socio-economically disadvantaged neighborhood conditions (i.e., relatively high crime and poverty), Hmong ethnic neighborhoods are organically functioning in Hmong community life as a positive neighborhood factor. In this sense, it is particularly interesting to apply both the social mobilization and social disorganization perspectives concurrently to Hmong ethnic neighborhoods. The application of both theories will more fully chart some unique, under-examined neighborhood mechanisms of Hmong people.

Research Hypothesis

The contradictory theories of community mechanisms embedded in neighborhood disadvantage (i.e., neighborhood poverty and crime) and neighborhood ethnic density enable us to set up two opposing arguments: 1) according to social disorganization theory, Hmong students in more disadvantaged neighborhoods (i.e., neighborhood poverty and crime) will show poorer student achievement; and 2) based on social mobilization mechanism, Hmong students with a higher proportion of Hmong neighbors (i.e., Hmong ethnic neighborhood) will show better student achievement. Given that most disadvantaged neighborhoods in our sample have more Hmong people, we propose one integrated hypothesis: Hmong student achievement would be related to the additive effects of neighborhood disadvantage and neighborhood ethnic density when we control for key demographic characteristics. In testing this hypothesis, we used White adolescents as a comparison group to strengthen our neighborhood analysis and for broader research and policy implications.

Method

Data

Data were obtained and re-organized for quantitative analysis from four different sources. District results from a 2002 Metropolitan Achievement Test (MAT-7), which included the standardized math and reading scores of 3,185 students (Hmong and White students) was the first source. School district data were obtained through a formal proposal process. The second source was a district-level data download of lunch status (for SES), ethnicity, gender, limited English proficiency (LEP), and a census tract identifier at the individual level. The third data source included crime statistics obtained from the city police department. These data included 18,088 Part 1 crimes (e.g., homicide, rape, robbery, aggravated assault, burglary, theft, auto theft, and arson) from

2002.[7] Fourth, poverty rate and Hmong populations of each neighborhood were gathered from the U.S. census data. We used the census tract-finder system and matched the data with individual students' census tract identifiers.

Student Sample

The students were White and Hmong 7th and 8th graders from the St. Paul public school district in Minnesota. The district is very diverse and has the largest Hmong school-age populations and enclaves in the country (Yang, 2003). When we collected the data, the 3,185 students (Hmong and White)—resided in 79 different neighborhoods.[8]

Independent Variables (Level-1)

Gender, race/ethnicity, special education status, LEP, and participation in the free or reduced-price school lunch program were demographic categories used as independent factors. Binary variables were employed for coding these factors. For example, male was coded as 0, and female was coded as 1. Students who received special education services were coded as 1. Students eligible for a reduced-priced or free lunch (an indicator of each student's Socio-Economic Status)[9] were coded with a 1 and 2 respectively.

Independent Variables (Level-2)

Neighborhood characteristics were employed as level-2 predictors. In representing neighborhood characteristics, neighborhood crime and poverty rates were used as sources. Both crime and poverty rates were gathered and converted into a Z-score for a further categorization of neighborhoods. The Z-scores of crime rates ranged from -1.01 to 1.45. The Z-scores of poverty rates ranged from -1.18 to 3.91. With zero as the average, we divided neighborhoods into two levels: low and high. For example, if the Z-score of neighborhood A was below 0 in both crime and poverty rate, then neighborhood A was defined as having a lower crime and poverty rate than the average neighborhood. Based on the possible combinations between crime and poverty, 79 neighborhoods were re-arranged into four groups: low crime/low poverty, low crime/high poverty, high crime/low poverty, and high crime/high poverty. These four types of neighborhood variables were used as level-2 predictors. In addition, we employed Hmong ethnic proportions in each neighborhood as another level-2 predictor that represented the ethnic density of Hmong immigrants in each neighborhood. Finally, because there were either moderate or somewhat high correlations among poverty, crime, and Hmong proportions, we attempted to detect multicollinearity by using variance inflation factors (VIFs). A further

---

[7] For example, each Part 1 crime offense included a street address stripped of the last two digits (e.g., 14XX Bingham St.) and a grid number. The Part 1 data were then sorted by grid number and street address and saved as a new workbook. This resulted in both a file of the original data and a sorted file. A grid map, census tract map, and grid/census tract overlap map were obtained from the city police department. From the overlap map, the numbers of grids that fitted evenly within the census tracts were listed on a second spreadsheet page of the workbook.

[8] In fact, 81 neighborhoods were identified in St. Paul by census tract. Two neighborhoods were omitted due to no school residents in the population.

[9] For a family of four, an annual income of $17,650 was the federal poverty line for 2001-2002. In order to be eligible for free lunch, family income had to be no more than 130% of the poverty line. For example, a family of four's annual income would need to be equal to or less than $22,945. To be eligible for reduced-priced lunch, family income had to be less than 185% of the poverty line. Similarly, a family of four's annual income would need to be less than $32,653 (Department of Health and Human Services, 2001).

investigation using ordinary least squares (OLS) regression analysis indicated that the VIF values of each independent variable were far less than 5. Based on the result, we continued to conduct our data analysis.

Dependent Variables

Two dependent variables were utilized: mathematics and reading achievement scores. The scores were from the 2002 Metropolitan Achievement Test. Test results were reported as equal-interval scores based on normal curve equivalents ranging from 1-99 with an average of 50.[10] This means that if a student's score is higher than 50 points, then she performed better than the average student who took the standardized test.

Data Analysis

We focused on examining the contextual effects of neighborhood type and Hmong ethnic density on Hmong student achievement. Because the nature of the data represented a unit of analysis (individual) nested within a larger unit (neighborhood), a two-level hierarchical linear model was utilized (HLM) (Raudenbush & Bryk, 2002). The analysis of the two-level model was conducted with the HLM6 software. By first setting up a random-effects ANOVA model, we identified the intra-class correlation. We then built explanatory models by adding level-1 and level-2 variables in order. We constructed a level-1 base/conditional model which consisted of only the race/ethnicity factor. The level-1 model was conditioned further by adding gender, SES, special education status, and LEP. To explain the left over variance from level-1, we entered level-2 predictors into the model. Our level-1 and level-2 variables were all binary predictors except the Hmong proportion predictor (continuous). The binary predictors were entered un-centered and the Hmong proportion predictor was grand-mean-centered. The HLM equations for the final model were as follows:

Level-1 Model:

$$Y_{ij} = \beta_{0j} + \beta_{1j}(Hmong)_{ij} + \beta_{2j}(special\_education)_{ij} + \beta_{3j}(gender)_{ij}$$
$$+ \beta_{4j}(reduced\_priced\_lunch)_{ij} + \beta_{5j}(free\_lunch)_{ij} + \beta_{6j}(LEP)_{ij} + r_{ij}$$

[10] The MAT-7 was the norm-referenced standardized test of achievement used for grades 2-10. It is designed to measure knowledge by focusing on knowledge quantity, understanding of knowledge, and the ability to apply knowledge.

Level-2 Model:

$$\beta_{0j} = \gamma_{00} + \gamma_{01}(low\_crime\ \&\ high\_poverty)_j + \gamma_{02}(high\_crime\ \&\ low\_poverty)_j + \gamma_{03}(high\_crime\ \&\ high\_poverty)_j + \gamma_{04}(\%Hmong)_j + u_{0j}$$

$$\beta_{1j} = \gamma_{10} + \gamma_{11}(low\_crime\ \&\ high\_poverty)_j + \gamma_{12}(high\_crime\ \&\ low\_poverty)_j + \gamma_{13}(high\_crime\ \&\ high\_poverty)_j + \gamma_{14}(\%Hmong)_j + u_{1j}$$

$$\beta_{2j} = \gamma_{20}$$

$$\beta_{3j} = \gamma_{30}$$

$$\beta_{4j} = \gamma_{40}$$

$$\beta_{5j} = \gamma_{50}$$

$$\beta_{6j} = \gamma_{60}$$

School-based variables were not included as predictors due to data inaccessibility. To adjust for this, we looked at the relationship between the school attended and achievement. This was critical given that every student had the option to select their school of attendance. We conducted a series of multiple regression analyses. After controlling for individual demographics, (i.e., race, gender, lunch status, special education, and LEP), the adjusted R-squares for the math and reading achievement were .297 and .438 respectively. The 10 schools were then dummy-coded and added into the regression model. With other variables held constant, the dummy variables of 10 schools increased the adjusted R-squares only 0.028 (for math achievement) and 0.038 (for reading achievement) explaining only an additional 2.8% and 3.8% of the variance in the math and reading achievement respectively. Despite the presence of school choice, for our sample the school attended did not appear to impact academic performance enough to reduce any significant findings from our HLM results. It would be an error to assume that school quality is not an important factor in our findings because the opportunity to choose schools may have benefited one ethnic group socially over another and thus improved academic achievement. However, it is reasonable to assume that disadvantage within and across large social structures can sometimes dilute the impact of school quality.

Results

Descriptive Results

Table 1 shows the descriptive statistics for student demographics in terms of gender, grade, lunch status (SES), special education status, LEP, and residential place. In particular, chi-square tests reveal that there was a significant association between race and student demographics such as free-priced lunch, paid-priced lunch, special education status, LEP, and neighborhood type. There was no significant association between race and gender, grade, and reduced-priced lunch. Odds ratios show that Hmong adolescents were less likely (0.02 times) than their White peers to participate in a paid-lunch service while Hmong adolescents were more likely (21.53 times) than their White peers to receive a free-lunch service. In terms of the LEP proportion, all LEP students were Hmong. In total, 83.8% of the Hmong students were labeled as LEP. The only area where

the White student group had slightly more "disadvantaged" representation was in special education status. Hmong students were less likely (0.80 times) than their White counterparts to receive special education service, but this Chi-square value was relatively small (3.7). Finally, there was a significant association between race and residential place —that is, Hmong students tended to reside more in disadvantaged neighborhoods.

Demographics	White	Hmong	Chi-square tests
% Male	50	50.5	$\chi^2(1) = 0.06, p = .804$
% Female	50	49.5	
% Grade 7	50.2	51.5	$\chi^2(1) = 0.5, p = .478$
% Grade 8	49.8	48.5	
% Free-price Lunch	19.4	83.8	$\chi^2(1) = 1323.0, p = .000$
% Reduced-price Lunch	10.2	10.7	$\chi^2(1) = 0.2, p = .685$
% Paid-price Lunch	70.4	5.5	$\chi^2(1) = 1432.6, p = .000$
% Special Education Status	11.3	9.2	$\chi^2(1) = 3.7, p = .054$
% Non-Special Education Status	88.7	90.8	
% LEP	0	83.8	$\chi^2(1) = 2284.2$, p = .000
% Non-LEP	100	16.2	
% Neighborhoods (Low crime & Low Poverty)	65.9	15.5	$\chi^2(3) = 740.5, p = .000$
% Neighborhoods (Low Crime & High Poverty)	20.7	46.9	
% Neighborhoods (High Crime & Low Poverty)	49.4	30.6	
% Neighborhoods (High Crime & High Poverty)	19.2	54.7	

Table 1. Descriptive Statistics of Student Demographics
Note. N =3,185 students, 79 neighborhoods

Table 2 shows the total population of White and Hmong by the four neighborhood types in the 79 neighborhoods. Consistent with the residential pattern of our sample Hmong students (see Table 1), Hmongs tended to reside collectively in high poverty neighborhoods (79.4%) and high crime/high poverty neighborhoods (57.5%) in particular. In contrast to this, Whites tended to reside mostly in low poverty neighborhoods (74.1%) and low crime/low poverty neighborhoods (52.5%) in particular. In other words, Hmongs were less likely (0.13 times) to reside in safe and affluent neighborhoods and more likely (4.85 times) to reside in high crime and high poverty neighborhoods. Hmongs were also more likely (2.51 times) to reside in low crime and high poverty neighborhoods. Conversely, they were less likely (0.54 times) to reside in high crime and low poverty neighborhoods.

	Low Crime/ Low Poverty Neighborhoods	Low Crime/ High Poverty Neighborhoods	High Crime/ Low Poverty Neighborhoods	High Crime/ High Poverty Neighborhoods
Average White Pop. Per Neighborhood	98,078 (52.5%) 2,802	19,449 (10.4%) 1,216	40,374 (21.6%) 3,365	28,787 (15.4%) 1,799
Average Hmong Pop. Per Neighborhood	2,312 (9.5%) 66	5,332 (21.9%) 333	2,726 (11.2%) 227	14,009 (57.5%) 876

Table 2. Population of White and Hmong in the Four Different Neighborhood Types
Source: Census 2000 data (www.census.gov).
Note. Students sampled in this study were from 2002. Because of data inaccessibility for 2002 we used the 2000 census data to identify the total populations of White and Hmong, including adults. Thus, there could be a population difference between 2000 and 2002. We assume that the entire Hmong population has continuously increased since 2000, because St. Paul is gaining popularity as a place to immigrate for many Hmong Americans in other U.S. areas (Yang, 2003).

In particular, the contradictory residential pattern suggests that Hmong students were more likely to have a larger concentration in the high crime/high poverty neighborhoods. Figure 1 mirrors this residential pattern of the two groups by neighborhood type. The Hmong population in the high crime/high poverty neighborhoods accounted for 21.1% of the total population of those neighborhoods. This is a relatively large proportion considering Hmong residents accounted for only 8.5% of the total population in St. Paul in 2000. Conversely, the proportion of Whites was relatively small in those neighborhoods (45.3%), compared to their average proportion (67%) to the total population in St. Paul.

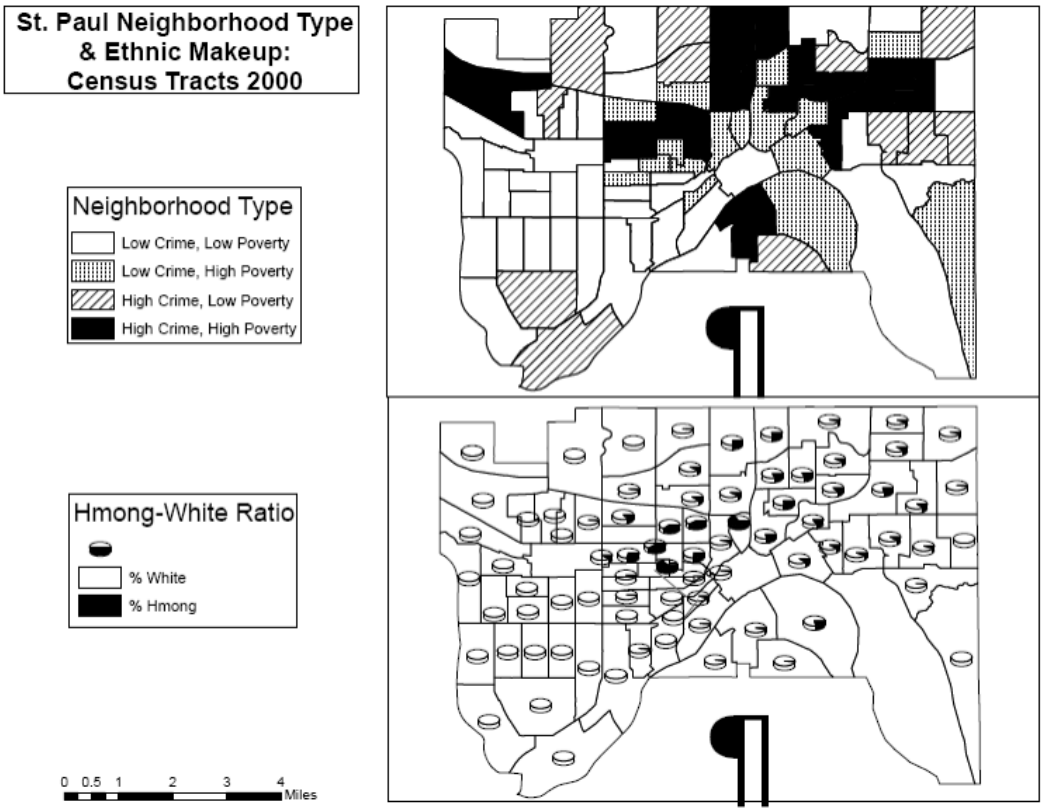

Figure 1. White-Hmong Proportion by Neighborhood Type

Table 3 presents the descriptive statistics of the academic achievement by race-ethnicity and neighborhood. Consistent with neighborhood disadvantage arguments, students living in the 35 neighborhoods with low crime and poverty showed a higher achievement in both math (58.1) and reading (58.9) than students in the other types of neighborhoods. Conversely, students residing in the 16 neighborhoods with high crime and poverty lagged in both math (43.5) and reading (37.9) compared to their peers residing in the other types of neighborhoods. Given that the scale of standardized test scores ranged from 1 to 99, the achievement gap between the advantaged (low crime/low poverty) and the disadvantaged (high crime/high poverty) neighborhoods was substantive. Interestingly, the gap in both math (2.9 points) and reading (11.4 points) achievement between White and Hmong students was smallest in the high crime/high poverty neighborhoods. Regardless of neighborhood type, while White students showed a higher mean score than Hmong students in math and reading achievement, Hmong students lagged far behind in reading achievement.

	Low Crime/ Low Poverty Neighborhoods	Low Crime/ High Poverty Neighborhoods	High Crime/ Low Poverty Neighborhoods	High Crime/ High Poverty Neighborhoods
Mean Math Achievement	58.1 (21.8)	45.9 (20.0)	51.1 (21.3)	43.5 (18.1)
Mean Reading Achievement	58.9 (23.7)	41.1 (20.6)	48.8 (22.5)	37.9 (18.1)
Mean Math Achievement by Race/Ethnicity				
White	61.3 (21.1)	53.6 (23.5)	55.4 (21.8)	45.7 (19.6)
Hmong	44.4 (22.7)	42.5 (17.3)	44.1 (18.6)	42.8 (18.7)
Mean Reading Achievement by Race/Ethnicity				
White	63.9 (22.1)	54.0 (24.9)	56.6 (22.2)	46.3 (22.4)
Hmong	37.2 (17.1)	35.3 (15.1)	36.4 (16.5)	34.9 (15.3)
Total Students	939	503	549	1,194
Total Neighborhoods	35	16	12	16

Table 3. Descriptive Statistics of Achievement by Race/Ethnicity
Note. N = 3,185 students, 79 neighborhoods, ( ) = Standard Deviation

Hierarchical Linear Models: Mathematics

An unconditional model (a random-effects ANOVA model) first fitted showed an average of 52.2 points (on a 1-99 point scale) for the sample. It also indicated how much of the variance in the mean math achievement was between neighborhoods. We identified that the average math score varied significantly across the neighborhoods through the associated intra-class correlation coefficient of .202 {91.7 / (91.7 + 361.0)}. That is, there was approximately 20% of the variance between neighborhoods in the mean math achievement. Based on such dependency, we continued to construct a series of hierarchical models, represented in Tables 4 and 5.

	Model 1		Model 2		Model 3		Model 4		Model 5	
Fixed effects	*Effect*	*t-ratio*	*Effect*	*t-ratio*	*Effect*	*t-ratio*	*Effect*	*t-ratio*	*Effect*	*t-ratio*
For White slope	55.3***	44.8	62.2***	50.0	62.1***	49.8	65.7***	44.5	62.6***	41.6
Intercept										
LC/HP							-4.9	-1.5	0.5	0.2
HC/LP							-4.7*	-2.5	-2.8	-1.5
HC/HP							-10.2***	-5.4	-2.0	-0.8
%Hmong									-46.5***	-4.9
For Hmong slope	-12.3***	-8.9	-6.9***	-5.9	7.6***	5.2	3.9	1.6	6.8**	2.8
Intercept										
LC/HP							5.0	1.4	-0.7	-0.2
HC/LP							4.1	1.6	2.3	0.9
HC/HP							10.2***	4.1	1.6	0.5
%Hmong									49.7***	4.3
Special education			-19.1***	-18.8	-17.8***	-18.2	-17.8***	-18.3	-17.9***	-18.2
Gender			-3.2***	-4.4	-3.6***	-5.0	-3.6***	-5.0	-3.6***	-5.0
Reduced-price lunch			-6.0***	-4.6	-6.3***	-4.9	-5.9***	-4.5	-5.8***	-4.4
Free lunch			-9.7***	-8.3	-9.3***	-8.5	-9.0***	-8.1	-8.9***	-8.3
LEP					-17.8***	-15.0	-17.9***	-15.3	-17.9***	-15.2

Table 4. Hierarchical Linear Models Predicting Student Achievement (Math)
Note. Effect = Coefficient; *p<.05. **p<.01. ***p<.001

	Model 1			Model 2			Model 3			Model 4			Model 5		
Random effects	*v.c.*	*d.f.*	*p.v.*	*v.c.*	*d.f.*	*p.v.*	*v.c.*	*d.f.*	*p.v.*	*v.c.*	*d.f.*	*p.v.*	*v.c.*	*d.f.*	*p.v.*
White	89.6	59	.000	47.2	59	.000	49.7	59	.000	35.4	56	.000	28.9	55	.000
Hmong	95.0	59	.000	50.4	59	.000	54.0	59	.000	38.7	56	.000	35.4	55	.000
Level-1 effect	349.3			307.8			286.2			286.4			286.2		

Table 5. Hierarchical Linear Models Predicting Student Achievement (Math)
Note. *v.c.* = variance component, *d.f.* = degree of freedom, *p.v.* = p-value

The first explanatory model (Model 1), a random-coefficient regression model (Raudenbush & Bryk, 2002), was fitted on a constant plus one student-level variable: race-ethnicity. Model 1 estimated that mean math achievement for White students would be 55.3 points. In comparison, without controlling for other student demographic differences and neighborhood characteristics, White student achievement means would be 12.3 points higher than Hmong student means.

In Model 2, four more student-level demographic predictors (i.e., special education status, gender, reduced-price lunch, and free lunch) were added. All coefficients held their statistical significance when differences in such demographic backgrounds were controlled. Notably, these added predictors which concurrently functioned as controlling predictors did not remove the significance of race-ethnicity as an explanatory predictor

even though the effect of race-ethnicity was reduced (from -12.3*** to -6.9***). In the model, the estimated mean math achievement for a White male student who did not receive (or after controlling for) special education and free/reduced-priced lunch services would be 62.2. The model predicts that a Hmong student, with the same demographics as a White male would score a significant 6.9 points lower. In addition, the estimated achievement of a low SES (i.e., free lunch status) Hmong female in special education (23.3) would be 32 points lower than a Hmong regular education male who pays for lunch (55.3). Model 2 explained 11.9% of the variance in the math score within neighborhoods. Model 2 also explained 47.3% and 46.9% of the variance not explained in Model 1 between neighborhoods in White and Hmong student achievement, respectively. Finally, 20 neighborhoods had no variation in math achievement resulting in the degrees of freedom being 59.

Compared to Model 2, one more student-level variable, LEP, was added for Model 3. LEP was added into Model 3 because of its Hmong-only representation. Notably, two contradictory results were identified. Firstly, LEP Hmong students tended to score a significant 17.8 points lower in math than White students when the other student-level variables were controlled. Given that the LEP students in our sample were all Hmong (83.8% of the Hmong students), Model 3 indicated that the LEP variable is a critical predictor for Hmong student achievement. Secondly, Hmong students who were *not* labeled as LEP outperformed Whites in mathematics. That is, non-LEP Hmong students tended to score a significant 7.6 points higher in math when other student-level variables were controlled. Although Model 3, compared to Model 2, did not explain any further between-neighborhood variances in student achievement, this model was kept because its deviance statistic indicated the better model fit. Model 3 also accounted for 7% of within-neighborhood variance not explained at Model 2.

Model 4 was a two-level model (intercepts- and slopes-as-outcomes model, Raudenbush & Bryk, 2002) that included the neighborhood predictive factors: neighborhood types. In the model, all student-level predictors were statistically significant while some of the neighborhood predictors held statistical significance. Importantly, race-ethnicity, the student-level predictor of major interest, was significantly influenced by the neighborhood predictors holding statistical significance. In other words, there were several cross-level interactions identified in the model, which interestingly has a consistent pattern. While negative neighborhood characteristics (high crime or high poverty) aggravated White student mean math scores, the same negative neighborhood characteristics moderated the relationship between race-ethnicity and mean math scores of Hmong students. Specifically, given that the level-2 variables used in the model are binary predictors, the mean math achievement of White students residing in neighborhoods with a low crime/low poverty rate would be 65.7 points. Notably, with the other predictors held constant, if the neighborhood were high crime/low poverty (γ_{02}) instead of low crime/low poverty (γ_{00}), the predicted achievement of White students would be a significant 4.7 points lower. Likewise, if the neighborhood were high crime/ high poverty (γ_{03}) instead of low crime/low poverty (γ_{00}), the predicted achievement of White students would be a significant 10.2 points lower, with the other predictors held constant.

Interestingly enough, there was a counter-tendency identified in the Hmong student group compared to the White student-neighborhood relationship. Hmong students tended to show better estimated mean math achievement if they resided in higher crime or higher poverty neighborhoods. That is, the estimated level-2 slope related to neighborhood

characteristics provided evidence that there existed a positive relationship between the increase of crime and poverty and the estimated mean math achievement of Hmong students. Specifically, Hmong students residing in disadvantaged neighborhoods (i.e., high crime and high poverty) would show better academic performance (10.2 points higher) than their racially-ethnically identical peers residing in advantaged neighborhoods (i.e., low crime and low poverty) when other predictors were held constant. Although only (γ_{13}) was statistically significant, the positive relationships between neighborhood disadvantage and math achievement were also consistently found in (γ_{10}), (γ_{11}), and (γ_{12}).

More importantly, non-LEP Hmong students were likely to perform better academically than their White counterparts in the same neighborhood conditions, when other predictors were held constant. Strikingly, the estimated achievement gap between non-LEP Hmong and White students in the most disadvantaged neighborhoods (high crime/high-poverty) would be 24.3 [(65.7+3.9+10.2) – 55.5], when other student-level demographics were controlled. Although the predicted gap between the two groups by t-ratios was 11.1 (-5.4 – 5.7) because of relatively large standard errors, not only were these estimates statistically significant, but also practically substantive, given that the scale of test scores ranged from 1 to 99.

By virtue of adding level-2 predictors, compared to the previous model, Model 4 accounted for 28.8% and 28.3% of the between-neighborhood variance in the educational outcome for White and Hmong students respectively. Notably, in the model we allowed only the race-ethnicity slope to vary across the 79 neighborhoods because 1) its *p*-value was significant (.000), and 2) the race-ethnicity predictor was the primary interest of this analysis. At the same time, we constrained the slopes of special education, gender, SES, and LEP to zero because 1) most of the slopes did not vary across the neighborhoods, and 2) the deviance statistic indicated the better model fit of Model 4, specifying these slopes as fixed.

Model 5, our final explanatory model, added one more neighborhood characteristic: Hmong percentage in each neighborhood. The results show that while all coefficients of student-level predictors held their statistical significance, the significant effect of cross-level interactions between neighborhood types and race-ethnicity almost disappeared. Instead, the predictor of the Hmong percentage in each neighborhood appeared to absorb the significant effect of neighborhood types. That is, Hmong students would be more likely to earn higher math scores when they were surrounded by more Hmong residents in their neighborhoods. For example, when the proportion of Hmong residents would be 56%, which was the highest percentage in our sample neighborhoods, the predicted math achievement of Hmong male students, who were in regular education programs, would be a significant 27.8 (0.56 x 49.7***) points higher than when the proportion would be 0%.

Likewise, when the proportion of Hmong would be 2%, which was the lowest Hmong percentage, the estimated mean achievement of Hmong male students in regular education programs would be a significant 1.0 (0.02 x 49.7***) points higher than when the rate was 0%. Thus, the estimated mean achievement gap of Hmong male students, who were in regular education programs by the Hmong percentage, would be a significant 26.8 (27.8-1.0).

Hierarchical Linear Models: Reading

An unconditional model (a random-effects ANOVA model) first fitted showed an average of 50.3 points for the sample. We identified that the average reading score varied significantly across the neighborhoods through the associated intra-class correlation coefficient of .331 {180.2/ (180.2 + 363.4)}. That is, there was approximately 33% of the variance between neighborhoods in the mean reading achievement, which is 13% higher than the between-neighborhood variation in the math achievement. Following the same HLM procedure used for predicting the math achievement, we constructed a series of hierarchical models, represented in Tables 6 and 7. The results were consistent with the HLM analysis for estimating the math achievement.

	Model 1		**Model 2**		**Model 3**		**Model 4**		**Model 5**	
Fixed effects	*Effect*	*t-ratio*	*Effect*	*t-ratio*	*Effect*	*t-ratio*	*Effect*	*t-ratio*	*Effect*	*t-ratio*
For White slope	56.3***	39.6	61.8***	43.2	61.7***	42.9	66.1***	38.0	62.1***	36.9
Intercept										
LC/HP							-6.5†	-1.9	0.4	0.1
HC/LP							-6.3*	-2.6	-4.0	-1.6
HC/HP							-11.1***	-4.8	-0.6	-0.2
%Hmong									-59.3***	-5.6
For Hmong slope	-20.6***	-14.2	-15.0***	-11.5	-0.5	-0.3	-4.4†	-1.9	-0.8	-0.3
Intercept										
LC/HP							6.9†	1.9	-0.1	-0.1
HC/LP							4.9†	1.8	2.7	0.9
HC/HP							10.3***	3.9	-0.4	-0.1
%Hmong									61.4***	5.1
Special education			-20.5***	-16.2	-19.3***	-15.4	-19.3***	-15.4	-19.4***	-15.4
Gender			0.6	0.8	0.3	0.4	0.3	0.4	0.3	0.4
Reduced-price lunch			-6.6***	-5.2	-6.9***	-5.3	-6.7***	-5.0	-6.6***	-4.9
Free lunch			-10.3***	-7.6	-9.9***	-8.0	-9.7***	-7.9	-9.6***	-8.0
LEP					-18.0***	-24.4	-18.1***	-24.5	-18.1***	-24.4

Table 6. Hierarchical Linear Models Predicting Student Achievement (Reading)
Note. Effect = Coefficient; †p<.10. *p<.05. **p<.01. ***p<.001

	Model 1			**Model 2**			**Model 3**			**Model 4**			**Model 5**		
Random effects	*v.c.*	*d.f.*	*p.v.*	*v.c.*	*d.f.*	*p.v.*	*v.c.*	*d.f.*	*p.v.*	*v.c.*	*d.f.*	*p.v.*	*v.c.*	*d.f.*	*p.v.*
White	127.7	59	.000	74.7	59	.000	78.1	59	.000	59.2	56	.000	46.3	55	.000
Hmong	119.4	59	.000	65.3	59	.000	76.7	59	.000	56.0	56	.000	47.4	55	.000
Level-1 effect	328.1			279.1			257.1			257.1			257.0		

Table 7. Hierarchical Linear Models Predicting Student Achievement (Reading)
Note. *v.c.* = variance component, *d.f.* = degree of freedom, *p.v.* = p-value

Model 1 estimated that mean reading achievement for White students would be 56.3 points. In comparison, without controlling for other student demographic differences and neighborhood characteristics, estimated Hmong student achievement means would be 20.6 points lower than White student means. Compared to their math achievement, Hmong students lagged further behind their White peers in estimated reading achievement (-8.3 points).

Most results from Model 2 were consistent with the HLM results for math achievement. For example, the special education status and SES predictors held their statistical significance, when differences in demographic backgrounds were controlled. These added predictors which concurrently functioned as controlling predictors did not remove the significance of race-ethnicity as an explanatory predictor even though the estimated effect of race-ethnicity was reduced (from -20.6*** to -15.0***). Unlike the HLM results for math achievement, the gender slope for reading achievement was not significant.

One student-level variable, LEP, was added as a control in Model 3. Again, in parallel with the HLM results for math achievement, a similar pattern was identified. The estimated mean of LEP Hmong students would be a significant 18.0 points lower than White students, when the other student-level variables were controlled. However, Hmong students who were *not* labeled as LEP would outperform Whites in their estimated reading.

Model 4 included the neighborhood predictive factors or neighborhood types. In Model 4, all student-level predictors except gender were statistically significant and some of the neighborhood predictors held statistical significance. Importantly, there were several cross-level interactions identified in the model. A consistent pattern was found among the interactions. While negative neighborhood characteristics (high crime or high poverty) aggravated White student mean reading scores, the same negative neighborhood characteristics moderated the relationship between race-ethnicity and mean reading scores of Hmong students. In addition, Hmong students residing in disadvantaged neighborhoods (i.e., high crime/high poverty) would show better academic performance than their racially-ethnically identical peers residing in advantaged neighborhoods (i.e., low crime/low poverty) when other predictors were held constant. The positive relationships between neighborhood disadvantage and reading achievement were also consistently found in (γ_{11}), (γ_{12}), and (γ_{13}). Furthermore, non-LEP Hmong students would be likely to perform better academically than their White counterparts in the same neighborhood conditions, when other predictors are held constant.

Model 5 indicated that while all coefficients of student-level variables held their statistical significance, the significant effect of cross-level interactions between neighborhood types and race-ethnicity almost disappeared. That is, Hmong students would be more likely to earn higher reading scores when they were surrounded by more Hmong residents in their neighborhoods. In terms of their predicted mean achievement, Model 5 also indicated that non-LEP Hmong students, regardless of their neighborhood type, would perform better than their White counterparts.

Discussion

Three main research foci were examined: 1) Whether Hmong students in more disadvantaged neighborhoods will show poorer student achievement; 2) Whether Hmong students with more Hmong neighbors will show better student achievement; and 3)

Integrated with the two foci, Hmong student achievement would be related to the additive effects of neighborhood disadvantage and neighborhood ethnic density.

With regard to the first research focus, our analysis reveals that Hmong and White adolescents were influenced differently by neighborhood crime and poverty. Hmong students' achievement was positively associated with neighborhood disadvantage (high crime and/or high poverty) while White students' achievement was negatively associated with the same neighborhood conditions.

This salient finding is summarized in Figures 2 and 3 which illustrate the estimated mean math and reading achievement of student groups by the four different neighborhood types after controlling for student demographics (see Model 4). The bar graphs present HLM coefficients which indicate the predicted mean achievement. As illustrated in Figure 2, the estimated math achievement of non-LEP male Hmong students who were not in special education and free/reduced price lunch programs ironically increased as neighborhood conditions (i.e., crime and poverty) worsened. The same was true for LEP male Hmong students having the same demographic characteristics. In contrast to these patterns, the estimated math achievement of White students with the same demographic characteristics (i.e., gender, special education, and SES) decreased as neighborhood conditions were aggravated. Importantly, although Hmong LEP students still lagged behind White students when we controlled for student demographics and neighborhood types, non-LEP Hmong students outperformed White students in math achievement. Interestingly, both non-LEP and LEP Hmong students residing in the 16 disadvantaged neighborhoods showed higher math achievement than White students in the same neighborhoods.

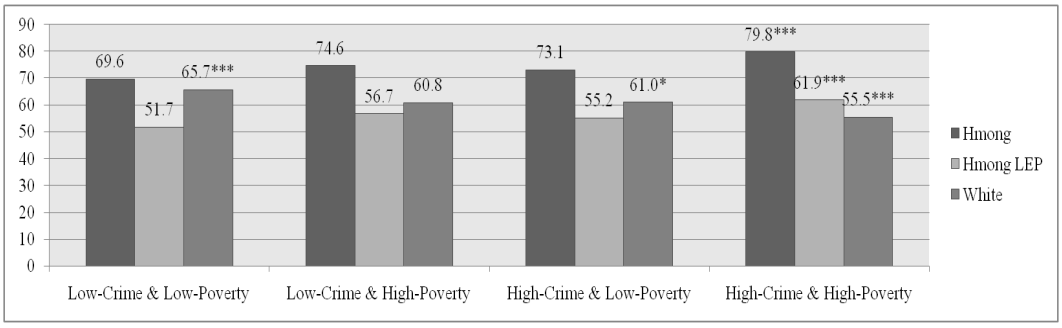

Figure 2. Estimated Mean Math Achievement of Hmong and White Students by Four Different Neighborhood Types after Controlling for Student Demographics

Somewhat similar patterns were found in the estimated reading achievement. For example, in the predicted reading achievement, the achievement gap between Hmong and White students narrowed more than the predicted math achievement. A possible explanation could be the link between reading and the students' linguistic ability (LEP vs. non-LEP).

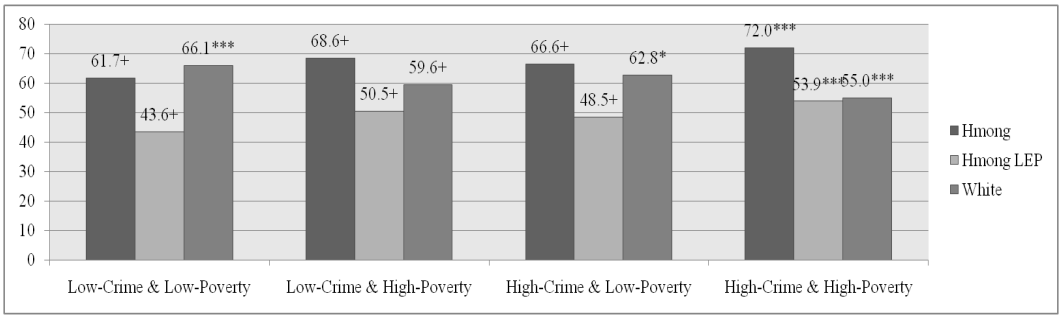

Figure 3. Estimated Mean Reading Achievement of Hmong and White Students by Four Different Neighborhood Types after Controlling for Student Demographics

Notably, the consistent patterns of Hmong student achievement, challenging conventional social disorganization theory, raised an important question: Why did Hmong students with neighborhood disadvantage outperform their White counterparts with the same neighborhood disadvantage? One likely answer could be drawn from a social mobilization perspective. As discussed earlier, disadvantaged neighborhood conditions sometimes force individuals to mobilize their resources as much as possible in order to surmount the restricted social resources and opportunities (Schieman, 2005) in their "community of limited liability" (Rankin & Quane, 2000, p. 157). That is, the persistence of neighborhood disadvantage such as high crime and poverty may paradoxically encourage Hmong residents to mobilize additional socio-economic resources to counteract the lack of resources within their ethnically homogenous community. Considering the substantive presence of Hmong ethnic neighborhoods in the 16 disadvantaged neighborhoods in our sample (see Table 2 and Figure 1), it is therefore reasonable to assume that Hmong residents with neighborhood disadvantage may benefit from their ethnic density, which functions as non-institutional pipes for supplying social support.

This speculation was indirectly supported by the results of the research foci 2 and 3. As the Hmong proportion in each neighborhood increased, Hmong students' achievement tended to be higher, whereas White students' achievement decreased—that is, there was a positive relationship between the Hmong ethnic proportion and the academic achievement of Hmong adolescents. Specifically, the significant effect of cross-level interactions between neighborhood types and race-ethnicity almost disappeared when we added the Hmong proportion in our final HLM model. Instead, the predictor of the Hmong ethnic proportion in each neighborhood appeared to absorb the significant effect of neighborhood types. That is, Hmong students are more likely to earn higher math and reading scores when they are surrounded by more Hmong residents in their neighborhoods.

This finding, in turn, begs the following question: Why were Hmong students with neighborhood disadvantage likely to perform better academically than their racially-ethnically identical peers in more affluent and stable neighborhoods? As mentioned earlier, Hmong adolescents in our sample were more likely than their White counterparts to reside in the 16 disadvantaged neighborhoods while Hmong students were less likely to reside in safe and affluent neighborhoods (see Table 1). In addition, Hmong students residing in the 16 disadvantaged neighborhoods showed more consistent population proportions compared to their presence in the other neighborhoods (see Table 2 and

Figure 1). Given that the Hmong students involved in this study are part of the largest Hmong community in the U.S. where substantive Hmong ethnic neighborhoods exist, Hmong students could be expected to benefit from the presence of their ethnic neighborhoods as key sources of buffering negative neighborhood effects—that is, by implication through the same ethnic closure. Logically, this positive association underlies why Hmong students with neighborhood disadvantage had better academic estimates than their ethnically identical peers in more safe and affluent neighborhoods, when we controlled individual demographics (see Model 4). Even though Hmong students resided in more stable and affluent neighborhoods, they were more likely less exposed to the same race population proportion than Hmong students residing in the 16 disadvantaged neighborhoods.

Given that substantial clans would exist in those Hmong ethnic neighborhoods, there could be more interactions between Hmong students with neighborhood disadvantage and law-abiding and monitoring Hmong adults. Consistent with the collective socialization model (Jencks & Mayer, 1990; Wilson, 1987), Hmong adolescents' social norms are possibly shaped by law-abiding adults (or kins) who serve as neighborhood monitors or role models. Considering Hmong's clan-based culture, it is reasonable that those interactions may include some characteristics of close ties—social attachment, social support, emotional encouragement, desirable interventions based on trust, frequent contacts with intimacy, and longer periods of relationships. We speculate that this spatial mechanism has a positive association with the academic achievement of Hmong adolescents with neighborhood disadvantage.

In terms of White students' achievement, White students residing in the 16 disadvantaged neighborhoods underperformed in both math and reading, compared to their racially identical peers residing in other types of neighborhoods. More importantly, White students in the most disadvantaged neighborhoods even lagged behind their Hmong counterparts in the same neighborhoods with the other predictors held constant (see Figures 2 and 3). Why did White students with neighborhood disadvantage *not* achieve similarly to Hmong students? Coupled with social disorganization theory, it could be theorized that disorganization factors such as crime and poverty undermined Whites' ability to pool the resources necessary to enforce social norms. This lack of social control would lead to the lower achievement of White students.

Additionally, it should be recalled that White students were less likely to reside in such disadvantaged neighborhoods (see Table 1) and so were White residents in general (see Table 2 and Figure 1). When we encompassed all racial-ethnic groups, including Blacks and Hispanics, further analysis also indicated that 42.6% of the residents in the 16 disadvantaged neighborhoods were Whites whereas 72.3% of the residents in the other neighborhoods were Whites. This implies that there might be an association between the White students' achievement in the 16 neighborhoods and their racially-identical populations in the neighborhoods. Because Whites are increasingly becoming familiar with the feeling of being ethnic minorities in certain disadvantaged residential areas, they have to cope with the negative social experiences associated with this status. Ethnic immigrants probably have a comparative advantage when it comes to developing protective factors and demonstrating resilience as a group under disadvantaged conditions. To our knowledge, few studies have reported that Whites with neighborhood disadvantage have demonstrated universal protective factors for coping with poverty and crime generated from their racially homogeneous group.

In this sense, our data call for reconsidering social disorganization theory. The theory

is still appropriate for explaining White students' achievement, yet it may not be true for explaining some ethnic minority groups like Hmong. Our data suggest that the negative effect of social disorganization factors depends on the structural (e.g., collective residence) and cultural (e.g., ethnic culture and immigration background) contexts of each community. That is, the Hmong community context (i.e., collective residence and thereby spatial isolation) would aggravate their limited socio-economic resources, yet it does not necessarily mean that the Hmong would maintain low social control. Rather, they may try to mobilize their limited resources by activating their clan-based social ties, which possibly regulate some neighborhood disorganization. It should be recalled that Lee's (2001) ethnographic research showed how a Hmong neighborhood controls disruptive social activity of Hmong adolescents through their close social ties. In this regard, we view neighborhood ethnic density as the protective factor for the individual or collective resilience of some minority populations.

Conclusion

Our findings provide a complementary perspective to existing literature on neighborhood disadvantage. Although the HLM results of Whites support social disorganization theory, those of Hmong Americans simultaneously challenge social disorganization theory. This implies that there may be other important spatial mechanisms which differentiate the effect of neighborhood disadvantage on individual outcomes. Research on neighborhood disadvantage should consider neighborhood contexts such as neighborhood ethnic density. We believe that neighborhood disadvantage should be viewed as a context-dependent mechanism. This would undoubtedly lead to a more complex view of a disadvantaged neighborhood for educational outcomes. Given that Hmong ethnic neighborhoods are culturally entrenched in their clan-based strong social ties, the oversimplified assumption—disadvantaged neighborhoods always lag behind in incubating positive individual and community development—needs to be re-thought in order to better understand successes. In this sense, we call for further ethnographic research illuminating neighborhood ethnic density as a less charted neighborhood mechanism that possibly copes with the lack of socio-economic resources and stressful events by actively mobilizing a collective resource within an ethnically homogeneous group.

Further, this positive mechanism implies that neighborhood disadvantage and individual/collective resilience can be two sides of one coin. While ethnic-minorities are not necessarily immune to their neighborhood disadvantage, it may ironically result in generating social resilience factors such as kinship networks or clan-based socio-economic support in an ethnically homogenous neighborhood. Therefore, future research should be focused on the linkage between the micro and meso mechanisms of how individuals' informal social ties function in canceling out the negative impact of neighborhood disadvantage and thus lead to positive social outcomes. Conversely, the ethnic-bound informal support like the case of Hmong ethnic neighborhoods may hinder them from further accessing the extended resources or potential supports that exist across different races or ethnicities. Thus, more research and debates on the linkage between academic achievement of minority groups with neighborhood disadvantage and inter-racial/ethnic social ties are also needed.

Coupled with findings from previous studies focusing on Hmong people's clan-based culture (Keown-Bomar, 2004; Miyares, 1997; Vang & Flores, 1999; Watson, 2001) and

residential patterns (Miyares, 1997; Teranishi & Mulholland, 2004; Yau, 2005), our study provides policy implications that disadvantaged neighborhoods equipped with effective informal mobilization mechanisms through ethnic neighborhoods (e.g., strong adult supervisions and supportive culture within the same ethnic neighborhoods) may promote youth development despite negative neighborhood conditions. In this sense, neighborhood informal mobilization needs to be considered when policy intervention strategies are designed. In the case of Hmong neighborhoods, such neighborhood informal mobilization seems to be a part of socialization that is somewhat naturally-occurring because of their supportive ethnic cultures. However, we also acknowledge that sustaining such informal mobilization is possibly becoming a more daunting task for Hmong ethnic neighborhoods, as their young generations like other second or third immigrant generations in the U.S. are sometimes becoming over-Americanized (Thao, 1999). As such, there is a growing concern that intergenerational conflicts between U.S.-born Hmong youth and their immigrant parents may result in the loss of parental authority (Xiong, Tuicomepee, & Rettig, 2008) and thereby loss of community-wide informal control. If this is the case, we believe that neighborhood informal mobilization can be sustained when it is linked to *institutional resources* such as community centers' programs (e.g., afterschool activities or mentoring programs) and ethnic cultural centers' programs (e.g., Hmong cultural center's education programs).

Additionally, we suggest that, unlike the hidden resilience mechanism entrenched in Hmong ethnic neighborhoods with neighborhood disadvantage, this may not be an appropriate conceptualization for Whites. If this is true, policy must begin to incorporate the unique vulnerability of Whites with neighborhood disadvantage.

It should be also noted that we are not arguing for ethnically-isolated minority communities as a desirable spatial feature for socio-economically marginalized people. As Elliott et al. (2006) pointed out, viewing ethnic diversity as an indicator of neighborhood disadvantage is the most controversial issue in neighborhood effect research, given that current political ideology and policy initiatives attempt to reduce racial and ethnic segregations. Rather, our point here is that socio-economically marginalized people may have certain types of social resources (e.g., resources based on ethnic-closure) embedded in their ethnically-dense neighborhoods that need to be recognized and leveraged. As Warner and Pierce (1993, p. 494) pointed out, such social mobilization within racially-ethnically minority groups may be the "last resort, where people remain, not because they choose to, but because they have no other options" (as cited in Schieman, 2005, p. 1053). That is, minority groups tend to mobilize and utilize 'limited' socio-economic resources embedded in their racially-ethnically identical communities because it may be the only channel or option to secure positive social resources.

Furthermore, the positive feature of ethnic minority groups' social mobilization identified in this study ironically reflects the negative racial-ethnic line between minority and majority communities. This racial-ethnic line continuously locks ethnic minorities into disadvantaged schools and neighborhoods. Therefore, we believe that the ability to form informal, healthy social ties across racial-ethnic lines is critical. Racial diversity could serve as an authentically positive contextual factor, when a community is racially-ethnically well integrated. However, as long as this line exists, racial diversity would more often function as a negative community factor to both minority and majority groups. Especially, as long as the exclusive racial-ethnic border exists, racial diversity in their everyday lives would be negatively associated with their developmental process by

limiting access to social resources and opportunities beyond their racially-ethnically identical groups.

References

Carroll, W., & Udalova, V. (2005). Who is Hmong? Questions and evidence from the U.S. census. *Hmong Studies Journal*, *6*, 1-20.

Charles, C. Z. (2000). Neighborhood racial-composition preferences: Evidence from a multiethnic metropolis. *Social Problems*, *47*(3), 379-407.

Department of Health and Human Services. (2001). Annual update of the HHS poverty guidelines. Retrieved May 1, 2008 from http://aspe.hhs.gov/poverty/01fedreg.htm.

Elliott, D. S., Menard, S., Rankin, B., Elliott, A., Huizinga, D., & Wilson, W. J. (2006). *Good kids from bad neighborhoods*. New York: Cambridge University Press.

Feagin, J. R. (1970). A note on the friendship ties of Black urbanites. *Social Forces*, *49* (2), 303-308.

Hogan, D. P., Hao, L., & Parish, W. L. (1990). Race, kin networks, and assistance to mother-headed families. *Social Forces*, *68*(3), 797-812.

Hutchison, R., & McNall, M. (1994). Early marriage in a Hmong cohort. *Journal of Marriage and Family, 56*(3), 579-590.

Janowitz, M. (1967). *The community press in an urban setting*. Chicago: The University of Chicago Press.

Jencks, C., & Mayer, S. E. (1990).The social consequences of growing up in a poor neighborhood. In L. Lynn & M. McGeary. (Eds.), *Inner-city poverty in the United States* (pp. 111-186). Washington, DC: National Academy Press.

Keown-Bomar, J. (2004). *Kinship networks among Hmong-American refugees*. New York: LFB Scholarly Publishing.

Kornhauser, R. R. (1978). *Social sources of delinquency*. Chicago: The University of Chicago Press.

Kubrin, C. E., & Weitzer, R. (2003). New directions in social disorganization theory. *Journal of Research in Crime and Delinquency*, *40*(4), 374-402.

Lamborn, S. D., & Nguyen, D. T. (2004). African American adolescents' perceptions of family interactions: Kinship support, parent-child relationships, and teen adjustment. *Journal of Youth and Adolescence*, *33*(6), 547-558.

Lazear, E. P. (1995). Culture and language. *Working Paper Series* (5249), *ALL*. Stanford, CA: National Bureau of Economic Research.

Lee, B. A., Campbell, K. E., & Miller, O. (1991). Racial differences in urban neighboring. *Sociological Forum*, *6*(3), 525-550.

Lee, M., & Madyun, N. (2008). School racial composition and academic achievement: The case of Hmong LEP students in the U.S. *Educational Studies, 34*(4), 319-331.

Lee, M., & Madyun, N. (2009). The impact of neighborhood disadvantage on the black-white achievement gap. *Journal of Education for Students Placed At Risk, 14*(2), 148-169.

Lee, S. J. (2001). More than "model minorities" or "delinquents": A look at Hmong American high school students. *Harvard Educational Review*, *71*(3), 505-528.

Lee, S. J. (2004). Hmong American masculinities: Creating new identities in the United States. In N. Way & J. Chu (Eds.). *Adolescent boys: Exploring diverse cultures of boyhood*. (pp. 13-30). New York: New York University Press.

Madyun, N., & Lee. M. (2008). Community influences on E/BD student achievement. *Education and Urban Society*, *40*(3), 307-328.

McNall, M., Dunnigan, T., & Mortimer, J. T. (1994). The educational achievement of the St. Paul Hmong. *Anthropology and Education Quarterly*, *25*(1), 44-65.

Miyares, I. M. (1997). Changing perceptions of space and place as measures of Hmong acculturation. *Professional Geographer*, *49*(2), 214-224.

Moore, D. (1990). Between cultures: Oral history of Hmong teenagers in Minneapolis. *Vietnam Generation*, *2*(3), 38-52.

Orfield, G., & Lee, C. (2006). *Racial transformation and the changing nature of segregation*. Cambridge, MA: The Civil Rights Project at Harvard University.

Pattillo, M. E. (1998). Sweet mothers and gangbangers: Managing crime in a Black middle-class neighborhood. *Social Forces*, *76*(3), 747-774.

Peeples, F., & Loeber, R. (1994). Do individual factors and neighborhood context explain ethnic differences in juvenile delinquency? *Journal of Quantitative Criminology, 10* (2), 141-157.

Portes, A., & Jensen, L. (1987). What's an ethnic enclave? The case for conceptual clarity. *American Sociological Review*, *52*(6), 768-771.

Rankin, B. H., & Quane, J. M. (2000). Neighborhood poverty and the social isolation of inner-city African American families. *Social Forces*, *79*(1), 139-164.

Raudenbush, S. W., & Bryk, A. S. (2002). *Hierarchical linear models: Applications and data analysis methods.* Thousand Oaks, CA: Sage.

Sampson, R. J. (1987). Communities and crime. In M. R. Gottfredson & T. Hirschi (Eds.), *Positive criminology* (pp. 91-114). Newbury Park, CA: Sage.

Sampson, R.J., & Groves, W. B. (1989). Community structure and crime: Testing social disorganization theory. *American Journal of Sociology, 94,* 774-802.

Schieman, S. (2005). Residential stability and the social impact of neighborhood disadvantage: A study of gender- and race-contingent effects. *Social Forces*, *83*(3), 1031-1064.

Shaw, C. R., & McKay, H. D. (1942). *Juvenile delinquency and urban areas*. Chicago: The University of Chicago Press.

Stack, C. B. (1974). *All our kin: Strategies for survival in a Black community*. New York: Harper & Row.

Suttles, G. D. (1972). *The social construction of communities.* Chicago: The University of Chicago Press.

Teranishi, R., & Mulholland, S. (2004). *Southeast Asian enclaves: A study of social capital formation and postsecondary aspirations*. A paper presented at the Harvard Civil Rights Project. Washington, DC. Fall, 2004

Thao, P. (1999). *Mong education at the crossroads*. New York: University Press of America.

Timm, J. T. (1994). Hmong values and American education. *Equity and Excellence in Education*, *27*(2), 36-44.

Vang, T., & Flores, J. (1999). The Hmong Americans: Identity, conflict, and opportunity. *Multicultural Perspectives*, *1*(4), 9-14.

Warner, B. D., & Pierce, G. L. (1993). Reexamining social disorganization theory using calls to the police as a measure of crime. *Criminology*, *31*(4), 493-517.

Watson, D. C. (2001). Characteristics of Hmong immigrant students: The response of a university/elementary school collaboration. *Childhood Education*, *77*(5), 303-307.

Weller-Clarke, A. (2002). *The perceptions of chronic community violence among adolescents with and without the EBD label.* Unpublished doctoral dissertation, Chicago: Loyola University.

Welsh, W. N., Greene, J. R., & Jenkins, P. H. (1999). School disorder: the influence of individual, institutional, and community factors. *Criminology*, *37*, 73-115.

Wilson, W. J. (1987). *The truly disadvantaged: The inner city, the underclass, and public policy*. Chicago: University of Chicago Press.

Yang, K. (2003). Hmong Americans: A review of felt needs, problems, and community development. *Hmong Studies Journal*, *4*, 1-23.

Yau, J. (2005). The foreign-born Hmong in the United States. Retrieved February 2, 2008, from http://www.migrationinformation.org/USFocus/display.cfm?ID=281#2.

Xiong, Z. B., Tuicomepee, A., & Rettig, K. D. (2008). Adolescents' problem behaviors and parent-adolescent conflicts in Hmong immigrant families. *Hmong Studies Journal*, *9*, 1-21.