Do Magnet Schools Attract All Families Equally? A GIS Mapping Analysis of Latinos

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RQ: Do magnet schools attract all families equally?

Study uses Geographic Information System (GIS) to conduct spatial analysis of demographic patterns in magnet school applications.

GIS training funded by National Institute for Technology & Liberal Arts Education (NITLE) and Trinity College Academic Computing
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Study focuses on one site: Montessori Magnet School (MMS) at Learning Corridor
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Is the number of applicants to MMS statistically representative of the racial demographics from the school district or census tract where they reside?
Methods: 2-level analysis - District and Neighborhood

- School District
  - MMS Application Data (5 yrs)
  - School District Enrollment Data
  - Chi-Square Test For Goodness Of Fit
  - GIS

- Neighborhood
  - MMS Application Data (1 yr)
  - Census 2000 Tract Data
  - Chi-Square Test For Goodness Of Fit
  - GIS

City of Hartford
Methods: GIS geocoding at the neighborhood-level

Magnet administrators agreed to share applicants’ street address data (restricted access to protect individual family confidentiality)

Link data to street map
Methods: GIS geocoding at the neighborhood-level

Geocode street address data as individual points on map
Methods: GIS geocoding at the neighborhood-level

Overlay neighborhood boundary lines (census tracts, elementary school zones, etc)
Methods: GIS geocoding at the neighborhood-level

Use colors to represent data groups
Methods: GIS geocoding at the neighborhood-level

Remove dots and address data to maintain individual family confidentiality
District-level Findings:
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Hispanics were less likely than expected to apply if they resided in Hartford and three other western districts; but more likely to apply from four eastern districts.

\[ X^2 (3, N = 989) = 128817.59, p < .001 \]
Neighborhood-level Findings:

Raw data - Uneven numbers of applicants by race and tract, with more Blacks and Hispanics applying to MMS

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Neighborhood-level Findings:

Disproportionate percentage of Black and Hispanic applicants by tract show statistical significance

Percentage of Hartford City Tracts With and Without Statistical Significance for Hispanic and Black MMS Hartford Applicants 05-06:

- 72% With
- 16% Without
- 12% N/A
Neighborhood-level Findings:

55% of Black applicants more likely to apply, but only 19% of Hispanic applicants more likely to apply than expected.
Neighborhood-level Findings:

When combined, the highest percentage of Black & Hispanic applicants come from the North End and the South End.
Neighborhood-level Findings:

When separated, Black and Hispanic patterns emerge
Neighborhood-level Findings:

Blacks living in mostly Hispanic South Side more likely to apply
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Blacks living in mostly Hispanic South Side more likely to apply

Hispanics in mostly Black North Side more likely to apply
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Research needs to consider both:
“Creaming” (school actions to skim off top)
&
“Climbing” (parental actions to win advantage for their children)

Our study of application data alone cannot distinguish between factors, but both are possible.
Additional limitations of the study

• Application data we received is not guaranteed to be 100 percent accurate

• Census 2000 data for neighborhood-level analysis is best available, but not recent

• Study of one magnet school is not necessarily representative of metro Hartford; should be expanded to other magnet schools

• Need more comprehensive study of “creaming” (such as magnet school marketing) and “climbing” (such as parental motivations for applying)
Cities Suburbs and Schools: Past & Present

How have cities and towns evolved over time, and what role have schools played in this change?

Suburbanization of Hartford County, 1900-2000