

The Lottery That's Revolutionizing D.C. Schools

A Nobel Prize-winning economist designed an algorithm that transformed where Washington kids go to school. But how far can it go in addressing segregation and inequality?



Taylor Johnson on her way to KIPP DC College Prep in Northeast Washington.

Story by **Thomas Toch**

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On a snowy December Saturday in 2017, Crystal and Sean Goliday and their young son, Noah, were among some 5,000 District of Columbia families streaming into the D.C. Armory next to RFK Stadium. Inside, staff from nearly all of the city's 236 charter and traditional public schools were pitching their schools to passersby from long rows of brightly decorated, swag-filled booths set up on the armory's hardwood floor.

At EdFest, Washington's citywide school fair and a modern-day education bazaar that would have been hard to contemplate a generation ago, high schools even had their cheerleaders out. Coaches held up uniforms to entice recruits. The Golidays were excited but anxious as they moved through the crowds. Crystal owned a townhouse in

suburban Upper Marlboro, Md., when she and Sean met, but they wanted to raise a family in the city, in a predominantly African American neighborhood where their investment in a home would grow. So they bought a small, 70-year-old rowhouse in the Deanwood neighborhood, just over the Anacostia River from RFK. They didn't want their low-performing neighborhood school for Noah, who would be starting preschool eight months after EdFest, but they hoped to stay in Ward 7 rather than return to the suburbs or pay for private school. They were looking for other public options. In Washington, students could attend any traditional public school with open spots, and nearly half the city's public school population attended charter schools, publicly funded but privately operated.

Crystal and Sean tried to read the body language of representatives of popular schools as they worked their way up and down the aisles at EdFest. "We'll never get in here," Crystal sighed, sizing up the crowd at the Washington Yu Ying Public Charter School booth, a Chinese-English immersion program.

Like many of the city's more affluent families, Crystal was drawn to specialized schools such as Yu Ying.

After exchanging pleasantries with the principal of Cleveland Elementary, a Spanish-English bilingual school run by D.C. Public Schools, the city's traditional school district, Crystal asked, "Can you tell me, honestly, our chances?"

"Really, honestly, you have to just try the lottery," the principal responded.

"We're concerned that we'll be stuck with the neighborhood school," Sean told me a short time later, as he darted after Noah. He liked a high-achieving school on Capitol Hill that uses the Reggio Emilia educational philosophy.

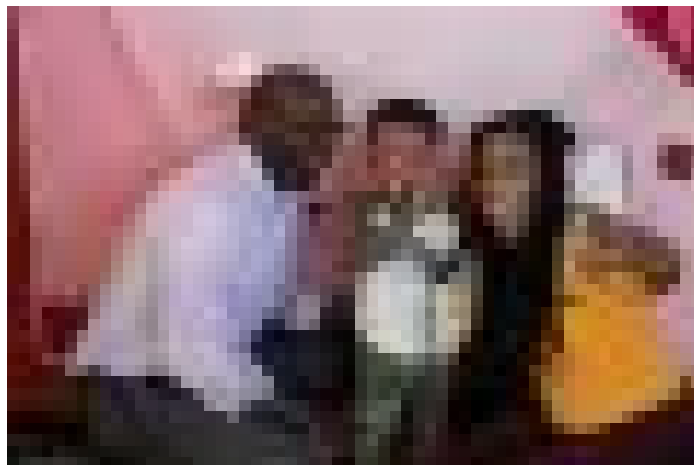
"Sean and I both went to city public schools," Crystal said. "We want Noah to be challenged." The Golidays were also drawn to schools that were racially and socioeconomically diverse. They didn't want Noah to be among the only African American students in his school.

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Taylor Johnson, an eighth-grader at Democracy Prep Congress Heights Public Charter School, had different priorities at EdFest. A fourth-generation Washingtonian, she had grown up in a two-bedroom apartment with her mother and father and twin brother, Todd, in the Southeast Washington neighborhood of Congress Heights, just a few blocks from Democracy Prep. The following school year, 2018-19, she and Todd, who goes by T.J., would be in high school.

Their mother, Kelli Johnson, graduated from nearby Ballou High School and was the first in her extended family to earn a college degree. Taylor, partial to jeans, sneakers and big earrings, had aspirations beyond high school. “I want to go to college,” she told me. “Be a teacher or do cosmetology.” Ballou had a cosmetology program, but it was among the lowest-rated schools in the city, and Taylor wasn’t impressed when she visited. “People were playing in class, teachers weren’t teaching,” she said.

Taylor and her brother lived in one of the toughest neighborhoods in the city. A week after I visited Democracy Prep last year, a Ballou student was fatally shot in the middle of the afternoon across the street from Taylor’s school. “I’ve asked to go somewhere where I know I’m safe,” the 14-year-old told me.



Pre-K student Noah Goliday with parents Sean and Crystal Goliday at a Valentine's Day event at Elsie Whitlow Stokes Community Freedom Public Charter School.

Her parents didn't need any convincing. To the Johnsons, that meant going to high school on the other side of the Anacostia River. At EdFest, Taylor bypassed Ballou, Anacostia High School, Friendship Tech Prep and other Ward 7 and 8 schools. It was the pitches by McKinley Tech, KIPP DC College Prep, E.L. Haynes and the Duke Ellington School of the Arts in Georgetown that she wanted to hear.

Public school choice has expanded steadily in the nation's cities since the first magnet schools emerged nearly five decades ago as a way to desegregate public school systems voluntarily, and especially since the start of charter schooling in the early 1990s. But in Washington and the rest of the country, taking advantage of expanding school options traditionally meant navigating myriad application timelines and deadlines without information to make clear comparisons. It meant oversubscribed schools pulling names out of paper

bags, families pitching tents on sidewalks — or paying others to camp out for them — to get to the front of wait-list lines, and schools cherry-picking applicants to get the most attractive students: a system favoring the well-educated, the wealthy and the well-connected.

For schools, the system made planning almost impossible. Many students were admitted to multiple schools but didn't let schools know their plans — causing thousands of wait-listed students to change schools through September and early October, leaving schools guessing about revenue and staffing, and disrupting instruction. Now, the Johnsons and the Golidays were following a very different route. Since the 2014-15 school year, the District's 93,000 public school students have selected traditional public schools and charters through a single centralized application process powered by a computer program that matches as many students as possible to their top choices.

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Launched by then-Mayor Vincent C. Gray and run by a unit in the Office of the State Superintendent of Education called My School DC, the common enrollment system starts with schools submitting lists of open spots. Students or parents set up accounts on the My School DC site and rank their preferences, applying to as many as a dozen schools after searching with a My School DC search engine, via fairs like EdFest, or by attending public school open houses.

My School DC gives students random lottery numbers. Then an algorithm works to place as many students as possible in the schools they want, giving those with better lottery numbers an edge when schools are oversubscribed.

Students are automatically placed on the wait lists of schools they've ranked but aren't matched with, including schools higher on their lists than schools they are matched with. And My School DC matches wait-listed students as spots become available. Parents and students can track their standing online.

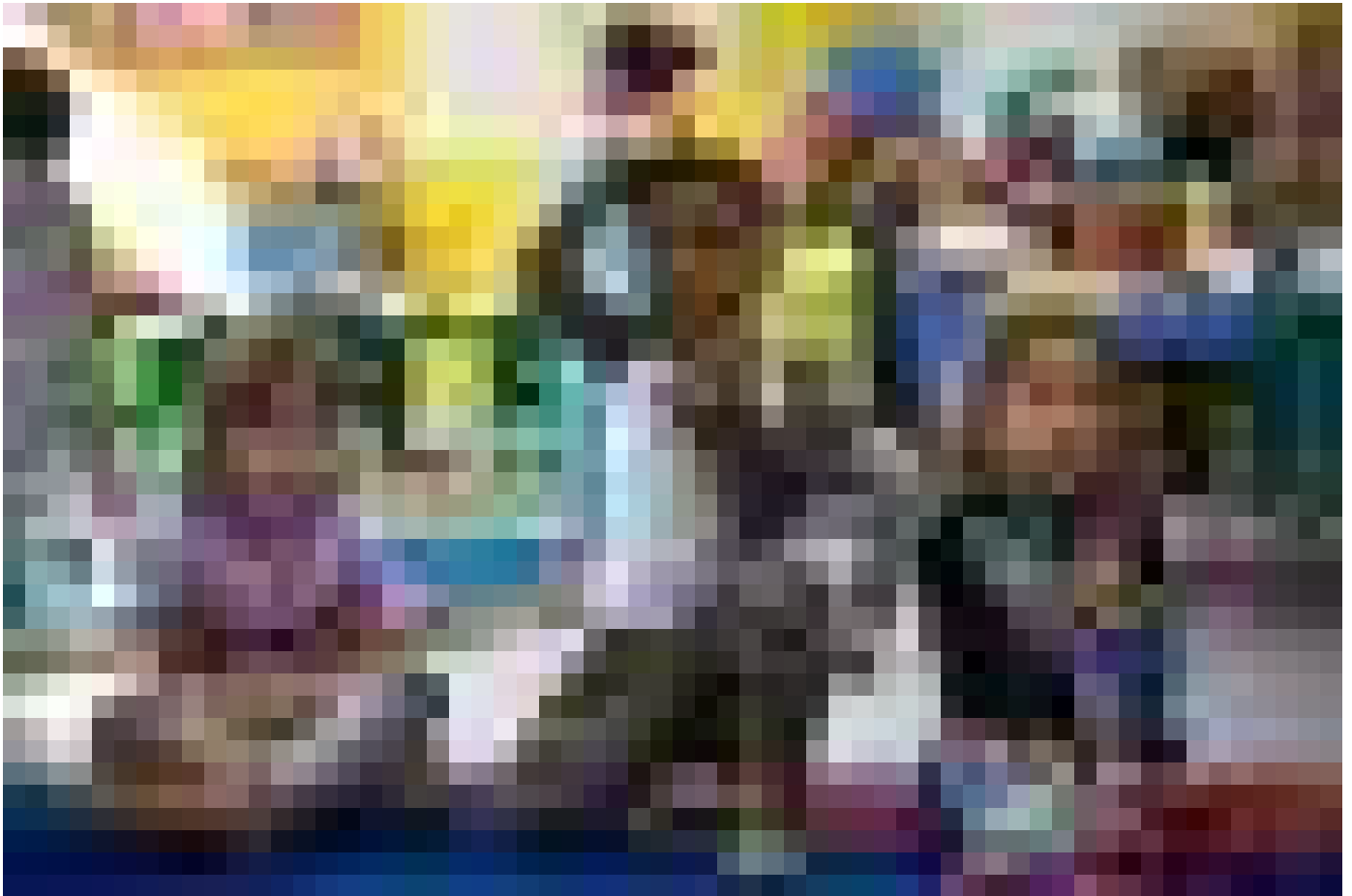
Every student in the city is guaranteed a spot in a neighborhood DCPS school. Today, though, with families able to move beyond neighborhood school boundaries, only 27 percent of Washington's public school students take that option.

Because My School DC's software places students, the system levels the playing field for families who lack

political connections or the time and resources to stand in lines, lobby school principals and complete scores of applications. The algorithm rewards the ranking of schools in students' true preference orders, removing any advantage of attempts to game the system. And a common online application process eliminates multiple deadlines, lost paperwork and the cost to schools of hiring people to input thousands of paper applications.

The common enrollment system is an important window into Washington's changing educational landscape — generating a trove of information about school preferences that is shaping city leaders' thinking about what kind of schools to create and where to put them. It is also making public education more transparent for families, and bringing new competitive energy to both traditional public schools and charters, even as it has led the two types of schools to work together in mutually beneficial ways. And yet, for all its success, My School DC has suggested that there are limits to what school choice can accomplish — especially as an antidote to the racial

and socioeconomic segregation that plagues education systems nationwide.



Noah Goliday in class at Elsie Whitlow Stokes Community Freedom Public Charter School.

The Golidays and Johnsons had a Nobel Prize-winning Stanford University economist named Alvin Roth to thank for the My School DC enrollment system. He grew up in Queens, the son of public high school teachers who were less than pleased when he stopped going to classes his junior year. A Columbia University engineering professor who had been working with Roth in a

weekend science program for talented high-schoolers rescued him by getting him into the Ivy League school at the start of what would have been his senior year, without a high school diploma. He went on to earn a Stanford doctorate and a Harvard professorship.

Roth, now 67, gravitated to matching markets, where parties must choose one another, through applications, courtship and other means. In 1995, he wrote a mathematical algorithm that greatly improved the efficiency of the system for matching medical school graduates to hospitals for their residencies. That work led him to improve the matching models for law clerkships, the hiring of newly minted economists, Internet auctions and sororities. “I’m a market designer,” he says. “Currently, I’m focused on kidneys. We’re trying to match more donor kidneys to people globally.”

He brought his expertise to the education sector when he was teaching at Harvard. He got a call in 2003 from a New York City Department of Education official who had read his work on residency matching and wanted him to redesign New York’s

dysfunctional high school enrollment system. In New York, which has the nation's largest public school district, high school choice is mandatory. Every year, the city's roughly 80,000 eighth-graders must select, via application, from more than 700 programs spread across New York's five boroughs. The system was surpassingly stressful for families, who were forced to put at the top of their lists schools they thought would be less popular rather than schools they really wanted to attend. It was also rife with cronyism, and thoroughly ineffective. At the end of the months-long process, some 30,000 students were left without schools to attend.

Roth and a star Harvard graduate student, Parag Pathak, the son of Nepalese immigrants and now an MIT professor, adopted Roth's medical match methodology to streamline the New York system, working with another market expert, economist Atila Abdulkadiroglu, now at Duke. In 2012, Roth won the Nobel Prize in economics for his matching work, including the New York project.

After students' school selections and lottery numbers are uploaded into a computer, Roth explained in his modest office in the Stanford economics department, the machine executes a vast number of nearly instantaneous school placements, "making temporary matches that are constantly revised as schools are filled with students that rank them higher and have higher tie-breaking lottery numbers." Unmatched students cascade through the system, as the computer works to match them to their next-highest choices.

"The model gives students who don't get their first choices just as much chance of getting their second choices as if they had ranked their second choices as their first choices," Roth told me, "permitting every family to put the schools they want most to attend at the top of their lists and putting more students in schools they want to be in. Children who grow up in poorer neighborhoods shouldn't be condemned to go to poorer schools."



Todd Johnson, who goes by T.J., outside McKinley Tech. T.J. had been interested in McKinley Tech and Banneker Academic High but made McKinley his first choice.

Promoting school choice isn't a universal goal among public educators. Administrators worry the common enrollment model could encourage more students and funding to flow to the charter sector. Charter leaders, especially at popular schools, worry about losing control of their enrollment and losing market share to other charters. Former D.C. schools chancellor Antwan Wilson rejected common enrollment in his prior job leading the Oakland, Calif., school district in the face of intense

pressure from unions and traditional public school advocates — only to lose his next job over the policy when he sidestepped the My School DC system in placing his daughter in a DCPS high school last year.

But in Washington, the teacher union is weak, and Wilson’s predecessor, Kaya Henderson, and her counterpart in the charter sector, Scott Pearson, the executive director of the D.C. Public Charter School Board, saw common enrollment as a way to help schools and students. A supporter of school choice, Henderson had improved lotteries for preschoolers and students seeking schools outside of their neighborhoods. In 2011, she launched a common application for DCPS’s half-dozen selective high schools. “We were driving D.C. parents crazy” by having schools manage their own enrollments, she told me.

And the annual game of musical chairs in charter admissions made it tough to know who would show up at her DCPS schools. The picture would be a lot clearer under Roth’s common enrollment system, she sensed. Schools would get real-time updates on new

applicants and on how many current students were applying out. Wait lists would be immediately updated when a student accepted a spot, providing invaluable enrollment information for planning purposes. And a year-end report would tell school leaders where else their applicants applied, highlighting each school's top competitors. It would be like Amazon, a My School DC staffer told me: "Shoppers who looked at this product also looked at these other products." (Amazon CEO Jeffrey P. Bezos owns The Washington Post.)

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Pearson viewed Roth's model as a way to cut the cost and confusion of having more than 60 charter school organizations running their own application systems. Just as important, it was a way to counter the growing perception that some charters were working to exclude challenging students. The computer-driven system thwarts schools' attempts to discourage tougher-to-educate applicants — a problem in the expanding public school choice landscape. And it does schools no good to hold back spots from the lottery in an effort to fill them on their own; they can no longer draw on their wait lists selectively now that My School DC manages the lists. To Pearson, the new system “removes any sort of shadow that people cast on charter schools of gaming the system, of being secretly selective.”

Abigail Smith was developing the charter sector's common deadline when Gray named her deputy mayor for education in 2013. Building a single citywide public school enrollment system powered by Roth's algorithm was her top priority. “You're always in a situation where the rich and the

powerful are going to find a way to maximize the system,” Smith told me. “The idea is to level the playing field as much as possible.”



T.J. Johnson practicing the trombone after school.

The Golidays, who moved to the Washington area to attend graduate school, had been exploring the world of D.C. schools since Noah was 1. Crystal tracked Moms on the Hill (MOTH), an online group of thousands of mostly middle-class parents, and visited schools citywide, collecting what she learned in

a detailed spreadsheet. Sean was drawn to the experiential learning at the center of the Reggio Emilia school. And they both liked the “sense of community” at Elsie Whitlow Stokes Community Freedom Public Charter School, a French- and Spanish-immersion charter near Catholic University.

The school had an International Baccalaureate program, high test scores and a diverse student body and faculty. It also had established a partnership with three other dual-language elementary charter schools to send their graduates to DC International School, a dual-language charter middle school-high school. “It would give us a clear path to graduation,” Crystal said. And so, they put a campus that the school was opening east of the Anacostia at the top of their list, hoping that the large number of spots there would work in their favor.

On Monday morning, two days after EdFest and hours after the My School DC application season opened, the Golidays typed their 12 choices into Noah’s portal on the My School DC website and hit send, making them

among the first of nearly 25,000 D.C. families seeking spots outside of their neighborhoods, almost a third of them for preschoolers like Noah. Four months later, they would learn Noah's fate.

Meanwhile, the Johnsons weren't alone in wanting out of Southeast schools. The flow of students under the common enrollment system has been almost exclusively from east to west, says E.V. Downey, who until recently helped about 400 mostly younger middle-class families a year navigate the public school choice landscape, charging them a few hundred dollars a year as a consultant.

Middle-class African Americans living in Hillcrest and other more-affluent enclaves east of the Anacostia, she says, have bypassed the many highly structured charter schools in their neighborhoods in favor of schools in Brookland, Petworth and other neighborhoods closer to the center of the city that stress art, music and

exploratory learning, which are also draws for middle-class white and Latino families. But the commitment of families like the Johnsons to attend schools across the Anacostia River meant that they bypassed not only Ballou and Anacostia High, but also Thurgood Marshall Academy, a highly rated Ward 8 charter school that has struggled to fill its spots in a neighborhood that many families have sought to escape.

Todd Johnson (T.J.), wiry and sporting a fade haircut, was a good student at Jefferson Middle School Academy, where just 18 percent of students met the city's math standards, and where he played trombone in the band, ran track and captained the boys' basketball team. He and Taylor and their parents toured several schools, including two of DCPS's half-dozen selective high schools, which required students to meet their admissions standards before including the schools on their My School DC applications.

With many families lacking Internet connections, My School DC makes public service announcements on radio and Metro buses.

T.J. got a thumbs-up at both McKinley Tech and Banneker Academic High but made McKinley his first choice, he told me, because the school's sports program was stronger. Taylor didn't get interviews at either school and shifted her focus to Washington Leadership Academy and KIPP DC College Prep. They both got their applications in before the My School DC deadline, T.J. using a computer in his middle school library, Taylor applying from home before running out the door to cheerleading practice.

With many families lacking Internet connections or transportation to traverse the city researching schools,

My School DC spends a substantial part of its \$2 million annual budget helping disadvantaged families — including training guidance counselors and other school staff to assist families with applications; hosting information sessions at recreation centers, homeless shelters and other city agencies; and making public service announcements on radio, social media and Metro buses. A nonprofit called DC School Reform Now counsels hundreds of low-income families a year and produces a series of Zillow-like virtual school tours. And enabling families to submit applications via smartphones has helped bridge the city's digital divide.

My School DC has reduced to under 300 a year the number of students that schools enroll outside of the centralized system. In an effort to drive the number lower, the My School DC board last summer gave itself the authority to have the city's inspector general police schools not playing by the rules.



Taylor Johnson hugs Wanice Edwards, ninth-grade dean at KIPP College Prep.

The Golidays and the Johnsons were lucky. My School DC sent Kelli Johnson emails in late winter congratulating Taylor for getting into KIPP College Prep, her first choice, and welcoming T.J. to McKinley, where he was among 185 incoming ninth-graders matched from over 800 applicants.

My School DC's algorithm matched Noah Goliday to Stokes East End's French program, the family's second choice after the school's Spanish program. Stokes had announced in late

February that its new East End campus would be on East Capitol Street in Ward 7, near the Prince George's County line, a short drive from the Golidays' home. Like many families, they had asked a lot of questions when they learned that Stokes's young students would be sharing a building with a charter high school. There would be separate entrances and security guards, school leaders responded. That was good enough for the Golidays, and they kept the school at the top of their My School DC list.

When East End opened its doors in August, it had a diverse student body drawn from every ward in the city, with white students living west of the Anacostia River making up 15 percent of its enrollment, the first time in the city's modern history that significant numbers of white students were traversing the river to attend public school, says Pearson.

The Golidays were thrilled they landed a spot. Still, 8,600 students ended up on wait lists without matches. The problem is that there aren't enough spots in sought-after schools.

Preferences built into the My School DC system, including for siblings of enrolled students, add to the challenge. A so-called in-boundary preference makes it particularly tough to get into the city's best traditional neighborhood schools. Carving the city into attendance zones and guaranteeing students a spot in the traditional public school in their zone is a way of reconciling school choice with the right of every student to a free public education.

But not surprisingly, families living within the boundaries of top schools exercise their in-boundary advantage more often than families with weak neighborhood options. And because many of the highest-performing neighborhood schools are in predominantly white and more-affluent sections of the city, the My School DC preferences weaken the system's ability to reduce long-standing racial and economic segregation in Washington's public schools, despite citywide school choice. For the same reason, undoing

the preferences would be politically impossible.

That majority white Ward 3 has no charter schools — with their mandate to take applications from throughout the city — compounds the problem. So does the fact that white students make up only 15 percent of the city’s public school enrollment, while studies estimate that about half the city’s white students attend private schools. So one path to desegregating the city’s schools is persuading more white students to stay in the public sector. “There are choices white families are making that are reinforcing the status quo racially,” says Smith, the former deputy mayor for education.

When the Golidays moved in September to a larger house in Ward 7, Noah’s trip to school was only a few minutes longer — across Pennsylvania Avenue SE to East Capitol Street. Each day he’s greeted by Stokes staff as he walks into the sparkling new gym under the weight of a big backpack emblazoned with “I can do anything.”

Based on the success of My School DC, DCPS and the charter sector have started to plan the District's educational future more thoughtfully.

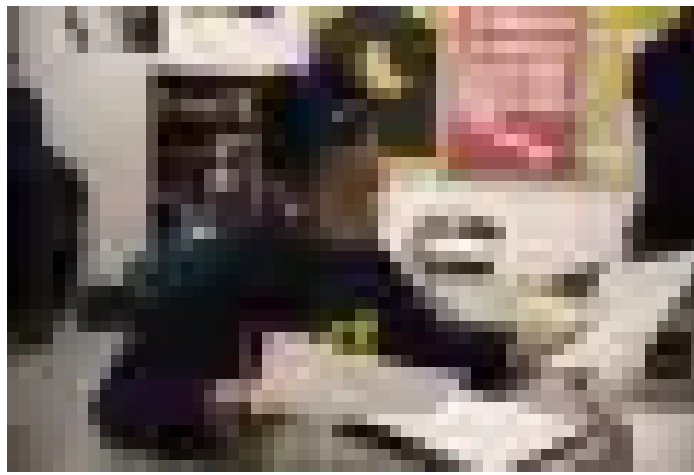
But for many D.C. students, the daily school commute is a test of their resolve, as I learned when I traveled with Taylor and T.J. Johnson to KIPP College Prep and McKinley Tech on Halloween. Just before school started last summer, the Johnsons, hoping to save money for a house of their own, moved from Congress Heights to Todd Sr.'s mother's compact, 1,500-square-foot, World War II vintage brick rowhouse, two blocks from Prince George's County in Ward 7.

The move meant that Taylor rises at 5:50 in the morning to leave the house at 6:40 in her mother's Nissan Sentra, battling buses down Alabama Avenue

SE to the Congress Heights Metro station. It was still dark when we boarded a standing-room-only Green Line train bound for Chinatown at 7:05. We switched to a Red Line train and rode it a couple of stops to NoMa-Gallaudet U station, arriving half an hour after we departed Congress Heights.

From there, we walked half a mile, under a railroad trestle and up a hill through the gentrifying Union Market neighborhood, arriving at KIPP at 7:50. Sometimes Taylor catches a KIPP shuttle bus from the NoMa station. But she mostly walks up the hill by herself.

T.J. follows much the same route as his sister, walking half a mile in the opposite direction once he gets to the NoMa station, across New York Avenue NE and past SiriusXM's massive antennas before reaching McKinley's worn marble steps and metal detectors.



Taylor Johnson in her world history class at KIPP.

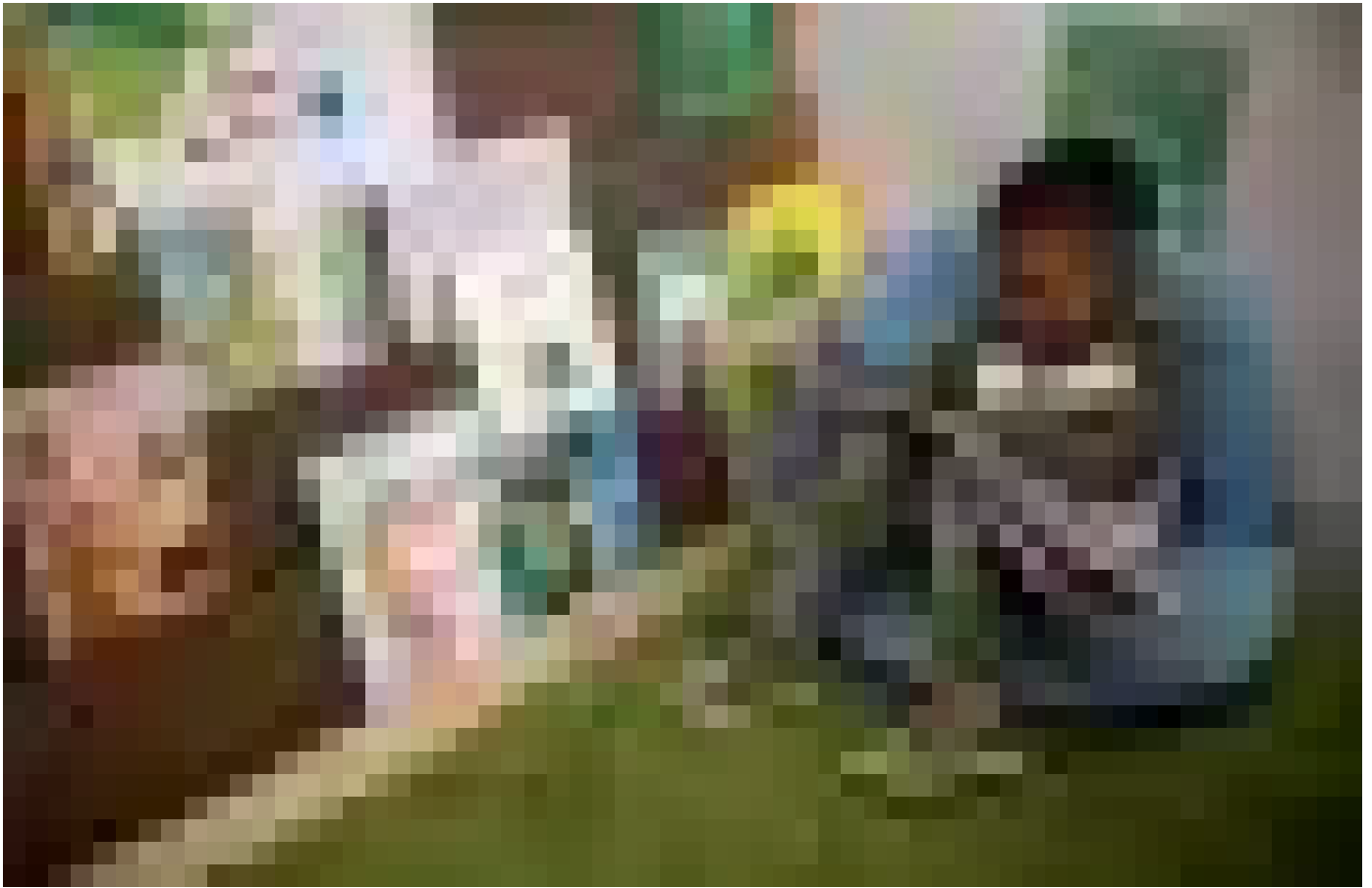
Their return home after school takes longer, an hour and a half without their parents ferrying them to the Congress Heights station. Taylor told me the day we traveled together that she feels safe commuting by herself in the dark. Yet for many D.C. students, there's a limit to how far they are willing and able to travel to schools.

Recognizing this, DCPS and the charter sector have started to plan the District's educational future more thoughtfully. Armed with My School DC data that provides a much clearer picture of families' school preferences, they have responded by adding popular programs in neighborhoods that don't have them. "It completely changed the game," former chancellor Henderson told me. "We went from being a seller's market to a buyer's market. It forced us to

think about advertising, enrollment and the academic programming we locate around the city, including a big investment in music, physical education and foreign languages. Families that were leaving [DCPS] because they wanted their kids to learn a language can now go to a neighborhood school.”

In forcing traditional public schools to compete more directly, the common enrollment system has pressed them to strengthen themselves, as Henderson suggests. It has made school choice fairer and more efficient. And it has changed the dynamic between Washington’s public and private schools. Families are finding public Montessori programs, dual-language opportunities like Noah’s and other options that were offered mainly in the private sector in the past. But the long wait lists at some schools and empty spots at others that the My School DC lottery has produced make clear that the success of school choice in Washington will ultimately require creating more strong schools. “If we don’t have capacity in A-plus schools for all the kids, then some kids aren’t

going to go to A-plus schools,” Roth told me. “No system of choice can fix that.”



Noah Goliday sits with a book in class at Elsie Whitlow Stokes Community Freedom Public Charter School.

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Credits: Story by Thomas Toch. Photos by Evelyn Hockstein. Designed by [Twila Waddy](#).