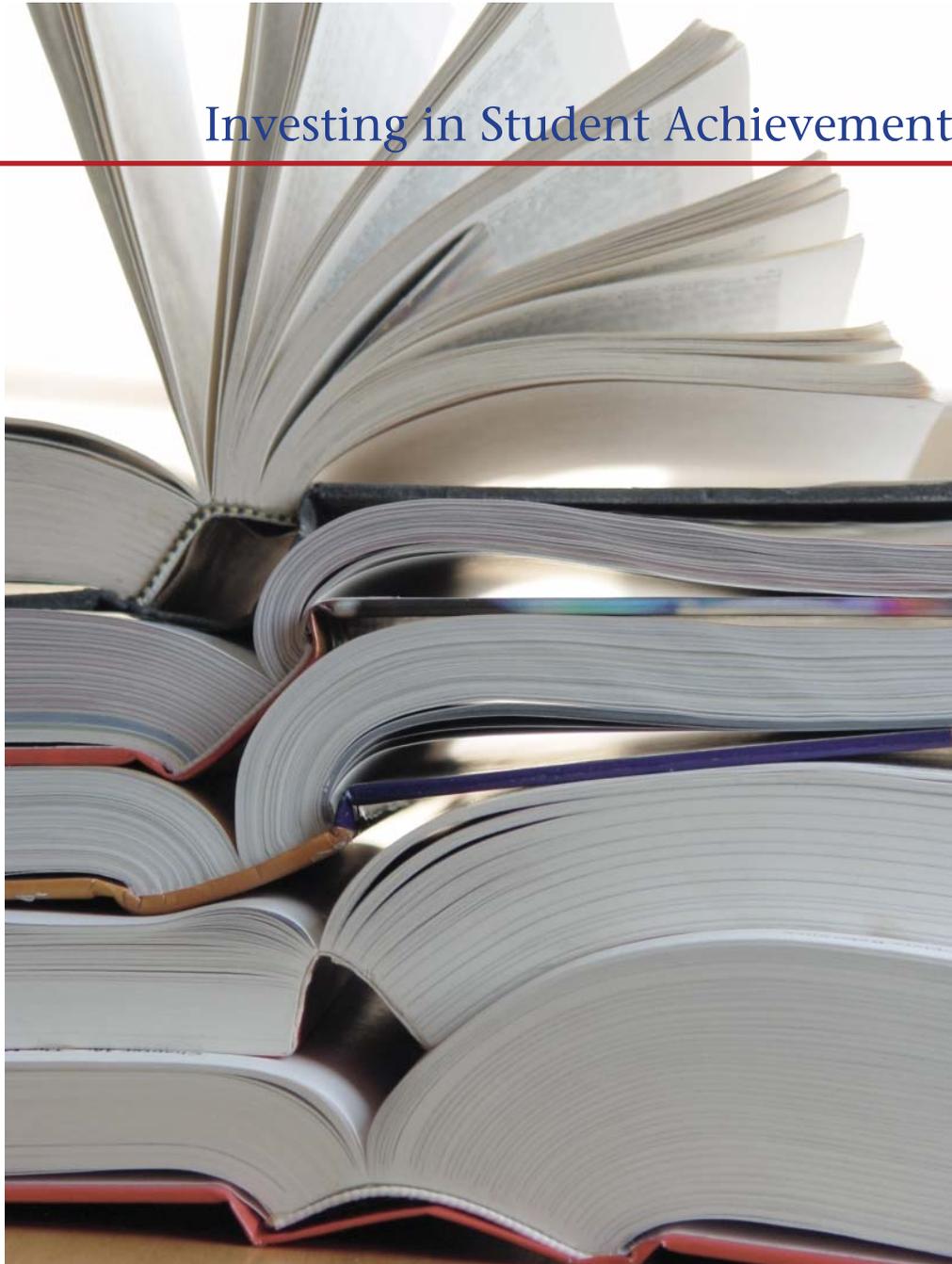


Smart Money:

Investing in Student Achievement



By Cedric D. Johnson and Matthew Ellinwood



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SMART MONEY:

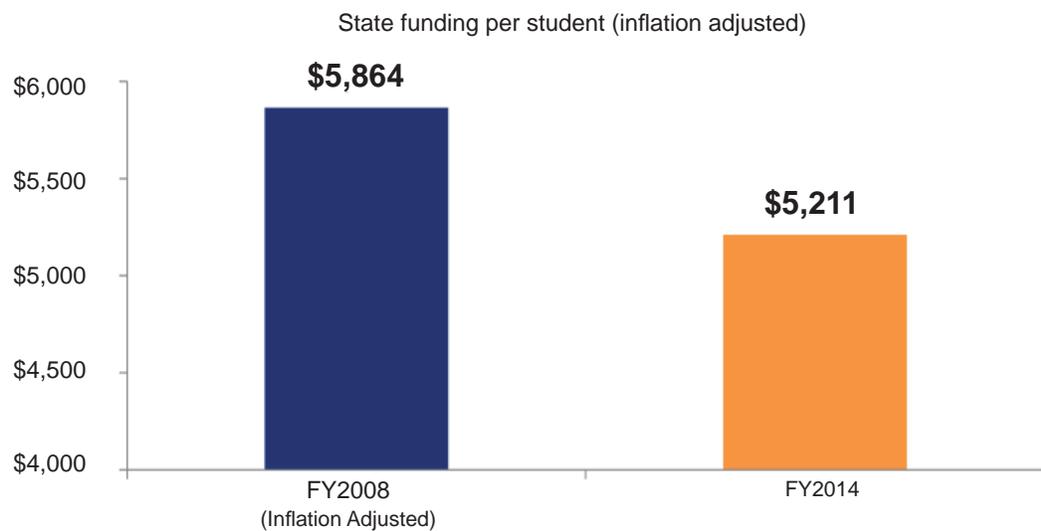
Investing in Student Achievement

North Carolina's state support for education and other public investments, measured as a share of the state's economy, is below its 40-year average¹ and this jeopardizes gains in student performance and the state's economic future. Despite a modest recovery in state revenue since the end of the recession, North Carolina has failed to regain the ground lost during that prolonged economic downturn. For the fiscal year (FY) that began July 1, total spending for K-12 education is \$563 million less than it was six years ago when adjusted for inflation.²

Significant cuts in state funding have meant fewer classroom teachers and teacher assistants, no salary increase for teachers, and funding cuts for textbooks and instructional supplies. The FY2014 budget provides \$653 fewer dollars per student compared to six years ago when adjusted for inflation, even though today more than 48,000 additional students are in the state's public schools compared to six years ago (see Figure 1).

This abandonment of investment is a significant turnaround in a state that has long

FIGURE 1: State K-12 education spending for 2014 still lower than in 2008



SOURCE: NCGA-approved budget: FY2008 adjusted in FY2013 dollars.

recognized the importance of education as a pathway to increased opportunity for individuals and a more competitive state economy. North Carolina led southern states in establishing a public university system, universal public K-12 education, and a statewide early childhood education system. Generations of North Carolinians committing to investments in public education helped all students have the chance for the high-quality education crucial to improving the lives of individuals, families, and communities.

The state's new direction raises concerns about what the failure to invest in public education means for future student performance. Though many who have supported the state's reduced commitment to public education claim that the level of spending has no impact on improving student achievement, the reality is that while spending alone cannot guarantee student success, widespread increased performance is not possible without such investment. Focusing spending on areas proven to have the greatest impact – early childhood education, teacher

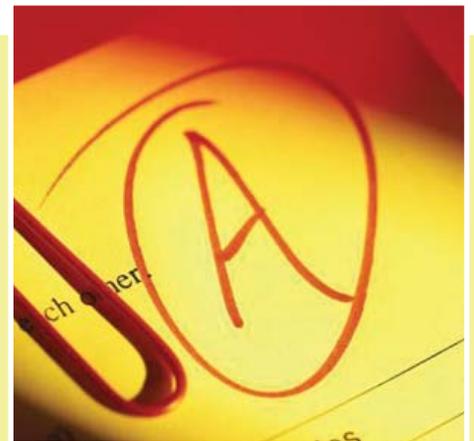
Student achievement gains at risk

The relationship between education spending and student achievement takes time to develop. Benefits from investments made in a particular period often are not realized until years later. For example, spending on early childhood education could be a contributing factor to increasing graduation rates, which would take more than a decade to become evident. The instructional skills of classroom teachers are likely to improve as a result of ongoing professional development training, but the benefits of such training – more effective classroom teaching – will likely accrue to students taught in the years ahead. Teacher assistants can help improve reading and math performance in later years. The same is true for investments in such resources as up-to-date

textbooks, computers and other instructional supplies.

The lag time involved in assessing and confirming

long-term benefits of education spending could help explain why North Carolina's student achievement in particular areas, such as the high school graduation rate, has actually improved at the same time schools have seen state funding cuts. The state is now reaping the benefits of investments in previous years – the



development, smaller classes, and extended instructional learning time, for example – will boost student outcomes in math and reading test scores and reduce the achievement gap between at-risk students from low-income families and their peers from more affluent families.

North Carolina's declining support for K-12 public education

This school year, more than 1.5 million North Carolina students are in public K-12 classrooms.³ Of these students, around 56 percent are from families with incomes low enough to qualify for free and reduced lunch (up from 48 percent in 2008) and one in every eight students was served by a special education program (about the same level as in 2008) during the 2011-12 school year, the most recent year for which data is available.⁴ For the first time in modern history, public schools

graduation rate has steadily improved, with the percentage of ninth graders who graduated on time increasing to 73 percent in 2012 from 69.5 percent in 2007.¹⁰

North Carolina students have lost ground nationally in performance on core assessments, though they continue to outperform their peers in bordering states. Other than Virginia, students perform better on 4th and 8th grade math and reading assessments compared to their peers in bordering states.¹¹ When compared to all states, however, North Carolina students' performance on these assessments has trended downward over time. The state's ranking among all states in 4th grade reading declined to 23rd in 2011 from 20th in

2003 and declined to 12th from 2nd nationally in 4th grade math. In 8th grade reading, North Carolina students dropped to 33rd in 2011 from 32nd in 2003 nationally while dropping to 21st from 19th in 8th grade math performance (see Tables 1 & 2).

Regaining and building upon previous achievement gains made by North Carolina students in core learning areas such as math and reading is important in preparing students for an increasing number of jobs that will require some level of postsecondary education.¹² Meeting this workforce demand requires that students exit the state's education pipeline prepared to compete in a 21st century economy.

in North Carolina and other southern states have a new majority of low-income students.⁵

During the depths of the economic downturn, in which state governments saw drastic declines in revenue collection, states received temporary federal funding to help bolster their budgets. Through the American Recovery and Reinvestment Act (ARRA), North Carolina received approximately \$1.74 billion in federal funding for public K-12 education.⁶ This emergency funding helped stabilize an economy that was at significant risk of continued decline and ensured that states maintained a core commitment to public education. The recovery dollars helped maintain classroom sizes and instructional support for students and kept workers employed during the downturn and subsequent recovery.⁷ No additional recovery funding is available for the 2013-14 school year.⁸

Along with the expiration of federal Recovery Act dollars, North Carolina and other states are further challenged by cuts to ongoing federal funding. As a result of budget decisions at the federal level, significant cuts have been made to federal spending for major K-12 education programs such as Title I – which provides assistance to high-poverty schools – and special education.⁹ Fewer federal dollars for these programs means that state and local governments must find revenue to replace these lost dollars or reduce important educational services.

TABLE 1: North Carolina outperforms bordering states on core student assessments (2003)

State	2003 Rank 4th Math	2003 Rank 8th Math	2003 Rank 4th Reading	2003 Rank 8th Reading
Georgia	38	41	40	41
North Carolina	2	19	20	32
South Carolina	25	30	38	38
Tennessee	43	42	42	37
Virginia	9	16	10	8

SOURCE: National Assessment of Educational Progress data.

TABLE 2: North Carolina outperforms bordering states on core student assessments (2011)

State	2011 Rank 4th Math	2011 Rank 8th Math	2011 Rank 4th Reading	2011 Rank 8th Reading
Georgia	34	40	27	34
North Carolina	12	21	23	33
South Carolina	38	34	41	39
Tennessee	46	45	42	41
Virginia	9	12	8	21

SOURCE: National Assessment of Educational Progress data.

North Carolina is cutting investments that have promoted student achievement

The direction North Carolina is headed raises troubling questions because some of the most significant reductions in state support are in areas proven to promote student achievement. Since benefits from investments in education are likely to take years before they are realized, the impact of reducing the state's commitment will show up later. However, a number of early warning signs suggest that the state is moving backward, not forward, in promoting quality public education for all students. They include:

- **Reduced access to early learning** – The number of at-risk four-year-olds who can participate in the state's Pre-K program has been cut in recent years. For FY2014, a total of 27,500 Pre-K slots are available for them, down significantly from 34,876 during FY2009.¹³

The budget signed by Governor McCrory fails to provide adequate funding to maintain existing slots from the previous year. It permanently funds about half of the 4,900 additional Pre-K slots created by then-Governor Beverly Perdue in 2012 – slots initially funded with temporary dollars.¹⁴ Reduced access to early learning for at-risk youth means that many of these children are likely to begin their primary education lagging their peers, who will arrive at school ready to learn.

- **Increased class sizes** – Small class sizes can have a significant impact on boosting student achievement, particularly for at-risk students.¹⁵ North Carolina policymakers, however, removed class size restrictions, meaning schools are no longer required to limit the number of students placed in each classroom or the total number of students that teachers teach – even as the number of students statewide is increasing. As local school systems continue to manage cuts in state funding, larger class sizes are one way to cut costs, potentially at the expense of making it more difficult for students to learn in crowded classrooms.

The state's funding formula for K-12 education has also been changed

and now includes larger student-to-teacher ratios for every grade level, which reduces the amount of funding provided to schools for classroom teacher positions. For the 2013-14 school year, the increase in student-to-teacher ratios reduced state funding for classroom teachers by \$286.4 million.¹⁶ State lawmakers also cut funding for teacher assistants, resulting in a 20 percent reduction in the number of funded positions.

- **Increased teacher turnover** – Teachers who decide to leave their positions can affect the quality of students’ learning experience and is costly. Teachers typically become more proficient in teaching and classroom instruction as they gain experience over time. This benefits students, through a more enriching learning experience, and teachers, who become better at their profession. However, a significant number of beginning teachers, nationally and in North Carolina, leave the profession before they have time to become proficient and school districts spend billions of dollars each year replacing teachers.¹⁷ These losses are most profound for new teachers with three or fewer years of experience and for those with 25 years or more of experience, who are opting for retirement. The losses within these two particular groups of teachers should concern policymakers, as schools aim to recruit and retain the best new teachers while holding onto the state’s most experienced and skilled educators.

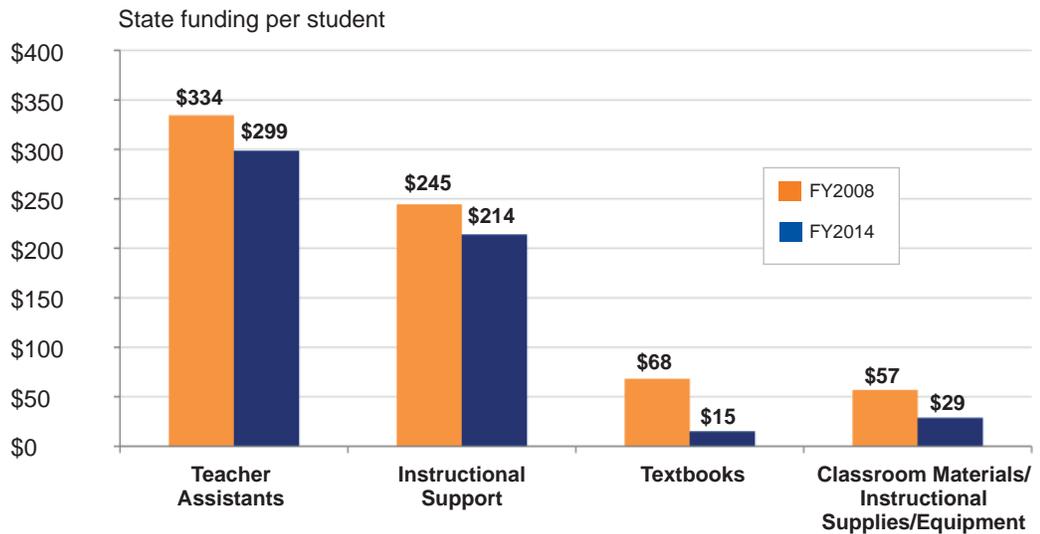
In North Carolina, one in eight teachers leaves their position each year.¹⁸ Around 20 percent of these teachers take a new teaching position in another school – either a public, non-public, or a charter school – in North Carolina or in another state.¹⁹ Another 17 percent of teachers leave the profession for reasons such as career change, dissatisfaction with teaching, and family relocation.²⁰ Overall, around one in three of the nearly 12,000 North Carolina teachers who left their positions after the 2011-12 school year either left the profession or accepted a teaching position elsewhere.

Education spending matters

As funding for public education has failed to keep up with the needs of students, some argue that spending has little to do with providing students a quality education. However, the evidence shows that funding levels matter and that a more equitable distribution of school funding can improve student performance.²¹

Proponents of cutting funding for public education claim that even though spending has increased over the years, student performance has not improved much. These critics fail to acknowledge two key facts. First, the cost of various goods and services for public schools – teacher salaries, fuel for buses, technology and instructional supplies, among other things – has grown faster than the standard inflation measure, the Consumer Price Index (CPI), which largely reflects spending on food, clothing, and shelter. Comparing public school costs to the standard inflation rate understates the actual increase in expenses incurred by schools. Growth in education spending was found to be much lower than

FIGURE 2: State funding has been cut in key areas that help boost student outcomes



SOURCE: NC Department of Public Instruction and NCGA-approved FY14 budget

commonly presented when it was adjusted for inflation using a price index that better reflected public education spending.²² Furthermore, spending for such things as class-size reduction or higher teacher salaries has been found to improve student performance.²³

The second factor ignored by critics is that funding for special education has increased over time and has had a disproportionate effect on overall spending for public education.²⁴ That's because educating students with learning disabilities typically costs significantly more than educating other students. Learning disabilities for which North Carolina provides additional state funding include autism, deafness, traumatic brain injury, and hearing impairment.²⁵ For the 2012-13 school year, educating a student with a learning disability cost the state \$3,743 more than educating a student without such a disability, up from \$2,838 more for the 2004-05 school year.²⁶

Taken together, these two factors show that claims of massive and unwarranted increases in public education are overstated.²⁷

Targeted spending helps: Evidence in North Carolina

The manner in which education dollars are spent also has an impact on student performance, and North Carolina has had success in targeting some spending where it is needed the most. When the state increased funding for school districts with the poorest academic performance through the Disadvantaged Student Supplement Fund (DSSF), middle and high school students in those districts did better academically.²⁸ During DSSF's first three years, the middle school students in DSSF districts at the greatest risk of failing did better academically than their peers in other districts in the state. Similar results were found at the high school level. Evaluations of the program found:

- On average, students in the DSSF pilot districts gained more on End-of-Grade math and reading tests than other middle school students in North Carolina; the gains of academically disadvantaged students – those who did not achieve proficiency on either their 5th grade reading or 5th grade math assessment – were larger.

- Disadvantaged middle school students in DSSF districts gained nearly three times as much in math scores and about two times as much in reading scores as did disadvantaged students in other school districts.²⁹
- High school students in the DSSF districts scored significantly higher on End-of-Course exams than students in other districts.

The DSSF provided 16 pilot districts a total of \$22.4 million in supplemental funding for the 2004-05 school year. Slightly more funding was provided to pilot districts the following year and the program was expanded statewide beginning with the 2006-07 school year. DSSF districts were allowed flexibility in using the funds to attract and retain qualified teachers and to provide enhanced instruction to students at risk of failure. About half of the funding was used by pilot districts to make teacher pay more competitive with nearby school districts.³⁰ Overall, 75 cents of every dollar went to classroom-level regular and special instruction.

Despite the positive evidence from the DSSF, state policymakers cut funding in many of the areas that were found to help boost student achievement. The state cut funding for classroom teachers, teacher assistants, instructional support, instructional supplies, and teacher pay supplements, among other areas, for the 2013-14 school year.

High-quality early education is important to the state's economy

The benefits of investing in early education have been proven by extensive research. The return on investment to the public far exceeds the return on most other economic development projects.³¹ High-quality preschool can increase a child's performance in the early school grades and boost high school graduation rates, improve chances of landing a job later in life, and reduce criminal behavior, among other benefits.³² For every dollar invested in quality child care and early education, taxpayers can save up to \$13 in future costs.³³ Such evidence also supports the notion that benefits from certain education spending are realized in later years.

North Carolina's Pre-kindergarten Program (NC Pre-K) is consistently rated as

one of the highest-quality programs in the nation.³⁴ Economists estimate that the state saves nearly \$9 for every \$1 it invests in NC Pre-K.³⁵ Annual NC Pre-K evaluations show that students in the program learn better, are less likely to need special education, and have better literacy and math skills than non-participants.³⁶

Strong investments in students' early learning years, when their minds are rapidly developing, prepare those students for an enriching and rewarding K-12 experience. When students embark upon their elementary years prepared and ready to learn, the cost of K-12 education is reduced, since students are able to build upon the skills they gained through early learning and fewer of them are likely to be placed in special education.

The challenges and costs that result from a failure to adequately prepare students for K-12 learning extend beyond primary education. They may arrive at college unprepared for the work they are expected to do and require additional training in basic math and English, which creates additional costs to taxpayers. During the 2011-12 academic year, the University of North Carolina system spent nearly \$2 million on remedial and developmental education.³⁷ Students who need basic education in college complete degree programs at a much lower rate than students who do not take a remedial course.³⁸ Ensuring that students are prepared to pursue and complete a postsecondary education is particularly important for North Carolina, as an increasing number of jobs in the state are expected to require such a credential.³⁹ Failure to invest in quality public education will mean higher costs to taxpayers, good-paying jobs going unfilled, and businesses looking elsewhere for a more qualified workforce.

Spending that ensures a quality classroom experience delivers bang for the buck

The environment in which students are educated impacts the quality of their learning. Cuts in state funding have led to more crowded classrooms, fewer resources for instructional supplies and classroom materials, and outdated textbooks. This is not the kind of environment in which learning thrives.

Smaller class size promotes learning

Smaller class sizes benefit all students and help close some of the gaps in learning between students from different economic and social backgrounds, according to studies on the relationship between class size and student achievement.⁴⁰ For instance, an extensive, multi-year effort that reduced class sizes for students in Tennessee public schools reduced the black-white achievement gap by 15 percent.⁴¹

In Wisconsin, academic achievement significantly improved for students who attended small classes beginning with kindergarten and continuing through third grade.⁴² Students from low-income or poverty-level families benefited the most from the small classes. Even studies that find a weak relationship between small class size and closing the achievement gap between students from different backgrounds nonetheless show that, on average, performance improves for all students in small classes compared to students in regular-size classrooms.⁴³

Teacher quality key to student learning

Teacher quality is the single largest determinant of how well students learn.⁴⁴ The most important interaction that occurs each day in classrooms across the nation is between teachers and students – teachers are the lens through which students experience their education. Accordingly, hiring and retaining excellent teachers is an essential component of any education policy designed to improve student achievement.

Low pay, difficult working conditions, and lack of professional development opportunities are major obstacles to recruiting and retaining high-quality teachers, particularly in North Carolina. Money is rarely the reason teachers initially choose to teach, but it can be a major factor for those who ultimately choose to leave the profession. Improving pay and benefits, working conditions, and the overall status of the teaching profession would dramatically increase the proportion of the highest-performing college graduates who choose to go into teaching, according to a report by McKinsey and Company.⁴⁵ The United States ranks 22nd out of 27 economically advanced countries in teacher pay⁴⁶, with teachers earning 20 percent less than professionals in other fields with the same level of education and experience.⁴⁷ The problem is particularly serious in North Carolina, which ranks 46th among states in average teacher compensation.⁴⁸

High-quality professional development is also essential for recruiting and retaining qualified teachers because, like all professionals, teachers want to build their skills and continue learning throughout their career. Professional development is also a proven way to improve teaching practices, which help improve student learning and achievement.⁴⁹ Both traditionally high-performing schools and schools that have managed to dramatically improve have rigorous professional development practices that provide support to improve teaching.⁵⁰ Since teachers are the most important factor in students' classroom education, investments in helping teachers improve and develop as professionals are essential to building a high-quality teaching force.

Teacher compensation is less competitive

North Carolina has relinquished its standing among states in average pay for its public school teachers. In 2004, North Carolina ranked 22nd nationally in average teacher salary, higher than all its bordering states except for Georgia.⁵¹ For the 2011-12 school year the average teacher salary in North Carolina ranked 46st nationally and was the lowest among all its bordering states.⁵²

Currently, a certified North Carolina teacher with a bachelor's degree must work for 16 years before reaching \$40,000 on the state's salary scale.⁵³ Public school teachers have received only one state-funded pay increase in the last six years and policymakers have enacted a number of policies that reduced compensation for public school teachers. Teachers who earn an advanced degree will no longer receive an increase in salary, nor will teachers who complete the rigorous National Board Certification program. While pay tends to not be the major reason teachers decide to enter the profession, compensation can impact whether good teachers remain in the profession.

State-of-the-art technology aids learning

If teachers are students' guides on their educational journeys, then up-to-date textbooks, supplemental learning material, and other instructional supplies are the maps. Teaching techniques have evolved in recent years as researchers continue to make discoveries about how the brain works and how children learn. Ensuring that teachers have the proper resources to support these cutting-edge techniques is essential to both teachers and students. School districts that invest high amounts

of funding in instructional supplies have boosted student achievement.⁵⁴

The way these dollars are spent also makes a difference. Technology and digital learning in public K-12 schools can be better integrated into the classroom learning experiences of students. Most states currently do not assess whether their spending on technology resources actually helps students learn more.⁵⁵ As a result, technology in classrooms is typically used for basic, lower-order skills – such as basic drill and practice exercises and watching a movie or video – rather than to facilitate higher-order thinking – such as using computer applications for data analysis and statistical programs. Furthermore, students from disadvantaged backgrounds are less likely to have access to the type of technology that would give them more rigorous instruction in science, technology, engineering and math.⁵⁶ Aligning spending to areas where the evidence shows it can improve student performance is key to getting the biggest bang for limited education dollars.

Nurses create a healthy learning environment

School nurses play a critical role in making sure students are healthy and present in classrooms ready to learn each day. School nurses improve student performance by reducing absenteeism, lowering pregnancy rates, reducing substance abuse rates, lowering the dropout rate, improving student attentiveness, and improving school safety.⁵⁷ Lower student-to-nurse ratios have been shown to improve student health and overall well-being.⁵⁸ In order for any investments in education to be effective, schools need students who are healthy, ready to learn, and present in class each day. The national recommendation is one nurse for every 750 students; in North Carolina this ratio was one nurse for every 1,201 students for the 2010-11 school year.⁵⁹ A low student-to-nurse ratio helps schools meet multiple objectives and more nurses should be placed in public schools with the goal of making the state's ratio closer to the recommended national average.

Counselors guide students to success

School counselors guide students through their schooling and help them plan for higher education, careers, and life after school. Counseling decreases inappropriate behavior and discipline problems, helps student-teacher relationships, and improves students' social skills, self-awareness, and other developmental skills.⁶⁰ Counselors also help students deal with discipline issues, trouble at home, and

other problems that can impact a students' ability to arrive at school ready to learn. Furthermore, counselors help students define college and career plans, guide them along an academic path that will help them reach their personal and career goals and increase their aspirations. Low student-to-counselor ratios can have a positive impact on students' academic performance and behavior at all school levels, and this positive impact continues beyond high school.

Educational attainment is key to North Carolina's prosperity

Investing in education is a proven strategy for states to build the foundation for a strong economy and promote widespread prosperity. Given that higher levels of educational attainment bring higher earnings and greater productivity⁶¹, North Carolina's reduced investments – from early education through postsecondary education – threaten the state's economic prospects. Making sure North Carolina has a skilled workforce that can compete for good-paying jobs in a 21st century economy requires a profound reversal of course. An increased commitment to investing in the state's education pipeline must be a state-level priority.

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