



JACKSONVILLE  
**PUBLIC  
EDUCATION**  
FUND

# STUDENT ACHIEVEMENT AND SCHOOL FACILITIES

A SPECIAL RESEARCH  
BRIEF FROM THE  
JACKSONVILLE PUBLIC  
EDUCATION FUND

JUNE 2020

## INTRODUCTION



As a city striving for economic vibrancy and civic vitality, Jacksonville has for the last decade put public education at the top of its agenda, knowing that helping all children meet their potential will make the city stronger. For more than a year, our community has been discussing a half-penny sales tax to repair and replace our aging school buildings. Duval County has the oldest school buildings in the state of Florida, and 30% are in poor or very poor condition.<sup>1</sup>

Today, one of the most pressing issues that our education system faces has been years in the making, but demands our attention and action now. As one of the oldest cities in Florida, Jacksonville is at a crossroads when it comes to public school buildings where our children learn. Duval County Public Schools (DCPS) has been unable to build a new school since 2010, and almost 500 portables are spread throughout the district to manage school crowding.<sup>2</sup> Only the most urgent facility problems, such as safety and air conditioning systems, can be fixed.<sup>3</sup> The result is a maintenance backlog that is expected to reach \$1 billion by 2025.<sup>4</sup>

The increase in maintenance backlog, however, is just a symptom of a much larger problem that lies beneath the surface, but is much more costly. Many of the problems our school buildings face are not readily apparent on the surface. While issues such as chipped paint, faulty bathrooms or sagging ceilings are easy to see, many schools also face deeper facility issues that are not so readily apparent to the naked eye.

Beyond aesthetics, research has shown that facility conditions impact student education environment and achievement, teacher performance and satisfaction, and the social and community environment. The following research brief will discuss each of these areas, as well as address the funding crisis surrounding school buildings and how you can help.

**Andrew Jackson Senior High School** is the oldest fully accredited high school in Duval County, Florida.

<sup>1</sup> Duval County Public Schools. (2019). See the Problems Facing Our Schools. Retrieved June 03, 2020, from <https://www.ourduvalschools.org/see-the-problem>

<sup>2</sup> *ibid.*

<sup>3</sup> *ibid.*

<sup>4</sup> Duval County Public Schools. (2019). See the Plans. Retrieved June 03, 2020, from <https://www.ourduvalschools.org/see-the-plans>



## EDUCATION ENVIRONMENT & STUDENT ACHIEVEMENT

Public school buildings represent the second largest sector of public infrastructure spending in the United States after roads, and approximately 1 in 6 American children or adults spend every weekday in these often poorly maintained buildings.<sup>5</sup>

In a 2014 letter, the Office for Civil Rights at the U.S. Department of Education stated that students are better able to learn and remain engaged with instruction in classrooms that are “well-lit, clean, spacious, and heated and air-conditioned as needed.” Not only do these benefits extend to students, but teachers are also better able to do their jobs in this type of school facility. Conversely, the U.S. Department of Education has stated that when classrooms are too hot or cold, overcrowded, dusty or poorly ventilated, both students and teachers suffer.<sup>6</sup>

Researchers at the Harvard School of Public Health concluded that evidence was unambiguous that school buildings influence student health, thinking and performance.<sup>7</sup> A growing body of peer-reviewed research finds a relationship between the quality of a school facility and student achievement.<sup>8</sup> Specifically, significant correlations have been found between poor structural, conditional, and aesthetic attributes of school buildings and low student learning and achievement. Positive trends have been observed in several school districts across the United States, including Houston, Texas; Los Angeles, California; and New Haven Connecticut, and collectively, these studies conclude that student achievement improves when students are moved out of overcrowded and degraded school facilities and into new, rebuilt or renovated schools.<sup>9</sup>



EDUCATIONAL ENVIRONMENT



TEACHER SATISFACTION



SOCIAL & COMMUNITY IMPACT

Substandard physical learning environments are strongly associated with truancy and other behavioral problems in students. Further, lower student attendance leads to lower performance on achievement tests.<sup>10</sup> One study reported that student achievement scores tend to decrease as the school building ages — to as high as 9%, depending on maintenance factors.<sup>11</sup> Another study of the Los Angeles Unified School District showed that a school’s compliance with health and safety standards could lead, on average, to a 36-point increase in California Performance Index scores.<sup>12</sup>

Quality school buildings have been found to contribute to student achievement in several ways:

- Provide light, acoustics and air quality that directly impact learning;
- Offer inviting spaces that enhance student self-belief and desire to be in school;
- Provide technology that optimizes instruction and prepares students for today’s workplace;
- Communicate to children that the community values education; and
- Provide reassurance to students that they are safe and secure in their learning environment.<sup>13</sup>



**Leena Hall-Young,**  
**2020 Florida Blue Duval**  
**County Teacher of the Year**

*“ William M. Raines Senior High is historically known as the million dollar building that brought a state-of-the-art facility and educators to the surrounding community. It is nearly impossible to continue this legacy of greatness with crumbling structures, faulty ventilation, and a building that is beyond its expiration date! We must move forward with the times and this means not only providing a building that is warm, safe, and dry but also providing educational programs that prepare our students to be competetive in today's job market.”*

<sup>5</sup> Filardo, M., Vincent, J., Sullivan, K., Starr, J., Fusarelli, L., Ross, E. (2019, May 02). How crumbling school facilities perpetuate inequality. Retrieved June 01, 2020, from <https://kappanonline.org/how-crumbling-school-facilities-perpetuate-inequality-filardo-vincent-sullivan/>

<sup>6</sup> Eitland, E., Klingensmith, L., MacNaughton, P., Laurent, J.C., Spengler, J., Bernstein, A., & Allen, J.G. (2017). Schools for health: Foundations for student success: How school buildings influence student health, thinking and performance. Cambridge, MA: Harvard T.H. Chan School of Public Health.

<sup>7</sup> ibid.

<sup>8</sup> Filardo et al.

<sup>9</sup> Filardo et al.

<sup>10</sup> California Department of Education. (2010). School Facilities Improve Learning. Retrieved July 2015, from California Department of Education: <http://www.cde.ca.gov/ls/fa/re/documents/learnercenter.pdf>

<sup>11</sup> Planty, M., & DeVoe, J. (2005, October). Examination of the Condition of School Facilities Attended by 10th Grade Students in 2002. Retrieved July 2015, from National Center for Education Statistics: <https://nces.ed.gov/pubs2006/2006302.pdf>

<sup>12</sup> California Department of Education, School Facilities Improve Learning.

<sup>13</sup> Duval County Public Schools. (2019). How do improved school buildings contribute to student achievement? Retrieved 2020. <https://www.ourduvalschools.org/post/how-do-improved-school-buildings-contribute-to-student-achievement>

# SCHOOL BUILDINGS & LEARNING

*Quality school buildings have been found to contribute to student achievement in several ways:*

- **Provide light, acoustics and air quality that directly impact learning;**
- **Offer inviting spaces that enhance student self-belief and desire to be in school;**
- **Provide technology that optimizes instruction and prepares students for today's workplace;**
- **Communicate to children that the community values education; and**
- **Provide reassurance to students that they are safe and secure in their learning environment.**

Research has found that schools having classrooms with less external noise are positively associated with greater student engagement and achievement compared to schools with classrooms that have noisier environments. Excessively noisy classrooms cause dissatisfaction and stress for both students and teachers, impacting their ability to perform.<sup>14</sup> Air quality and lighting are other major considerations that impact student achievement. Poor air quality can be attributed to increased absenteeism, particularly for students suffering from asthma.<sup>15</sup> Further, artificial lighting present in many schools, has negative impacts on students and natural light has positive impacts. Studies have found that natural light boosts student and teacher morale, reduces off-task behavior, and improves test scores.<sup>16</sup> Similarly, temperature can have an impact on engagement levels and overall productivity, including student achievement.<sup>17</sup>

Overcrowded classrooms can also impact student engagement, leading to decreased levels of learning, as well as increased aggression levels.<sup>18</sup> Classrooms with ample space have been found more conducive to providing an appropriate learning environment. Classroom space is of particular importance to modern education and preparing students for work in teams, problem solving and effective communication.<sup>19</sup> Spaces for private study areas, as well as smaller learning centers, reduce visual and auditory distractions, and are positively related to student development and achievement.<sup>20</sup>

Finally, if students are going to be exposed to the technology and skills required in the twenty-first century workforce, old school buildings must be updated to handle technology related-infrastructure. This includes teacher use of technology in the classroom, high-speed internet access, and training for students and teachers on basic technological skills.<sup>21</sup>



## TEACHER PERFORMANCE & SATISFACTION

In addition to having an impact on student achievement, a school facility can also impact teacher performance and satisfaction. A survey of teachers in Chicago and District of Columbia public schools found that when teachers considered their school to be in poor physical condition, they were far more likely to report they planned to leave their school or the teaching profession altogether, when compared to teachers in facilities they considered in good or excellent condition.<sup>22</sup> Similar to students, teachers benefit from clean air and natural light — improved ventilation and indoor air quality have been observed to increase teachers' self-reported job satisfaction.<sup>23</sup>

Poor school conditions can also hinder teachers' work. For example, teachers attempting to deliver a twenty-first century education need access to scientific equipment and technology resources. Aging school buildings that have not been updated often lack the ability to support these resources.<sup>24</sup>

<sup>14</sup> PennState Center for Evaluation and Education Policy Analysis. The Importance of School Facilities in Improving Student Outcomes. (2015, June 07). Retrieved June 03, 2020, from <https://sites.psu.edu/ceepa/2015/06/07/the-importance-of-school-facilities-in-improving-student-outcomes/>

<sup>15</sup> *ibid.*

<sup>16</sup> *ibid.*

<sup>17</sup> *ibid.*

<sup>18</sup> *ibid.*

<sup>19</sup> *ibid.*

<sup>20</sup> *ibid.*

<sup>21</sup> *ibid.*

<sup>22</sup> Buckley, J., Schneider, M., & Shang, Y. (2004a). The effects of school facility quality on teacher retention in urban school districts. Washington, DC: National Clearinghouse for Educational Facilities.



## SOCIAL & COMMUNITY IMPACT

Researchers and education practitioners are recognizing the importance of school climate and positive social culture as necessary components to student achievement. Well-planned, designed and maintained facilities promote the health, well-being and performance of the children and adults who work in them. In part this is related to the motivation to attend associated with a clean and organized facility.<sup>25</sup> Absenteeism is further reduced when students and teachers are able to maintain their health, which can be difficult when exposed to mold, poor ventilation, uncomfortable temperatures, inadequate lighting, overcrowding and excessive noise found in older school buildings.<sup>26</sup> As previously mentioned, attendance is a requisite for academic achievement.

Beyond climate and culture, clean and well-maintained school facilities

<sup>23</sup> Batterman, S., Su, F.C., Waid, A., Watkins, F., Goodwin, C., & Thun, G. (2017). Ventilation rates in recently constructed U.S. school classrooms. *Indoor Air*, 27 (5), 880-890.

<sup>24</sup> U.S. Department of Education, Office for Civil Rights. (2014). Dear colleague letter: Resource comparability. Washington, DC: Author.

<sup>25</sup> Bryk, A.S. & Schneider, B. (2002). *Trust in schools: A core resource for improvement*. New York, NY: Russell Sage Foundation.; and Thapa, A., Cohen, J., Guffey, S., & Higgins-D'Allessandro, A. (2013). A review of school climate research. *Review of Educational Research*, 83 (3), 357-385; and Maxwell, L.E. & Schechtman, S. (2012). The role of objective and perceived school building quality in student academic outcomes and self-perception. *Children, Youth and Environments*, 22 (1), 23-51.

<sup>26</sup> Uline, C. & Tschannen-Moran, M. (2008). The walls speak: The interplay of quality facilities, school climate, and student achievement. *Journal of Educational Administration*, 46 (1), 55-73; and Fisk, W.J., Paulson, J.A., Kolbe, L.J., & Barnett, C.L. (2016). Significance of the school physical environment: A commentary. *Journal of School Health*, 86 (7), 483-487.

communicate a message of the community's responsibility and respect to students. Disparities in facilities, which tend to be greater in lower-income neighborhoods, send disadvantaged students and their families a visible and unmistakable message that their education is less important than that of their more affluent peers.<sup>27</sup>

In addition to serving a school community, school buildings often provide emergency shelter during natural disasters. According to the Federal Emergency Management Agency (FEMA), older and less well-maintained buildings are more vulnerable to natural disasters. This may lead students to experience more adverse effects, such as dislocation and prolonged school closures. FEMA also recognized that in most cases, school administrators do not have the needed financial resources to address building vulnerabilities even though they have a moral (and usually legal) responsibility to make schools resilient to disaster.<sup>28</sup>

## SCHOOL BUILDING FUNDING

Capital funding for school buildings and infrastructure remains the most regressive element of public education finance. A 2016 study found that on average, local school districts are responsible for funding 82% of their capital budget, which covers new schools and renovating existing facilities. This is compared to 45% responsibility for operating budgets, which pay teachers, staff and administrators, and purchase materials and enrichment.<sup>29</sup> Since local school districts shoulder the majority of facilities costs, districts serving low-income communities are frequently unable to adequately maintain their buildings and grounds — much less modernize them. Therefore, it is unsurprising that districts and zip codes with larger proportions of low-income students are more likely to have buildings in poor condition.<sup>30</sup>

To understand the current state of our schools, we have to look to history. In the United States, the average school building was constructed around 1968.<sup>31</sup> Duval County is no different — our inadequate school buildings date back to the era of segregation, when separate was not equal. A facilities study conducted by an independent

consultant to DCPS has shown that the schools with the greatest deterioration are in high-poverty areas in Northwest Jacksonville.

Recent studies in Texas and California found that school districts with lower property values raised significantly less facility funding from local and state sources, compared to districts with higher property values.<sup>32</sup> Differences in funding often mean that students from affluent districts or neighborhoods attend school in bright, comfortable and healthy facilities, while poorer students attend in dilapidated, obsolete and unhealthy schools. Funding inequity is further exacerbated in poorer districts because those districts end up making expensive emergency and short-term repairs out of their operating budgets or already stretched capital budgets — just to keep school doors open.<sup>33</sup> Duval County recently estimated \$500,000 per month is spent on these Band-Aid type repairs.<sup>34</sup>

## HOW YOU CAN HELP

**Jacksonville cannot move forward as a community unless we address the needs of our public school buildings. You can help.**

**LEARN:** To learn more about the Duval County Public Schools' facilities plan and how it will impact your neighborhood, visit [ourduvalschools.org](http://ourduvalschools.org).

**ADVOCATE:** For more research and to learn how you can help support the half-penny for public schools, visit JPEF's Advocacy Center at [www.jaxpef.org](http://www.jaxpef.org).

**VOTE:** This fall, you can vote 'yes' to ensure Duval County students are educated in 21st century learning facilities.

<sup>27</sup> Planty, M., & DeVoe, J. (2005, October). Examination of the Condition of School Facilities Attended by 10th Grade Students in 2002. Retrieved July 2015, from National Center for Education Statistics: <https://nces.ed.gov/pubsw2006/2006302.pdf>

<sup>28</sup> Federal Emergency Management Agency. (2017). Safer, stronger, smarter: A guide to improving school natural hazard safety. Washington, DC: Author.

<sup>29</sup> Filardo, M. (2016). State of our schools: America's K-12 facilities 2016. Washington, DC: 21st Century School Fund and Center for Green Schools.; and National Center for Education Statistics. (n.d.). Fast facts: Back to school statistics. Washington, DC: U.S. Department of Education. <https://nces.ed.gov/fastfacts/display.asp?id=372>

<sup>30</sup> Alexander, D. & Lewis, L. (2014). Condition of America's public school facilities: 2012-13 (NCES 2014-022). Washington, DC: U.S. Department of Education, National Center for Education Statistics.; and Filardo, M.W., Vincent, J.M., Sung, P., & Stein, T. (2006). Growth and disparity: A decade of U.S. public school construction. Washington, DC: Building

Educational Success Together.

<sup>31</sup> Alexander, D. & Lewis, L., Condition of America's public school facilities.

<sup>32</sup> Rivera, M.D. & Lopez, S.R. (2019). Some pennies are more equal than others: Inequitable school facilities investment in San Antonio, Texas. Education Policy Analysis Archives, 27 (16); and Brunner, E.J. & Vincent, J.M. (2018). Financing school facilities in California: A ten-year perspective. Getting down to facts II research report. Palo Alto, CA: Policy Analysis for California Education & Stanford University.

<sup>33</sup> Vincent, J.M. & Jain, L.S. (2015). Going it alone: Can California's K-12 school districts adequately and equitably fund school facilities? Berkeley, CA: Center for Cities & Schools, University of California.

<sup>34</sup> Bloch, E. (2019, June 22). Maintenance woes plague Duval schools. Retrieved June 03, 2020, from <https://www.jacksonville.com/news/20190622/maintenance-woes-plague-duval-schools>



JACKSONVILLE  
PUBLIC  
EDUCATION  
FUND

Powering Potential

*Working to close the opportunity gap for low-income students and students of color by equipping educators with best practices in school quality.*

40 East Adams Street, Suite 110  
Jacksonville FL 32202  
(904) 356-7757 | [www.jaxpef.org](http://www.jaxpef.org)