Analysis of Enrollment Zones’ Impact on Diversity

November 2016
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  - Benefits of an enrollment zone
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Theory of Action for DPS Enrollment Practices:
How enrollment operated in 2010

Most Engaged Families

Different applications / due dates → Entrance Exams / Auditions → Private Transportation → Ability to participate 7 months in advance → Default into the district-run boundary school

Unable to solve for any 1 of the 4 obstacles

Hardest to Engage Families

Most Engaged Families

Unified Enrollment → 99% of schools open to all → Regional Zone Transportation → Required choice / no defaults → Reserved seats for new move-in’s

Hardest to Engage Families
### What are the potential benefits of an enrollment zone?

<table>
<thead>
<tr>
<th><strong>Equity of Access</strong></th>
<th>Remove the barriers of accessing a wider set of schools, including high performing schools, by creating zones instead of traditional boundaries</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Integration</strong></td>
<td>Due to the housing patterns in Denver, boundaries that are drawn with smaller circles tend to lead to segregated schools. Drawing larger circles that encompass several neighborhoods increases the opportunities for diverse schools.</td>
</tr>
<tr>
<td><strong>Priority Access</strong></td>
<td>Families residing in a traditional boundary only have priority access into that one school. In a zone, families have priority into a set of schools.</td>
</tr>
<tr>
<td><strong>Activating Research</strong></td>
<td>Eliminating default options urges families to research schools that are the best fit for their student: program type, geography, size, etc. This can lead to students enrolling a program that is better for their success rather than defaulting into an option that may not be a match for their learning style.</td>
</tr>
<tr>
<td><strong>Serving Enrollment Changes</strong></td>
<td>Having a set of schools in an area helps smooth demand, both in growing neighborhoods by not having to change boundaries to serve growth, as well as in declining neighborhoods by implementing a zone to serve the geographic area of a closed school.</td>
</tr>
</tbody>
</table>
Context Setting: Level of Racial Diversity within Zones
Percentage of non-white students residing in each zone

Analysis Approach

This segregation analysis will look at the level of integration in the schools within each zone are, both before and after the creation of each zone.

This analysis looks at the populations attending schools within the zone, but not at the level of segregation the zone as a whole has against other parts of Denver.
Introduction to Segregation Index

- Introduced by Helen Ladd in 2008, and subsequently used by a variety of groups, including Brookings Institution and Colorado Children’s Campaign
- Calculation that measures segregation in terms of unevenness in racial enrollment patterns
- Can also be extended to economic and academic differences
- The Index is based on the exposure of students with one set of characteristics to students who do not share that characteristic

Example

Gotham City District #1 is 40% white and 60% non-white

- In a perfectly balanced scenario, the average white student would be exposed to 60% non-white students.
- The “segregation index” measures the difference between the ideal non-white exposure and the actual average non-white exposure.
- Index of 0 → perfectly balanced and desegregated
- Index of 1 → completely segregated
Segregation Index, continued

Gotham City District #1 is 40% white and 60% non-white.
- In a balanced scenario, the average white student would be in school with 60% non-white students.
- In reality, all white students are in one school, where they are exposed to only 20% non-white students.

 exemplo

Point of Reference:
DPS-wide segregation index for FRL is .37; The next highest district in the state is St Vrain at .20
**DPS Sample: Greater Park Hill-Stapleton MS Zone**

**Implemented:** 2013

**Impetus:** Smiley closes due to low performance

**Hope:** To increase social and racial diversity by encompassing demographically different neighborhoods

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**2012 % Non-White**

- Smiley: 86%
- DSST MS: 97%
- Venture Prep MS: 60%
- Bill Roberts: 61%
- McAuliffe: 39%

Average: 68%

**2016 % Non-White**

- DSST Stapleton MS: 79%
- Denver Discovery: 47%
- DSST C Green MS: 83%
- McAuliffe: 37%
- Bill Roberts: 48%

Average: 56%

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- % Non-White: **68%**
- Average exposure of white students to Non-White Students: **57%**
- Segregation Index: **.16**

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**Analysis:** The non-white percentage fell over time. This was to be expected as the majority-white Stapleton development was built out. To see whether the remaining non-white students were more evenly distributed, we look to the segregation index. Since it remained steady at .16, we know that the enrollment zone did not reduce segregation, but it may have prevented further segregation from happening as Stapleton developed.
**Greater Park Hill-Stapleton MS Zone**

**Implemented:** 2013  
**Impetus:** Smiley closes due to low performance  
**Hope:** To increase social and racial diversity by encompassing demographically different neighborhoods

### 2012 % Free and Reduced Lunch
- Smiley: 82%  
- DSST MS: 47%  
- Venture Prep MS: 96%  
- Bill Roberts: 44%  
- McAuliffe: 22%

**Average:** 58%

### 2016 % Free and Reduced Lunch
- DSST Stapleton MS: 58%  
- Denver Discovery: 28%  
- DSST C Green MS: 56%  
- McAuliffe: 18%  
- Bill Roberts: 38%

**Average:** 36%

- % Free and Reduced Lunch: 58%  
- Average exposure of non-FRL students to FRL Students: 43%  
- Segregation Index: .26

### Analysis:
The FRL percentage fell over time. This was to be expected as the affluent Stapleton development was built out. To see whether the remaining FRL students were more evenly distributed, we look to the segregation index. Since it fell from .26 to .13, we know that the enrollment zone reduced socioeconomic segregation in this area.
SUMMARY AND ANALYSIS
## Segregation Indexes

<table>
<thead>
<tr>
<th>Zone</th>
<th>Before</th>
<th>After</th>
<th>Change</th>
<th>Before</th>
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<th>Change</th>
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<tr>
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<td>-</td>
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<tr>
<td>Greater Park Hill- Stapleton</td>
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<td>.26</td>
<td>.13</td>
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<td>.06</td>
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</tbody>
</table>

*all before data for direct certification come from the 13-14 school year
Summary of City-Wide Zone Findings

| Geography trumps schools | Despite drawing larger enrollment circles to capture more diverse neighborhoods, too many of the zones still encompass a homogenous population like in FNE MS, Lake MS, NNE MS, West MS, Southwest MS. All of these zones have 88% or more non-white students.

There are not many easy opportunities to try to better integrate across zones because of major geographic barriers between many of them, such as highways, industrial parks, etc. |

| Not Worse, but Not Really Better | Looking at the two primary segregation categories: race and income, schools before and after the creation of zones are roughly the same. |

| Reminder of the importance of Unified Enrollment & Zones | Two schools that stick out as examples of the importance of unified enrollment for integrating schools are KIPP Sunshine Peak 5-8 in SW Denver and DSST GVR. KIPP remains an outlier of serving direct certified students in SW Denver (18% vs. 40% at Kepner) while DSST GVR served a 60% FRL population in FNE Denver vs. an 85% FRL rate in the region. |
Zone Analysis: Greater Park Hill Stapleton

**Implemented:** 2013

**Impetus:** Smiley closes due to low performance

**Hope:** To increase social and racial diversity by encompassing demographically different neighborhoods

<table>
<thead>
<tr>
<th>Zone</th>
<th>Racial Segregation</th>
<th>FRL segregation</th>
<th>DC segregation</th>
<th>GT Segregation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Greater Park Hill- Stapleton</td>
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<td>After 0.16</td>
<td>Before 0.26</td>
<td>After 0.13</td>
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<tr>
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<td>Change 0.15</td>
<td>Change 0.09</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>After 0.03</td>
<td>After 0.02</td>
</tr>
</tbody>
</table>

**Analysis:**

- The zone has become whiter and more affluent as a result of the growth in the Stapleton share of the zone. Overall FRL rates dropped, but the segregation dropped as well. Specifically, whereas Smiley and Venture Prep MS did not resemble the Park Hill student population, McAuliffe and the Stapleton programs have reduced choice-out rates from 81% in 2011 to 17% in 2016.

- Zone match rates were 100% in 2016 for students getting their first choice.

- Of all the zones, the GPHS zone has been the most intentionally designed to create integration and has been the most successful at accomplishing it. Formerly segregated schools like Smiley and Venture Prep have been replaced by schools that are much less segregated on multiple indicators.
Zone Analysis: NNE MS Zone

**Implemented:** 2016

**Impetus:** Pioneer closed, McAuliffe 2 opened

**Hope:** To increase equity of access in a highly mobile, low choice participation area.

<table>
<thead>
<tr>
<th>Zone</th>
<th>Racial Segregation</th>
<th>FRL segregation</th>
<th>DC segregation</th>
<th>GT Segregation</th>
</tr>
</thead>
<tbody>
<tr>
<td>NNE MS</td>
<td>Before .03 After .14 Change .14</td>
<td>Before .03 After .10 Change .07</td>
<td>Before* .06 After .03 Change .04</td>
<td>Before .04 After .05 Change</td>
</tr>
</tbody>
</table>

**Analysis:**

- With the zone in its first year and with McAuliffe-Manual not yet physically located in the zone (temporarily at Smiley in Park Hill versus its permanent home of Manual), all data should be used with caution. Further, McAuliffe only has 6th grade this year.

- Those cautions in mind, there is a risk that segregation may continue if white families are disproportionately attracted to McAuliffe over other options. McAuliffe at Manual is 30% white, while DSST Cole is only 3% white, Bruce Randolph 2% white, Whittier and Wyatt are both 0% white in 6th grade this year.

- Note that the reside MS zone population is 9% white, so the ability to integrate schools is very limited due to housing patterns within this area.
Zone Analysis: NW MS Zone

<table>
<thead>
<tr>
<th>Implemented:</th>
<th>Impetus:</th>
<th>Hope:</th>
</tr>
</thead>
<tbody>
<tr>
<td>2015</td>
<td>Trevista MS closed</td>
<td>Create more integration between high-FRL Trevista boundary and lower-FRL Skinner boundary</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Zone</th>
<th>Racial Segregation</th>
<th>FRL Segregation</th>
<th>DC Segregation</th>
<th>GT Segregation</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Before</td>
<td>After</td>
<td>Change</td>
<td>Before</td>
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<tr>
<td>NW</td>
<td>.11</td>
<td>.12</td>
<td>.09</td>
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</tr>
</tbody>
</table>

Analysis:

- Looking at the demographics of who lives in the zone, there is an opportunity for racial integration, since 64% of students are Hispanic and 30% are white. However, of the 98 white students in 6th grade residing in this zone, 54 attend Skinner, while the remaining 44 choiced-out of the zone. Not a single white zone student attends Strive or Bryant Webster.

- FRL segregation is increasing as a result of more non-FRL families attending Skinner (56% in 6th grade) than in years past. Strive Sunnyside FRL is 92% and Bryant Webster’s is 91%.

- The percentage of direct certified students is more equitably distributed, likely driven by the closing of Trevista’s middle school, which was serving a disproportionate share of the most economically disadvantaged students.
**Zone Analysis: Lake MS Zone**

<table>
<thead>
<tr>
<th>Implemented: 2015</th>
<th>Impetus: Trevista MS closed</th>
<th>Hope: Create more integration between high-FRL Trevista boundary and lower-FRL Skinner boundary</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Zone</th>
<th>Racial Segregation</th>
<th>FRL segregation</th>
<th>DC segregation</th>
<th>GT Segregation</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Before</td>
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<tr>
<td>Lake MS Zone</td>
<td>0</td>
<td>0</td>
<td>0</td>
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</tbody>
</table>

**Analysis:**

- The Lake MS Zone is actually the least segregated zone in the city using this methodology. However, that is primarily because the residents of the zone are homogenously Hispanic (79%). Therefore, this methodology merely points out that the homogenous population is evenly served at Strive and Lake IB.

- Only 7% of MS students residing in the Lake MS zone are white. 66% of these students then choice-out of the zone for MS, mostly to Skinner and DCIS. Of the 20 white students who stay in the zone, 15 attend Lake IB, 5 attend Strive Lake.

- If the Lake and NW zones were combined, the % of white students would be 17% and Hispanic 72%, meaning that there is little upside in terms of integration if the zones were merged, because most of the white students are already attending Skinner anyway.
Zone Analysis: FNE MS Zone

<table>
<thead>
<tr>
<th>Implemented:</th>
<th>Impetus: Phase-out Noel MS / Montbello HS</th>
<th>Hope: Create equity of access and serve large population among a set of smaller schools</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Zone</th>
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<td></td>
<td>Before</td>
<td>After</td>
<td>Change</td>
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<tr>
<td>FNE MS Zone</td>
<td>.03</td>
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</tbody>
</table>

Analysis:

- The FNE MS Zone reside population is 65% Hispanic, 23% Black, and 5% white. Within the zone, the racial segregation index is very low, and has seen minor improvements versus 2011. Schools generally reflect the overall region population.

- For FRL, segregation has dropped, which is primarily driven by the shift to unified enrollment since 2011, not due to the zone. In 2011, DSST GVR (60%) and Blair (62%) served a much lower proportion of FRL students than the rest of the region. But SchoolChoice + the zone has made the schools more balanced socio-economically. In 2016, the overall FRL rate of the zone is 85%.
Zone Analysis: West MS Zone

Implemented: 2015

Impetus: Phase-out of Kepner

Hope: Create equity of access and serve large population among a set of smaller schools

<table>
<thead>
<tr>
<th>Zone</th>
<th>Racial Segregation</th>
<th>FRL segregation</th>
<th>DC segregation</th>
<th>GT Segregation</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Before</td>
<td>After</td>
<td>Change</td>
<td>Before</td>
</tr>
<tr>
<td>West</td>
<td>.01</td>
<td>0</td>
<td>.01</td>
<td>.03</td>
</tr>
</tbody>
</table>

Analysis:

- The West MS Zone population is 98% non-white, majority of whom are Hispanic. Therefore, it is difficult to have segregated schools within the zone due to a homogenous population.

- For FRL, the zone is 88% FRL, which again makes it more difficult to have segregation within the schools.

- An additional point for this zone is looking at the large segregation in GT population between schools. Specifically, the percentage of GT students attending DSST (27%), KIPP (20%), and Strive (20%), versus Kepner (8%) and West Early College (8%). This is perhaps the most striking example of “self-segregation by rigor” in the city. Even with leveling the playing field for families and not having any race/ethnicity patterns, incoming proficiency gaps may persist because of how families are selecting programs that may meet their child’s learning styles.
Zone Analysis: Southwest MS Zone

**Implemented:** 2015

**Impetus:** Phase-out of Henry MS

**Hope:** Create equity of access and serve large population among a set of smaller schools

<table>
<thead>
<tr>
<th>Zone</th>
<th>Racial Segregation</th>
<th>FRL Segregation</th>
<th>DC Segregation</th>
<th>GT Segregation</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Before</td>
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<td>Change</td>
<td>Before</td>
</tr>
<tr>
<td>SW</td>
<td>0</td>
<td>.04</td>
<td>.01</td>
<td>.01</td>
</tr>
</tbody>
</table>

**Analysis:**

- The Southwest MS Zone population is 91% non-white, majority of whom are Hispanic. 2016 is the first year with DSST Henry and Bear Valley open, so all data here should be taken cautiously, because patterns can take time to develop.

- The school to watch closely is Bear Valley. They have 21% white students this year versus 15% at DSST Henry and only 1% at Strive Federal. On the one hand, this is the closest to an integrated school as there is in SW Denver. On the other, it risks segregating schools within the zone.
## Analysis and Next Steps

<table>
<thead>
<tr>
<th>What if?</th>
<th>Investigate the ability to create what if scenarios to determine what attendance patterns would be if we had not put in zones, knowing that areas of town are changing separate from the zones</th>
</tr>
</thead>
<tbody>
<tr>
<td>Other Factors</td>
<td>In addition to the demographic factors shown here, look at whether or not zones reduced schools’ dissimilarity based on academic factors like incoming proficiency</td>
</tr>
<tr>
<td>Choice-Out Behaviors</td>
<td>This analysis looks at students who attend schools within the zones, but another view should be assessed based on the disproportionality of students choosing out of each zone altogether</td>
</tr>
<tr>
<td>Incorporation into the Call for Quality School</td>
<td>Use this existing information to look at how new schools looking to open in DPS would increase or decrease segregation based on their location and targeted population</td>
</tr>
</tbody>
</table>
Appendix: What is Direct Certification (DC)?

- Direct Certificated students are those who qualify for free lunch without filling out an income verification form.

- Direct Certified Qualifiers
  - SNAP
  - Migrant
  - Homeless
  - Head Start
  - Foster

- Why it might be a good measure of student disadvantage:
  - Captures a more disadvantaged population than FRL, which has wide income bands that qualify.
  - For instance, a family of 4 could be considered FRL with an annual income of $44,955, while a direct certified family is most likely below the poverty line of $24,300.
  - Does not depend on paper forms and family participation.

- Why it still has challenges:
  - Misses undocumented children not eligible for SNAP.
  - End of year data (as shown here) may over-represent highly mobile populations since the data is not self-purging during the year.