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J.C. Nalle Community School: A Study of a School Turnaround Effort



Importance and purpose

Children growing up in poverty are at increased risk of a wide range of negative cognitive and academic outcomes that begin in infancy and can

last through adulthood. Low-income children enter school less adequately prepared than their higher-income peers for a number of reasons, including an increased likelihood that they are raised by parents with lower education levels, have fewer books and other educational resources in the home, and experience higher incidences of instability in their schools, housing, and family structure. Still, when provided with adequate supports for their educational success, low-income children—like all children—are fully capable of learning and thriving in school.

In 2014, the Freddie Mac Foundation asked Child Trends to evaluate the effectiveness of a multi-faceted set of interventions in increasing the academic performance of students from the John Carroll Nalle Community School (J.C. Nalle), a public elementary school in Washington, DC with a predominantly low-income student population (see Box 1). These interventions were possible because of long-standing support from the Freddie Mac Foundation, as well as support from the District of Columbia Public Schools (DCPS). The Freddie Mac Foundation's support for J.C. Nalle spanned more than a decade and included annual grants that enabled J.C. Nalle to partner with the National Center for Children and Families and other community organizations to secure needed services for students and their families. DCPS support included a Proving What's Possible grant and extensive renovations to the school building.

This evaluation is an independent assessment of the effects of the interventions on J.C. Nalle student achievement, and the likely reasons for changes in test scores (below). Study results can provide useful information for J.C. Nalle Community School, its partners, and DCPS, as well as for other schools and districts seeking to improve the academic achievement of low-income and low-performing students.

Initial evidence of an effective school turnaround effort—Rising test scores

J.C. Nalle students achieved significant gains in the percentage of students scoring proficient on reading and math standardized tests in 2012-13. In that school year, J.C. Nalle achieved the highest increase in student math proficiency rates on the DC Comprehensive Assessment System (DC CAS) and the fifth-highest increase in reading proficiency rates among all District of Columbia public schools.

These increases were particularly impressive given that a 2011 report commissioned by the D.C. Office of the Deputy Mayor for Education had classified J.C. Nalle as a Tier 4 school, indicating that it was performing at the bottom quartile of schools (both traditional DCPS and charter schools) serving similar grades within the District of Columbia. The contracted group recommended that J.C. Nalle, as a Tier 4 school, either be closed or targeted for significant turnaround efforts.

A package of interventions

J.C. Nalle implemented a number of interventions in 2012-2013, targeting academic achievement. During the same year that test scores improved, the school experienced a number of significant changes, including the introduction of several interventions intended to improve academic performance, and a \$6.8 million building renovation. The interventions, described below, focused on expanded learning opportunities and increasing students' access to technology as a tool to enhance learning.

Technology was used to enhance teaching and learning.

With funding from the Freddie Mac Foundation and DCPS in 2012, the school increased students' access to technology by purchasing tablets and additional laptop computers for use in primary classrooms, and acquiring licenses for online educational programs designed to build math skills—specifically Spatial-Temporal Math (ST Math)¹ and First in Math. As part of the building renovation, classrooms were equipped with interactive electronic whiteboards.

1. Spatial-Temporal Math (ST Math) is an online program that uses mainly visual, language-and-symbol free animations to expose students to math concepts. Progression through the ST Math activities occurs at the rate each student can master the material; students will not move on past an activity in which they are struggling.

J.C. Nalle at a Glance:

Key facts

- Founded in 1950
- 369 students enrolled in pre-K through grade five
- Freddie Mac Foundation invested in a range of supports since 1994, totaling \$11 million
- First full-service community school in the D.C. public school system (since 1997)
- Since 2000, National Center for Children and Families has served as the primary community school partner

School demographics

- 75 percent low-income (defined as eligible for free and reduced-price meals)
- 96 percent African American or Black
- 4 percent Hispanic or Latino

Community characteristics

- Marshall Heights Community
- Ward 7, Southeast D.C.
- 40 percent child poverty rate

In the following school year (after increases in DC CAS reading and math proficiency rates), J.C. Nalle also purchased Lexia, an online educational program focused on reading.

The school day was extended. In the spring of 2012, the school was awarded a \$275,000 grant through the DCPS Proving What's Possible grant program. The funds were used to extend student learning time by approximately 75 minutes for students in grades three through five. After breakfast, students received uninterrupted core academic instruction from 8 a.m. to 1 p.m. After recess and lunch, students attended "special" classes in art, music, physical education and other subjects from 2 to 4:30 p.m. Students also received specialized instruction in reading and math during this time, which was provided by subject matter specialists, allowing students extra time to learn and reinforce skills. Students who were struggling were sometimes provided additional individual and small-group instruction throughout the day.

A family-oriented academic program was offered on Saturdays. In addition, the Freddie Mac Foundation provided funds to the National Center for Children and Families to provide Saturday School programming for students in grades one through five, with a focus on assisting underperforming students by encouraging students and their parents to work together on strengthening academic skills. Parenting workshops were also offered through the program. Parents and students were incentivized to attend regularly through gift cards and trips.

Building on a community school approach

The advent of community schools reflects the growing consensus among educators, policymakers, and others that to help children in vulnerable populations achieve academic success, it is not enough to focus solely on what goes on in a particular classroom or school. One must also focus on the

socioeconomic forces outside the school environment that can affect children's abilities and willingness to learn and achieve. This is the premise of community schools: they partner with nonprofit organizations and local agencies to provide a menu of integrated student supports. These supports can include health care; academic enrichment (e.g., tutoring, mentoring); other youth development activities; mental and behavioral health services; and services for parents and families, such as parent education, family counseling, food banks, and employment assistance.

As Figure I shows, the new package of interventions introduced to the school starting in 2012 built on institutional and programmatic investments that the school and its community partners had already made to meet the academic and non-academic needs of students and their families. Any examination of the results of an intervention at JC Nalle must also consider the full range of supports that were already being provided to students and their families through the community school.

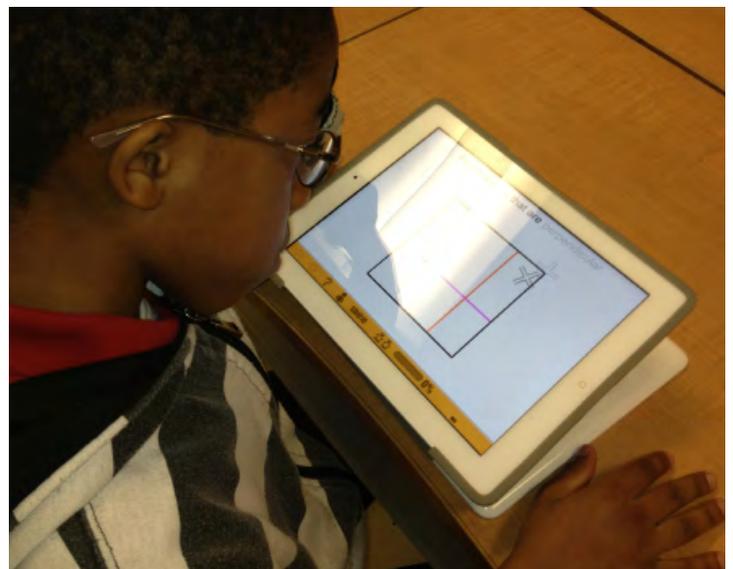
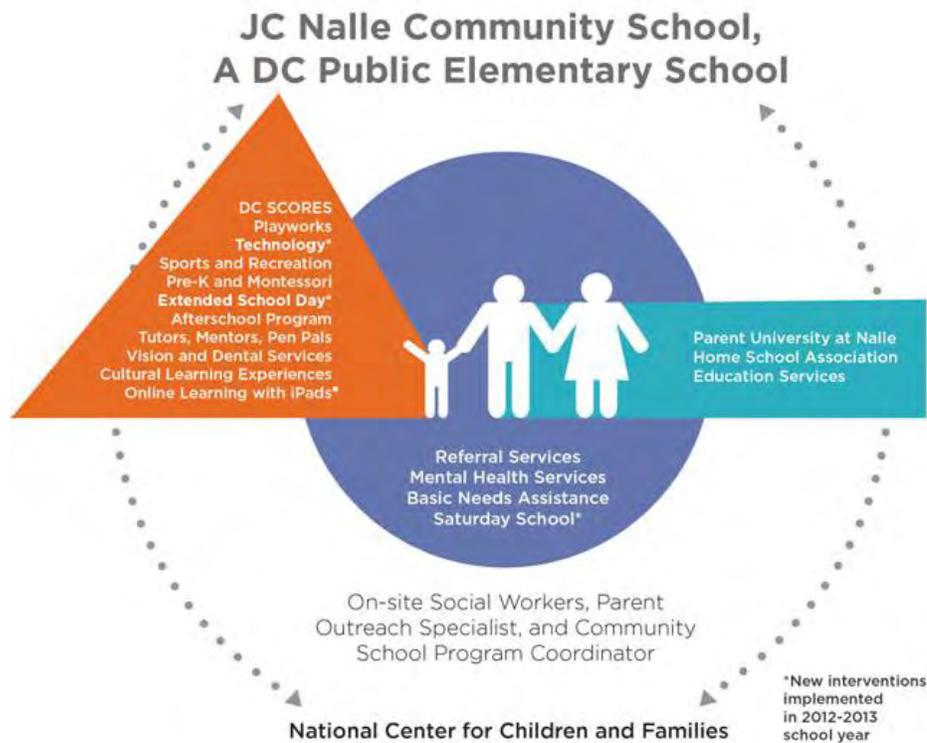


Figure 1



Summary of findings

Mathematics and reading test performance before and after the interventions (2010-2014 DC CAS results)

Our primary outcomes of interest were student growth in math and reading—that is, students’ standardized math and reading scores accounting for the prior year’s scores. We based the study on two years of pre-intervention data (2010-11 and 2011-12) and two years of post-intervention data (2012-13 and 2013-14). For each year of data, we matched J.C. Nalle students to comparison students from other schools, who had the same school attendance zone status (in-boundary or out-of-boundary) and the same or similar home neighborhoods, baseline test scores, and demographic characteristics. For math and reading, we compared the difference between J.C. Nalle and matched comparison students’ average annual growth before and after the interventions. By doing so, we were able to make a strong assessment of the effect of the interventions on student learning at J.C. Nalle.

The key findings from our outcomes study were:

- **The interventions boosted student growth in math, but not reading.** The introduction of a package of interventions during the 2012-13 school year improved J.C. Nalle’s performance with respect to math growth, relative to matched comparison students, but it did not have any statistically significant effect on reading growth (see Figure 2).

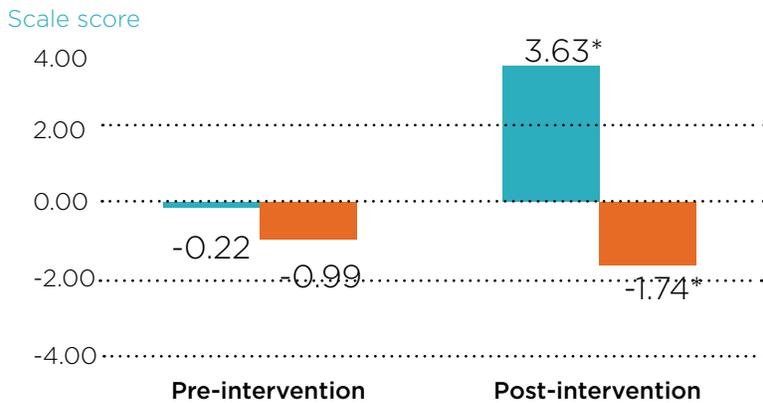
- **The increase in student math growth was substantial.** On the DC CAS scale, J.C. Nalle students’ annual average math growth was 3.84 points (0.23 s.d.) higher after the intervention than before. This translates into roughly 5 months of learning above the average year’s worth of learning in math for third through fifth graders.²
- **As a result, J.C. Nalle students outperformed comparison students in math growth.** In the post-intervention period, J.C. Nalle students’ average annual math growth was 3.62 points (0.21 s.d.) greater than that of comparison students. This translates to 4.7 months of additional learning. Prior to the interventions, there was no statistically significant difference between the groups.
- **J.C. Nalle student reading performance leaves room for improvement.** Although there was an increase in the percentage of students scoring at or above proficient in reading after the interventions, this was offset by an increase in the percentage of students scoring below basic in reading. Additionally, J.C. Nalle students underperformed with respect to reading growth. In the post-intervention period, J.C. Nalle students underperformed matched comparison students by 1.7 points on reading growth (0.12 s.d.).

2. Across six standardized mathematics tests, Hill, Bloom, Black, & Lipsey (2008) found an average effect size of 0.52 and 0.56 for average annual gains in mathematics for the transition from grade three to four and grade four to five, respectively. By taking the mid-point (0.54) and dividing by 12 months, we get 0.045 s.d. per month. Dividing our estimate of 0.23 by 0.045, we get 5.1 months.

These findings were based on analyses limited to students attending traditional public schools. We also performed a sensitivity check, incorporating public charter school students into the comparison group. Although the precise estimates varied somewhat, each of our key findings held when including charter school students in the analyses.

academic material that was tailored to their individual skill level. It also allowed teachers to monitor student progress and provide individualized instruction in the areas that were most challenging for each particular student. Students also enjoyed the interactive nature of the math-related software and were motivated to challenge themselves in order to progress to the next level. The availability of tablets for all students in grades three through five, and extra laptop computers, enabled students to use the programs regularly during school as well as in the school's afterschool and Saturday School programs. During the 2012-2013 school year, when J.C. Nalle students experienced the highest gains in math proficiency rates, the school had the highest ST Math completion rate among D.C. public elementary schools.

Figure 2. J.C. Nalle fourth- and fifth-grade students' mathematics and reading growth in comparison to matched students, pre- and post-intervention: 2010-2014



*p<.05. Statistically significantly different from zero. NOTE: Effects were estimated using J.C. Nalle and matched comparison students. Student growth refers to covariate adjusted mathematics and reading scores that take into account prior year mathematics and reading scores. The pre-intervention time period includes the 2009-10 and 2011-12 school years; post-intervention includes the 2012-13 and 2013-14 school years.

Expanded learning opportunities gave students and teachers additional opportunities for individualized instruction.

The extended and reconfigured school day allowed teachers to provide uninterrupted instruction in core academic content in the morning, and it increased the amount of time teachers had to plan in the afternoon, enabling them to better tailor instruction to student needs. Struggling students received individualized instruction in the afternoon, in small groups led by teachers and specialists. Learning was also promoted outside of the school day through afterschool programming (which began before this intervention package) and efforts to increase parent engagement – such as Saturday School and training in technology – better equipping parents to support learning at home.

The new interventions were built on a strong foundation of supports

A supportive learning environment for all students reduces barriers to learning. J.C. Nalle Community School takes a “whole-child” approach (addressing both academic and non-academic needs) to promoting student success. Many J.C. Nalle students, most of whom are from economically-disadvantaged families, face challenging circumstances that could lead to behavioral and emotional problems. As a community school, J.C. Nalle has partnered with the National Center for Children and Families (NCCF) and other community-based organizations to ensure that the school can meet the academic and non-academic needs of the whole child. A common theme heard among informants of different types is that the school has supported student achievement by helping remove non-academic barriers to learning – especially by providing convenient access to mental and physical health services and supports. As a community school, J.C. Nalle works to meet the needs of students’ families as well. Multiple informants highlighted the ways school staff and NCCF staff partner with students’ families to foster a supportive learning environment at school and at home.

Factors contributing to test score results

Based on interviews, surveys, and focus groups with key stakeholders, as well as knowledge of the relevant research literature, Child Trends identified a few key contributing factors that drove the improvement in math scores.

Factors that explain why J. C. Nalle students outperformed their peers in math

The use of technology to enhance teaching and learning, and expanded learning opportunities, were the major drivers of improved math (but not reading) scores.

While the entire package of interventions appears to have contributed to improvements in math performance, the use of technology and the expanded learning opportunities appear to be the most significant factors.

The increase in access to technology engaged and motivated students and allowed teachers to provide more individualized and data-based instruction.

The technology allowed students to engage with

J.C. Nalle's academic climate promotes high expectations for all. We found that J.C. Nalle has been able to establish a school-wide climate of high academic expectations. Multiple informants commented on the skill and dedication of the teachers. Both teachers and NCCF staff remarked on the dedication and support provided by school administrators in setting high standards for staff and students. Several parents noted that they value the way that many teachers at the school are able to assess a student's ability and challenge them to improve. Several also noted that school staff and NCCF staff work particularly hard with struggling students so that they will also be able to achieve at high levels. These high expectations were evident in students' remarks as well. Some students expressed an enthusiasm for attaining high levels in the online educational programs, and others stated that they valued the extended learning opportunities, such as a longer school day and Saturday School, as ways to learn more and "get smarter."

Factors that might explain why students are still struggling in reading

Reading scores were less consistent than math scores over time, making it difficult to identify specific contributing factors. However, based on interviews with key stakeholders, Child Trends concluded the following:

Changes in staffing may have influenced reading performance. Changes in reading scores were inconsistent across grade levels and intervention years. One potential explanation for poorer reading performance in 2013-14 is the fact that several reading teachers were out on extended leave. Long-term substitute teachers may have been less effective. The foundation that is essential for supporting student learning appears to have been less solid for the subject of reading.

The online education program has not been implemented for very long. Lexia Reading was introduced in fall 2013, so students were not able to access the program for very long. According to interviewed respondents, because the program was introduced during a year with a heavy presence of substitute reading teachers, it was not implemented fully or with fidelity to the model.

Research suggests that it is harder to affect performance in reading than in math. In addition, evidence from studies of education and academic out-of-school-time program interventions finds that such programs tend to have a larger effect on math performance than reading performance.



Conclusions and next steps

We offer several recommendations for consideration by J.C. Nalle and community partners that may also be relevant to schools and districts seeking to improve the test scores of low-income students. We preface these recommendations with two observations drawn from the evaluation and from relevant research literature.

The first observation is that there is no silver bullet—a wide range of supports is needed to support student learning. Not surprisingly, no single factor explains why J.C. Nalle has been effective in improving students' math performance. Some of the common themes with regard to effective strategies for improving student learning include: providing extra time and support for students who are struggling the most through a longer school day and Saturday School; providing individualized instruction and support to students; engaging students in learning through interactive "game-like" educational programs that are aligned with the school's curriculum; and providing additional opportunities for teachers to be able to use data to guide instruction and to track student progress.

According to many informants, and consistent with research on factors that promote school success, it is unlikely that a single factor alone would work to improve student outcomes. The vast majority of students at J.C. Nalle are low-income and many of them may be facing multiple non-academic barriers to learning. By providing a range of academic and non-academic services, and by tailoring supports to the needs of individual students and families, J.C. Nalle helped students overcome at least some of the barriers they faced.

Our second observation is that improving reading scores, particularly in upper elementary grades, can be challenging. Research studies have found that students in early elementary school grades (kindergarten through second grade) are more likely to benefit from reading interventions than older students. This may

have implications for the findings presented in this evaluation, because our analyses were restricted to late elementary school students (grades three through five). It is possible that early elementary school students exposed to the set of interventions that were initiated in 2012-13 may demonstrate greater reading gains than their peers.

With these thoughts in mind, we offer the following recommendations for next steps for J.C. Nalle and for the education community more broadly:

1. The school should work to maintain gains in math performance.

The math test scores seem to be influenced, at least in part, by the use of interactive online educational programs ST Math and First in Math. Evaluations of ST Math and First in Math note that positive effects may be less likely if the program is not implemented fully and as intended. Based on information from these studies and teacher informant interviews, it is important for new teachers to receive professional development to ensure their most effective use of these programs. In addition, to continue to encourage use of the programs at home, continued trainings for parents may prove useful. Professional development may also be needed to instruct teachers in how to best use iPads, laptops, and electronic white boards to support student learning.

2. To improve students' reading performance, a more intense, targeted, coordinated effort may be needed.

Given the lack of progress in reading test scores, the school, along with community partners, should consider redoubling efforts through a cohesive set of evidence-based and targeted interventions. When selecting interventions, school leaders should consider those that are feasible for them to implement and that have been proven to be effective with similar populations.

For instance, J.C. Nalle may want to encourage parents to send their children to summer school programs offered through DCPS (at J.C. Nalle or nearby schools) in an effort to help reduce summer learning loss, particularly in reading. J.C. Nalle was found to have high levels of parent engagement based on interview and observation data. The school can take advantage of its parent engagement levels by identifying interventions found to increase reading at home, particularly during the summer months.

Summaries of effective interventions and best practices for helping students who are struggling with reading can be found on the

U.S. Department of Education's What Works Clearinghouse (<http://ies.ed.gov/ncee/wwc/PracticeGuide.aspx?sid=3>) and in practice guides available on the site.

3. There is a need to better understand why and how technology influences student outcomes.

More research is needed to better understand whether and how technology is linked to improved test scores. The use of tablet computers and interactive whiteboards was remarked upon by all categories of informants interviewed for this study. While this is a new area of education research, there is preliminary evidence that such technologies can have a positive influence on student performance, although the introduction of technology in itself, especially if poorly implemented, does not necessarily produce results.

4. It is important to examine a wider range of outcomes targeted by community schools.

J.C. Nalle, like most community schools, targets outcomes across all domains of children's development. Therefore, future evaluation efforts should seek to examine effects on social, emotional, behavioral, physical, and other outcomes of interest. Beyond student test scores, there is a large number of academic outcomes that might be affected by the school, including school engagement, academic self-efficacy, and achievement motivation.

The full report:

- provides more background on J.C. Nalle and how it operates as a community school;
- includes a detailed summary of findings on the effects of the package of interventions on the reading and math performance of J.C. Nalle students, as well as more details on how students at J.C. Nalle compare to matched peers;
- describes potential reasons for the changes in test scores, highlighting the perspectives of parents, students, staff, and teachers;
- provides a summary of public and private investments in J.C. Nalle, as well as information on the cost of some of the key components of the turnaround effort;
- describes some of the challenges of implementing the school turnaround effort and summarizes study limitations;
- discusses implications of the findings, drawing on evidence from the study and relevant research literature; and
- offers actionable recommendations for key stakeholders as well as schools and districts aiming to improve test scores for low-income children.