

# **An Assessment of Enrollment and Choice in Denver Public Schools.**

**Prepared for The Denver Enrollment Study Group by  
The Institute for Innovation in Public School Choice.**

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## **Executive Summary**

In late 2009 the Denver Enrollment Study Group contracted The Institute for Innovation in Public School Choice to analyze Denver Public Schools (DPS) data and present our findings on enrollment and school choice.

DPS administrators put together a data set consisting of 78,958 students in grades Early Childhood (ECE) through grade 12, all of whom in the 2009-2010 school year either attended a DPS school including the magnet schools, or one of many charter Schools.

We find in **Part I – Overview of Enrollment and Choice in DPS** that there is great variation in the enrollment of students based on the socioeconomic status. 63% of students are in the free lunch bracket, but the range at elementary schools runs from 6% to 94%; and in middle schools runs from 10% to 92%.

There is also great variation in the proportion of out of boundary attendance at boundary schools (traditional neighborhood schools whose defined boundary governs enrollment priority). 33% of elementary boundary school attendance is students from out of the boundary and the range runs from 3% to 82%. Among middle school students 36% of attendance is out of boundary students and the range runs from 11% to 57%. Forty three percent of boundary high school attendance is out of boundary students and the range runs from 3% to 77%.

In **Part II – Round 1 Participation and Results** we find that overall Round 1 participation rates are low, and the main points of participation are kindergarten, grade 6, and grade 9. Thirteen percent of students moving into kindergarten participated, 6% of students moving into grade 6, and 10% of students moving into grade 9. Students in the paid socioeconomic bracket are more likely to participate in Round 1. The vast majority of participants in Round 1 are accepted to the schools they request. Eighty seven percent are accepted to their first choice in kindergarten, and 100% of applicants are accepted to their first choice in grades 6 and 9.

In **Part III – Round 2 Participation and Results** we find that participation rates are about the same as in Round 1, with 12% of incoming kindergarteners participating, 6% of students entering grade 6, and 8% of students entering grade 9. Students in the free and reduced lunch socioeconomic brackets are more likely to participate in Round 2. Acceptance rates in Round 2 are not as high as they are in Round 1. Fifty six percent of incoming Kindergarteners are accepted in Round 2, and 81% of applicants in both grade 6 and grade 9.

In what are perhaps the most important findings in this report, in **Part IV – Unexplained Students and in Part V - Early Childhood Education**, we find that the majority of students who attend boundary schools but who do not live in the boundary, do not acquire their seats at those schools via the published DPS choice processes. We find that the majority of out of boundary students acquire their seats instead through undocumented mechanisms that are controlled at the school level.

We assert that these undocumented mechanisms undermine the published Round 1 and Round 2 DPS choice processes, that there are no accountability systems that govern its function or results, and that it creates many inequities and inefficiencies in enrollment and choice.

**In Part IV – Unexplained Students** we find that there are 1,749 out of boundary kindergarteners who attend boundary schools, representing 29% of kindergarten boundary school attendance. Of these students, 396 are what we call unexplained – their attendance cannot be explained by any of the published DPS choice processes. They did not participate in Round 1 or 2, they did not participate in the NCLB transfer process or the administrative transfer process, and there is no known mechanism through which they acquired their seat. These 396 students represent 23% of out of boundary kindergarten enrollment. There are 512 unexplained students in grade 6, representing 34% of out of boundary enrollment, and 642 unexplained students in grade 9 representing 34% of out of boundary enrollment.

This raises equity, efficiency, and accountability issues. Unexplained students usurp out of boundary capacity from the published DPS choice processes. There are 79 students who were waitlisted in Round 1 at schools that enroll unexplained students – 9% of the Round 1 kindergarten applicant pool.

Examining demographics, unexplained students are more likely to be white and more likely to be in the paid lunch socioeconomic bracket. As these students are hand selected at the school level, these findings are particularly disconcerting.

**In Part V – Early Childhood Education** we find that there is no assignment mechanism for enrolling ECE students – principals simply pick from a list they are given, and they can write in the names of other students. Although the overall numbers are not different from the whole of DPS, there are some schools at which ECE enrollment raises flags around socioeconomics and race.

Once a family secures an ECE seat at a school, current policy virtually guarantees them the right to remain at that school for kindergarten and throughout elementary school. There were 957 students (36%) enrolled in 2008 in ECE programs at schools that are not their boundary schools. Of these students, 735 stayed for kindergarten in 2009 – that is 42% of total kindergarten out of boundary enrollment at boundary schools.

When considering unexplained students and ECE students together, 60% of total out of boundary capacity at boundary schools is used by students who are hand selected.

**In Part VI – Round 1 Assignment Mechanism Flaws** we find that the DPS Round 1 student assignment mechanism is flawed in that it provides only one real choice for students. Only 75 students (8%) of the 915 kindergarten participants made a second choice. This occurs because the assignment algorithm prioritizes students at their first choice schools simply for selecting those schools as a first choice.

There are incentives to misrepresent choices and the overall effect is an “un-level playing field.” The families that understand the assignment mechanism can (and most likely do) use strategies to improve their chances of success, while those who do not understand the mechanism are “wasting” choices.

Furthermore, the DPS Round 1 assignment algorithm has an unwanted and inequitable property – it requires people to behave differently depending on whether or not they are satisfied with their home school. Those who are willing to attend their home school can take risks and apply to popular schools in Round 1, while those who are unsatisfied with their home school must be careful about listing popular schools. If those who are unsatisfied with their home schools are not accepted to their Round 1 choices, they will be forced to attend their boundary school. These families should consider listing less popular schools as choices (misrepresenting choices) simply to make sure that they are accepted somewhere, and that is precisely the wrong set of incentives one would want – DPS needs a strategy-proof and equitable assignment algorithm.

Finally in **Part VII – Recommendations for Enrollment and Choice Reform**, we recommend several ideas and operations that taken together, we believe would bring equity, efficiency, and accountability to the DPS enrollment and choice process. These include:

- Create a “universal application” that allows parents to list DPS schools, including magnet schools, and charter schools on one single application.
- Centralize enrollment and choice operations.
- Implement a strategy-proof student assignment algorithm.
- Change the way the ECE process interacts with kindergarten choice, or assign ECE students using the same strategy-proof algorithm that all other students go through when they participate in choice.

### **The Data Set and Our Methods.**

DPS most graciously provided us with a large data set that includes demographic, enrollment, and choice data for more than 78,000 students. We worked with DPS to ensure that our interpretations were correct and summarized the data and in order to arrive at our findings.

There are two issues regarding data that should be pointed out. The data set includes all 2009 students, and follows them backwards for two years in school years 2008-2009 and 2007-2008. There are students who are not included in our data set - the students who attended DPS schools in either the 2007-2008 or the 2008-2009 school year, but did not attend a DPS school or one of the many charter schools in the 2009 school year.

Secondly, for the students attending charter or magnet schools, our data set includes information about their participation in Round 1 or Round 2 of the DPS choice process. The data set does not, however, capture information on whether or not students applied for charter or magnet schools unless the student was accepted to and enrolled in that charter or magnet school. In this way, our analysis is limited to choice data as it pertains to the schools whose capacity is made available in Rounds 1 and 2 of the DPS choice process.

## **Part I – Overview of Enrollment and Choice in DPS**

### **A. Demographic Overview of DPS.**

DPS has an enrollment of over 78,000 students and is expected to grow to over 80,000 students next year. 71% of DPS students are entitled to free or reduced price lunch. 55% of DPS students are Hispanic, another 20% African-American, and 25% white, with other ethnicities making up the balance. 31% of families qualify for English language services. There are 160 schools across the district, 29 of which are charter and enroll 10% of the total district population. Enrollment at most charter schools is exclusively via choice, and some portion of enrollment at every DPS school is comprised of students who participate in choice processes. Nearly 50% of DPS students attend a school that is not their boundary school.

### **B. Brief Summary of Enrollment Processes.**

In December of every year DPS projects every child to a school for the following year, a process known as the “Roll.” This projection is the starting point for the following year’s enrollment – unless students participate in one of the school choice processes, they will be assigned to the school they are projected to via the “Roll.” Students at every grade level are projected via the “Roll,” and at every grade level students can apply to any DPS school via the choice process.

Students are typically projected to remain at their current schools in the “Roll” projections for the following year. When a student moves and their new address results in a change in the home school they are associated with, DPS projects them in the “Roll” to their new home school. This student would have to participate in the choice process in order to attend their current school in the following year.

Incoming kindergarteners pre-enroll in a “dummy” school in January so that they are known to the DPS system and can participate in the choice process, should they choose to do so.

Round 1 of the DPS choice process begins in January. In Round 1 students can apply to most DPS schools, but magnet and charter schools have separate applications. Students may list up to two schools on the application. Students learn the results of their Round 1 applications in March.

Magnet and charter schools conduct their own applications and admissions processes, and operate their own lotteries and timelines. Responses to magnet and charter applications go out a few weeks after the Round 1 results. These processes are independent of each other, independent of the DPS choice processes. Students may receive offers to one or more charter or magnet schools in addition to receiving an offer from a regular DPS school.

Students who wish to attend their home school need only to show up at that school at the beginning of the school year – they do not need to participate in the choice process or in any way indicate their plans to DPS. Students are always accepted into their home school. The Round 1 process is meant for students who prefer some other school(s) over their home school.

Any student who is not accepted to a school they apply to in Round 1 is automatically put on the waitlist for that school. Waitlist numbers are randomly generated based on prioritization groups.

Students attending schools that for two years fail to make adequate yearly progress (AYP) are eligible to participate in the NCLB assignment process. Letters are generated to inform these students of the schools they can apply to, and they are guaranteed a spot in one of the listed schools. Students may participate in either the Round 1 process or the NCLB process, but may not participate in both.

Students who are not accepted to schools in Round 1 may file an application in Round 2, an ongoing open enrollment process in which date and time stamps are used to prioritize students at each of their requested schools. Choices are not submitted in order of preference. If a student requests multiple schools in Round 2 and more than one of their choices can accommodate that student, the family is contacted in order to determine which school they prefer. Round 2 ends at the beginning of the following school year, and is also the mechanism for assigning students who are new to DPS.

Parents wishing to send their children to a different school for the remainder of that same school year may fill out a transfer request. The request goes to the principal of the sending school (the school the child would leave) and the principals of both the sending and receiving schools have a say in whether or not the transfer request is granted.

These processes taken together make up the recognized and published means by which students can attend DPS schools that are not their home schools.

### **C. Summary of Current Enrollment.**

There are 79,642 students considered in this report – that is the total number of students in the data set provided by DPS. Of these students, 63,165 attend DPS schools that are not magnets, charters, or some other kind of school that has no defined boundary area from which students are prioritized for enrollment (online schools, early college schools, schools for incarcerated students, etc.). **Table 1 - DPS Enrollment by Grade, 2009** shows these 63,165 students along with their grade level and the school they attended in 2009. **Table 2 - Enrollment at Magnet, Charter, and Other Schools by Grade, 2009** shows the 16,417 students attending other types of schools, along with their grade level and the school they attended in 2009.

#### D. Socioeconomic Status and Enrollment.

For the purposes of this analysis we will use lunch status (free, reduced, or paid) as a proxy for socioeconomic status. As can be seen in **Table 3 – Enrollment by Socioeconomic Status, 2009**, across all of the schools in our data set there were 49,241 (63%) students entitled to free lunch. Another 22,446 students (29%) are in the paid lunch bracket, and 6,947 are (9%) entitled to reduced lunch.

There is a lot of variation in the socioeconomic composition of schools. **Table 4: Elementary School Enrollment by Socioeconomic Status, 2009, Sorted by Variation from District Average**, shows that the percentage of free lunch entitled students ranges from 20 students (6%) at Steck Elementary School to 242 students (94%) at Fairview Elementary School. Of the 97 schools in this table, 46 of them enroll at least 15% more students than the elementary school average who are entitled to free lunch.

**Table 5: Middle School Enrollment by Socioeconomic Status, 2009, Sorted by Variation from District Average** shows a similar variance in middle schools, ranging from a low at Denver School of Arts MS of 45 students (10%) who are entitled to free lunch to a high of 385 students (92%) entitled to free lunch at Bruce Randolph Middle School. Of the 21 schools considered, 8 enroll at least 15% more students than the middle school average who are entitled to free lunch. The trend continues among high schools, where the disparities are perhaps most stark.

As **Table 6: High School Enrollment by Socioeconomic Status, 2009, Sorted by Variation from District Average** shows, the percentage of free lunch entitled students goes down in high schools (59%). The low end of the range is Denver School of Arts with 37 free lunch entitled students (7%), and the high end is Bruce Randolph High School with 351 free lunch entitled students (90%) (Community Challenges HS and Ridgeview Academy are actually at the top of the range, but they enroll special populations). Of the traditional boundary high schools, East high School enrolls the lowest percentage (29%) of free lunch entitled students, followed closely by Thomas Jefferson High School (36%) and George Washington High School (44%).

#### E. Special Education Status and Enrollment.

As can be seen in **Table 7 – Enrollment by Special Education Status, 2009**, 8,715 students (11%) across the schools in our data set are entitled to special education services. There is variation among schools, but not to the same degree as the variation in socioeconomic status. Among elementary schools, there are only a few that enroll far below or above the elementary school average of students requiring special education services. The low end of the range is 5% of the student body requiring special education services at Westerly Creek Elementary School, Steck Elementary School, and Greenwood Elementary School. There are several traditional boundary elementary schools that enroll a higher than average proportion of students requiring special education services, including Palmer, Bradley, Fairmont, Fairview, and Kaiser

Elementary Schools, each of which has at least 19% of the student register students requiring special education services.

The landscape is similar in the middle schools, with the lowest special education enrollment at Denver School of Arts MS (3%), and among traditional boundary middle schools, at Morey Middle School (8%). The high end of the range occurs at Lake and Smiley Middle Schools where special education enrollment is 21% and 22% respectively. Among the high schools there are several non-traditional schools with low special education enrollment, such as CEC Middle College of Denver (3%) and Denver School of Arts (4%), and then most of the traditional boundary high schools are at about the average rate, perhaps a little bit higher. North, West, and Manual high Schools have the highest special education enrollment among the traditional schools at 18%, 18%, and 19% respectively.

#### **F. Language Status and Enrollment.**

In 2009 the overall percentage of students entitled to language services is 27%, but the students are not distributed evenly. There is great variation in enrollment of students receiving language services, particularly at the elementary and middle school levels.

**Table 8: Elementary School Enrollment by Language Status, 2009, Sorted by Variation from District Average** shows that the average elementary school enrollment of students receiving language services is 33%, ranging from a low of under 1% at Connections Academy, and 2% at Slavens Elementary School, to a high of 74% at Munroe Elementary School and 78% at Pioneer Charter School. There are 33 schools that are at least 15% below the average enrollment of students entitled to language services, and 27 schools with at least 15% higher enrollment than the average.

**Table 9 - Middle School Enrollment by Language Status, 2009, Sorted by Variation from District Average** shows that the average enrollment of students entitled to language services among middle schools is 27%. Again, there is a wide range, with Denver School of Arts MS at 6%, and Smiley, Morey, and Hamilton Middle Schools all at 9%. At the high end are West Denver Prep and Kepner Middle School, both at 55%. Of 27 middle schools, there five schools that are at least 15% below the average enrollment of students entitled to language services, and 5 schools with at least 15% higher enrollment than the average.

**Table 10 – High School Enrollment by Language Status, 2009, Sorted by Variation from District Average** shows that the average enrollment of students entitled to language services is 11%. There is variation by school, but it is not as great as it is among elementary or middle schools. East High School is the traditional high school that enrolls the smallest percentage of such students at 2%, and South High School enrolls the greatest percentage at 34%. There are no schools in which 15% fewer than the average enrollment of language learners, and three schools with at least 15% higher enrollment than the average.

## **G. Enrollment of Out of Boundary Students.**

Many of the students attending traditional boundary schools in 2009 are out of boundary students, meaning that their boundary schools are not the same as the schools they are attending. Among boundary elementary schools, 33% of students are enrolled from out of the boundary. Among boundary middle schools, 36% are from out of boundary, and 43% are from out of boundary among boundary high schools.

**Table 11: Total Elementary School Boundary and Out of Boundary Enrollment, 2009, Sorted by Proportion of Out of Boundary Students** shows wide variation in out of boundary enrollment at elementary schools. On the low end Westerly Creek Elementary School enrolls only 12 students (3%) from out of the boundary. There are 17 elementary schools that enroll at least 15% below the elementary average of out of boundary students. On the high end, Valdez Elementary School enrolls 297 students (82%) from out of the boundary. There are 20 schools with at least 15% higher out of boundary enrollment than the elementary school average.

**Table 12: Total Middle School Boundary and Out of Boundary Enrollment, 2009, Sorted by Proportion of Out of Boundary Students** shows a 36% out of boundary enrollment rate among boundary middle schools. There is not as wide of a range as there is among the elementary schools. Martin Luther King Jr. Early College is on the low end, enrolling 82 students (11%) from out of the boundary. Morey Middle School is an outlier, enrolling 725 students (89%) from out of the boundary. Merrill Middle School enrolls 297 students (57%) from out of the boundary.

**Table 13: Total High School Boundary and Out of Boundary Enrollment, 2009, Sorted by Proportion of Out of Boundary Students** shows that 43% of students enrolled at boundary high schools are from out of the boundary. Montebello is an outlier on the low end, enrolling only 53 students (3%) from out of boundary, and South appears to be an outlier on the high end, enrolling 1,084 students (77%) from out of the boundary.

The fact that there were 21,505 out of boundary students in 2009 enrolled at traditional boundary schools (along with the over 7,000 students enrolled at magnet, charter and other schools) seems to indicate the presence of a robust school choice process in Denver. No one is forced to attend a school that is not their home boundary school, so the 3-4 out of every 10 students who enrolls out of boundary are exercising choice in some way. The next section of this report begins to examine the mechanisms by which these students are enrolled.

## **Part II - Round 1 Participation and Results.**

### **A. Charter, Magnet, and Other Schools of Choice.**

Although we do not have data to analyze concerning participation and results at these schools, it is important to note the large number of students who attend charter, magnet, and other non-boundary schools of choice, the latter referring to schools that are not

charter or magnet schools, but do not have defined neighborhood boundaries. Attendance at these schools by definition means participating in school choice - considering only those students who participate in Round 1 results does not provide a complete picture of school choice in Denver. The reason that we do not analyze charter and magnet data in this report is that they manage their own enrollment.

**Table 14 – Enrollment in Charter, Magnet, and Other Non-Boundary Schools of Choice by Grade, 2009** shows that 15,071 students attended such schools in 2009. That is 19% of the total student body contained in our data set. Because applications and processing for these schools largely occurs on site at each school, we have no data to use in examining these choice processes. Later in this report we will suggest a new set of operations for participating in choice that includes these schools.

**B. Round 1 Participation Rates.**

The rate of participation in Round 1 in 2009 is somewhat lower than might be expected – the overall rate is 4%. As **Table 15 – Round 1 Participation by Grade Level, 2009** shows, the major participation points are for grades kindergarten, 6, and 9.

**Table 15: Round 1 Participation by Grade Level, 2009.**

Grade Level	2009 Round 1 Non-Participant	2009 Round 1 Participant	%	Total
K	6,048	915	13%	6,963
1	6,715	275	4%	6,990
2	6,347	201	3%	6,548
3	6,168	180	3%	6,348
4	5,828	149	2%	5,977
5	5,581	110	2%	5,691
6	5,177	354	6%	5,531
7	4,926	66	1%	4,992
8	4,857	62	1%	4,919
9	5,840	655	10%	6,495
10	4,879	99	2%	4,978
11	3,741	55	1%	3,796
12	4,104	13	0%	4,117
<b>Total</b>	<b>70,211</b>	<b>3,134</b>	<b>4%</b>	<b>73,345</b>

**C. Socioeconomic Status and Round 1 Participation.**

When considering the entire population of students in our data set, there are no differences in socioeconomic status among participants and non-participants. As the following portion of **Table 16 – Round 1 Participation by Socioeconomic Status and by Grade, 2009** shows, there are significant differences when examining the students in kindergarten:

**Kindergarten Only:**

<b>Socioeconomic Status</b>	<b>Round 1 Non-Participants</b>	<b>Round 1 Participant</b>	<b>%</b>	<b>Total</b>
Free	3,947	455	10%	<b>4,402</b>
Paid	1,567	362	19%	<b>1,929</b>
Reduced	534	98	16%	<b>632</b>
<b>Grand Total</b>	<b>6,048</b>	<b>915</b>	<b>13%</b>	<b>6,963</b>

362 students (19%) who pay for lunch participated in Round 1 while 455 students (10%) who are entitled to free lunch participated.

Please see **Table 16** for data on grades 6 and 9. As is the case among kindergarteners, students entitled to free lunch are about half as likely to participate in Round 1 as their counterparts who pay for lunch.

If one combines kindergarten, grade 6, and grade 9 students entitled to reduced price lunch with students who pay for lunch, they are more than 3 times as likely to participate in Round 1 as are students entitled to free lunch.

Clearly there is an issue here regarding participation and socioeconomic status, and it is something that DPS should be mindful of as it considers reform strategies.

**D. Special Education Status and Round 1 Participation.**

There does not appear to be a difference in the participation rate when considering special education status. As the following portion of **Table 17 – Round 1 Participation by Special Education Status and by Grade, 2009** shows, the only place at which there seems to be an issue is in grade 9, where general education student are almost twice as likely to participate in Round 1.

**Grade 9 Only:**

<b>Special Education Status</b>	<b>Round 1 Non-Participants</b>	<b>Round 1 Participant</b>	<b>%</b>	<b>Total</b>
Gen Ed.	5,029	601	11%	<b>5,630</b>
Sp. Ed.	811	54	6%	<b>865</b>
<b>Total</b>	<b>5,840</b>	<b>655</b>	<b>10%</b>	<b>6,495</b>

**E. Language Status and Round 1 Participation.**

As **Table 18 – Round 1 Participation by Language Status and by Grade, 2009** shows, there are no significant differences based on language status in Round 1 participation.

There is a bit of a gap in kindergarten and in grade 9, with general education students slightly more likely to participate, but the differences are small.

**Kindergarten Only:**

Language Status	Round 1 Non-Participants	Round 1 Participant	%	Total
Gen. Ed.	3,854	649	14%	<b>4,503</b>
ELL	2,194	266	11%	<b>2,460</b>
<b>Total</b>	<b>6,048</b>	<b>915</b>	<b>13%</b>	<b>6,963</b>

**F. Boundary Schools and Participation in Round 1.**

It is interesting to consider the Round 1 participants according to their boundary schools. One might say that the relative popularity of a boundary school can be seen in the degree to which its students participate in Round 1 – the greater the percentage of students seeking to attend other schools, the less popular the boundary school.

**Table 19 - Round 1 Kindergarten Participation and Charter or Magnet Attendance by Home School, Sorted by Total % Asking Out of the Boundary School, 2009** shows the variation in the numbers of kindergarten students seeking to attend a school other than their home boundary school. The boundary schools with the greatest percentages of students participating in Round 1 are Philips and Palmer Elementary Schools with 19 students (53%) and 17 students (41%) respectively.

The schools with the lowest numbers of students participating in Round 1 in 2009 include Bromwell and Grant Ranch Elementary Schools, which had none of their boundary students participate. William Roberts and Westerly Creek Elementary Schools each had 2 students (2%) participate, and Southmoor Elementary had 1 student (2%) participate.

If one is attempting to determine the relative popularity of each boundary school using this data, it is important to consider the 1,750 kindergarteners who did not participate in Round 1, but who attended charter or magnet schools in 2009. Please keep in mind, however, that our data set indicates only those students who secured a seat at a charter or magnet school, and does not indicate those students who applied but were denied a seat. Therefore, the analysis below uses a conservative estimate of those seeking not to attend their boundary schools. Furthermore, this type of analysis ceases to indicate popularity per se, as it also considers the students who were admitted to magnet schools. Having a high percentage of students attending a magnet school might indicate as much or more about the caliber of students living in that boundary as it does about the relative popularity of the boundary school.

When adding the charter or magnet attendees who did not participate in Round 1 to the total number who are asking to attend a school other than their zone school, as **Table 19** shows, Philips, Columbian, and Harrington Elementary schools have the highest percentages of boundary students seeking to attend another school, (64%, 58%, and 55%

respectively). Bromwell, Grant Ranch, and Cory Elementary Schools have the lowest percentages, at 2%, 4%, and 4% respectively.

There are some schools whose relative popularity, to the extent that it can be determined via this analysis, changes dramatically when including charter and magnet attendees. For example, Harrington Elementary had only 9% of its boundary students participate in Round 1, but after considering charters and magnets, the percentage of students seeking to attend other schools goes up to 55%. Columbian Elementary had 16% of its boundary students participate in Round 1, but 42% of its students seek to leave when charters and magnets are considered.

**Table 20 - Round 1 Grade 6 Participation and Charter or Magnet Attendance by Home School, Sorted by Total % Asking Out of the Boundary School, 2009** shows the variation in the numbers of students in grade 6 who seek to attend a school that is not their boundary school. The schools with the highest percentages of such students include William Roberts with 53 students (72%), Smiley Middle School with 185 students (62%), and Kepner Middle School with 372 students (50%). This is an interesting result because by any other measurement, William R. Roberts Elementary School is a popular school, and then its students seek to go elsewhere in large numbers for grade 6. The data indicate that only 1 of the students whose boundary school is William R. Roberts participated in Round 1, the other 52 who sought to leave are attending charter or magnet schools.

The school with the lowest percentage of 6<sup>th</sup> grade students seeking to attend schools other than their boundary school is Grant Ranch Elementary with 1 student (2%). Following that are Merrill Middle School with 31 students (13%) and Hamilton Middle School with 38 students (14%).

**Table 21 - Round 1 Grade 9 Participation and Charter or Magnet Attendance by Home School, Sorted by Total % Asking Out of the Boundary School, 2009** shows variation in the numbers of students in grade 9 who seek to attend a school that is not their boundary school. The schools with the highest percentages of such students include Manual High School with 228 students (59%) and George Washington High School with 250 students (37%). The schools with the lowest percentages of such students include Thomas Jefferson High School with 72 students (18%) and John F. Kennedy High School with 94 students (23%).

### **G. Round 1 Demand and Results.**

The easiest way to measure the demand for schools in Round 1 is by examining the first and second choices the students made. We limit our examination to the major points of participation, grades kindergarten, 6, and 9. **Table 22 – Round 1 Kindergarten Demand and Results by School, 2009** shows that the average school received almost 13 students selecting it, and almost 12 students selecting it as a first choice. Carson Elementary received the most first choices, with 46 students selecting it as a first choice. Other very highly demanded schools include University Park, Edison, Steck, and Montclair

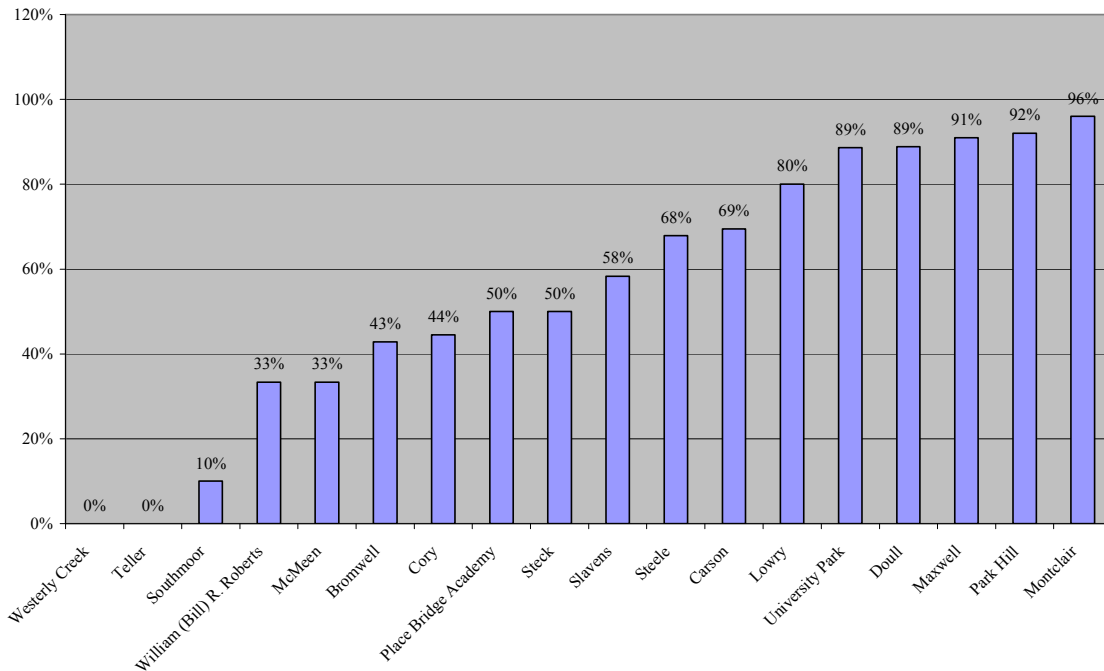
Elementary Schools. On the low end of the demand scale are Colfax, Westerly Creek, and Centennial Elementary Schools (not counting the dual language schools).

It is impossible to accurately measure demand for schools using our data set because the supply of seats at each school is unknown. We could use the number of acceptances as a proxy for supply, but for reasons that will become clear later in the report, that would not suffice. Instead we will use first choice applicants per seat at the school, as determined by the final 2009 kindergarten enrollment.

Using that measure and again looking at **Table 22**, the most popular DPS schools include Carson Elementary with 0.64 first choice applicants per kindergarten seat, Steck Elementary School with 0.55 first choice applicants per kindergarten seat, and University Park Elementary School with 0.44 first choice applicants per kindergarten seat.

Regarding choice results, **Table 22** also shows that 798 kindergarten students (87%) were accepted to their first choice school. This seems to be a great result. But examining further, we can see that most schools accept every student who applies. 60 schools accepted 100% of their first choice applicants in 2009, and 71 schools accepted at least half of their first choice applicants. There are only 18 schools that did not accept every student, and 9 of those schools accepted over half of their first choice applicants.

1st Choice Acceptance Rate Among Competitive Elementary Schools, 2009



According to **Table 22**, there are 9 schools that appear to be competitive in Round 1 among kindergarteners. These schools include Westerly Creek Elementary and Teller Elementary who accepted none of their applicants, Southmoor Elementary who accepted

1 student (10%), William Roberts, McMeen, Bromwell, Cory, Place Bridge Academy, and Steck Elementary Schools, ranging from 33% at William Roberts to 50% at Place Bridge and Steck.

Interestingly, there is no correlation between the demand for a school, using our first choices per seat measure, and its competitiveness according to first choice acceptance rates. Some schools that received high demand were relatively competitive, such as Carson Elementary, with 0.64 first choice applicants per seat and 25 students (69%) accepted. Other schools that received high demand were not selective, such as University Park Elementary, which had 0.44 first choice applicants per seat and accepted all 34 of its first choice students. Most of the lower demand schools accepted all of their first choice applicants, but some, for example McMeen Elementary had merely 0.07 first choice applicants per seat and yet accepted only 3 of 9 first choice students (33%).

In grades 6 and 9 we see the unlikely situation in which essentially every student who participated in Round 1 was accepted to their first choice school. **Table 23 – Round 1 Grade 6 and Grade 9 Demand and Results by School, 2009** shows that there was literally 1 student who participated in Round 1 and who was not accepted - 1 student in grade 9 applied to Bruce Randolph and was waitlisted (107 were accepted to the school). While this is certainly a good result for the participants in grades 6 and 9, we assert that it is an unlikely (perhaps incredible) result in a truly healthy school choice process. It seems to indicate that everyone can get the schools they want, and that is something that we have yet to come across in any school district.

There were no students in grade 6 or grade 9 who made a second choice in Round 1.

To examine the demand for schools in grades 6 and 9 we used the measure discussed above, the number of first choice applicants per seat at the school as determined by the final grade 6 and grade 9 enrollments. **Table 23** shows that William R. Roberts school is the most popular among 6<sup>th</sup> grade applicants, with 0.56 first choice applicants per seat. Valdez Elementary School experienced 0.42 first choice applicants per seat, and Farrell B. Howell had 0.34 first choice applicants per seat.

**Table 23** shows that East High School experienced the highest demand in Round 1 with 0.50 first choice applicants per seat, followed distantly by John F. Kennedy and South High Schools with 0.11 first choice applicants per seat. Bruce Randolph High School seems to be in great demand with 0.86 first choice applicants per seat, until one remembers that the school has no defined boundary for high school students and everyone who wants to attend must apply.

In summary, participation rates in Round 1 are rather low, and at all but 9 elementary schools, acceptance rates are very high. Very few kindergarteners made second choices and no students in grades 6 or 9 made second choices.

**Part III - Round 2 Participation and Results.**

**A. Round 2 Participation Rates.**

Round 2 begins in early March and continues throughout the year until the end of August. It is first come, first served, and there is no limit on the number of schools that students may apply to.

**Table 24 - Table 24: Round 2 Participation by Grade Level, 2009** shows again that the major points of participation are in kindergarten, grade 6, and grade 9.

**Table 24: Round 2 Participation by Grade Level, 2009.**

<b>Grade Level</b>	<b>2009 Round 2 Non-Participant</b>	<b>2009 Round 2 Participant</b>	<b>%</b>	<b>Total</b>
K	6,145	818	12%	6,963
1	6,702	288	4%	6,990
2	6,324	224	3%	6,548
3	6,142	206	3%	6,348
4	5,821	156	3%	5,977
5	5,521	170	3%	5,691
6	5,206	325	6%	5,531
7	4,801	191	4%	4,992
8	4,774	145	3%	4,919
9	5,955	540	8%	6,495
10	4,731	247	5%	4,978
11	3,654	142	4%	3,796
12	3,983	134	3%	4,117
<b>Total</b>	<b>69,759</b>	<b>3,586</b>	<b>5%</b>	<b>73,345</b>

We included the students who participated in Round 1 in the above table, even those who received an acceptance in Round 1, because some of them also participated in Round 2. As it is clearly possible to participate in both rounds regardless of the results of Round 1, we assumed that everyone is eligible for Round 2.

**B. Socioeconomic Status and Round 2 Participation.**

As **Table 25 - Round 2 Participation by Socioeconomic Status and by Grade, 2009** shows, students who are entitled to free lunch are more likely to participate in Round 2 than are their counterparts who pay full prices for lunch, but those who are in the reduced lunch bracket are also more likely to participate than those in the paid lunch bracket. This is the opposite of what we see in Round 1. Considering all students, there are no differences in Round 2 participation by socioeconomic status, but considering the major participation points, kindergarten, and grades 6 and 9, the differences can be seen.

**Kindergarten Only:**

<b>Socioeconomic Status</b>	<b>Round 2 Non-Participants</b>	<b>Round 2 Participant</b>	<b>%</b>	<b>Total</b>
Free	3,827	575	13%	<b>4,402</b>
Paid	1,775	154	8%	<b>1,929</b>
Reduced	543	89	14%	<b>632</b>
<b>Grand Total</b>	<b>6,145</b>	<b>818</b>	<b>12%</b>	<b>6,963</b>

Please see **Table 25** for data on grades 6 and 9.

**C. Special Education Status and Round 2 Participation.**

**Table 26 - Round 2 Participation by Special Education Status and by Grade, 2009** shows that there is no difference in Round 2 participation rate based on special education status. This holds true at the major participation points as well, in kindergarten, grade 6 and grade 9.

**Table 18: Round 1 Participation by Language Status and by Grade, 2009.**

<b>Language Status</b>	<b>Round 1 Non-Participants</b>	<b>Round 1 Participant</b>	<b>%</b>	<b>Total</b>
Gen. Ed.	51,269	2,400	4%	<b>53,669</b>
ELL	18,942	734	4%	<b>19,676</b>
<b>Total</b>	<b>70,211</b>	<b>3,134</b>	<b>4%</b>	<b>73,345</b>

**D. Language Status and Round 2 Participation.**

**Table 27 - Round 2 Participation by Language Status and by Grade, 2009** shows that there are no differences in Round 2 participation based on language status. This holds true at the major participation points as well, in kindergarten, grade 6 and grade 9.

**Table 27: Round 2 Participation by Language Status and by Grade, 2009.**

<b>Language Status</b>	<b>Round 1 Non-Participants</b>	<b>Round 1 Participant</b>	<b>%</b>	<b>Total</b>
Gen. Ed.	51,082	2,587	5%	<b>53,669</b>
ELL	18,677	999	5%	<b>19,676</b>
<b>Total</b>	<b>69,759</b>	<b>3,586</b>	<b>5%</b>	<b>73,345</b>

**E. Boundary Schools and Participation in Round 2**

In considering the data, we elected to include all students who have a boundary school to generate participation percentages, as opposed to removing students who participated in Round 1. We did this because Round 1 participants are not excluded from participating in

Round 2, but also because Round 2 participants can arrive in Denver at any point before the end of August. It seems prudent to consider every boundary student at each school, erring on the inclusive side.

**Table 28 - Round 2 Kindergarten Participation by Home School, Sorted by Total % Asking Out of the Boundary School, 2009** shows the variation in kindergarten Round 2 participation according to boundary school. The boundary schools with the highest kindergarten Round 2 participation rates include Stedman Elementary with 32 students (39%), Johnson Elementary School with 24 students (32%), and Godzman Elementary School with 20 students (28%). By contrast, Bradley and Bromwell Elementary Schools had none of their boundary kindergarten students participate in Round 2.

**Table 29 - Round 2 Grade 6 Participation by Home School, Sorted by Total % Asking Out of the Boundary School, 2009** shows the variation in grade 6 Round 2 participation according to boundary school. The boundary schools with the highest grade 6 Round 2 participation rates are Gillpin E-8 Elementary and Greenlee Elementary with 5 and 8 students respectively, in both cases 14% of boundary students. On the low end of the scale, Morey, Whittier, Grant Ranch, and William Roberts all had none of their boundary grade 6 students participate in Round 2.

**Table 30 - Round 2 Grade 9 Participation by Home School, Sorted by Total % Asking Out of the Boundary School, 2009** shows the variation in grade 9 Round 2 participation according to boundary school. The boundary schools with the highest grade 9 Round 2 participation rates are West High School with 138 students (18%) and Manual High School with 50 students (13%). The boundary schools with the lowest Round 2 participation rates are South, North, East, and George Washington High Schools, with 10, 27, 30, and 37 students respectively, in all cases 5% of boundary students.

**F. Round 2 Demand and Results.**

As noted earlier, there is no limit on the number of schools that students may apply to in Round 2. As **Table 31 – Number of Round 2 Choices by Grade Level, 2009** shows, most children make 1 choice in Round 2. Among kindergarteners, 723 students (88%) made 1 choice, and 95 students (12%) made more than one choice.

**Table 31: Number of Round 2 Choices by Grade Level, 2009.**

Round 2 Choices	Kindergarten	Grade 6	Grade 9
1	723	318	520
2	75	7	20
3	13		
4	3		
5	2		
6	1		
8	1		
<b>Total</b>	<b>818</b>	<b>325</b>	<b>540</b>

Before analyzing the demand at schools in Round 2, it is important to note two issues with the data. First, there are students who submitted applications in Round 2, and at a later date those applications become invalid. These students may have submitted the applications in error (applying to the same school that they already successfully applied to in Round 1), they may have come off the waitlist at a charter or magnet school, thereby invalidating their Round 2 application, or they simply may have left the school district before the final processing occurred. We have left these students in the data set when analyzing Round 2, and we therefore note that demand figures are inflated at schools with many inactive applications.

Secondly, we have data on the first three Round 2 choices a student made, and do not capture data on choices beyond that. So there are 7 kindergarten students whose choices in Round 2 are not complete in our data set.

We will use the same measure of demand as in analyzing Round 1 – total choices per seat. **Table 32 - Round 2 Kindergarten Demand and Results by School, Sorted by Choices per Seat, 2009** shows that Sabin Elementary experienced the highest demand in Round 2 among kindergarteners, with 60 total choices and 0.66 total choices per seat. Other schools experiencing high demand included Philips Elementary with 18 total choices and 0.55 total choices per seat. Whittier Elementary had 26 total choices and 0.51 applicants per seat. On the low end, Ellis, University Park, and Slavens Elementary Schools each had only 1 total choice, and 0.01, 0.01, and 0.02 total choices per seat respectively.

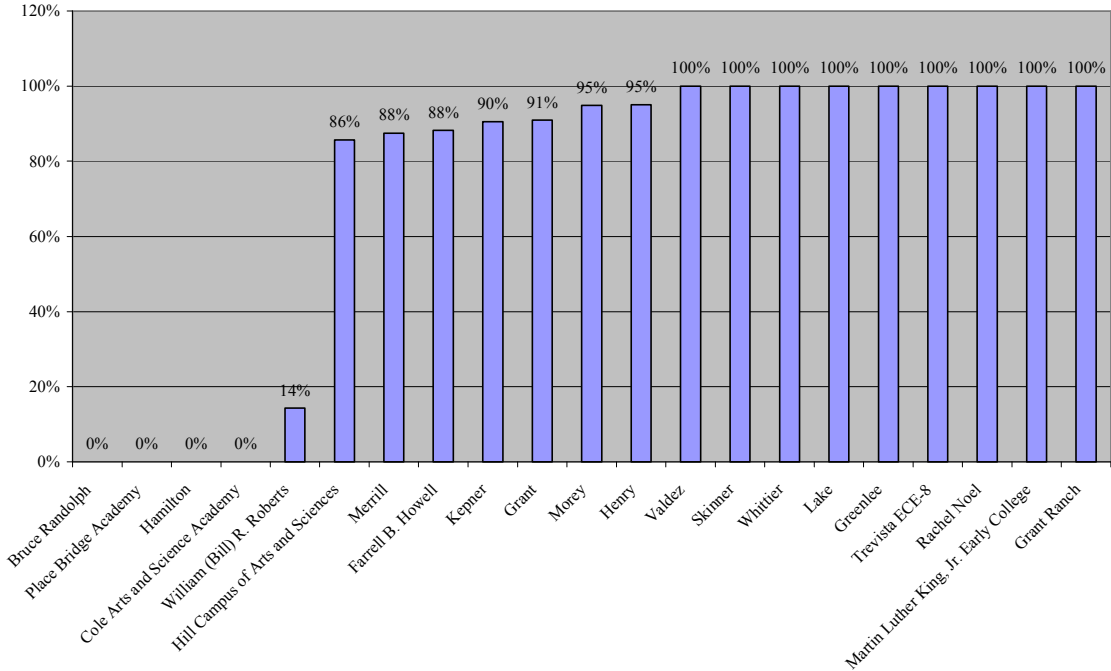
Regarding choice results, **Table 32** shows that of the 931 total choices (that we captured) made by kindergarteners, 522 were accepted (56%). Five schools accepted everyone who applied, 7 schools accepted none of their applicants. The range of acceptance rates is very wide – there are 67 schools that accepted between 13% and 95% of Round 2 applicants. Among those that appear to be most competitive in Round 2 are Steck and Bromwell Elementary Schools who both accepted no Round 2 applicants. Among the schools that appear to be least competitive are Kaiser and Brown Elementary Schools who both accepted all of their Round 2 applicants.

**Table 33 - Round 2 Grade 6 Demand and Results by School, Sorted by Choices per Seat, 2009** shows that Valdez Elementary School experienced the greatest demand among 6<sup>th</sup> graders in Round 2 with 9 total choices and 0.47 total choices per seat. Morey Middle School also experienced high demand with 58 total choices and 0.25 total choices per seat. At the low end Cole Arts and Sciences Academy had 1 total choice and 0.02 total choices per seat, Hill Campus of Arts and Sciences had 7 total choices and 0.02 total choices per seat, and Grant Ranch Elementary had 2 total choices and 0.02 total choices per seat.

Round 2 is not as competitive in grade 6 as it is in kindergarten. **Table 33** shows that of the 332 total choices made, 269 were accepted (81%). There is very little variation in acceptance rates. There are four schools that accepted none of their applicants (Cole Arts and Science Academy, Hamilton Middle School, Place Bridge Academy, and Bruce

Randolph Middle School). William R. Roberts accepted 1 student (14%). All other schools accepted at least 86% of their Round 2 applicants, with 9 schools accepting all applicants.

Middle School Acceptance Rates in Round 2, 2009



**Table 34 - Round 2 Grade 9 Demand and Results by School, Sorted by Choices per Seat, 2009** shows that Bruce Randolph and South High Schools experienced the highest demand among 9<sup>th</sup> graders in Round 2, with 15 and 103 total choices respectively, in both cases 0.23 total choices per seat. On the low end, Montebello and East High Schools experienced the lowest demand with 2 and 49 total choices respectively, and 0.01 and 0.07 total choices per seat respectively.

There are two schools that were competitive among 9<sup>th</sup> graders in Round 2. Of the 560 total choices, 454 were accepted (81%). **Table 34** shows that East High School accepted only 2 students (4%), and Bruce Randolph accepted 15 students (52%). The remaining 8 schools accepted at least 74% of applicants and 6 of them accepted at least 90% of applicants.

It would seem that DPS’s school choice system is quite successful, considering that most students are accepted to the schools they apply to in Rounds 1 and 2. But looking more deeply, the participation rates in Rounds 1 and 2 are low compared with the numbers of students who do not attend their home schools.

In fact, it is not possible to fully understand enrollment and choice in Denver by looking only at Rounds 1 and 2. Students are gaining access to schools via other mechanisms, and these students must be considered also. In the next two sections of this report we focus on

the two primary mechanisms for this “other” enrollment, and discuss the various problems that emerge.

#### **Part IV – Unexplained Students.**

##### **A. Defining Unexplained Students.**

The following are the published mechanisms by which students may gain entry to boundary schools that are not their home boundary schools:

- Round 1 acceptance.
- Round 2 acceptance.
- NCLB acceptance.
- Administrative transfer approval.
- Magnet or charter school acceptance.

There are, however, many students attending schools that are not their boundary schools, and who did not go through one of the above processes. For the purposes of this report, an unexplained student is defined as a student who:

- Is attending a boundary school that is not their own boundary school **and**
- did not participate in Round 1 **and**
- did not participate in Round 2 **and**
- did not participate in the NCLB process **and**
- did not receive approval for an administrative transfer request **and**
- does not attend a magnet or charter school **and**
- among those in grades 6 and 9, is not attending the same school in 2009 that they attended in 2008.

We decided to drop from this analysis the grade 6 and 9 students whose attendance appears to be unexplained, but who attended the same school in 2008, because determining who is explained and who is unexplained would mean tracing all students to their original point of entry at each school, and our data set goes back only two years and does not permit this. We included the 103 kindergarteners who attended the same school in 2008 and who did not participate in any of the published choice processes in order to attend that school in 2009.

There are also some students who participated in either Round 1 or 2, were accepted to a school, and yet are attending another school that is not their home school. In some cases it is possible to determine why that is happening (acceptance at a charter or magnet school, for example) and in other cases it is not possible given our data set. We decided to take a conservative approach to defining unexplained students, and we therefore encourage readers of this report to keep in mind the fact that the numbers we will present concerning unexplained students are in fact lower than the reality, in grades 6 and 9 perhaps much lower than the reality.

In this section of the report we examine these unexplained students using the same lens as we did in the previous sections of the report: we will describe their enrollment in grades kindergarten, 6, and 9 at each school, and then discuss the various problems that arise because of this aspect of enrollment.

## **B. Enrollment of Unexplained Students.**

**Table 35 - Kindergarten Out of Boundary Attendance at Boundary Schools by Mechanism and by School, 2009** shows that there are 1,749 kindergarteners in 2009 who are attending a boundary school that is not their boundary school. Those 1,749 out of boundary attendees make up 29% of boundary school attendance in kindergarten.

Of those 1,749 out of boundary students, **Table 35** shows that 690 of them were accepted via Round 1, 424 via Round 2, and 13 via administrative transfer. That accounts for 1,127 of the out of boundary kindergarteners (64%) – we can explain their out of boundary attendance via one of the published DPS choice processes.

That leaves 622 kindergarteners whose out of boundary attendance we must try to explain. 40 of the 622 students are attending a school in 2009 that was their home school in 2008, so we discounted these students, figuring that they must have changed home addresses, and simply continued to attend the same school (they should have had to apply, but mistakes happen). 28 of the 622 students participated in Round 1 and were waitlisted at both of their choices. We discounted these students, assuming that they simply got a seat at the school from the waitlist at some point. 131 of the 622 students participated in Round 2 and were waitlisted. We discounted those students for the same reason – we assumed that they got in off the waitlist at some point. Finally, 23 of the 622 students participated in Round 2 and are labeled as “inactive” in the data set, which might indicate that they were accepted at another school that they applied to, or that they applied in error. In either case, we discounted those students too.

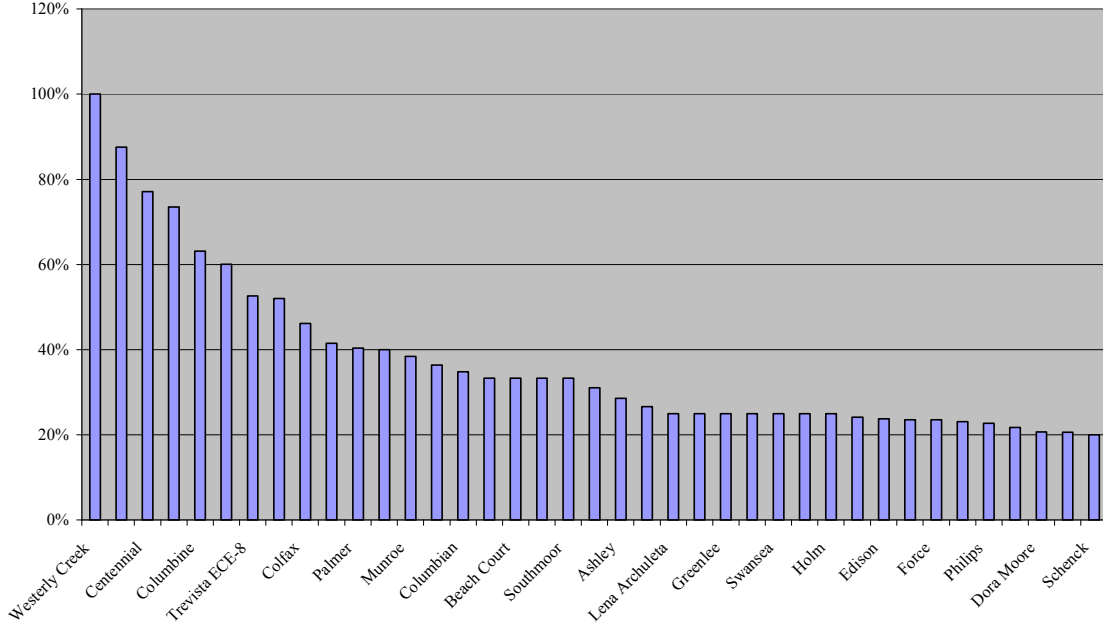
This leaves 396 students whose out of boundary enrollment at boundary schools we simply cannot explain via the published DPS choice processes. **Table 36 – Kindergarten Unexplained Students by School, Sorted by % of Out of Boundary Enrollment, 2009**, shows that of the 78 boundary elementary schools in our data set, 7 of them enroll no unexplained students. The rest enroll at least 1, and as many as 27. The average school enrolls 5 unexplained students.

A more interesting way of looking at the data is to consider the percentage of total kindergarten out of boundary enrollment that is taken up by these 396 students. These students represent 23% of the total kindergarten out of boundary enrollment, a highly significant factor.

**Table 36** shows that among the 71 schools that enroll unexplained students, there are 29 schools in which at least 25% of kindergarten out of boundary enrollment is taken up by unexplained students. There are 8 schools in which at least 50% of total kindergarten out

of boundary enrollment is taken up by unexplained students. To put this in real terms, there are many schools in which significant portions of the kindergarteners who attend out of boundary gain access to their seats via some undocumented process.

Unexplained Percentage of Out of Boundary Kindergarten Enrollment, 2009



**Table 37 – Grade 6 Out of Boundary Attendance at Boundary Schools by Mechanism and by School, 2009** shows that there are 1,493 6<sup>th</sup> graders attending boundary schools that are not their own home boundary schools. These students make up 40% of total attendance in 6<sup>th</sup> grade at boundary schools.

Of those 1,493 students, **Table 37** shows that 668 of them gained access to the schools via Round 1, Round 2, NCLB, or administrative transfers. These 668 students whose out of boundary attendance can be explained account for 45% of out of boundary attendance at boundary schools.

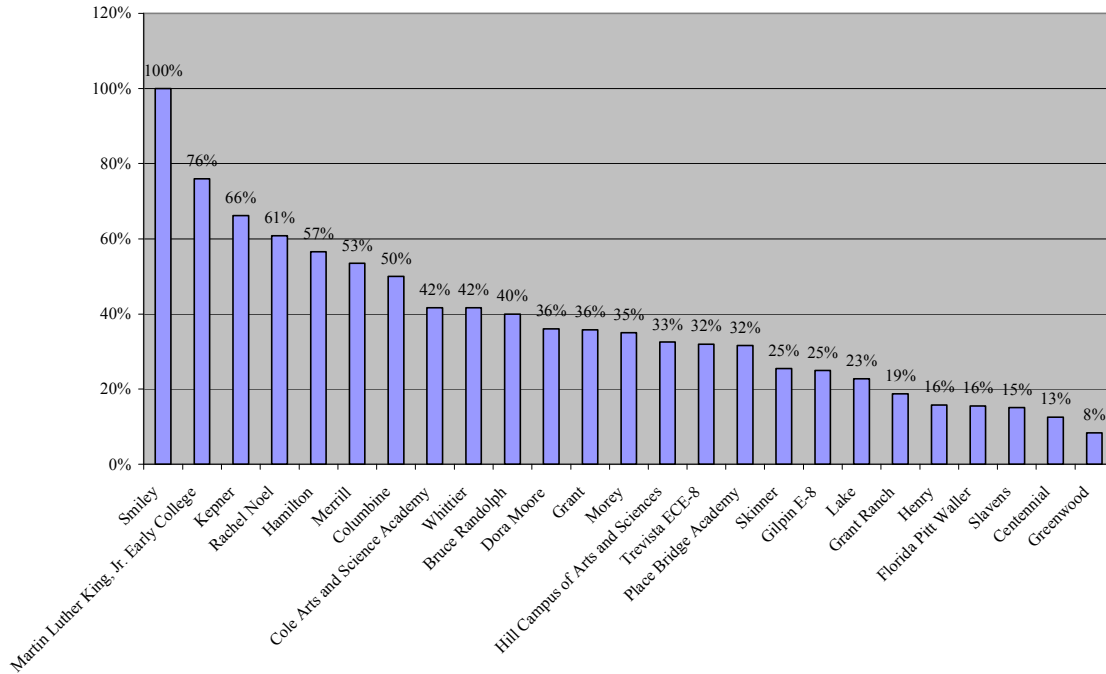
There are 825 students in 6<sup>th</sup> grade whose out of boundary attendance cannot be explained via published DPS processes. 303 of these students attended the same schools as 5<sup>th</sup> graders, so we discounted them. Of the remaining 522 students, 10 of them were waitlisted in Round 2 and we assumed that they got in to the schools off the waitlist at some point, so we discounted them.

This leaves 512 students in the 6<sup>th</sup> grade whose out of boundary enrollment we simply cannot explain via any of the published DPS choice processes. **Table 38 – Grade 6 Unexplained Students by School, Sorted by % of Out of Boundary Enrollment, 2009**, shows that every one of the 25 boundary schools that enrolls 6<sup>th</sup> graders enrolls at least some unexplained students. Gilpin E-8 School enrolls the fewest, with 1 unexplained student, and Hamilton Middle School enrolls the most, with 78 unexplained

students. The average school enrolls 20 unexplained 6<sup>th</sup> graders. Taken together, these unexplained students account for 34% of total out of boundary 6<sup>th</sup> grade enrollment at boundary schools.

**Table 38** shows that there are some boundary schools whose out of boundary enrollment is comprised primarily of unexplained students. Of the 25 schools considered, 7 of them have at least 50% of their out of boundary enrollment is taken up by unexplained students. Smiley Middle School enrolls 21 unexplained students – 100% of their out of boundary enrollment. Unexplained students account for 34% of out of boundary attendance at boundary schools among 6<sup>th</sup> graders, the undocumented process here is even more significant than in kindergarten.

**Unexplained Percentage of Out of Boundary 6th Grade Enrollment, 2009**



**Table 39 – Grade 9 Out of Boundary Attendance at Boundary Schools by Mechanism and by School, 2009** shows that there are 1,878 students in 9<sup>th</sup> grade that are attending boundary high schools that are not their own boundary schools. These students make up 52% of overall attendance among 9<sup>th</sup> graders at boundary schools.

Of these 1,878 students, Table 39 shows that 970 of them gained access to their seats via Round 1, Round 2, NCLB, or administrative transfer. These 970 students whose 9<sup>th</sup> grade out of boundary attendance can be explained account for 52% of out of boundary attendance at boundary schools.

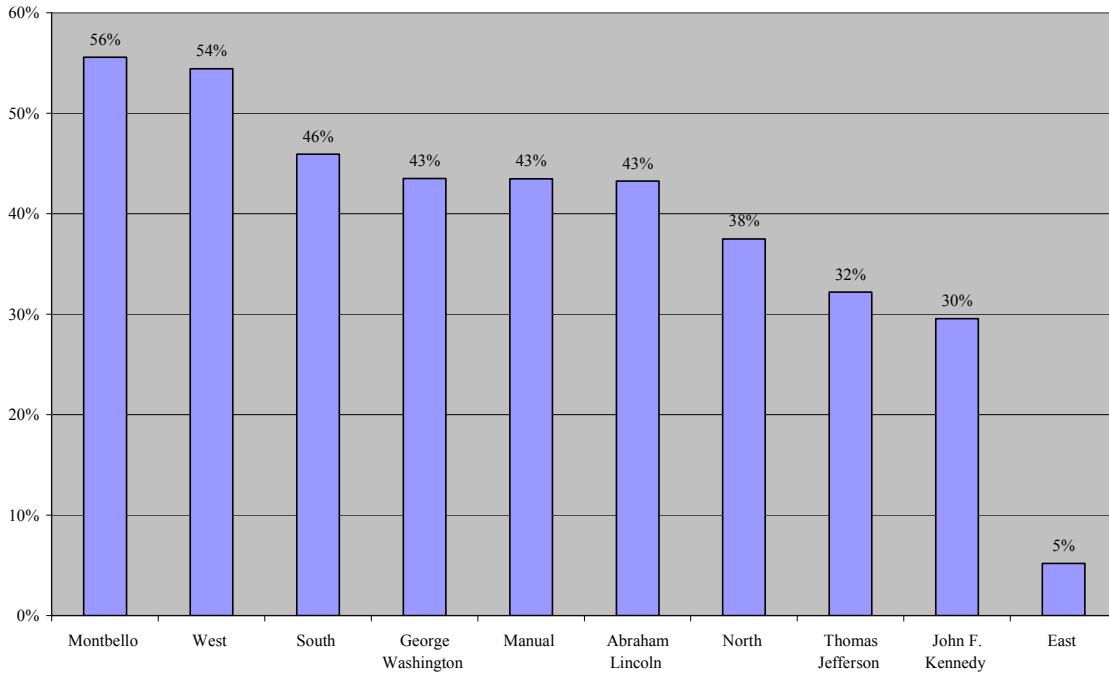
There are 908 students in 9<sup>th</sup> grade whose out of boundary attendance cannot be explained via published DPS processes. Of these students, 41 were waitlisted in Round 2

and so we assumed that they got into the school off the waitlist at some point, and discounted them. Of the remaining 867 students, 225 of them attended their current school in 2008, and so we discounted them, leaving 642 students.

**Table 40 – Grade 9 Unexplained Students by School, Sorted by % of Out of Boundary Enrollment, 2009** shows that every boundary high school enrolls unexplained students. Montebello High School enrolls only 5, but that makes up 56% of the schools 9<sup>th</sup> grade out of boundary enrollment. South High School enrolls 180 unexplained students, comprising 46% of its out of boundary 9<sup>th</sup> grade enrollment. The average high school enrolls 64 unexplained students and taken together, the 642 unexplained students represent 34% of the total 9<sup>th</sup> grade out of boundary enrollment at boundary schools.

**Table 40** shows that the range spans from a low at East High School, where unexplained students make up 5% of out of boundary enrollment, to Montebello High School, where unexplained enrollment makes up 56% of out of boundary enrollment.

Unexplained Percentage of Out of Boundary 9th Grade Enrollment, 2009



The following summary table makes it easy to see the impact of unexplained enrollment at boundary schools:

	Unexplained Students	% of Out of Boundary Enrollment
<b>Kindergarten</b>	396	23%
<b>Grade 6</b>	512	34%
<b>Grade 9</b>	642	34%

Clearly unexplained students are a highly significant factor in the overall DPS enrollment scheme.

### **C. The Problems with Unexplained Enrollment.**

Many problems arise in an enrollment and choice system in which there are established means of gaining access to seats outside of the published processes. We will categorize the issues as problems of equity, efficiency, and accountability.

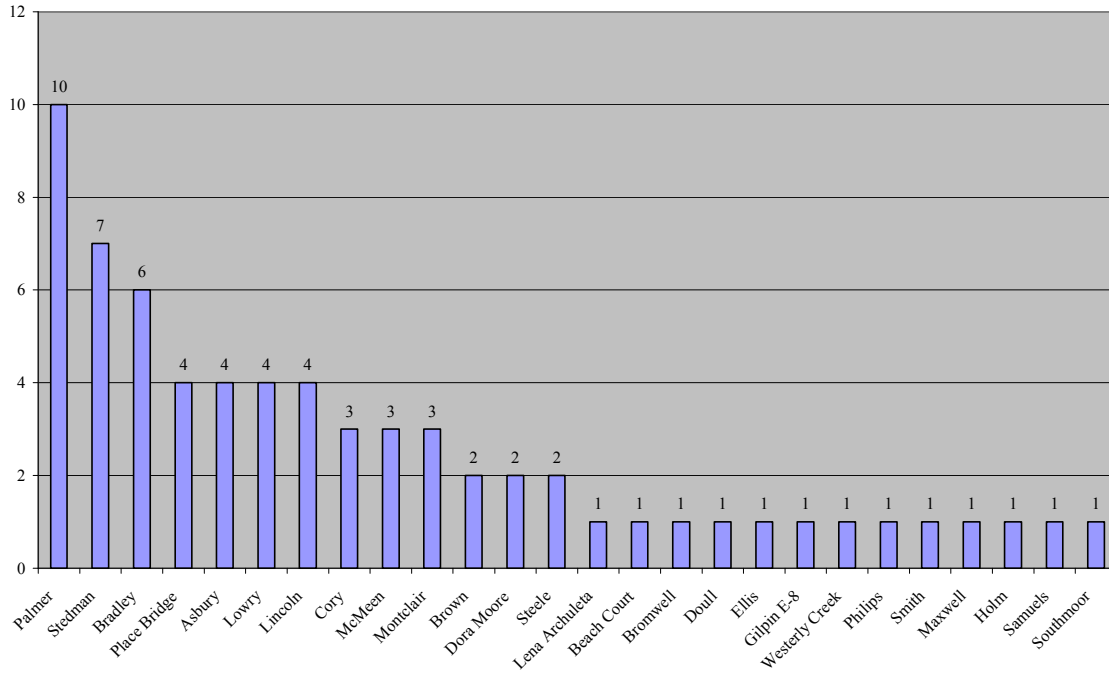
#### **Equity**

Perhaps the first question to ask regarding the undocumented process is whether or not any of the overall student population is made worse off because of it – is anyone who follows the rules of the published choice processes losing out because of the impact of the undocumented process? The answer in 2009 is unequivocally “yes.”

This cannot be seen among students in grades 6 or 9 because all Round 1 participants were accepted to their first choice schools. But in kindergarten there were 117 students (13%) who were waitlisted for their first choice schools. **Table 41 - Unexplained Kindergarten Students and Students Waitlisted in Round 1, by School, 2009** shows that 79 of these students were waitlisted at schools that enroll unexplained students. As a reminder, our method of defining an unexplained student discounts a student who participated in Round 1, so it is not possible that the waitlisted students are the same students as the unexplained.

**Table 41** shows the 26 schools that enroll unexplained students and also waitlisted Round 1 applicants. There are 79 students who were waitlisted at their Round 1 first choice, a school that enrolls unexplained students. At 21 of these 26 schools, unexplained kindergarten enrollment is equal to or exceeds the number of students who were waitlisted in Round 1. One might conclude that at these 21 schools, every waitlisted student was hurt by this aspect of enrollment – they would have been accepted to their first choice if there were no unexplained students. There are 67 such students – over 7% of the total Round 1 applicant pool.

Kindergarteners Waitlisted/Displaced by Unexplained Students, 2009



The negative impact of this situation is far greater, we would assert than they 7% number suggests, although that figure on its own is significant and distressing. Our methods of defining unexplained students are conservative, and the real numbers are probably worse than what we have calculated. Secondly, lacking a better way to say it – this is flat out unfair, and if the families in that 7% group were aware of what happened, they would be furious, and rightfully so. This is something that simply must be addressed by DPS in future enrollment and choice reform efforts.

There are further equity concerns regarding unexplained students. There are important socioeconomic and racial differences between unexplained students and other out of boundary students. Before proceeding with the data and findings, we want to be clear about the fact that we do not suggest interpreting our findings to mean that individual schools or the system at large has negative intentions with regard to class or race. Instead, we wish to point out the problems that are currently occurring in these areas, and suggest that DPS and its partners in enrollment reform be mindful of them as they embark on any reform effort.

**Table 42 - Unexplained Kindergarten Students, Socioeconomic Status, and Race, 2009** shows that in kindergarten there are no significant differences as a whole among explained and unexplained students with regard to socioeconomic status. It does show, however, that 39% of unexplained kindergarteners are white while 32% of explained kindergarteners are white. This could be nothing more than differences in behavior among people - perhaps there were more white families in 2009 who felt that their chances were better of getting a coveted seat via the undocumented process. But it is worth mentioning

that at two of the most popular elementary schools in Denver, Cory and Bromwell Elementary Schools, all of the unexplained students are white.

In Grade 6 these differences are the most pronounced. **Table 43 - Unexplained Grade 6 Students, Socioeconomic Status, and Race, 2009** shows that 22% of explained students are in the paid lunch bracket, while 31% of unexplained students are in the paid lunch bracket. 20% of explained students are white, while 30% of unexplained students are white. In 6<sup>th</sup> grade, it would seem, unexplained students are more likely to be in a higher socioeconomic bracket and to be white. As in kindergarten, not every school subscribes to this trend, but there are some notable schools – Hamilton Middle School, for example. At Hamilton 40% of the explained students are in the paid lunch bracket and 40% are white, while 82% of unexplained students are in the paid lunch bracket and 73% are white. At Morey Middle School 47% of explained students are in the paid lunch bracket and 30% are white, while 58% of explained students are in the paid lunch bracket and 49% are white.

As **Table 44 - Unexplained Grade 9 Students, Socioeconomic Status, and Race, 2009** shows, there are individual schools at which this trend continues among 9<sup>th</sup> graders, but there are other schools, such as East High School, where the trend is reversed, where unexplained students are more likely to be in a lower socioeconomic bracket and less likely to be white.

The most important thing to take from this analysis, in our opinion, is the following idea: the operations of the current DPS enrollment and choice systems currently allow for problems like this to occur. Any future reform efforts should seek to design operations that address these equity issues and prevent them from arising.

### **Efficiency**

The existence of unexplained students points out inefficiencies in DPS enrollment and choice. In general terms, an efficient system might function in the following way:

- Capacities at schools are declared – this information is open to the public.
- Schools use capacity numbers to make school-level decisions about hiring, supplies, and other purchasing.
- Families who do not want to attend their home boundary school list their school choices on their applications.
- Students are assigned to schools via a strategy-proof algorithm.
- The demand data that is generated via the choice system is used by DPS to plan changes in the supply of seats.

Not one of the above basic operations is currently occurring in a healthy way, and a lot of this is due to the undocumented process and unexplained students.

- Principals know that they can/will admit students via the undocumented process and so they reduce the capacity they make available in the published Round 1 and

Round 2 processes. Furthermore, schools do not know how many students they will get via the undocumented process and they do not know how many of their own boundary students will show up, so they cannot properly anticipate the number of students they will serve in each grade in the following year.

- The families who understand that there is an undocumented process understand that they might get better results by participating that way, as opposed to participating in Round 1. Alternatively, they might list one set of preferences in Round 1 and pursue another set of schools via the undocumented process, and if they gain entry to more than one seat, they can select the one they want.
- It is impossible for anyone to know the true level of demand for a given school. The numbers in Round 1 underestimate demand because they do not take into account all of the students who approach schools on their own asking for seats. DPS administrators cannot rely on the demand data generated by Rounds 1 and 2 to make decisions about the supply of seats in the district.

The above inefficiencies might be thought of as process inefficiencies – flaws in the design of the system. There are also inefficiencies regarding the results of the current system, and these are also problems that arise because of the undocumented process and unexplained students.

The first such inefficiency is what an economist would call “justified envy,” which means exactly what it sounds like it would mean – Student A has “justified envy” if they have higher priority for a school than Student B does, yet the Student B got a seat at the school and Student A did not. When there are elaborate undocumented processes, as there are in Denver, the potential is great for many students to have justified envy. This is not relegated to students who were waitlisted in Round 1, by the way. This can occur in groups of students who successfully get a school via an undocumented process. Imagine a student A whose true preferences are for 1) School X and; 2) School Y. Imagine that this student gets a seat at school Y via the undocumented process and does not get a seat at school X. If there is a student at school X who technically has lower priority for School X than student A, then student A has justified envy. The only way to eliminate all cases of justified envy is to eliminate the undocumented process and use a student assignment system that follows the published priorities of the district.

The second type of inefficiency in results that we want to highlight is regarding something known as Pareto Efficiency. The results of a match are Pareto Efficient when no two students would willingly trade assignments. This occurs when all students, given stated school capacities, have received the best possible school assignment based on their stated preferences and priorities. Imagine for example the following students and preferences.

Student A – 1) School X...2) School Y.

Student B – 1) School X...2) School Y.

Match results – student A → School X; student B → School Y.

Given those results, the students would not willingly trade matches. Now imagine a different set of preferences, and the same results:

Student A – 1) School Y...2) School X.

Student B – 1) School X...2) School Y.

Match results – student A → School X; student B → School Y.

If both of these students have equal priority at the schools, this match result is not Pareto Efficient, and these students would happily trade schools. In a system with significant numbers of students assigned via undocumented processes, these types of results commonly occur. Only a central processing system that considers all students, all capacities, all choices, and all priorities can prevent this kind of inefficiency.

### **Accountability**

The last type of problem that arises due to unexplained students and the associated undocumented assignment process is an accountability problem. The Denver Public Schools Enrollment Guide 2010-2011 mentions Rounds 1 and 2 as the methods to use if a parent wants their child to attend a school other than their home school. There is no mention anywhere of the fact that it is possible to simply walk to a school and perhaps get a seat that way. It is difficult to imagine a scenario in which DPS leadership, if asked to explain the rules of the process to a group of parents or to the media, would add to what is written in the Enrollment guide by saying “In addition to Rounds 1 and 2, you may take your child to the school of your choice and try to convince the principal there to enroll your child.” We would assert that the current system is not one which DPS can be entirely open about.

At the same time, since the undocumented process activity occurs at the school level, there is no authoritative body for a parent to turn to if they are unsatisfied with the results of the process. Imagine a parent who feels that their child should have been admitted via the undocumented process instead of another student with lesser qualifications. To whom should this parent address their complaints? The undocumented assignment process functions without a central body of accountability, and as we have already shown, it compromises the integrity of the published processes.

In spite of the issues raised in examining enrollment of unexplained students, and the problems that arise due to the presence of undocumented assignment processes, it is worth asking why the problem is not more pervasive in kindergarten. If schools can hand-select students via an undocumented process, it stands to reason that they would do so very frequently in kindergarten, when the school can keep the students they select for many years. In attempting to discover why the problem of unexplained students is not more pervasive than it is in kindergarten, we uncovered what we feel is an equally troubling situation involving the Early Childhood Education (ECE) process and its impact on kindergarten enrollment. In the next section of this report we will describe the ECE problems and their impact on enrollment and choice.

## **Part V – Early Childhood Education**

### **A. Brief Summary of the Early Childhood Education Process.**

Three and four year olds can take part in Early Childhood Education (ECE) programs in DPS by participating in the application process that basically runs along the same timelines as the Round 1 process. There are ECE programs in every DPS elementary school except for Bromwell Elementary School. Tuition for these programs is \$750/month for full day programs and \$375/month for half day programs.

Parents fill out applications and submit them to DPS administrators, along with proof of the child's age, and information on family residence and income. DPS has a unit called the Early Education Processing Unit that is dedicated to the verification and processing of this information. This unit is staffed by 12 people whose main role is verification of ECE application data.

Families wishing to attend ECE programs at their home boundary schools may make that one choice on the ECE application. Families wishing to attend ECE programs outside of their home boundary school may make two choices on their applications.

Students are not guaranteed a seat in an ECE program, not even at their boundary school. Home boundary applicants get priority for admission, but not a guarantee. The Early Education Processing Unit within DPS generates applicant lists and sends them to principals. Principals go through the lists, indicate which students they will accept into their ECE programs, and send the lists back to DPS. Principals can write in the names of students they will take and they can skip over names on the list if they want to. They are in full control over who is admitted to the programs at their schools.

One problematic aspect of this process is the fact that principals hand select students for ECE programs, and they do so with access to information that presents a potential conflict of interest. They are not held accountable for whether or not they follow the published priority rules.

The effect of this problem is greatly amplified when one considers the fact that Board policy states that the highest priority among students applying in Round 1 goes to students who are currently attending the school. This means that students who manage to secure a seat via the ECE process are essentially guaranteed a seat at that school for the rest of elementary school. This section of the report focuses on these problems, and will show the impact of out of boundary ECE students on kindergarten enrollment.

### **B. Enrollment of ECE Students.**

For this analysis we will begin with students who attended ECE programs in the 2008 school year, so we can follow them through the 2009 school year. This means that we will be working with a smaller data set than had we begun with 2009 students, but

beginning with students in 2009 does not allow us to follow them to the next year of enrollment. When examining the 2008 ECE students, we will limit ourselves to looking at those students who moved on to kindergarten in 2009, discounting those students who remained in ECE programs in 2009.

**Table 45 - ECE Students Sorted by Home School Attendance, 2008** shows that there is great variation among schools in out of boundary ECE enrollment. There were 957 students (36%) enrolled out of boundary in ECE programs in boundary schools in 2008. Some schools enroll very low percentages of out of boundary ECE students, such as Westerly Creek, William (Bill) R. Roberts, and Cory Elementary Schools at 2%, 4%, and 5% respectively. Other schools enroll many out of boundary ECE students, such as Lincoln, Barrett, and Carson Elementary Schools, at 90%, 83%, and 71% respectively. There are 53 elementary schools in 2008 where at least 25% of ECE enrollment was out of boundary students, and 19 schools where at least 50% of ECE enrollment was out of boundary students.

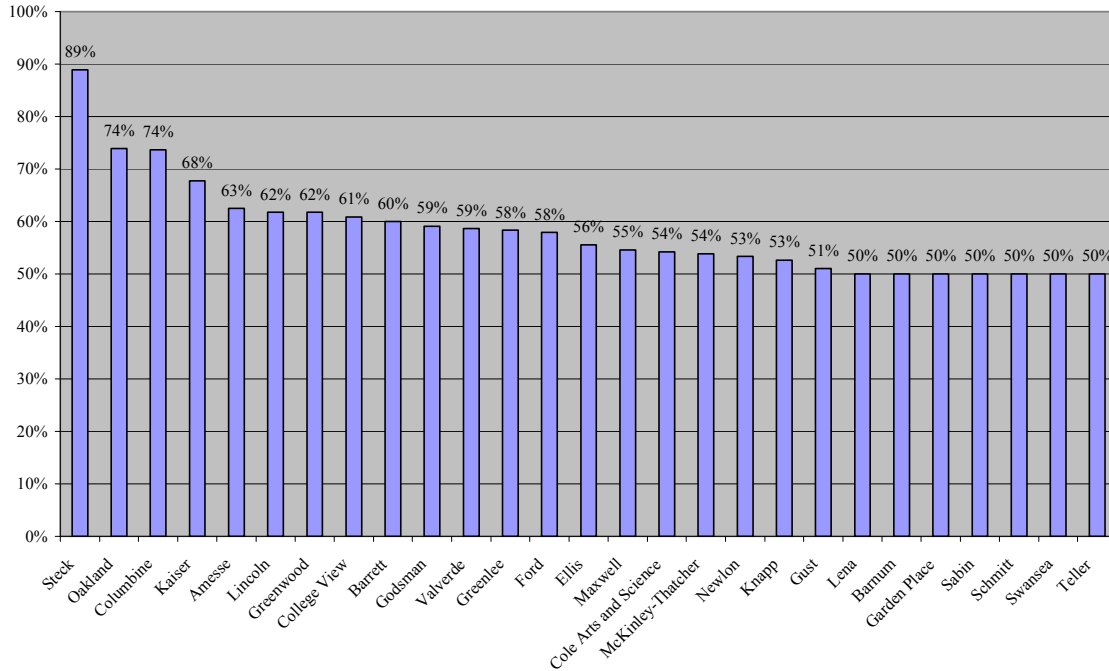
It is interesting to look at these students through the lens of demographics, considering that principals hand select students, and the students have top priority to remain at the schools throughout the entirety of elementary school. **Table 46 - ECE Students by Socioeconomic Status, by Race, and by Boundary Status, 2008** shows that ECE students are not significantly different from students in other grades regarding socioeconomic status or race. Examining individual schools, however, can be disconcerting. Brown Elementary School, for example, enrolls 18 students in the paid lunch bracket and 23 white students in their ECE class. Of Brown's out of boundary ECE students, 11 are in the paid lunch bracket (65%) and 17 are white (100%). 7 of Brown's boundary ECE students (54%) are in the paid lunch bracket and 6 boundary students (46%) are white. At Steck Elementary School 28 ECE students (90%) are in the paid lunch bracket and 27 students (87%) are white. 20 of Steck's 21 out of boundary ECE students (95%) are white. These schools, and others like them, seem to be shaping the out of boundary portion of their incoming kindergarten classes.

These and other examples could be random occurrences that reflect the nature of the demand for schools, or they could reflect a selective bias at certain schools. The salient fact here, regardless of the purity of intent on the principal's part, is that these students are hand selected – their applications are not processed by a failsafe computer mechanism. And the out of boundary portion contingent has a virtual guarantee to continue on at the same school for kindergarten and thereafter. In other words, principals can use the ECE process to shape their entire schools. And principals are not accountable for how they actually do this.

**Table 47 - 2008 ECE Students as a Portion of 2009 Out of Boundary Kindergarten Enrollment** shows that 735 out of boundary ECE students stayed at their schools for kindergarten in 2009. That is 42% of the total out of boundary population at these same schools. In real terms, this means that almost half of the out of boundary kindergarten population at these schools is hand selected by principals, and those students may remain throughout elementary school.

Some schools fill most of their out of boundary kindergarten seats this way. Steck Elementary School, for example, filled 89% of its 2009 out of boundary kindergarten seats via the previous year’s ECE process. There are 27 schools that filled at least 50% of their 2009 out of boundary kindergarten seats via the 2008 ECE process.

Out of Boundary ECE Students as Percentage of 2009 Out of Boundary Enrollment



In Summary, the ECE process is essentially a hand selection process via which principals shape their kindergartens, and eventually their entire elementary schools. They are not accountable for who they select. Because such a large proportion of ECE students make up the out of boundary portion of kindergarten classes, parents who understand these factors must look at ECE as the true mechanism of school choice in Denver.

When continuing ECE students are examined in combination with unexplained students of the previous section of this report, the overall numbers are rather telling. 103 of the kindergarten unexplained students are also ECE students who continue at the same schools in 2009, and to avoid double counting these students we removed them from the “ECE Continuing” column and left them in the “Unexplained” Column of **Table 48 - Portion of Out of Boundary Kindergarten Enrollment Taken up by Unexplained and Continuing ECE Students, 2009**. **Table 48** shows that fully 60% of capacity for out of boundary kindergarteners at boundary schools is taken up by the combination of unexplained and continuing ECE students.

**Table 48** shows that at some schools, almost all out of boundary capacity is taken by these students. For example, Columbine, Steck, and Centennial Elementary Schools use

95%, 89%, and 89% respectively of their out of boundary capacity on unexplained and continuing ECE students. There are 21 schools that use at least 70% of their out of boundary capacity in this way. This obviously means that very few kids who participate in Round 1 have access to these schools – most of the students are hand selected.

**Percentage of Out of Boundary Kindergarten Enrollment Used by Unexplained and Out of Boundary ECE Students**

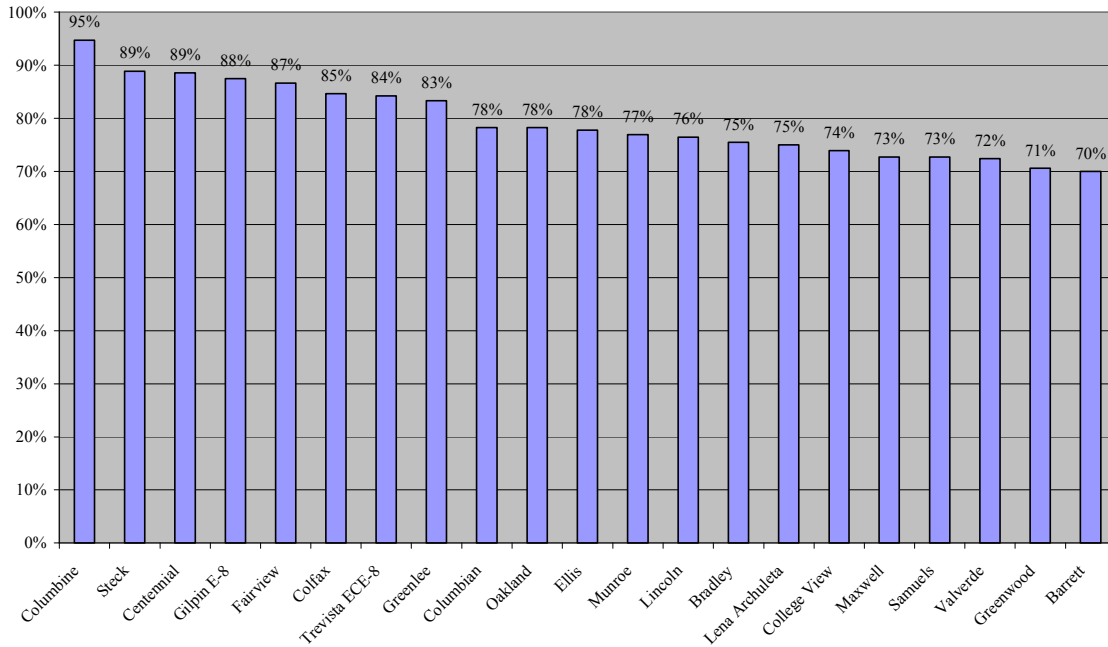


Table 50 shows that the schools on the low end of the scale take at least 25% of their out of boundary students this way. For example, Cory Elementary School, the school that uses the least of its out of boundary capacity on unexplained and continuing ECE students, still uses 26% of its out of boundary capacity this way.

Although the majority of out of boundary enrollment at boundary schools occurs via undocumented processes, there are still groups of students who do participate in Round 1. The next part of this report focuses on the actual Round 1 student assignment mechanism, and finds flaws that result in inequity and the incentive to misrepresent choices.

## **Part VI – Round 1 Assignment Mechanism Flaws.**

### **A. Explaining the Round 1 Assignment Mechanism.**

The assignment mechanism used at DPS is similar to the one that was previously used in Boston Public School, and is currently used at many of the schools districts that manage school choice systems. The DPS assignment mechanism works in the following way:

- Each student submits a list of preferences.
- Each school adheres to a priority order when considering applicants:
  - ⇒ First priority - Currently attending students.
  - ⇒ Second priority - Students returning to their boundary schools (\*).
  - ⇒ Third priority - Denver residents with siblings attending the school.
  - ⇒ Fourth priority - NCLB.
  - ⇒ Fifth priority - Denver residents
  - ⇒ Sixth priority - Non-residents with siblings attending the school.
  - ⇒ Sixth priority - Other non-residents.
- Student assignment is based on preferences and priorities, and proceeds according to the following steps:
  - ⇒ Step 1 – only the first choices of each applicant are considered. For each school, consider those students who have listed the school as their first choice, and assign those students one at a time, following their priority order until either there are no seats left or there are no remaining students who have listed it as a first choice.
  - ⇒ Step 2 – Consider the remaining students who were not assigned in Step 1. Only the second choices of each applicant are considered. For each school, consider the students who have listed the school as their second choice and assign the students one at a time, following their priority order until either there are no seats left or there are no remaining students who have listed it as a second choice.

(\*) – There are no Kindergarteners in the data set who are entitled to second priority for their 1<sup>st</sup> choice schools, and only 19 elementary school students are entitled to this type of priority in 2009.

### **B. Round 1 Mechanism Flaws.**

#### **The First Choice is the Only Real Choice.**

One of the main problems with the Round 1 mechanism is that it reduces the number of meaningful choices – the first choice is the only meaningful choice in this system.

Popular schools, those at which the number of first choice applicants exceeds the number of available seats, will use all of their Round 1 capacity in Step 1 of the mechanism. Anyone listing such a school as a second choice has no chance of being accepted to the school, regardless of how high their priority might be. Imagine, for example, Student A, who has third priority (resident, sibling attending) at School X. If Student A lists school X as a second choice, doesn't get accepted at their first choice, and if School X fills with students who listed School X as their first choice, Student A will not be admitted. Even if the students admitted to School X in Step 1 have lower priority to School X than Student A does.

There are families who understand the flawed nature of the mechanism, and families who do not understand. Although it is impossible to tell who understands and who does not, one can easily see from the data that very few people bother to make second choices.

**Table 49 - Kindergartener's First and Second Choices, and Results by School, 2009** shows that there are 915 kindergartners who participated in Round 1, and only 75 of them (8%) made a second choice. There are no students in grade 6 or grade 9 who made second choices.

**Table 49** shows that of the 23 schools that received second choices, only 8 of them accepted students. The acceptance rate among first choices was 87%, and the acceptance rate among second choices was 17%.

This mechanism flaw has several implications. A mechanism that functions this way forces the families who understand the mechanism to behave differently according to their individual tolerance for risk. The results are inequitable – not everyone can request popular schools because not everyone can risk being shut out of those schools.

Imagine two families, both with the same set of preferences:

- 1) Bromwell Elementary
- 2) Steck Elementary

Imagine further that family A would send their child to their boundary school for kindergarten, but only if they are not admitted to Bromwell or Steck. Imagine that family B, however, is not willing to send their child to their home boundary school. If family B fills out their application and lists their true preferences as above, they risk being forced to attend their home school if they are not accepted at either of the choices.

The overall effect of this is to un-level the playing field, to give the families who are entitled to attend a “good” school because of their home address the ability to take risks with their choices, to list the popular schools. But not everyone can behave this way if they understand the mechanism – those families who are not satisfied with their boundary schools must be less risky with their choices, and consider listing schools that are not as popular. Or they might simply opt out of Round 1 and try to get a seat via the undocumented process.

### Misrepresenting and “Wasting” Choices.

The Round 1 mechanism gives some families the incentive to misrepresent their choices. Even if a family has very high priority at a certain school, unless they list the school as their first choice, they lose priority at that school. It is quite rational to expect some of these parents to misrepresent their true choices, and list instead the schools that they have the highest priority for. These families might reason that it is better to secure a spot at a school they like, instead of trying for a school they prefer but have low priority for.

Another common reason for misrepresenting choices under this type of assignment mechanism is when a family has two choices that are very close to each other in their level of preference. If the family is concerned that there are too many other people who will list their true first choice, the family might omit that school from their application and list their true second choice first, instead of “wasting” their first choice on a school that seems as if it will be too popular.

Un-savvy parents, those who are not aware of or are incapable of understanding the problems inherent in the Round 1 mechanism are at risk of reducing their chances for success when they list their choices truthfully. For example, imagine a parent who has low priority for a popular school and is not satisfied with their home school. If this parent still lists the popular school that is their true preference, they risk being closed out of the popular school and being assigned to their boundary school. Had they understood the Round 1 mechanism they might have considered listing a less popular school as a first choice.

It is not possible to identify in the data the choices that are true preferences and those that are misrepresented preferences. It is not possible to identify those that were made by un-savvy parents. We can, however, define and identify “wasted choices,” choices that seem to disregard the logic of the assignment mechanism by requesting schools although the student has low priority.

**Table 50 - Kindergarten “Wasted” Choices at Popular Schools, 2009** shows that there are 57 kindergarteners who listed popular schools as second choices (popular is conservatively defined as schools that waitlisted at least one of their first choice applicants). Of these 57 students, 6 were accepted and 51 were waitlisted, and these 51 made what could be called “wasted” choices.

**Table 50** also shows that students listing popular schools as first choices are more likely, as expected, to be accepted as higher priority applicants. It is interesting to note that once the top two priority groups (currently attending and resident sibling attending) are exhausted, only 46% of applicants in the third priority group were accepted at popular schools. This is a long drop from the 77% acceptance rate among priority group 2 (resident sibling attending) applicants. There are 82 students in priority group 3 (other district residents) who were waitlisted at popular schools. Those families might have been better off had they listed less popular schools as the first choice on their application.

That statement has become a common refrain in this section of the report: "...might have been better off if they had considered listing less popular schools on their application." Although this is good advice to give to families participating in Round 1 who are unsatisfied with their boundary school option, it is not something that DPS could publicly state, and it is symptomatic of a flawed assignment mechanism.

In summary, The DPS Round 1 mechanism is flawed in that it makes second choices unimportant, and in that it unintentionally entrenches already existing inequities. Families whose boundary schools are considered to be good schools can take risks in Round 1 that other families cannot take, as the consequences of being shut out of a first choice school (and then most likely a second choice school too) are unpalatable for some. Those who are savvy understand that it is sometimes good strategy to misrepresent choices, and those who are un-savvy are in danger of "wasting" choices by listing their true choices.

## **Part VII – Recommendations for Enrollment and Choice Reform.**

The following are broadly described recommendations for DPS enrollment and choice. They should not be seen as a sort of shopping list from which individual items may be purchased, and from which something is better than nothing. These are ideas that when taken together can create a healthy, equitable, and efficient enrollment and choice system.

### **A. Create a Universal Application.**

If parents are given sufficient time and information, they are able to make a list of the schools they want for their children, in order of their preference. Some of the schools on their lists will be DPS boundary schools, others will be charter schools, others will be DPS magnet schools, and others might be non-public schools, and so on. No matter the content, every parent is able, again given ample time and information, to construct such a list.

The most efficient way to manage enrollment and choice is to require such a list from parents, and then to process and assign students using this list, giving every student a single best offer. Currently in Denver, charter schools have their own applications, magnets do too, and Round 1 is a separate process. Students can receive offers to more than one school, and the overall time it takes to process every student is much greater than it would be if students received one "best" offer. There are also fewer students getting what they want when some students get offers to more than one school.

A universal application would require a new set of operations that can accommodate all of the enrollment calendars at various types of schools, but it would offer those schools a whole new and entirely improved means of predicting their final register numbers way in advance of the following school year. A universal application would also require unprecedented cooperation on the part of charter schools and DPS boundary and magnet schools – all entities would need to submit to one common processing system.

## **B. Centralize the Enrollment and Choice Processes.**

Too much of enrollment and choice in Denver right now is decided at the school level. Respecting the notion that schools know what is best for their own populations, and should make enrollment decisions locally, the **types** of decisions that schools are currently making are inappropriate. Schools should strategize about how to market their schools to other students, about how to increase demand among out of boundary students, or among boundary students, or about recruitment issues in general. Schools might have specific enrollment needs in a given year, and should focus energies on communicating with DPS administrators and pleading their case for fewer incoming 6<sup>th</sup> graders, for example, or for one fewer kindergarten class because of construction, as another example.

Schools should not be deciding which students will be granted a seat, and which will not. Schools should not be manipulating capacity by enrolling students via undocumented processes. Schools should have nothing whatsoever to do with the processing and assigning of students. Yet in Denver right now, schools do all of those things and there is no accountability regarding their conduct in these operations. Schools should no longer have the operational ability to enroll students on site – all enrollment manipulations should be centrally processed, and all students wishing to attend schools other than their home schools should participate in Round 1 and/or Round 2.

The system should function, in very broad terms, as follows:

- Schools and DPS administrators work together to declare the capacity.
- Parents have ample time and information, and submit choices in order of preference.
- All parents entering DPS schools for the first time submit an application, even if they simply want their boundary school.
- DPS processes applications and assigns students in Round 1 and Round 2.

## **C. Implement a Strategy-Proof Student Assignment Algorithm.**

DPS must use a strategy-proof student assignment algorithm. The current mechanism is flawed, as discussed earlier in the report. A strategy-proof algorithm is one whose properties induce parents to state their school choices in the true order of preference. There are several types of algorithms that DPS could use for this, and there are experts who can help select and build a strategy-proof algorithm to suit Denver's specific needs.

## **D. ECE Processing Changes.**

Principals currently hand select their ECE classes and there is no operational necessity for this. The priorities conferred upon students based on the ECE process make ECE the most important aspect of enrollment in Denver. One way or another, the opaque ECE

selection process should not continue to have such a large impact on kindergarten (and thereby elementary school) enrollment.

If DPS continues to allow principals to hand select ECE students, it should not continue to give ECE students top priority when applying in Round 1 for kindergarten seats. Alternately, DPS might process ECE applicants via an assignment algorithm, they way all other choice applicants are currently processed.

### **Part VIII – Conclusions**

Very few students participate in the DPS Round 1 or 2 school choice processes. 13% of kindergarteners participated in 2009, 10% of 9<sup>th</sup> graders – those are the highest participation rates among all grade levels in 2009. There are many students, however, who attend boundary schools as out of boundary students – 33% in elementary school, more in the upper grades.

The published processes by which students can request enrollment at a school that is not their boundary school do not account for a large portion of out of boundary enrollment. 29% of kindergarten out of boundary enrollment at boundary schools in 2009 cannot be explained via Rounds 1 and 2 or administrative transfers. In other words, there are many students who have exercised choice and attend a boundary school that is not their own boundary school, yet there is no published mechanism by which these students participated.

The ECE process has an unintended effect on elementary enrollment. 42% of total kindergarten out of boundary enrollment at boundary schools is composed of out of boundary ECE students. When considering unexplained students and ECE students together, 60% of total out of boundary capacity at boundary schools is used by students who are hand selected.

Finally, the Round 1 student assignment mechanism is flawed, and encourages families to strategize when listing choices, perhaps misrepresenting their true preferences. Very few (8%) of students in kindergarten even bother to make a 2<sup>nd</sup> choice, as under this algorithm, the 1<sup>st</sup> choice that is of paramount importance.