



# Honing Our Competitive Edge

A Report from the 4th Annual  
North Carolina Legislators Retreat

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# INTRODUCTION

More than 40 legislators gathered in Pinehurst for the **4th Annual North Carolina Legislators Retreat**, sponsored by the James B. Hunt, Jr. Institute for Educational Leadership and Policy, and co-hosted by former Governors Jim Hunt and Jim Holshouser. The Retreat, *Honing Our Competitive Edge*, brought to light the importance of **creativity and innovation** in propelling the state forward amid the economic shifts in the global marketplace.

Richard Florida, world-renowned social theorist and author of *The Rise of the Creative Class*, jumpstarted the Retreat with his dynamic take on the **future of the global workforce**. With jobs in the creative sector, or “knowledge economy,” increasing, it is imperative that schools be redesigned to provide appropriate knowledge and skills, specifically in mathematics and science.

Alongside state and national experts, legislators considered the critical questions facing education in North Carolina. During the two-day Retreat, discussions focused on the need for **rigorous standards** in math and science and **integrated data systems** that demonstrate academic progress. Educators from Massachusetts, Florida, and Tennessee joined the discussions to provide an in-depth look at how their states have accomplished such forward-thinking statewide initiatives.

## CREATIVITY: CURRENCY FOR THE GLOBAL ECONOMY



“It’s not just technology, innovation, or even entrepreneurship that drives the economy. There’s a more fundamental characteristic called **human creativity**. That’s what really powers our economy.”

Richard Florida, Author, *The Rise of the Creative Class*

Throughout his career as a social researcher, Richard Florida has developed four key philosophies and trends that he believes should guide states as they consider education and economic development policy decisions. The following summarizes his discussion of these trends with legislators.

- 1. Creative sector employment comprises a large majority of the population and communities that learn to embrace this creative sector will be successful.** Florida defines the creative sector as “those who are paid to use intellectual labor to create wealth.” With the shift from agriculture and manufacturing, our economy is increasingly driven by the creative economy, generating more than 20 million more jobs since 1980. According to Florida, 35 percent of the population works in, and 50 percent of salaries account for, the creative sector.

Open-mindedness to people of all backgrounds is also an important feature of growing the economy. Twenty-five percent of all high-tech companies were founded by immigrants. “The thing that grows the economy is open-mindedness,” said Florida.

- 2. Young people are concentrating in metropolitan areas.** Metropolitan areas are becoming a magnet for recent college graduates,

specifically Atlanta, Washington, D.C., and New York City. At least 285,000 new college graduates have moved to New York City in the past five years. Creating an atmosphere that is attractive to young talent is vital for communities to maintain a strong economy.

- 3. Globalization is making the world more connected.** In the technological age, people can be connected regardless of where they live and can therefore “work” in places other than where they live. As described above, more and more people are gravitating to metropolitan areas. At the same time that the world is becoming globalized, it is also becoming more concentrated in specific locations.
- 4. One of the major decisions people make in their lifetime is where to live.** The other two factors that contribute to a person’s well-being are family and job. According to Florida, where you live is an even larger contributor to well-being than either. Factors that influence where a person decides to live include visionary leadership, lifestyle, clean air and streets, historic architecture, and quality of life. Based on Florida’s research, these factors are similar across race and socioeconomic status.

“We’ve got pretty good standards in North Carolina. I think they used to be fine, but the world has changed. The world has changed and we’ve got to change.”

Governor James B. Hunt, Jr.

## WORLD-CLASS MATH & SCIENCE STANDARDS: WHAT ARE THEY & HOW DO WE GET THEM?

**Dr. Junlei Li**, Director of Applied Research and Evaluation, Office of Child Development, University of Pittsburgh

**Dr. Janie Schielack**, Director, Information Technology in Science Center for Teaching and Learning, Texas A&M University

**Dr. Heidi Schweingruber**, Senior Program Officer, Board on Science Education, The National Academies

**Carr Thompson**, Senior Program and Communications Officer, Burroughs Wellcome Fund

## HOW OTHER STATES HAVE DEVELOPED THEM

**Governor James B. Hunt, Jr.**, Chairman, James B. Hunt, Jr. Institute for Educational Leadership and Policy

**Joanne Jacobs**, Freelance Writer and Consultant, Thomas B. Fordham Foundation

**Dr. Philip Robakiewicz**, Director of Test Development, Massachusetts Department of Education

**Susan Whelple**, Director, Office of Curriculum Standards, Massachusetts Department of Education

*NOTE: The topic of math and science standards was covered during two sessions. The first session covered the important elements of strong standards while the second session followed three states' efforts to establish world-class standards. The following encompasses the learnings and recommendations from both sessions.*

## WHY IS THIS IMPORTANT?

In this new global economy, the workforce is required to have more developed skills in math and science than ever before. As North Carolina, and the nation as a whole, seek to maintain a competitive edge, it is critical that students are adequately prepared for this global world. That means providing a better education in math and science.

Other states have already endeavored to upgrade their standards to reflect changing workforce needs. Based on the *2006 State of State Standards* released by the Thomas B. Fordham Foundation, California, Indiana, and Massachusetts are considered to have the most rigorous standards in the country. The Retreat offered an opportunity to learn about how these states improved their standards.



## WHAT ARE THE ISSUES?

Over the years, the “math wars” have generated a “mile-wide, inch-deep” curriculum, which some experts feel has prevented students from building solid foundational skills in mathematics. Students know a little about a lot of different things, but lack the deep understanding about mathematics concepts that are critical in today’s workforce. The National Council of Teacher of Mathematics (NCTM) released curriculum focal points in September 2006, which offer a guide for states to incorporate the most important concepts in mathematics education when revising state standards and curriculum. At least 12 states have begun conversations with NCTM to set new expectations for pre-K through eighth-grade mathematics instruction.

Like mathematics, students also need the opportunity to build deep understanding about scientific concepts. In addition, students in the early grades have fewer opportunities to experience hands-on science on a regular basis. With the increasing demand for students who are skilled in science, it is critical that instruction in the early grades not be limited to reading and mathematics. The National Academy of Sciences recently issued a report, *Taking Science to School*, offering four primary recommendations for developing science knowledge and skills in the early grades.

## WHERE DOES NORTH CAROLINA STAND?

In mathematics, the 2005 National Assessment of Educational Progress (NAEP) showed that 40 percent of fourth graders and 32 percent of eighth graders are proficient. *This performance does not represent a significant change since the 2003 NAEP results.* North Carolina did, however, show significant gains between 2000 and 2003 in both the fourth and eighth grades.

In science, 2005 NAEP results demonstrated that only 25 percent of fourth graders and 22 percent of eighth graders in North Carolina are proficient. Nine states posted significant improvement in fourth-grade science performance since the results released in 2000, including the neighboring states of Virginia, Tennessee, South Carolina, and Georgia. *North Carolina’s improvements were not significantly different than 2000 results.*

“No state has addressed the achievement gap issue. This is a problem across the country. The opportunity is for North Carolina to lead.”

Dr. Junlei Li





“We know that standards drive instruction. It’s critical that we first get rigorous standards in place and figure out how to make sure they influence the rest of our educational system.”

Carr Thompson

## POLICY RECOMMENDATIONS

- 1. Narrow the content in mathematics and science standards.** Students need the opportunity to build deep knowledge and understanding in a few core areas of math and science, rather than learning cursory knowledge about many topics in each. NCTM provides a guide through the recently published focal points. *Taking Science to School* recommends identification of a core set of ideas and building upon them over a number of years. This philosophy should be reflected in statewide science standards.
- 2. Align assessments with standards.** In order for educators to have an accurate picture of students’ understanding of content, it is critical that state assessments align with content standards. Without this alignment, it is impossible to know with certainty whether students have mastered various content strands. In addition, assessments rather than standards are increasingly used as the guide for classroom instruction. Given this practice, assessments must be improved to reflect rigorous content and effectively capture open-ended responses.
- 3. To improve science education, develop standards that are globally competitive and provide hands-on instruction.** Based on research, students come to school at an early age with the appropriate readiness to learn science. More opportunities to explore ideas and experience the scientific world need to be provided. One of the key recommendations of *Taking Science to School* is to start early.
- 4. Ensure adequate training for teachers and get them excited about teaching science.** Elementary school teachers are required to have knowledge about many subjects and topics. In order to ensure students have adequate science experiences, teachers should be trained to teach science effectively, especially in the early grades. Science should be taught in a manner that provides hands-on opportunities to explore ideas. *Taking Science to School* recommends a coordinated system of professional development that reflects the standards.  
  
Some schools and districts use science specialists to support teachers in their ability to teach science. States may want to revisit the structure of teaching in the elementary grades given the current status, which requires extensive knowledge in several subjects.
- 5. Involve a diverse group of stakeholders, including the university and research communities, when revising state standards.** The National Academy of Sciences recommends this to ensure standards-setting is based in academic research as well as content. In Massachusetts, the business community was very involved in the revision and reassessment of state standards. States should ensure public input when taking on such broad change. Massachusetts allows a public comment period that lasts approximately four to six weeks.
- 6. Develop a timeline for revising state standards that appropriately accommodates all steps of the process, including effective implementation.** State standards should not be revised on a yearly basis; the pace is too rapid to deal with change effectively. Furthermore, according to leaders in Massachusetts, at least two years of test development is required to fully accommodate changes in state standards. The revision timeline should also include professional development for teachers. State standards are only as good as the people trained to implement them.
- 7. Use state and national resources to guide state efforts.** Resources, such as The National Academy of Sciences and NCTM, exist to support states in standards revisions. When developing standards, use examples from other states and countries, as well. National organizations and research can be beneficial to states and guide objective decision-making.

## QUALITY DATA SYSTEMS: THE ENGINE OF PRODUCTIVITY

**John Dornan**, Executive Director, Public School Forum of North Carolina

**Dr. Kathi Gibson**, Superintendent, Northampton County Schools

**Dr. Gary Henry**, William Neil Reynolds Distinguished Visiting Professor, School of Education, University of North Carolina at Chapel Hill

**Jay Pfeiffer**, Assistant Deputy Commissioner of Accountability, Research, and Measurement, Florida Department of Education

## HOW TO BUILD AN INTEGRATED SYSTEM

**Aimee Guidera**, Director, Data Quality Campaign, National Center for Educational Accountability

**Jan Lineberger**, Associate Director for Assessment Literacy, Tennessee Department of Education

**Dr. Judith Rizzo**, Executive Director and CEO, James B. Hunt, Jr. Institute for Educational Leadership and Policy

*NOTE: The topic of data systems was covered during two sessions. The first session covered the important elements of a comprehensive system while the second session detailed the steps states have taken to establish an integrated system. The following encompasses the learnings and recommendations from both sessions.*

## WHAT IS A LONGITUDINAL DATA SYSTEM?

Longitudinal data is the ability to follow individual students over time. Such data is comprised from a variety of sources and is not limited to students' scores on state assessments. It is not just a numerical system; it is good information about a variety of factors that influence and demonstrate student performance.

## WHY IS THIS IMPORTANT?

In the age of accountability, data is an essential element of effectively educating students. It is used to track student progress, assess teacher effectiveness, and even determine bonus pay for district and school personnel. Without good data, leaders at all levels of education are challenged to make decisions that are cost-effective and programmatically sound.

“Having these data systems allows you to leverage things. The demands for decision assistance – not only in the classroom, but in our state capitols – are happening all over the country.”

Jay Pfeiffer



“If it’s data that just sits there, it’s of no use to anyone. It has to be analyzed, reported, communicated... those are key ingredients that have to be thought of in the initial phase.”

Dr. Gary Henry



In order to meet the requirements of *No Child Left Behind* and accommodate local needs, states are investing more resources to build the infrastructure and expertise necessary to produce data that enables reliable decision-making and supports student learning. Fourteen states have received federal funding to focus their efforts. In addition, national resources exist to support states in identifying the most critical needs in this area. The Data Quality Campaign, administered by the National Center for Educational Accountability, seeks to support states in their development and implementation of longitudinal data systems. The goal is to spark conversation within states by helping identify what is needed to develop and implement a comprehensive data system.

## WHERE DOES NORTH CAROLINA STAND?

According to the Data Quality Campaign, a comprehensive longitudinal data system is characterized by 10 essential elements. Based on the Campaign’s description, North Carolina has made recent progress, having five of the essential elements in place. (This is up from only one indicator in place a year ago.) Continued progress is needed to develop a data system that produces useful, timely, and accurate information to all educators in the state.

Efforts are underway to bridge the data systems of the North Carolina Department of Public Instruction, The University of North Carolina, and the North Carolina Community College System. While the goal of this project is focused on producing more teachers and nurses, the outcome will place North Carolina at the head of the nation in regard to the collaboration between the three systems. Such a system will provide rich information about the graduates from our K-12, community college, and university systems, and is a good first step toward developing an integrated, statewide system.

## TEN ESSENTIAL ELEMENTS CRITICAL TO A LONGITUDINAL DATA SYSTEM

1. A unique statewide student identifier that connects student data across both key databases and years
2. Student-level enrollment, demographic and program participation information
3. The ability to match individual students’ test records from year-to-year to measure academic growth
4. Information on untested students and the reasons they were not tested
5. A teacher identifier system with the ability to match teachers to students
6. Student-level transcript information, including information on courses completed and grades earned
7. Student-level college readiness test scores
8. Student-level graduation and dropout data
9. The ability to match student records between the P-12 and higher education systems
10. A state data audit system assessing data quality, validity, and reliability

*NOTE: These elements are necessary but not sufficient for a robust longitudinal data system.*

Source: Data Quality Campaign, National Center for Educational Accountability; <http://www.dataqualitycampaign.org/>



“If we really believe what we are all talking about in State Houses and on Capitol Hill about every child being able to achieve, we need to be able to account for every child and tailor education for every child.”

Aimee Guidera

## POLICY RECOMMENDATIONS

- 1. Establish a data system that provides accurate, timely data that is gathered in a secure, transparent manner.** In order to ensure **accuracy** of data, the state of Florida, whose system was built in 1984, instituted a robust audit data system that maintains a very high standard of quality. Various commissions and councils have been created to provide consultation regarding any data collection that occurs. With Florida’s audit system, if the results are faulty, then it is redone. Building in processes that ensure accurate data is a critical first step in designing a system that provides reliable, trusted feedback.

**Timeliness** is a critical factor in determining how useful student achievement information is to teachers, principals, and district and state leaders. Such information enables effective curriculum decisions for students at all achievement levels, class assignments, and teacher assignments, to name a few.

When dealing with data, **security** is a prime concern. State and federal laws that limit the collection of certain types of information do exist. A system for ensuring data is adequately protected is an essential first step. In Florida, data is housed in a data warehouse and it is anonymous. In addition, Florida developed provisions and state laws that protect the data in cases when it is used outside of the initial parameters of an agreement with an outside agency or researcher.

**Transparency** in the collection and reporting of data allows all stakeholders to fully understand the purposes and benefits of the information. This philosophy allows leaders and educators at all levels to be fully invested in the data system, eliminating worry that data collected will be used inappropriately.

- 2. Build a comprehensive system that includes all aspects of educating students, including buildings, finances, personnel, financial aid, and also follows students into the workforce.** In Florida, the legislature provided the impetus for tracking students from pre-K through graduate school. The cost for building the system in the 1980s was approximately \$6 million (less than one percent of the total education budget in Florida). The system is integrated with other agencies enabling the ability to follow students through the state’s workforce system. Such data allows the state to answer critical questions about the effectiveness of education practices, such as:
  - What factors predict whether a student will drop out of high school?
  - What are the costs to the state for a high school drop out?
  - What are the costs of getting a student through Algebra I and how did they do in college? The workforce?
  - What predictors indicate teacher effectiveness?
  - Does assessment data for pre-K students predict success throughout the education continuum?

Florida’s system contains a few dependencies that enable such robust analysis and conclusions. These include: common course numbers and directories; statewide articulation agreements and oversight; a state culture of data sharing; and a means to follow the records of individual students across geographic areas and education sectors.

Panelists recommended that North Carolina devote a full-time individual to this effort for two years to effectively pull together the pieces that are already in place. Without such focus, there is a danger of continuing down a path of disconnectedness. In addition, several school districts throughout the state are operating their own individual data systems.



## POLICY RECOMMENDATIONS - continued

Larger systems located in wealthier districts have the capacity and financial resources to meet their data needs; however, *the lack of an effective statewide effort discriminates against districts that are less wealthy.* The North Carolina Department of Public Instruction has endeavored to build a data system through the creation of North Carolina Window of Information on Student Education (NCWISE), however, the roll-out of this system has been slower than expected.

3. **Prioritize the steps needed to develop a complete system and build in a mechanism that allows constant review.** Data systems cannot be built at once, though it does not take a generation to build one either. It is critical that states ask the right questions when endeavoring to build a longitudinal data system, specifically to appropriately identify the state's data needs within the context of future trends. Some questions a state may want to ask include:
  - What do you need data to do for you?
  - What are the issue for which you want or need data?
  - Which component do you need to build first?
  - What components should be built over time?
  - What kinds of data do teachers need? Principals? District leaders?
  - Where does the responsibility for this fall (outside source, university)?

One example from Georgia illustrates this well. The Hope Scholarship was created to allow any student with a B or better average the opportunity to attend any state college or university free of charge. This drove policymakers to want to know which students were staying in the state upon completion of their degree. This policy prompted an immediate need for data that had not been previously available. Such short-term data collection can be useful when states need answers to specific questions, though it is important to also consider the long-term needs.

4. **Provide training for teachers and leaders at all levels of the system.** Training is needed for education leaders at all levels, including teachers, to ensure accurate collection, analysis, and use of information. Adequate training also encourages greater use of the data system. Data experts are needed at all levels to ensure classroom, school, district, and state leaders have an accurate, comprehensive view of the strengths and needs in their respective domain. In addition, school and district leaders need to support teachers in their ability to connect student data to day-to-day instruction. In Tennessee, training is provided for district testing coordinators and teachers to ensure accurate reporting. Teachers have access to the data on each student so that growth can be seen from year to year.
5. **Identify federal money and other national resources that can support statewide improvement efforts.** Resources from outside the state are just as important as those inside. Funding sources, such as the Bill and Melinda Gates Foundation, the Lumina Foundation for Education, and the Broad Foundation, may be available to support statewide efforts to improve data systems. As mentioned previously, the Data Quality Campaign exists to support states in their efforts to establish and improve longitudinal data systems. In addition, the U.S. Department of Education has provided up to \$52 million in grants, ranging from \$1.5 to \$6 million to at least 14 states, to support longitudinal data efforts. Additional federal money may become available in the future.



## CONCLUSION

The recommendations made during the Retreat and summarized in this report offer **a clear call to action** for preparing North Carolina's students for the creative economy. Comprehensive and sustained educational improvement will require an **unwavering pledge** from informed stakeholders, a plan to implement proven policies and strategies, and a recommitment of resources. Governor Hunt reiterated the need for **strong conviction** when tackling these issues. In order to build the systems that will strengthen education in North Carolina, Hunt challenged legislators to **think beyond the norm** to develop creative solutions for the state's most pressing educational issues.



 4th Annual  
North Carolina Legislators Retreat



*Group photo taken at 4th Annual North Carolina Legislators Retreat in Pinehurst, North Carolina.*

“There is no state in America today that’s bringing together top legislators from both parties at an event like this – to come together away from the Legislature, away from the press, the lobbyists, and all the rest – to have a chance to think, talk, and to figure out what to do and how to really make it work for our economy and our future.”

Governor James B. Hunt, Jr.

Founded by former Governor James B. Hunt, Jr., the purpose of the Hunt Institute is to work with leaders to secure America's future through quality education — based on sound research. As governor of North Carolina for 16 years, Governor Hunt was successful in accomplishing significant comprehensive improvement in the state, and is considered a national leader in education.



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