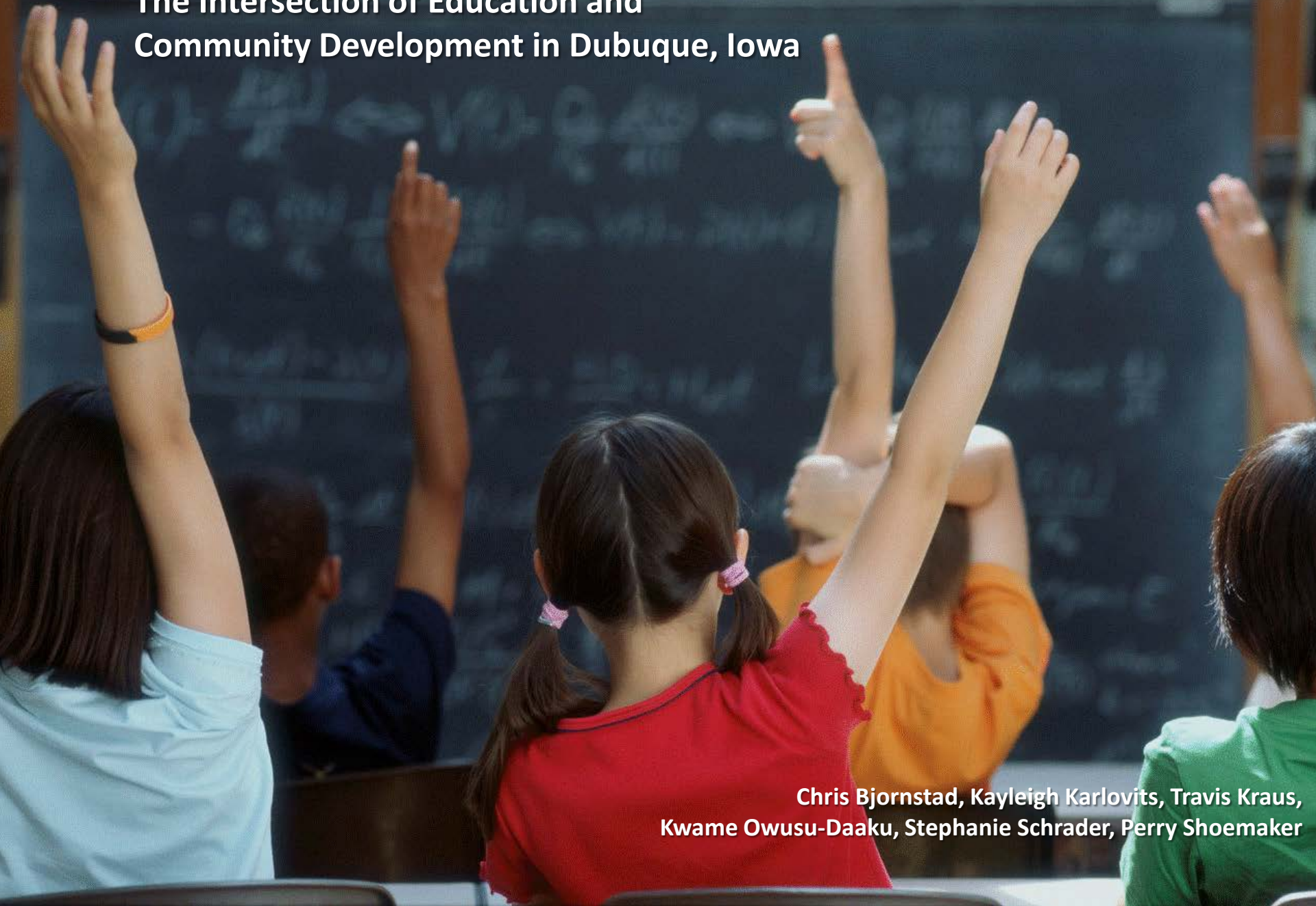


Schools, Neighborhoods, and Student Outcomes

The Intersection of Education and Community Development in Dubuque, Iowa



Chris Bjornstad, Kayleigh Karlovits, Travis Kraus,
Kwame Owusu-Daaku, Stephanie Schrader, Perry Shoemaker

ACKNOWLEDGEMENTS



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Chris Bjornstad

Kwame Owusu-Daaku

Kayleigh Karlovits

Stephanie Schrader

Travis Kraus

Perry Shoemaker

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EXECUTIVE SUMMARY

Dubuque's Commitment to Education

The community of Dubuque, Iowa, has demonstrated a commitment to education as evidenced in the City's Comprehensive Plan, Sustainability Principles, and the Community Foundation for Greater Dubuque's Youth Master Plan and the national award-winning Dubuque Campaign for Grade-Level Reading. As stated in the Dubuque Community School District (DCSD) Strategic Plan, DCSD strives to offer "a 21st Century Education"¹ to all of its students.

Challenge: Achievement Gaps

Across Iowa, school districts grapple with achievement gaps. The Iowa Department of Education defines an achievement gap as the difference of educational measures between the subgroups of students, especially subgroups classified by race/ethnicity, disability, or socioeconomic status.² Achievement gaps challenge the state of Iowa's goal of creating "a world-class school system".³

Dubuque is not an exception to the phenomenon of achievement gaps. An evaluation of the DCSD's elementary school data reveals a connection between race and poverty and student achievement. Poverty rates - measured by eligibility for Free and Reduced Lunch (FRL) - largely explain variation in 3rd grade reading proficiency among the district's

thirteen elementary schools. In Dubuque, schools with higher poverty rates have fewer 3rd grade students reading at a proficient level. Research suggests 3rd grade reading proficiency is an important predictor of high school graduation.⁴

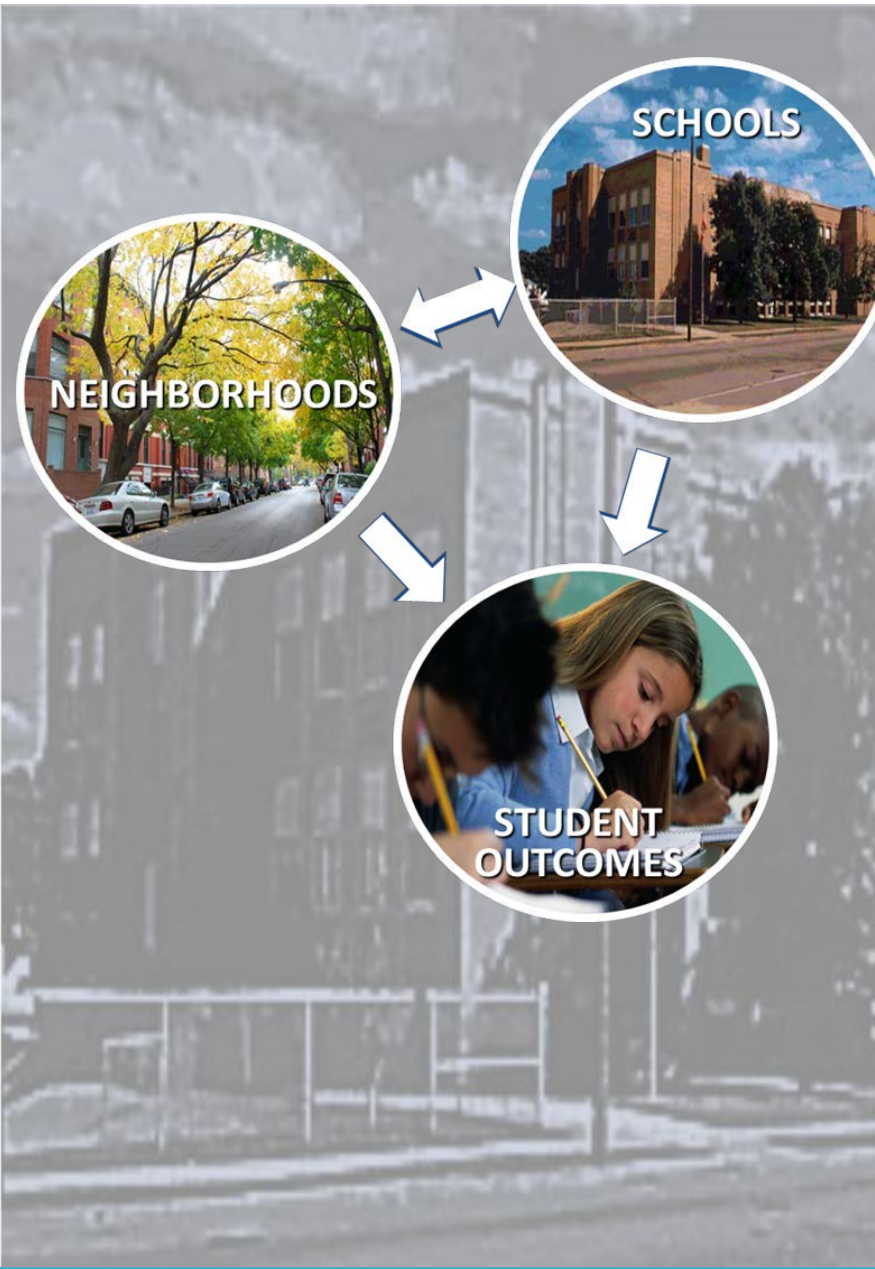
Challenge: Development Patterns

School characteristics affect student achievement. Community development practices also impact student achievement. The connection between housing and school enrollment may significantly contribute to educational inequality in a community. The tendency for schools to reflect the socio-economic status of neighborhood residents can further contribute to educational inequality, even within the same school district.⁵

Maintaining the status quo in Dubuque means:

- keeping existing schools open;
- adhering to the same district boundaries; and
- not expanding affordable housing options throughout the city.

This status quo is not sustainable and does not align with the City's *Sustainable Dubuque* principle of Social/Cultural Vibrancy, which emphasizes "education, empowerment and engagement to achieve economic prosperity, environmental integrity and social/cultural vibrancy."⁶



THE RELATIONSHIP BETWEEN SCHOOLS, NEIGHBORHOODS, AND STUDENT OUTCOMES

The following questions provide a framework for better understanding the relationship between schools and neighborhoods and how these two factors impact student achievement:

- * **What are the current trends in DCSD Elementary Schools?**
- * **What are the current trends in Dubuque neighborhoods?**
- * **How do schools impact neighborhoods?**
- * **How do neighborhoods impact schools?**
- * **How do differences in school characteristics and neighborhood characteristics impact student achievement?**

Evidence-based research presented in this report addresses the above questions. Answers to these questions can inform decision-making and help evaluate the trade-offs school and city policies have on both neighborhoods and student outcomes. Similarly, the questions offer insight toward community neighborhood strategies that affect schools and student outcomes. Understanding the connection between schools, neighborhoods and student outcomes is essential to address student achievement gaps and helps foster a more sustainable, equitable community.

RESEARCH METHODOLOGY

Literature Review

The research in this report was guided by various academic disciplines related to student achievement and community development, such as planning, education, and economics.

Case studies

An examination of best practices in comparable communities and their initiatives to promote academic success and increase diversity inform potential policy approaches in Dubuque.

Hedonic Modeling

Economic forecasting measures the implicit value of an amenity such as a school, and quantifies the effect school characteristics have on housing prices throughout the community.

Student Outcomes Production Function

Regression analysis helps isolate the key variables that most directly impact student performance. The production function relates various inputs to the measured output of student academic achievement.

Community Engagement

A survey helps identify community preferences and willingness to make trade-offs for various school characteristics. Focus groups provide input from targeted populations within the community.

Scenario Generation

Research tools developed for this project illustrate the potential impacts of hypothetical policy changes, such as grade reconfiguration, on schools, neighborhoods, and student outcomes.

CONTEXT

Dubuque Community School District Elementary Schools and Enrollment Boundaries

Generally, the Dubuque Community School District's elementary schools follow a neighborhood school model, meaning that students are assigned to an elementary school based on where they live.

Because neighborhood elementary schools are populated by the surrounding residences, neighborhoods have a significant influence on the characteristics of a neighborhood school.

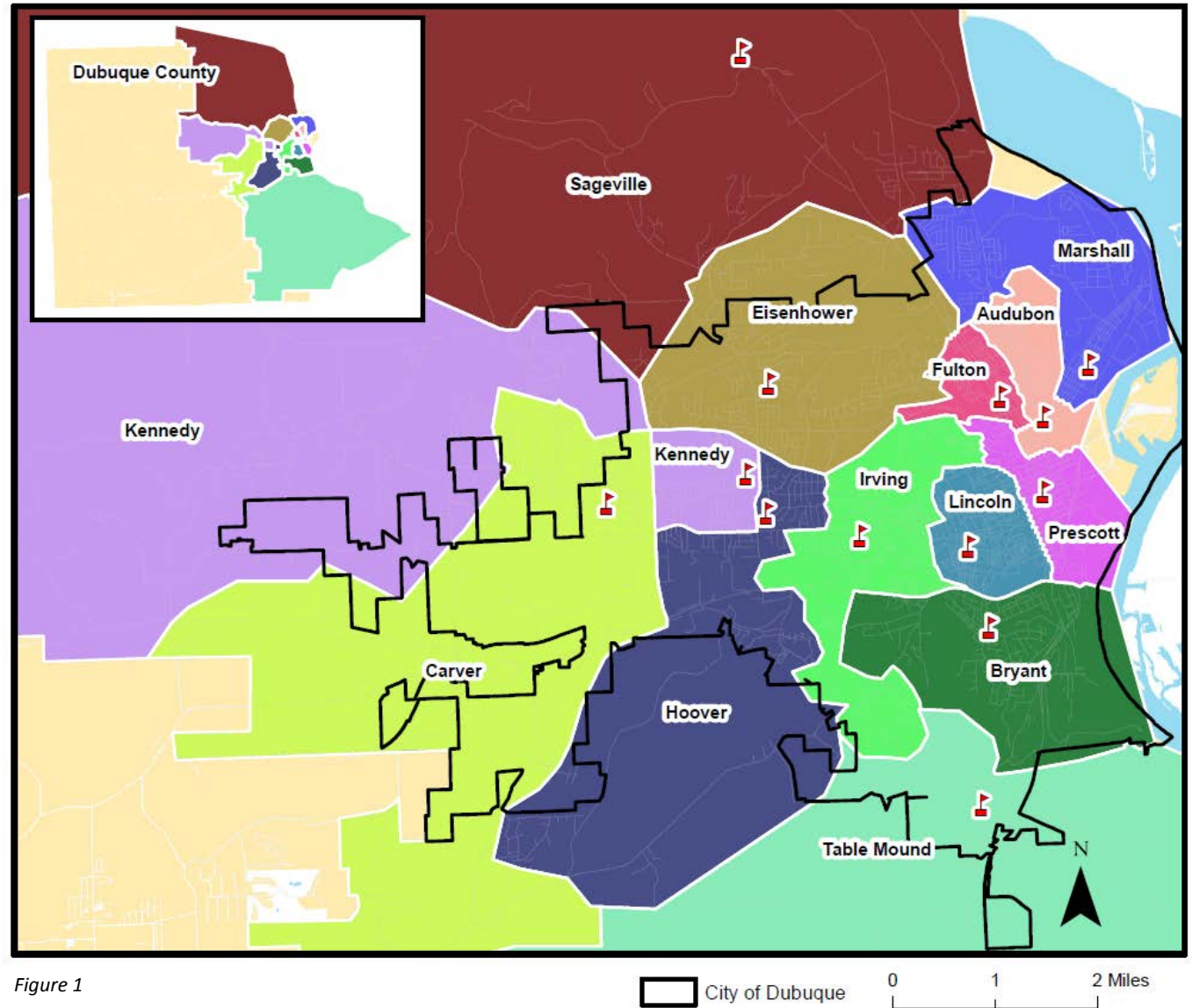


Figure 1

KEY FINDINGS

Current Trends:
3rd Grade Reading Proficiency

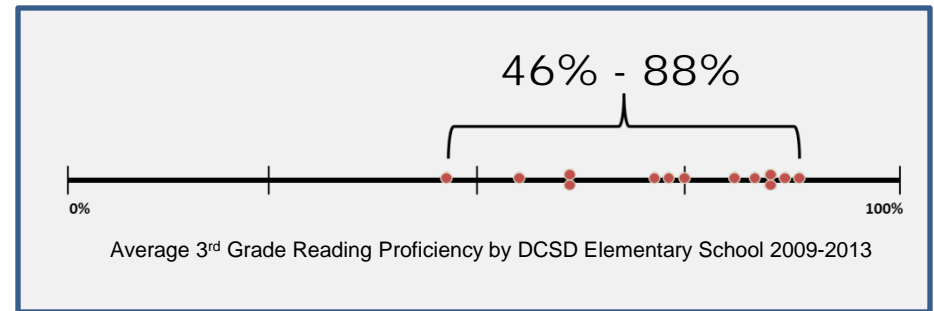


Figure 2

Discrepancy in academic achievement among Dubuque's public elementary schools

Figure 2 shows that 3rd grade reading proficiency varies from a low of 46% to a high of 88% amongst the DCSD elementary schools. Four elementary schools have fewer than 60% students reading at grade-level proficiency. The five schools located in or near downtown Dubuque (Audubon, Fulton, Lincoln, Marshall, and Prescott) have the lowest levels of 3rd grade reading proficiency.

KEY FINDINGS

Current Trends:
Free and Reduced Lunch

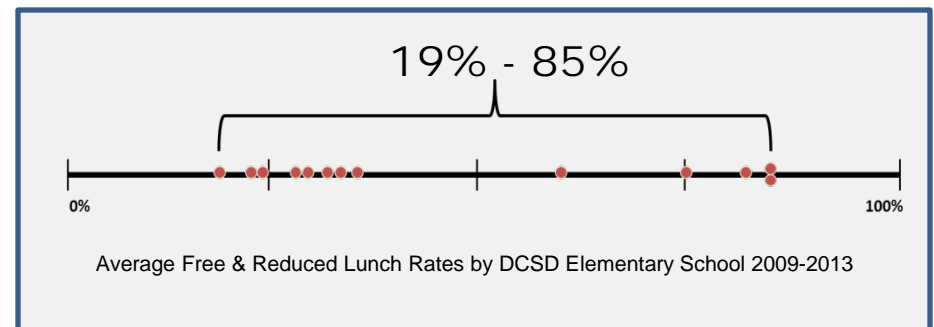


Figure 3

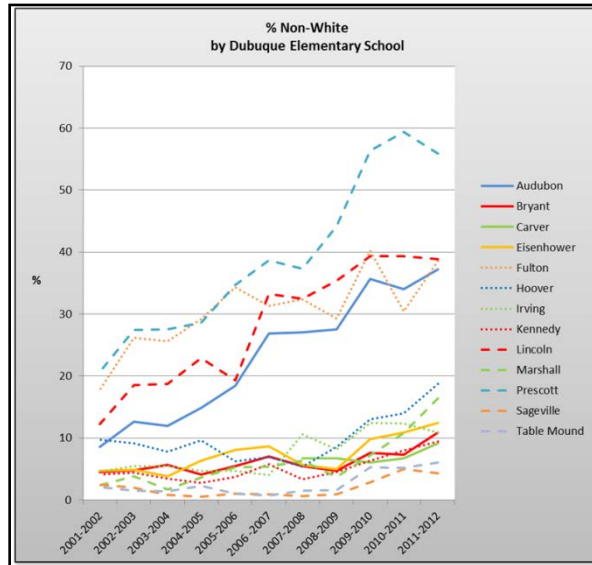
Concentrations of poverty in Dubuque's public elementary schools

Figure 3 illustrates the range of Free and Reduced Lunch (FRL) in DCSD elementary schools. The highest schools have 85% FRL eligibility, while one elementary school has only 19% FRL eligibility. The schools with the highest percentages of FRL are located in or near downtown.

KEY FINDINGS

Current Trends: Race

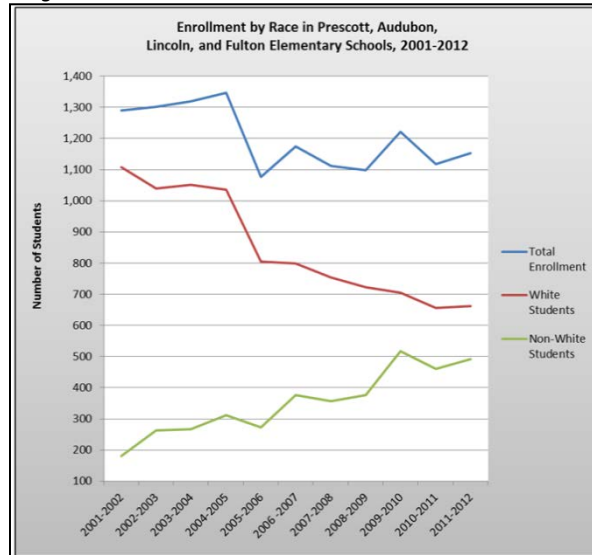
Figure 4



Increase in minority student enrollments

Figure 4 illustrates changes in the proportions of non-white students in each DCSD public elementary school from 2001 to 2012. Four downtown Dubuque elementary schools—Audubon, Fulton, Lincoln, and Prescott—have seen increases in non-white student enrollment, each with higher than 37% non-white student enrollment. Prescott Elementary had the highest non-white percentage of student enrollment at 66%. This increase in non-white students differs from the other nine elementary schools which have non-white enrollment percentages between 4% and 19%.

Figure 5



Declines in enrollment of white students

An examination of the combined white and non-white enrollments for the downtown schools reflects an increase in the number of non-white students, as well as a decrease in the number of white students. As illustrated in Figure 5, the number of white students enrolled in Prescott, Audubon, Lincoln, and Fulton Elementary schools decreases over time as the number of minority students increases, which accounts for the changes shown in Figure 5. The four downtown schools had 447 fewer white students in 2011 than in 2001, while minority enrollment was up by 310 students over the same period.

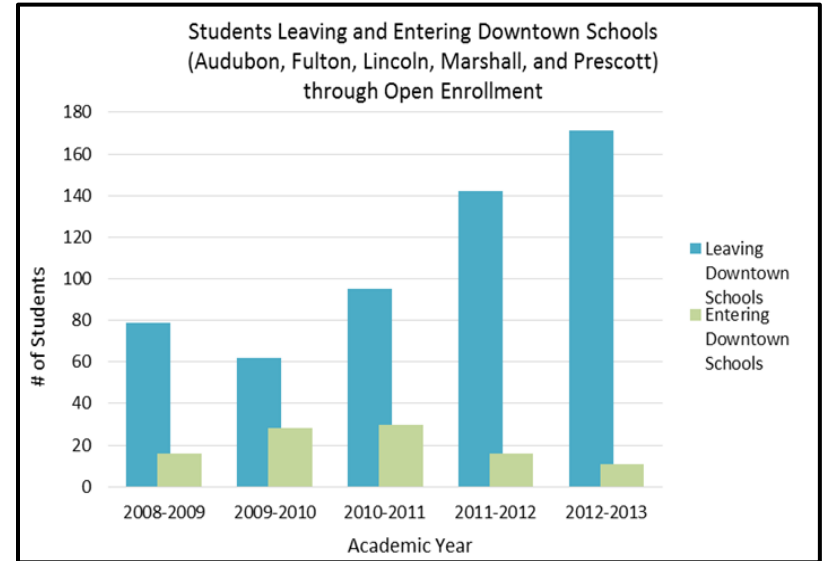
KEY FINDINGS

Current Trends: Open Enrollment

Open enrollment policies contribute to waning enrollment in downtown elementary schools (Audubon, Fulton, Lincoln, Marshall, and Prescott). Figure 6 depicts the number of students leaving and entering the downtown schools through open enrollment. The number of students open enrolling out of downtown schools has been higher than the number of students open enrolling into these schools. Of the 480 students using open enrollment in the 2012-2013 academic year, 321 (about 67%) students were assigned to downtown schools. More than half (171 students), enrolled into a school outside the downtown area. Only 11 students lived outside of a downtown catchment areas and opted to attend a downtown school. The net loss due to students using open enrollment to leave downtown schools in 2012-2013 equals nearly 11% of total enrollment in those schools.

Prescott Elementary is a charter school and accepts students through an application process rather than open enrollment. Twenty-four students from catchment areas outside of downtown enrolled into Prescott during the 2012-2013 academic year.

Figure 6



Open enrollment policy reduces enrollment in downtown schools by more than 10%

KEY FINDINGS

Current Trends: Elementary School Comparison

Figure 7

Rank	Highest % Minority	Highest % Poverty	Highest FRL Eligibility	Highest % Mobility	Lowest 4th Grade Reading Proficiency
1	PRESCOTT 56%	PRESCOTT 90%	PRESCOTT 90%	AUDUBON 25%	LINCOLN 53%
2	FULTON 40%	AUDUBON 88%	AUDUBON 87%	FULTON 25%	PRESCOTT 65%
3	LINCOLN 39%	FULTON 87%	FULTON 86%	LINCOLN 24%	FULTON 68%
4	AUDUBON 36%	LINCOLN 77%	LINCOLN 75%	PRESCOTT 18%	MARSHALL 68%
5	HOOVER 16%	MARSHALL 62%	MARSHALL 63%	IRVING 9%	AUDUBON 73%
6	IRVING 12%	IRVING 38%	IRVING 38%	MARSHALL 9%	HOOVER 77%
7	EISENHOWER 10%	BRYANT 33%	BRYANT 33%	BRYANT 8%	TABLE MOUND 77%
8	BRYANT 8%	HOOVER 30%	HOOVER 30%	EISENHOWER 8%	SAGEVILLE 83%
9	MARSHALL 7%	TABLE MOUND 29%	TABLE MOUND 30%	HOOVER 8%	KENNEDY 85%
10	CARVER 6%	EISENHOWER 27%	EISENHOWER 28%	CARVER 6%	CARVER 86%
11	KENNEDY 6%	CARVER 25%	CARVER 26%	TABLE MOUND 5%	EISENHOWER 88%
12	TABLE MOUND 5%	SAGEVILLE 23%	SAGEVILLE 22%	KENNEDY 2%	IRVING 89%
13	SAGEVILLE 3%	KENNEDY 22%	KENNEDY 20%	SAGEVILLE N/A	BRYANT 89%

Figure 7 compares DCSD elementary schools by proportion of minority students, poverty rates, FRL eligibility, mobility, and 4th grade reading proficiency. As shown, the four schools with the highest poverty are Audubon, Fulton, Lincoln, and Prescott.

These four downtown schools also have the lowest 4th grade reading proficiency, the highest proportions of minority students, the highest FRL eligibility, and the highest mobility rate (which reflects the number of students returning to school from one year to the next).

KEY FINDINGS

Current Trends: Race and Class in Dubuque

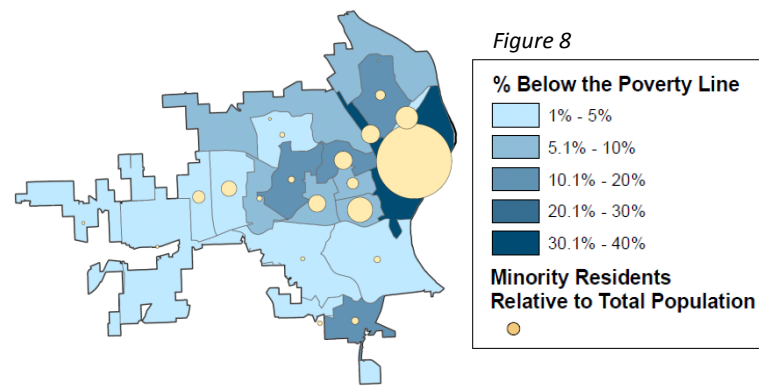


Figure 8 provides a spatial representation of the percentages of residents living below the poverty line, as well as the distribution of minorities in the community relative to the total population in Dubuque. Figure 8 indicates that the downtown neighborhoods have the highest percentages of populations living in poverty as well as the highest percentages of minority populations.

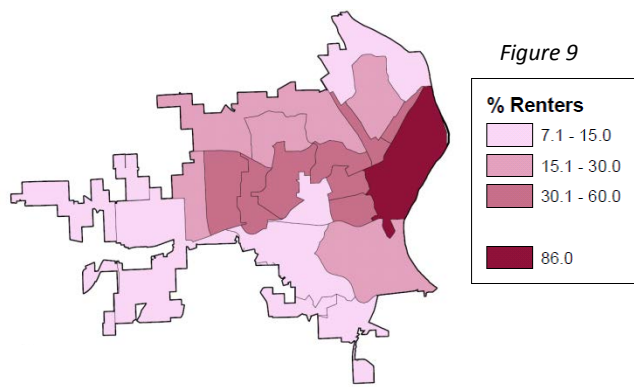
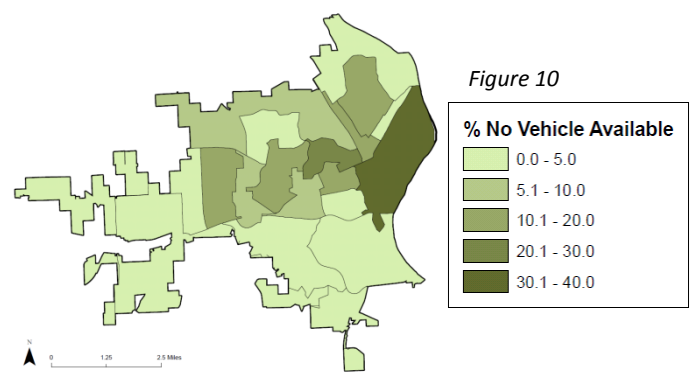


Figure 9 indicates that the highest percentages of renters are located in the downtown area. A high renter population implies high mobility rates. Mobility rates within a school mean students that do not finish a school year within the same building or students that do not return to the building at the start of the next academic year. The downtown schools have some of the highest mobility rates. **Note, no groups of renters exist for the range of 60.1%-85%.*



The downtown area has the highest percentages of populations without access to a personal vehicle (Figure 10). If a school policy necessitated that students who live and attend school downtown enroll in a school outside downtown (such as the closing of a downtown school or redistricting), these families without access to a personal vehicle would experience difficulties getting to and from school after school hours for extracurricular activities or parent-teacher conferences.

ANALYSIS

Peer culture and academic achievement

DCSD Elementary School data is consistent with “tipping point” theory

Research suggests that the “tipping point” at which poverty in a school building begins to negatively impact overall academic achievement may be as low as 50% of the student population in poverty.⁷ A report for The United States Department of Education concluded that when half the student body lives in poverty, all students' achievement will be depressed, and when 75% live in poverty, then all students' achievement will be "seriously" depressed.⁸

Proficiency data for Dubuque elementary schools seems to support the idea that academic achievement suffers when a school surpasses a “tipping point” of poverty. Table 11 shows a comparison of 3rd grade reading proficiency by socioeconomic status (SES), relative to FRL rates in Dubuque’s public elementary schools.

As shown in Table 11, the proportion of low SES students reading at grade-level proficiency is lower for those attending relatively poor schools. In schools with FRL rates over 50%, just over half of 3rd graders in the building reading at proficient levels, whereas those attending schools with FRL lunch rates below 50% have 71.9% of 3rd graders reading at proficient levels.

More affluent students (those not labeled low SES) also have lower proficiency rates in schools with high rates of FRL. Students of higher socioeconomic status have a building average of 3rd grade reading proficiency of 76.1%, while equivalent students in more affluent schools have proficiency rates at 85%. This data is consistent with academic research that suggests affluent students perform worse academically in a poor school than they would have in a more affluent school.

Figure 11

	In Schools with FRL above 50%	In Schools with FRL below 50%
Low-SES Students at Proficiency	52.4%	71.9%
Non-Low SES Students at Proficiency	76.1%	85.0%

ANALYSIS

How do schools impact neighborhoods?

Neighborhood schools can provide benefits to students as well as the greater community. Neighborhood schools can promote healthy biking and walking habits, encourage parental involvement, and increase accessibility to extracurricular activities. The community can benefit from a neighborhood school when it serves as a neighborhood anchor, functions as a community center, and is a source of social cohesion.

Research in this report indicates that school catchment areas influence housing choice. Additionally, property values are depressed when homes are located in the catchment area of an underperforming school (as measured by 3rd Grade reading proficiency). Thus, the neighborhood school model can perpetuate a concentration of poverty in already-underperforming schools. Other undesirable effects of the neighborhood school model include enrollment imbalances and inefficient use of resources, such as underutilized facilities.

Schools make a difference in neighborhood choice. School policies impact both student performance and neighborhood sustainability. Encouraging equitable access to vibrant, healthy neighborhoods with strong schools nearby is aligned with the City's Sustainable Dubuque principle of Social/Cultural Vibrancy and with the School District's primary concern of "providing a top-notch education" to students.⁹



ANALYSIS

How do neighborhoods impact schools?

Community development practices impact neighborhoods, as neighborhoods are often sorted by income. Research in this report indicates neighborhood schools reflect the predominant socio-economic characteristics of the neighborhood. Thus, homogenous neighborhoods can perpetuate segregated schools. Efforts to balance diversity between schools can lead to equity issues if certain subgroups of students bear the burden of longer commutes to the “higher performing” schools. Student transportation costs are also negatively impacted by diversity-balancing efforts.

In Dubuque, and across the country, schools have been increasingly built on the edges of communities, on large undeveloped parcels of land. Negative associations to sprawling development include less efficient land usage, environmental degradation, and social inequality. Homes, and thus schools, on the outer edges of a community are often inaccessible to the poor, who are more likely to have to make a trade-off between travel and living expenses. Further, sprawl comes at the expense of walkability and longer commutes can negatively impact school budgets.

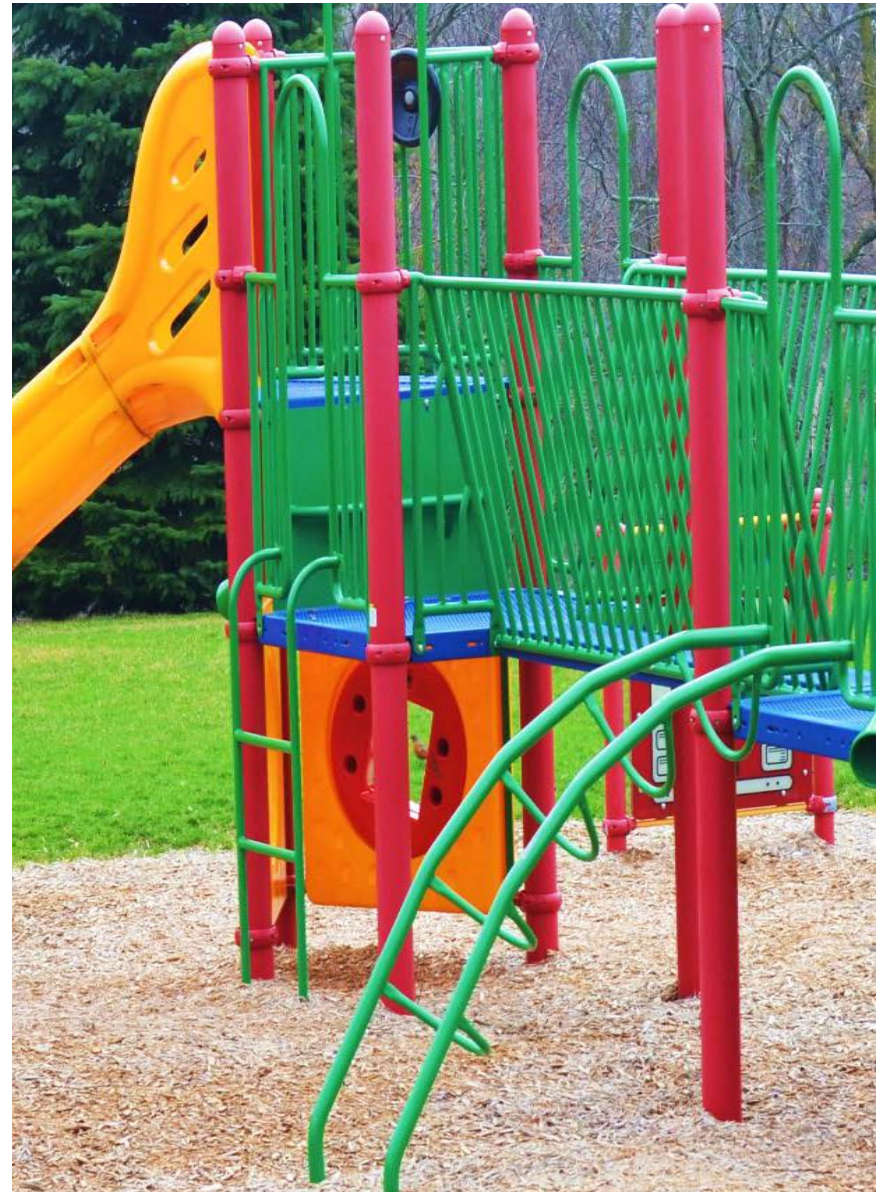


ANALYSIS

Impact on Academic Achievement

The cumulative disadvantages linked to poverty-stricken neighborhoods may reduce the quality of life of residents and negatively impact student achievement. When students attend schools comprising a majority of socio-economically disadvantaged students, academic performance diminishes for all students.¹⁰ Additionally, inadequate housing and inadequate schools are two key sources of high student mobility.¹¹ Mobility can be problematic, as higher mobility rates correlate with lower student achievement.

Because the neighborhood school model leads to disparities between schools in student demographics and student proficiency, the City of Dubuque and DCSD should consider how policies impact students and neighborhoods.



ANALYSIS

Summary of Statistical Analysis

While the preliminary results from this research are consistent with similar studies, the results presented in this section require additional data and further analyses to adequately inform decision-making. Our community engagement efforts did not yield enough responses from which to make any statistical inferences, therefore, the results are not discussed in this report. However, the survey and focus groups provide useful lessons as exploratory exercises into effectively engaging with the broader public to inform decision-making.

Hedonic Modeling¹²

Hedonic (statistical) modeling illustrates how school characteristics impact housing value. The analysis demonstrate that home buyers are willing to pay more in exchange for increased rates of 3rd grade reading proficiency. Home buyers would be willing to pay, on average, \$300 for each percentage point increase in 3rd grade reading proficiency at the building level. In other words, homebuyers would be willing to pay, on average, an extra \$12,600 for the same house to live in a catchment area with a building level proficiency of 88% for 3rd grade reading compared to that of a catchment area with 46% proficiency .

In addition, homebuyers have preferences regarding school transportation offerings. For example, the hedonic estimates that home buyers are willing to pay more to own a home within one mile of a school than own the exact same house located between one and two miles of a school. Similarly, homebuyers are willing

to pay more to own a home that is more than two miles away from a school, and therefore eligible for busing, than own the exact same house located between one and two miles from a school.



POLICY ANALYSIS

Applying the model: Grade Reconfiguration

An education production function (a form of economic modeling) has been used to evaluate a hypothetical policy change. If balanced enrollment is a DCSD priority, this may potentially be achieved by grade reconfiguration (K-2 and 3-5 buildings). New percentages of free and reduced lunch and average teacher experience (based on the hypothetical configurations) were calculated and entered in the model. The production function estimated new 3rd grade reading proficiency rates per building given changes in enrollment and teacher experience due to the reconfiguration. Figures 12 and 13 illustrate how reconfiguration could reduce the ranges of test scores over a five-year period.

In addition to the above scenario, this research analyzed the impact of grade reconfiguration on housing values. Figure 14 shows homebuyers are willing to pay less for homes in some school catchment areas and willing to pay more for homes in others. District-wide, the hypothetical reconfiguration results in a net increase in homeowners' willingness to pay by around \$700,000 across the city. If that increase in willingness to pay is distributed over all parcels in the Dubuque Community School District, willingness to pay for a parcel increases by an average of \$20.

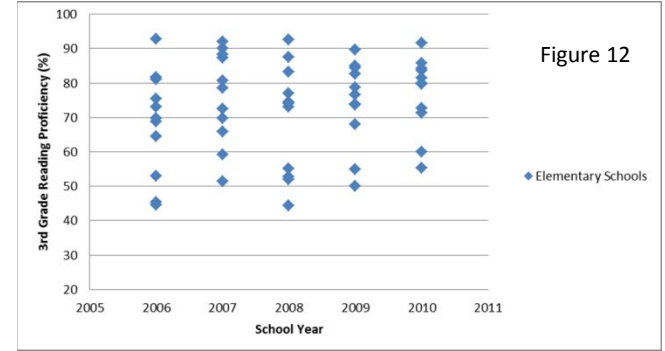


Figure 12

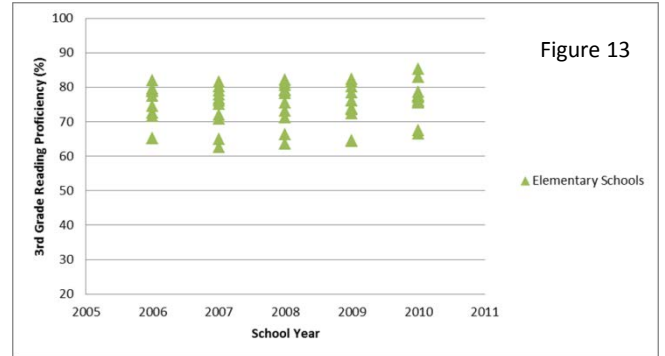


Figure 13

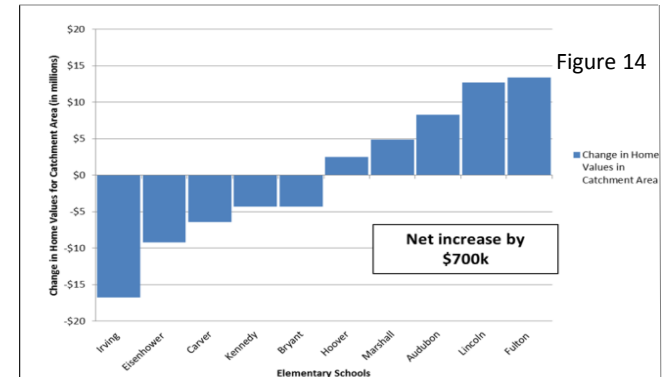
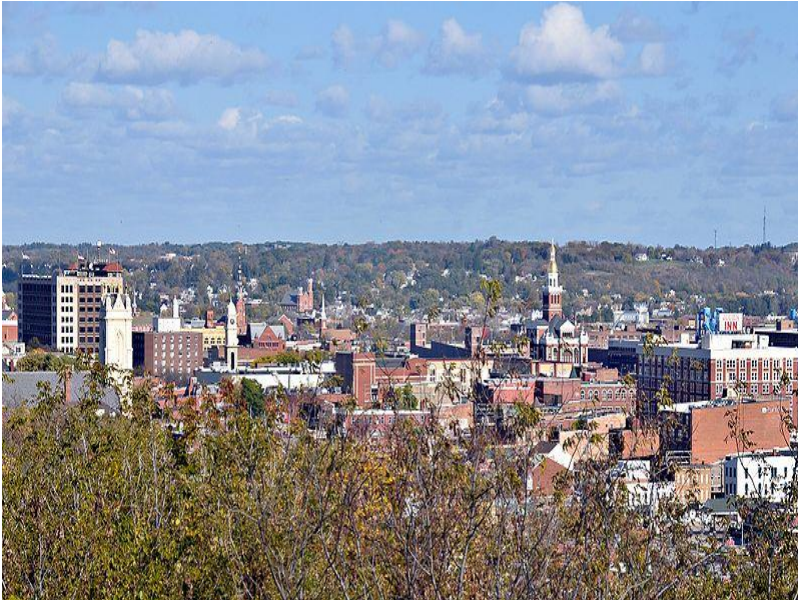


Figure 14

RECOMMENDATIONS



Develop a Sustainable Decision-Making Process

Long-term sustainable collaboration should focus on preventing societal problems rather than on remedying problems after they have developed. To reduce high school dropouts, schools and communities need to prepare middle school students for high school success—and, therefore, elementary students for middle school success—instead of trying to make up for lost time when underperforming students reach high school.¹³ As illustrated in the Dubuque Campaign for Grade-Level Reading, a preventive focus sets the appropriate context for collaboration between Dubuque elementary schools, city agencies, and community organizations.

1.) Define Goals

The school district, city and community should establish unified goals. Currently, the school district and city each have individual plans for education which overlap on certain points. Education-based goal-setting should be an intentional and concerted effort.

RECOMMENDATIONS



2.) Align Policy

Housing policies at the local government level can serve to help schools balance socio-economic diversity as well as disperse pockets of poverty at the neighborhood and school levels. City planning tools such as inclusionary zoning, removal of minimum lot requirements, and mixed-income developments can all foster equity not only within schools, but the greater community.

Just as city development decisions affect schools, schools affect home-buying decisions (shown in the hedonic analysis) and neighborhood composition. Households with a high demand for school quality will pay more for housing in order to live near a high-quality school. Conversely, if a school district decides to have enrollment based on a lottery, housing is no longer tied to school quality. Thus, consumers would not buy homes based on what school catchment area they are in, since the attendance center is now based on chance. These points illustrate that a school district's policy influences neighborhood choice.

Policy alignment can better occur after explicit goal-setting, clear assignment of roles and responsibilities, and establishing similar standards for evaluating and tracking data that allow for comparison across agencies and sectors.

RECOMMENDATIONS



3.) Enhance Collaboration Efforts

Because the neighborhood school model contributes to disparities in student demographics and student proficiency, the entire Dubuque community should work together in order to maximize the impact various agencies can have on Dubuque's schoolchildren. Stakeholders must first build a solid relationship with one another while working on limited, measurable objectives. This solid relationship can be established through effective communication (with opportunities for continuous feedback), consistent cross-sectorial data collection and sharing, and meaningful community engagement.

Once these relationships are more firmly established, the school district and its partners can look at long-term projects, and should be creative in how it addresses current and future problems. With the plethora of nonprofit organizations in Dubuque focusing on the city's youth, there are excellent opportunities for collaboration to better meet the educational and social needs of Dubuque's elementary students.

RECOMMENDATIONS

4.) Evidence-Based Analysis

The methods employed in the project provide policymakers with tools to analyze and understand the relationship between education and community development in the following ways:

Hedonic model

This model can assist policymakers in understanding the impact of future decisions with regard to school construction, renovation, and relocation, and to better estimate the effect of school proficiency and school transportation options on housing values. Quantifying the implicit values of elementary school characteristics on housing values will allow for an understanding of the impact elementary schools have on neighborhoods. Both DCSD and the City of Dubuque may find this information useful.

Production Function

This method of analysis may enable policymakers to better anticipate the consequences of policies and actions on student achievement and to make more informed decisions.

Conjoint Analysis Survey

This survey is designed not only to identify the respondents' school trait preferences but also where they are willing to make trade-offs. These tradeoffs help estimate the political feasibility of a course of action that policymakers might recommend and the attendant education or community engagement needed to make more unfavorable outcomes acceptable.

Focus Groups

These sessions allow policy makers to better understand the needs and preferences of less-advantaged socioeconomic groups—arguably, the groups that would be least adaptive to any major policy set forth either by DCSD or the City of Dubuque.

CONCLUSION



Housing Policy is linked to School Policy

People are more inclined to live in vibrant neighborhoods and move away from declining ones. School policies, which are typically independent from community development, can have significant impacts on neighborhoods. Open enrollment, for example, can spur an exodus from vulnerable schools, thereby exacerbating problems of inequity and school and neighborhood viability. City planning tools such as inclusionary zoning, removal of minimum lot requirements, and mixed income developments can all serve to foster equity within not only schools, but the greater community. Since education benefits society as well as the student, inclusionary housing policies can mitigate the achievement gap and help break the cycle of poverty. Also, school policies that promote diversity, integration and neighborhood investment can help develop well-rounded citizens and more economically and socially resilient communities.

Using this report as a framework for informing decision-making can help foster social cohesion and vibrant, healthy neighborhoods that facilitate the educational process. These outcomes are consistent with Sustainable Dubuque principles, the educational goals presented in Dubuque County's Youth Master Plan and the Dubuque's Community School District's Strategic Plan for 21st Century Education.

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Figures

1. Map data from City of Dubuque and Dubuque Community School District
2. Analysis using data from Iowa Department of Education
3. Analysis using data from Iowa Department of Education
4. Analysis using data from Iowa Department of Education
5. Analysis using data from Iowa Department of Education
6. Analysis using data from Dubuque Community School District
7. Table data compiled from: Iowa Department of Education and the Dubuque Community School District Annual Report of Progress 2009-2010
8. Map data from United States Census Bureau 2010
9. Map data from United States Census Bureau 2010
10. Map data from United States Census Bureau 2010
11. Analysis using data from Iowa Department of Education
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14. Analysis using data from Sales Data from Dubuque County Assessors and Iowa Department of Education