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The Usage of Maps in Facilitating Conversations with Stakeholders about Educational Desegregation in Hartford

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Introduction

GIS (Geographical Information System) is a computer mapping program created and maintained by ESRI that is aimed at the spatial analysis of data. I have interacted with GIS in many forms while at Trinity including mapping bird migration patterns along a watershed habitat, the mapping of Hartford real estate prices in relation to the location of schools, and the origin of magnet school students in comparison to the schools they have chosen to attend. Throughout these projects, I have realized how useful GIS can be as a visual tool since no other program can place data points (including addresses) into a computer to determine if there is a significant reason why the data is distributed in a certain way. Within the magnet school project, placing students onto a detailed map of Hartford allowed policymakers to see that some students are willing to travel greater distances to attend certain schools instead of the one in their neighborhood. This kind of data was very useful as another step in determining the effectiveness of desegregation efforts within the Hartford region because it helped to identify the potential "attractive" schools to different races.

Desegregating the Hartford region's school districts has been an issue for over ten years now; however, with all of the efforts of policymakers, substantial change has yet to occur since Sheff v. O'Neill was brought to the table. Sheff v. O'Neill is a lawsuit regarding the de facto segregation in Hartford Public Schools. Following the 1996 ruling, it was found that Hartford Public Schools were racially, ethnically, and socioeconomically segregated, and this isolation provided unequal educational opportunities to all students of Connecticut.

If people trying to create change in Hartford would be able to see a visual map of where students are attending school in the region, they could potentially do more than hypothesize

about the segregation problems—they could help be a part of the solution by offering explanations for these actions. However, not all people attempting to create change in Hartford's desegregation share the same views and/or approach a situation in the same way. Depending on the person's position in relation to Hartford education, the person could have largely different views on how to approach desegregation. *How do different stakeholders within educational reform in Hartford approach issues of desegregation and how do they interpret the same distribution maps?*

Literature Review

Many articles and studies have been completed highlighting the successfulness of GIS as an educational tool. Many case studies regarding the integration of GIS into school curriculums involve individual teachers that strive teach students in a more visual, round-about way. For example, Steve Obenhaus, a high school math teacher in Kansas, has been working with seniors using GIS to answer spatially-driven questions. While students are urged to ask any question they want, they often choose projects with philanthropic themes that involve communities near and far. Obenhaus gives students necessary GIS training, proper tools to obtain their results, and a strong research question (ArcUser 2009). The solution to how to answer their question is up to the individual student. One year, Obenhaus and one of his students studied the quality of water at individual wells available to children in Haiti. After successfully completing the project, the student argued: "[GIS is] a tool that helps you solve real problems. I could have done the project without GIS, but it would have taken much longer to analyze data and would not have been as accurate" (ArcUser 2009). Although Obenhaus is modest about his successes with the mapping program, his students recognize its broader value: "Because of GIS, writing the paper, and presenting the results, I feel more prepared for life" (ArcUser 2009).

AuThenTiCITY, a program in Phoenix, Arizona is a successful example of how GIS and integrated service learning can impact a community. Youth are given the opportunity to learn about GIS software, formulate a hypothesis about a specific issue within their community, and follow through with a scientific study—using GIS to help answer questions and display data. Students are able to obtain a greater understanding and awareness of issues in their area because they are actually going out into the field and participating in service learning. Finally, students must use the findings of their research to take action on the problem. Whether working to create a better public transportation system or a stronger rehabilitation center for prisoners, students are using their data to stand up for what they believe in and make a positive difference (Dillon and Lemar 2007).

In Washington, Waterville Elementary School students and the local Washington farmers collaborated to study the invasive toad populations. What began as a new approach to the traditional methods of conservation became a long term project with the community. Students used the knowledge of the farmers to identify the toads' whereabouts and plotted the toad populations using GIS. The project began to get notice from professionals that have helped fund additional research to make this a long-term project. The students that helped create the project now see the wonderful community service they are doing and take ownership of their work. Working hand-in-hand with farmers and GIS professionals gave the students more pride and confidence for their futures after school (Dvornich 2007).

Even within Hartford, there are studies that are implementing GIS to show quantitative results over time. The current project being monitored and led by Professor Jack Dougherty of Trinity College focuses on the agreements made in the desegregation court case Sheff v. O'Neill. Dougherty acts as a mentor to students in cultivating their GIS skills using a relevant situation

like Sheff vs. O'Neill. Using two visual guides (2006 and 2007), Dougherty and his students

have been able to spatially display the achievements and the failures of school desegregation

since the rulings on the case. Their monitoring project is far from over and it is my hope to use

my project to give insight to Dougherty and his students about the effectiveness of GIS to

educate people about an issue.

Past research has shown that the benefits of using GIS are vast and include the enhancement

of problem-solving skills. The program is engaging for many learning styles because

quantitative data about a relevant issue can be placed on a visual map. "Using GIS, students

explore course content in a way that enhances logical, mathematical, linguistic, spatial, and

interpersonal intelligences" (ArcUser 2007). This program could be a strong addition to

desegregation data that has already been collected in Hartford because it has a visual component.

At William and Mary, Salvatore Saporito and undergraduates are working to build the School

Attendance Boundary System (SABINS) over the next two years with the help of a $1 million

grant. Saporito is building school attendance zones for the largest 800 school districts in the

nation using the GIS program. The SABINS database will give researchers a lot more data to do

large-scale projects and create applications for educational policies. With the use of SABINS,

different variables can be compared such as: "school quality on housing prices, how social

conditions in school boundaries influences the educational and health outcomes of children, and

how the delineation of school catchment areas impacts educational inequality" (Zagursky 2009).

Relevance

This project is relevant because I am furthering my GIS mapping skills and research that

I produced during an independent study in the fall of 2008 when I mapped the enrollment

distributions for all 10 Hartford magnet schools for the 2008-2009 school year. I am presently

working with the Regional School Choice Office in mapping the enrollment data for all Hartford schools for the 2009-2010 school year and this research will help with my internship.

School distribution data is very relevant for Hartford because of the mandated requirement for desegregation from Sheff v. O'Neill. Some of the outcomes of the ruling include Project Choice and the implementation of magnet schools. Project Choice is a program that buses urban students into suburban schools and vice versa. Magnet schools were created with unique themes to attract suburban students into an urban environment. Both of these outcomes are designed to desegregate schools, unlike the neighborhood schools which are meant to attract those students within a couple of miles of the school. With the help of GIS maps, the people of Hartford could see spatially whether or not the makeup of urban and students constitutes "desegregation" in the eyes of the law and if neighborhood schools are still achieving their goal of attracting neighborhood students.

Finally, I think that this project is important because it spreads awareness for GIS as a visual aid in data and research. While mapping is becoming more and more popular as a tool within research, this project will hopefully spread that knowledge to the public—the parents, administrators and policy makers that are working to desegregate Hartford on a daily basis.

Methods

I began my study by building GIS maps of school populations. I built three population maps for each school in Hartford: general population, English Language Learner (ELL) population, and Special Education (SPED) population. The data for these maps was obtained by the Regional School Choice Office under strict confidentiality. To maintain confidentiality of the students within the maps, no streets or landmarks were visible on the maps except for town

boundary lines. I also kept the individual addresses and maps in a secure file within the Trinity "tcdata" database that only Jack Dougherty, Dave Tatem (IT Dept) and I could access.

Two schools were picked from the total Hartford region to individually compare— depending on their unique population distributions (deemed "unique" by myself). One magnet school (Kinsella Magnet School for the Arts) was compared with one neighborhood school (Sanchez Elementary) to enable me to answer my questions about educational desegregation.

After receiving Intuitional Review Board (IRB) approval, I conducted informal interviews with "change agents" within the Hartford community. According to Trinity's Educational Studies Program, a "change agent" is a Hartford activist whose work relates to education. The interview was broken up into two sections: the interviewee's stance on the current educational system in Hartford (including Project Choice and magnet school implementation) and the interviewee's opinions of the maps that were presented to them and the maps' future implications. Interviews were recorded and transcribed. Coding for themes within the interviews was completed with the help of Atlas.ti, a computer software program that helps code within qualitative data.

To maintain confidentiality, the names and actual titles of the interviewees were not disclosed within my data and analysis; however, general stakeholder titles were released to allow the reader a better sense of the positions of the interviewees within the educational system. The interviewees also signed a consent form so that quotes from the interviews would be allowed within the analysis.

The information from this study may provide strong insight about the future of GIS as a practical mapping tool and create new motivations and ideas surrounding the idea of how to obtain more educational desegregation in Hartford.

Through the analysis of the change agent interviews it can be clearly seen that three change agents can see the same distribution maps differently, depending on their stakeholder position within Hartford education; further, the maps allow change agents to see whether school reform in Hartford is working and suggest what changes should be made, whether administrative, desegregation or choice driven, to approach a solution to current educational segregation.

Data - Maps

Below are the GIS maps of the two schools that I chose to introduce within the three interviews that I completed with Hartford change agents. The two schools are Kinsella Magnet School of the Arts and Sanchez Elementary. While they are both schools in Hartford, they attract very different populations. Throughout the analysis, Sanchez may be cited as a "neighborhood" school and Kinsella may be cited as a magnet school. A neighborhood school attracts students mostly from around the area—they do not try to attract students from other towns. There are three maps per school (general population, English Language Learners population, Special Education population) and one map featuring both school populations on the same map for comparison.

Although I cannot reveal the names and occupations of the three interviewees, they will be referred to by their stakeholder position within Hartford education: "Parent Advocate," "School Board Member" and "Desegregation Advocate." This will enable readers to better understand the overall opinions and individual viewpoints of the interviewees.
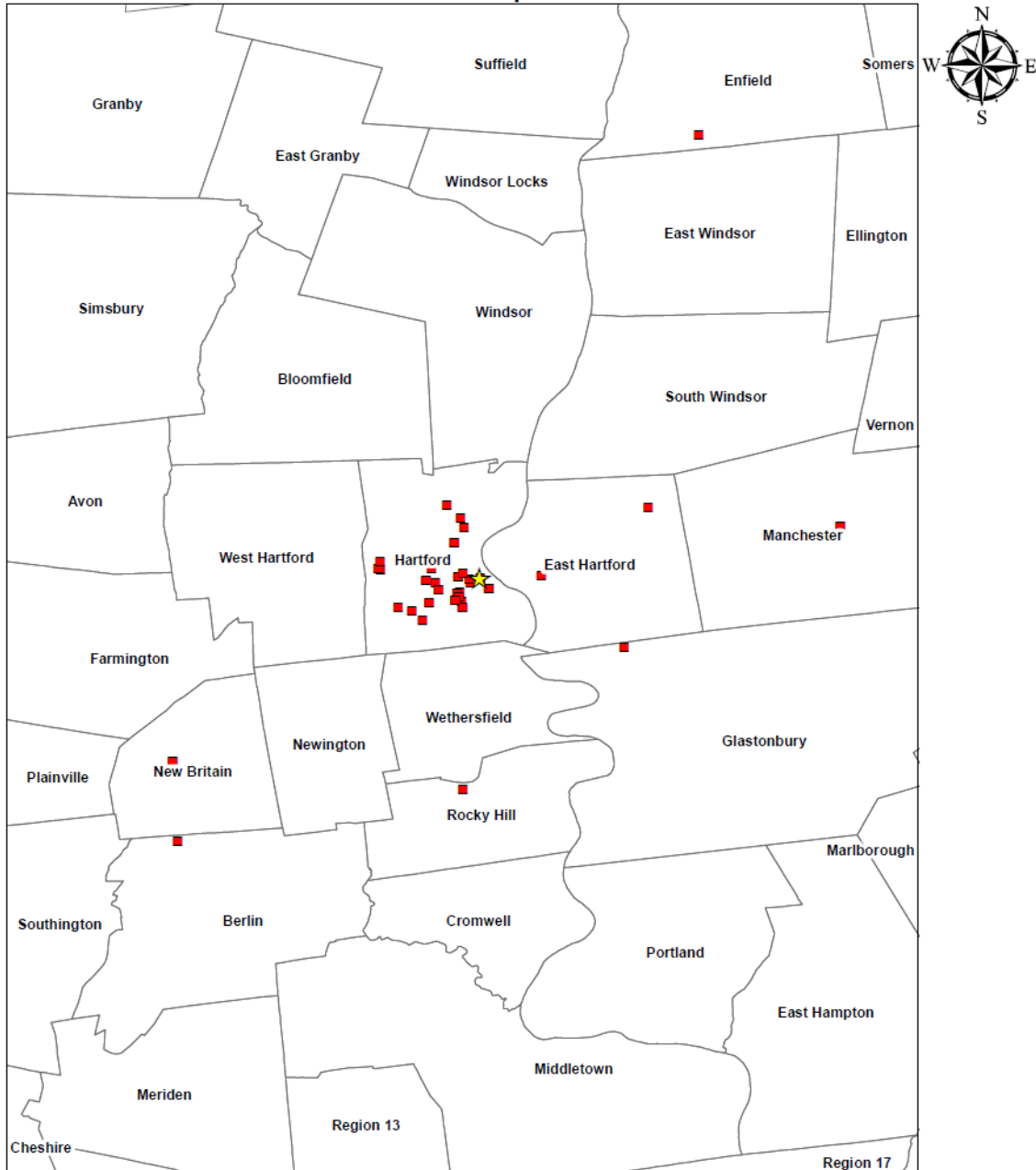
Kinsella Magnet School of the Arts Enrollment 2009-2010
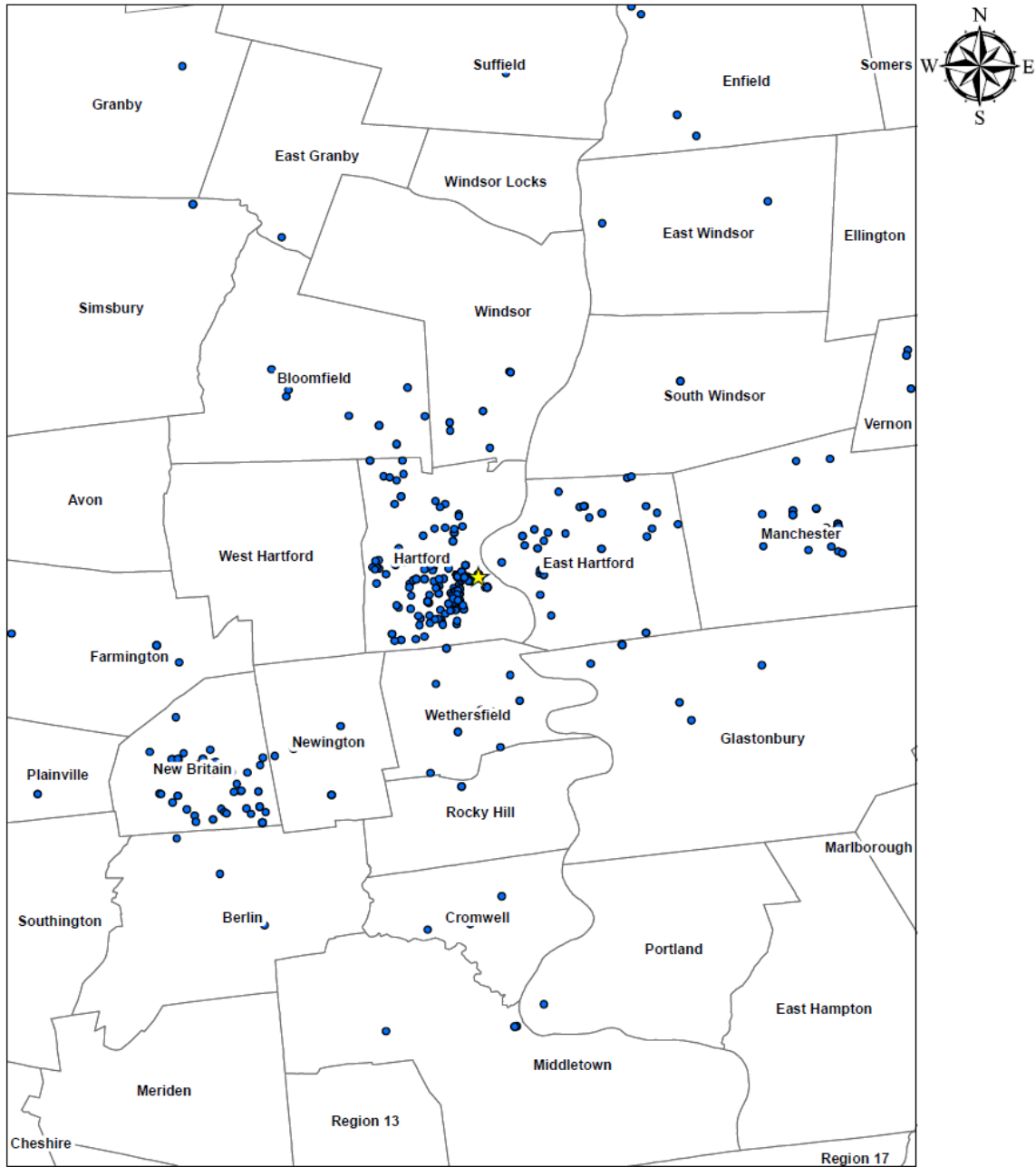
Map by Brittany Price, November 2009
Data source: Regional School Choice Office
Based on 89% geocoded addresses

● Kinsella Students
★ Kinsella School Location

Kinsella Magnet School of the Arts Enrollment 2009-2010 ELL Population

Map by Brittany Price, November 2009
Data source: Regional School Choice Office
Based on 89% geocoded addresses

■ ELL Kinsella Students
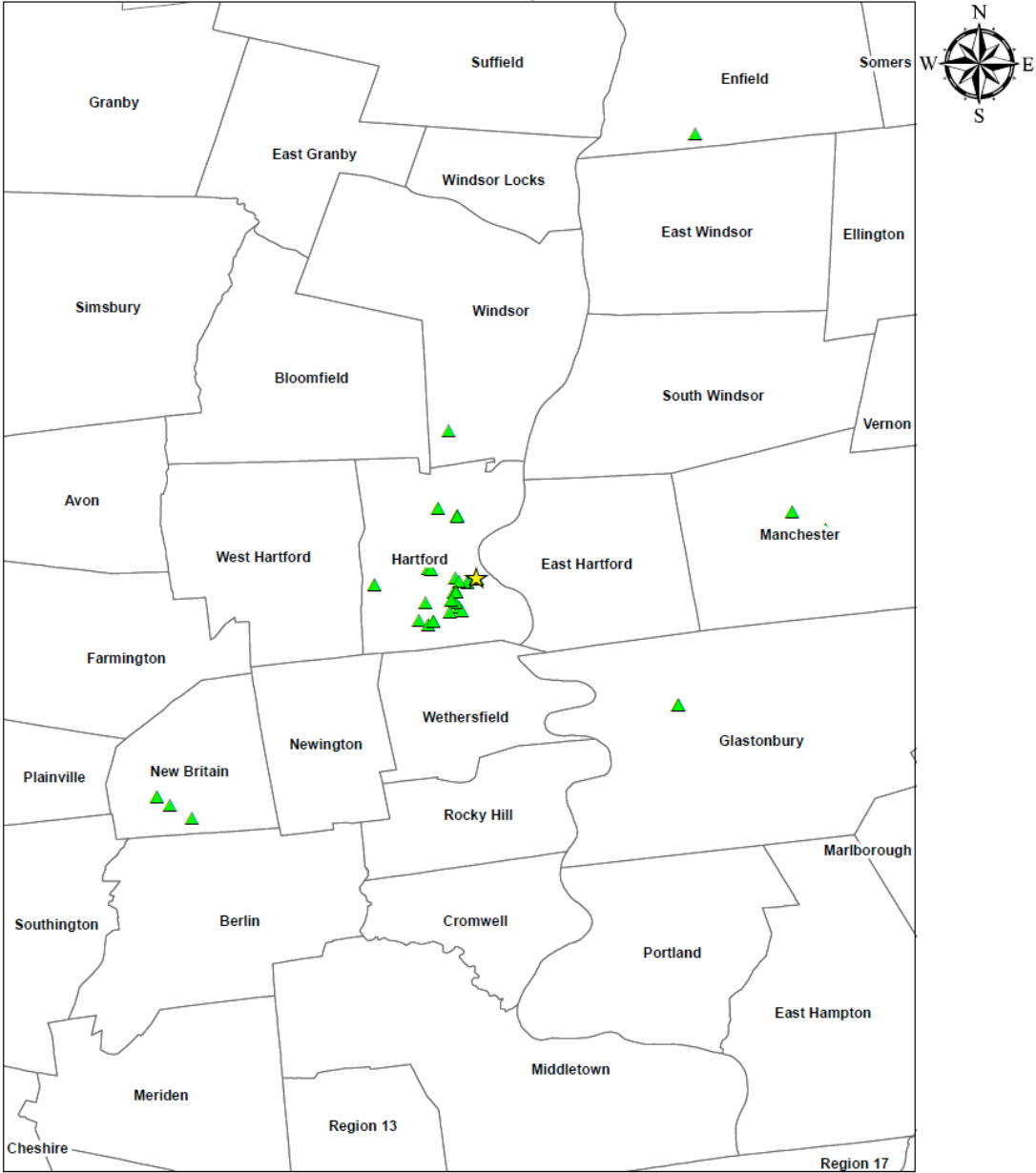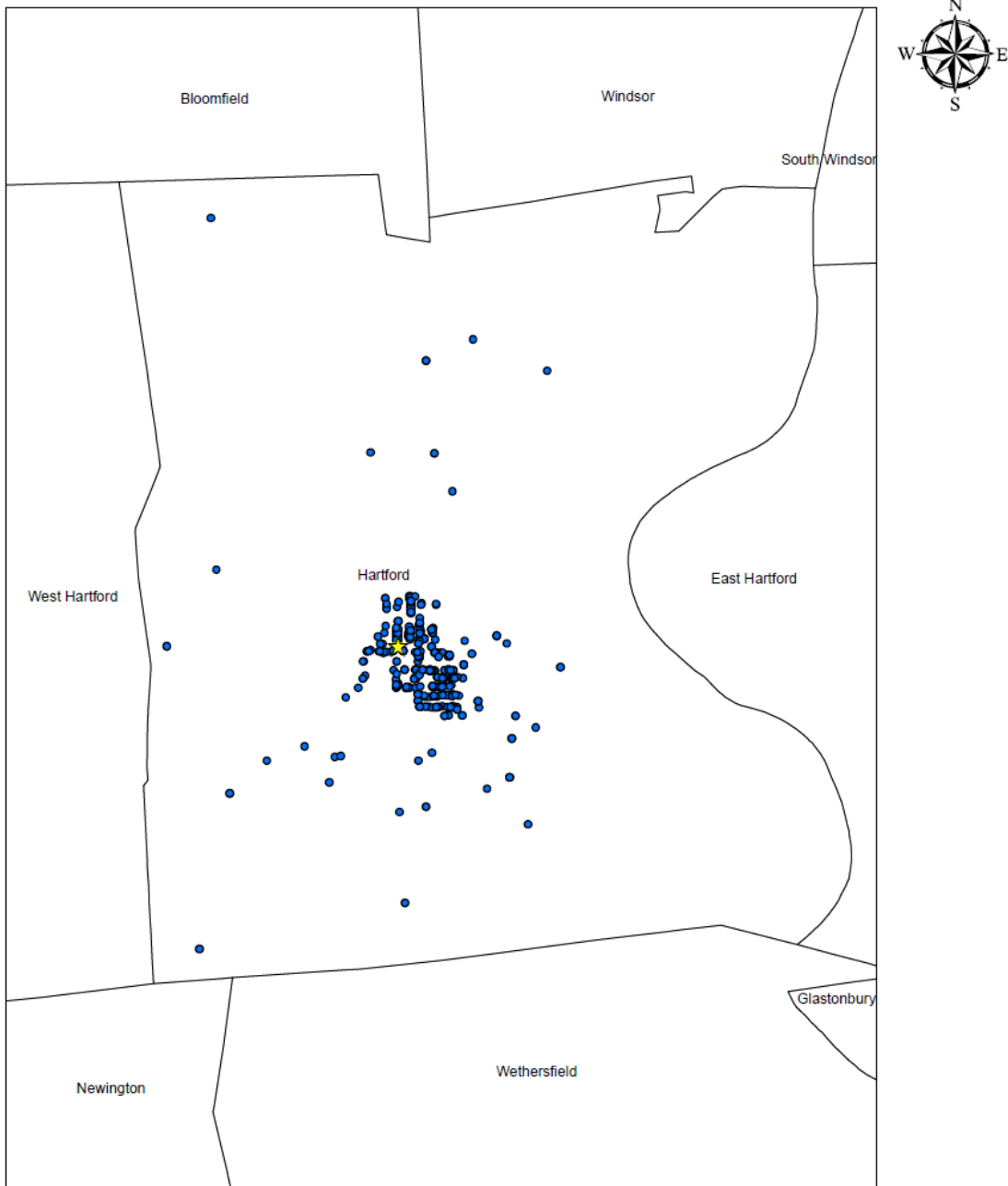★ Kinsella School Location

Kinsella Magnet School of the Arts Enrollment 2009-2010
SPED Population

Map by Brittany Price, November 2009
Data source: Regional School Choice Office
Based on 89% geocoded addresses

▲ SPED Kinsella Students
★ Kinsella School Location

Sanchez Elementary Enrollment 2009-2010

Sanchez Elementary Enrollment 2009-2010
ELL Population

Map by Brittany Price, November 2009
Data source: Regional School Choice Office
Based on 96% geocoded addresses

■ ELL Sanchez Students
★ Sanchez School Location

Sanchez Elementary Enrollment 2009-2010
SPED Population

Map by Brittany Price, November 2009
Data source: Regional School Choice Office
Based on 96% geocoded addresses

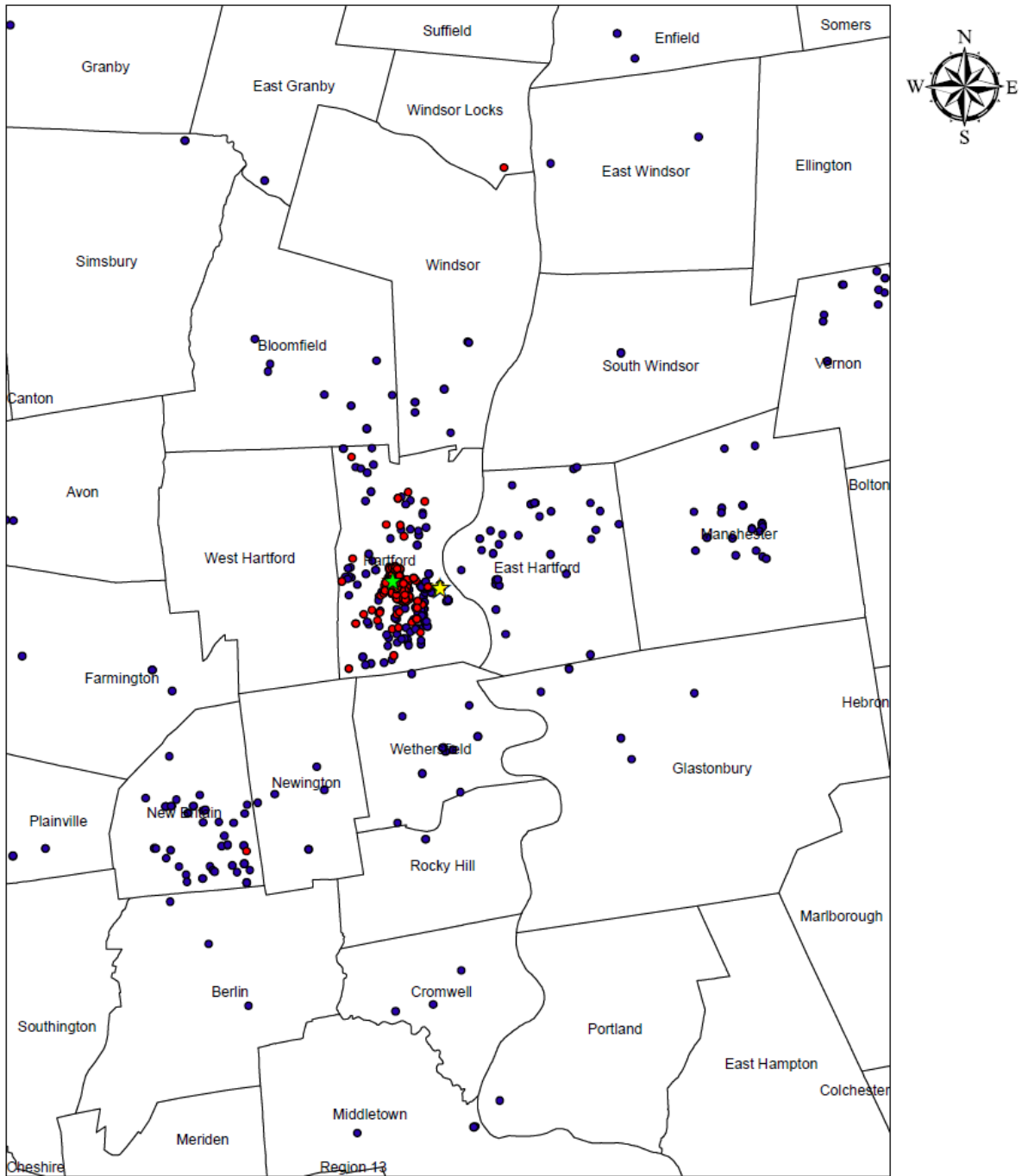▲ SPED Sanchez Students
★ Sanchez School Location

Sanchez Elementary and Kinsella Magnet Enrollment 2009-2010

Map by Brittany Price, November 2009
Data source: Regional School Choice Office
Based on 89% geocoded addresses for Kinsella
Based on 96% geocoded addresses for Sanchez

- Sanchez Students
- Kinsella Students
- Sanchez School Location
- Kinsella School Location

<u>Data: Interviews</u>

<u>Opinions on the Current State of Education in Hartford</u>

Personal Significance

While all of the interviewees are designated as "change agents", it is important to understand the initial goals and approaches that led these change agents to be where they are today.   The main reasons that these change agents began their work in Hartford were because of gang violence, cleaning up after past political decisions, increasing awareness of different educational opportunities, lowering the reliance on a test score driven culture, solving problems instead of debating over them, and overall educational equality. These differences will be important later in the analysis as each change agent has different approaches to viewing the population maps.

Systemic Failure

All of the interviewees mentioned the larger system of education whether in Hartford or around the nation as a problem that needs to be overcome. The "Parent Advocate" argued that since the lottery system was created for the magnet schools, the presence of choice was lost. Many families that are trying to exercise their "choice" have been on the waiting list for years: "If you've been on the waiting list for five years and have been trying to get into one of these schools for five years…you're angry. You're bitter and you have every right to be. You see all of the opportunities for your kid and you can't get to them" ("Desegregation Advocate").

The "School Board Member" is watching the "choice" system swallow students up and spit them back out. The system does not work for all when only some students get what they want and the others do not.

"They're deciding it but at the end of the day this isn't like a…how would you say, it's not like a good necessarily like people rush to get their PS3 on Christmas day and there are only so many left. When people go home and they say 'Aw man I didn't get a PS3, maybe I can wait till next time.' People are rushing to get into some of the schools and there are some schools that nobody really wants to go to but you still have to fill them up. They've gotta go somewhere and I think that's kind of the unintended, or maybe the intended consequence of choice. It's like, now what? For the kids who, you chose and you didn't get your choice or you chose and it didn't work out…you're with the leftovers. And they're hurt. Sadly, I've heard one parent say 'This is the dumping ground'" ("School Board Member").

By relating the rush for school choice to the rush for a Play Station 3 (PS3), the "School Board Member" tells just how much pressure there is for parents in choosing schools. If parents are not pro-active about their ability to choose, they will leave their students with nothing more than a "dumping ground"—a school for the students that are forgotten and thrown out ("School Board Member").

The "Parent Advocate" claimed that the systemic failures have come from the inconsistency of the superintendents. The "Parent Advocate" argued that since superintendents are cycled out so quickly and each one comes with a new attitude and solution, a lot of time is wasted and no long-term solutions are sustained. "Probably each of them did have a part of the answer and then the next one comes in and wipes all of that out and he [or she] does something else" ("Parent Advocate"). Similarly, the "School Board Member" argues that the city-wide educational budgets have not been very transparent. This has lead to frustration because no one knows exactly where the money is going.

Another factor that the "Parent Advocate" discussed is the influx of immigrants that require a lot of extra educational services. Whether the students need to learn English and/or are very poor, the extra required time and services put both the students and the schools in a "lose/lose" situation.

An issue that came up multiple times is the focus on standardized tests and the implications of this focus in terms of the students' well-being. "I have great concerns about the emphasis on test scores and whether we are creating people that are following the rules and do as they are told and are able to check A, B, or C" ("Desegregation Advocate"). The "Desegregation Advocate" brings up a very interesting point about the hidden curriculum within standardized tests. By being trained to know the answers to questions deemed important by someone else, students do not learn to challenge the system and think for themselves.

Desegregation Efforts

The interviewees disagreed on their views of the necessity of desegregation inside the classroom. The "Parent Advocate" disagreed with desegregation efforts brought on by Sheff v. O'Neill, asking "You really need that little white child next to the black child next to the Hispanic child to get anywhere? I think that has been proven wrong but that's what the case states." On the contrary, the "Desegregation Advocate" argued that desegregating the schools in Hartford is essential for a well-rounded education.

> "I think it's about socialization…I think it's about teaching you about what society looks like, how to navigate society, and I don't think in either a school that has a majority of colored children or a school that has a majority of white children that that's going to be a good example of the world they are going to enter" ("Desegregation Advocate").

The "Desegregation Advocate" makes an interesting argument that diversity in the classroom is necessary to understand and compete in the world. Perhaps this embrace of racial diversity is a progressive way to help students cooperate and learn from each other? However, as seen from above, the "Parent Advocate" does not think it's necessary to create educational growth.

Magnet School Opinions

When asked about their opinions on the magnet schools, all of the interviewees agreed that the opportunities offered vary greatly from those in the neighborhood schools. One of the very large benefits of magnet schools for many parents is the feeling of a safe education. The "Parent Advocate" pointed out that parents want their children close and a magnet school is a great way to keep their kids in Hartford but have a safer community. A word that continued to resurface within the comments about magnet schools is the idea of "community."

When the "Desegregation Advocate" was pressed as to why magnet schools often deliver a better education, the interviewee responded that the expectations and quality expected from the students were different. For example, at Breakthrough Elementary, the students eat lunch together every day in the classroom. They set out the ceramic dishes, real silverware, and linen napkins and eat together. They then clear the table and put the dishes in the dishwasher (note: they have a dishwasher in the classroom) and put the linens in the laundry hamper.

> "And I think it's an interesting distinction, you know everyone likes to point out that it's real silverware and it's real…it's not disposable…and maybe that's sort of a poetic way of looking at it but it's trusting the kids with breakable plates and having them have the responsibility of setting the table, clearing the table, doing the laundry for the linens. Again, I think that goes a little bit to expectations about what we think these kids deserve and what we think they're capable of" ("Desegregation Advocate").

By using real materials for the daily community lunch, the "Desegregation Advocate" tries to explain that magnet schools like Breakthrough trust their students more.

A very controversial aspect to the magnet schools is the themes that are tacked onto the individual schools. While the "Desegregation Advocate" argued that themes get students excited to learn because they are focused on an area of learning that is engaging for them, the "Parent Advocate" maintained that the idea of themes is confusing to parents. The "Parent Advocate"

claims that parents can get confused very easily because they assume a themed school will not give students a well-rounded education. Also, if a student is picked for the lottery for a school that was not their first choice, the student may not thrive because the theme will not be of interest to him or her.

The "Parent Advocate" was quick to point out that a magnet school wants certain percentages of races, socio-economic backgrounds, and overall diversity but is sometimes unable to achieve that mix because of the lottery system. Further, this means that magnet schools are not always desegregated like the intended purpose.

The interviewees claimed that the people that will often stick by the magnet schools the most are the parents of children that attended magnet schools. Whether it is because they exercised their ability to choose, they believe in the benefits of integration or in the idea of themed schools, parents of magnet school children will often be its largest advocates.

Data: Interviews

Opinions on the Distribution Maps

Kinsella Magnet School for the Arts Populations

When looking at the maps, opinions and explanations for the Kinsella general population were varied. The "Parent Advocate" speculated that a lot of the students that are coming from suburbs that are further away from Hartford are doing so because their parents work within the city. The "Desegregation Advocate" assumed that the students from further away would attend this school in Hartford because the magnet theme is of interest to them and no other school like it is offered around their town.

The "School Board Member" pointed out that Kinsella is pulling a lot of students from a few towns—New Britain, East Hartford and Manchester. Further, the "School Board Member"

pointed out that "New Britain is probably half minority at this point, East Hartford is about half minority and Manchester I know for a fact is already more than half minority students." The "Desegregation Advocate" said that the Kinsella population distribution map was convincing that more work needs to be done in outreach and marketing for this school. There were a lot of students coming from a few towns instead of a larger dispersion throughout the Hartford suburbs.

After looking at the Special Education and English Language Learners maps, all interviewees agreed that the vast majority of these populations are found in Hartford. Interviewee #3 pointed out that this may be because lower class, minorities (especially males) are more often diagnosed as a Special Education student.

It is interesting to notice what each stakeholder identified when looking at the Kinsella maps. For example, the "Parent Advocate" argued that commuting parents must be a reason for such a large number of suburban students within Kinsella. The "School Board Member" pointed out the racial compositions of the suburban towns that send the most students. Finally, the "Desegregation Advocate" discussed the attraction of the magnet school theme as the reason for the attendance distribution and that stronger outreach is necessary to create a more even distribution.

Sanchez Elementary Populations

While it was obvious to all that Sanchez was a neighborhood school, all interviewees were surprised that a fair amount of students came from a further distance than just the surrounding neighborhood. The "Parent Advocate" pointed to the dot on the map in northern Hartford and argued that a school like Simpson Waverly or Batchelder would be much closer for the student. Then the "Parent Advocate" speculated that the family may have lived in the

neighborhood near Sanchez and then moved to northern Hartford but wanted to maintain the continuity of attending the same school. In addition, the "Parent Advocate" acknowledged that perhaps the family was Hispanic and that since there is a large population of African Americans in northern Hartford, the family decided to send their child to Sanchez, a school with a much larger Hispanic population.

The "Parent Advocate" argued that there is a reason that Sanchez is mostly a neighborhood school—because there is no hook or theme to attract people outside of the neighborhood. It is also not encouraging for outsiders to the area because that neighborhood is mostly poor. The "Parent Advocate" went so far as to say "I mean truthfully I don't know why a parent other than in the neighborhood would choose Sanchez." Apparently, there is little distinctive value to Sanchez other than its close proximity to most students' homes.

Similar to the reaction to the Kinsella population, the "Parent Advocate" saw the distribution of a sign of family dynamics. By throwing out ideas that the family moved to another part of Hartford or that the parents were concerned for the minimal Hispanic neighborhood in north Hartford show a distinct perspective which is different from the other two change agents. The other two change agents agreed that the population made sense for the neighborhood school and were even surprised that some students were coming from as far away as they are. This map perhaps changed the perceptions of the change agents in regards to the travel distance of some of the students. The map possibly challenged their assumptions that students do not travel far to a neighborhood school like Sanchez. Therefore, these maps could have great value in changing stereotypes about population distributions.

Observations on Maps

  While there were many interesting comments made about the maps, some began to appear in more than one interview. Both the "Parent Advocate" and the "School Board Member" pointed out that while it was relevant to see the towns that are sending students to the specific schools, it can be just as interesting to see which towns are not participating as frequently. Within my maps, the two interviewees pointed to West Hartford as not sending any students to Kinsella or Sanchez.

  When looking at Kinsella and Sanchez populations on the same map, the "School Board Member" pointed out that "Interestingly, it looks like here, in this spot here it seems like folks that would probably be able to go to Sanchez if they'd wanted to but have chosen not to. Instead chose to go to Kinsella. I mean they are relatively in the same neighborhood right around here." The "School Board Member" pointed to the cluster of students that lived near Sanchez by currently attend Kinsella magnet. The "School Board Member" showed me that when given the opportunity and choice, many of these students would rather attend a magnet school than a neighborhood school right in their backyard.

  The "Desegregation Advocate" asked a very interesting question after seeing the ELL population map (red dots) and the SPED population map (green dots)—"How many of the green are also red?" While that question could be answered by looking at the individual data points within the original Excel file, there is no way of knowing that by looking at the maps that I've created. This showed that wheels were turning inside the interviewee's head and that these two populations were not necessarily mutually exclusive. Further, this question demonstrates to me that map makers cannot only help shape the ideas of change agents, but change agents can also help map makers create stronger, more-telling maps.

One of the most interesting aspects of showing the maps to the change agents was their ability to successfully predict what the population distributions would look like after seeing only a couple of maps. For example, after showing the "Desegregation Advocate" the ELL population of Kinsella, the interviewee quickly predicted that the majority of SPED students would come from Hartford, just as the interviewee had seen in the previous map of ELL students.

While the "Parent Advocate" said that these maps were an eye opener, the "Desegregation Advocate" said that these school population distributions were of no surprise or shock. Both the "Desegregation Advocate" and the "School Board Member" found that a great way to use the maps would be for school advertising while the "Parent Advocate" said that the schools now know where (in what towns) to focus their attention for furthering Choice programs and recruitment for magnet schools.

The "School Board Member" argued that by looking at these maps, it appears that people are taking advantage of their ability to choose—the magnet schools are attracting students from Hartford and the suburbs while the neighborhood schools are catering to students from around the school's neighborhood. However, the "School Board Member" pointed out that although choice is present in these maps, that is not always a good thing: "When you give people choices, I'm not going to say there's always going to be but their tends to be the more desirable schools and I guess the partner of that is that there are less desirable schools" ("School Board Member"). What happens to the students left in those schools because their parents are not aware of the options or they did not "win the lottery" for a magnet school?

When asked if these maps could be beneficial, the "Desegregation Advocate" was quick to identify that these maps could be used for malicious purposes. "They can exacerbate the

problem as much as they could help it" ("Desegregation Advocate"). Although the "Desegregation Advocate" initially said that the maps could be helpful, the interviewee went on to say that they could be used to point fingers which might not help solve anything within the current system. This was an eye-opener for me because I had not thought of who might not like what is portrayed in these maps. Information is very political and can be used toward diverse purposes. It's not neutral. Who makes it and who uses it definitely matters.

Recommended Viewers of the Maps

As I said before, through the analysis of the change agent interviews it can be clearly seen that three change agents can see the same distribution maps differently, depending on their stakeholder position within Hartford education; further, the maps allow change agents to see whether school reform in Hartford is working and suggest what changes should be made, whether administrative, desegregation or choice driven, to approach a solution to current educational segregation.

As a final question, I asked the change agents to identify who or what organizations would benefit from seeing these distribution maps to continue a critical dialogue about educational desegregation. Among the recommended viewers are the Board of Education, Capitol Region Education Council (CREC), the Education Committee on the City Council (specifically Jim Boucher), parents, principals, school advertising/marketing agencies in Hartford and anyone who uses the SmartChoices website.

The SmartChoices website was created by Trinity's Cities, Suburbs, and Schools Project and ConnCAN to help Hartford and suburban parents select public schools for their children. It not only shows a Google map of the resident's location in relation to the schools that child can attend, but also the racial balance, percent at test goal, percent achievement gain, and links to

obtain further information about registration for the specific schools. While the "School Board

Member" thought it was a good idea to have the enrollment maps placed as an available PDF on

the website, the "Desegregation Advocate" cautioned that although it would be great, it may not

be the best way to reach all parents.

> "There's certainly a disproportionate access to computers and Internet as far as Hartford
> parents and urban parents in general…I would get them physically in the hands of
> parents. It's a different group of people I think—the people that can easily readily access
> it—that even know about the SmartChoices website" ("Desegregation Advocate").

By distributing the maps in a hands-on way, the "Desegregation Advocate" argues that a larger

audience can be reached than strictly those that have Internet capabilities—more often those in

the suburbs than those in Hartford. It is important to reach a broader audience because then a

better discussion can occur that includes all people involved in education—parents,

administrators, principles, teachers, and even students. If every person in Hartford has access to

these maps, the visual distribution of students at each school will no longer be a mystery and we

can start working on a more viable solution to Hartford segregation.

Future Questions and Studies

The "Parent Advocate" pointed out that where a parent works can be relevant for where

the child might attend school:

> "Do you know…if these kids that come from like Middletown and way out here in
> Simsbury, do they all work in Hartford?...Cause that would be a convenient thing for
> them to be able to run and pick up their child. If school is done at 3:15 and I know that
> Kinsella has some after-school programs that they run themselves as a school, it's easier
> for you to be able to get there faster at 5:30 than to go way back to Simsbury and get
> them" ("Parent Advocate").

Although I am unable to determine the locations of where suburban parents work, it would be a

wonderful future research question.

The "Parent Advocate" also was curious about the diversity in income level and ethnicity within the Kinsella Magnet. Although these variables are not plotted on current maps, they would be simple to create after obtaining the proper data.

The "School Board Member" mentioned that a map showing Title I free and reduced lunch would be interesting to see because the interviewee is curious as to whether students with free and reduced lunch are sticking to their neighborhood school, branching out to attend magnet schools or using the Choice program.

The "Desegregation Advocate" really wanted to see the population maps with an overlay of the city street map to determine exactly what neighborhoods these students were coming from. I explained that those sorts of maps can easily be created; however, due to confidentiality, individual streets could not be revealed to the public.

Conclusion

Within all of the interviews that I completed, all were asking to see more maps than the ones I had shown them. They were all eager to see the mapped distributions of the schools that they had interacted with the most. They all asked insightful questions—some that I could not answer—and were excited to see where these maps would end up. Whose hands will they land in? What will they be used for?

It was clear, however, that the three change agents approached the maps in different ways. The "Parent Advocate" was concerned about whether desegregation is really the choice for student success and whether students attend certain schools based on the commute of their parent(s). In contrast, the "Desegregation Advocate" pushed more responses about how this map would help with desegregation efforts and how it is the best option because it is a more realistic education. Finally, the "School Board Member" was concerned about the racial and socio-

economic makeup of the magnet schools and what happens to the neighborhood schools as magnet schools are now the first preference for many parents. The change agents identified different variables to point out within the distribution maps. This is important because this means that the maps should go to many types of people to actually get the most useful information out of them. If I limit who I send these maps to (i.e. only parents or policy makers), the viewpoints may be skewed. To ensure that all sides of desegregation politics are seen, these maps should be shown to many diverse change agents.

All of the interviewees wanted to see the final products of this research paper and the maps. They also all had opinions about who should see them and why. The "Parent Advocate" wanted parents and Hartford Board Members to see the data while the "School Board Member" wanted the Capitol Regional Education Council (CREC) that implements the ideas for choice programs in Hartford. On the other hand, the "Desegregation Advocate" was very skeptical about who would get their hands on the maps because that person or organization might "point fingers" at someone within the system and cause an uproar.

This excitement and enthusiasm shows that maps like these can play a controversial role in the discussion about desegregation in Hartford. Whether I place the maps in the hands of Board members, the Superintendent, principals, or the parents that have a choice, these maps and others can potentially help tackle or damage the issue of desegregation in Hartford. Since Hartford is not the only city with major segregation and unequal education, it's clear that these distribution maps and the opinions of change agents could be effective in creating controversy and disagreement where ever they go.

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