



# **Digital Learning Environments in Public Schools Committee**

Oct. 4, 2012



THE WILLIAM & IDA

**FRIDAY** INSTITUTE

FOR EDUCATIONAL INNOVATION



**North Carolina**  
**Virtual Public School**



**PUBLIC SCHOOLS OF NORTH CAROLINA**

State Board of Education

Department of Public Instruction



# **The Digital Transformation of Education in North Carolina K-12 Schools**

**Dr. Glenn Kleiman  
Executive Director**

**Friday Institute for Educational Innovation  
NC State University College of Education**

## Friday Institute for Educational Innovation

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- The mission of the Friday Institute is to advance education through innovation in teaching, learning, and leadership.
- Bringing together educational professionals, researchers, policy-makers, and other community members, the Friday Institute is a center for fostering collaborations to improve education.
- The FI building, opened in 2005, was privately funded

## Friday Institute Areas of Work

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- Innovations in K-12 teaching and learning
- Technology to enhance K-12 education
- Education workforce development
- Evaluation and policy analyses
- Outreach and engagement in K-12 education

# The Digital Transformation of Education

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- We are in a period of historical change
  - From industrial age organizations
  - To global, information, digital age organizations

## Industrial Age Auto Factory (1913)





## Digital Age Auto Factory





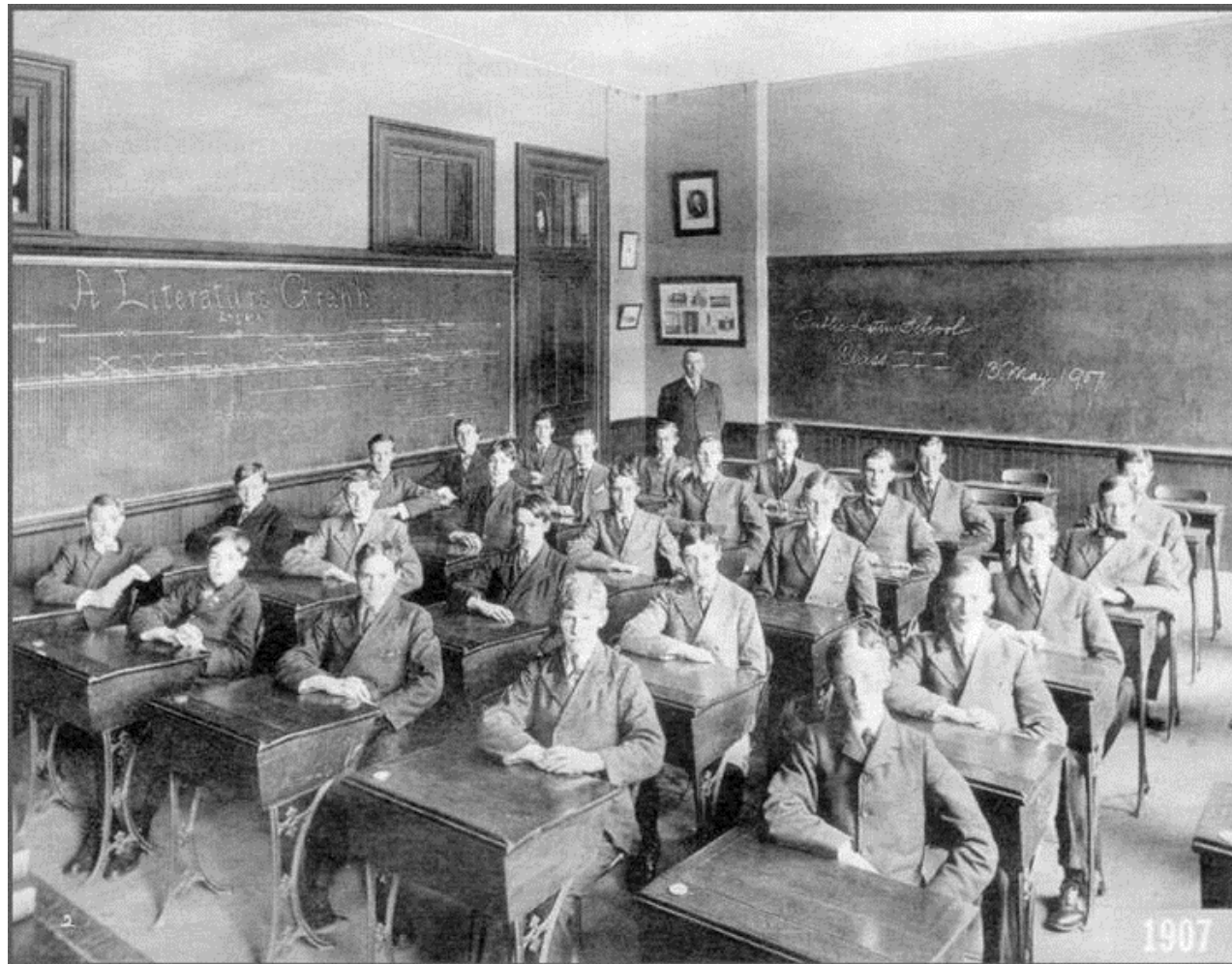
# Why the Digital Transformation of Education?



## Why the Digital Transformation of Education?

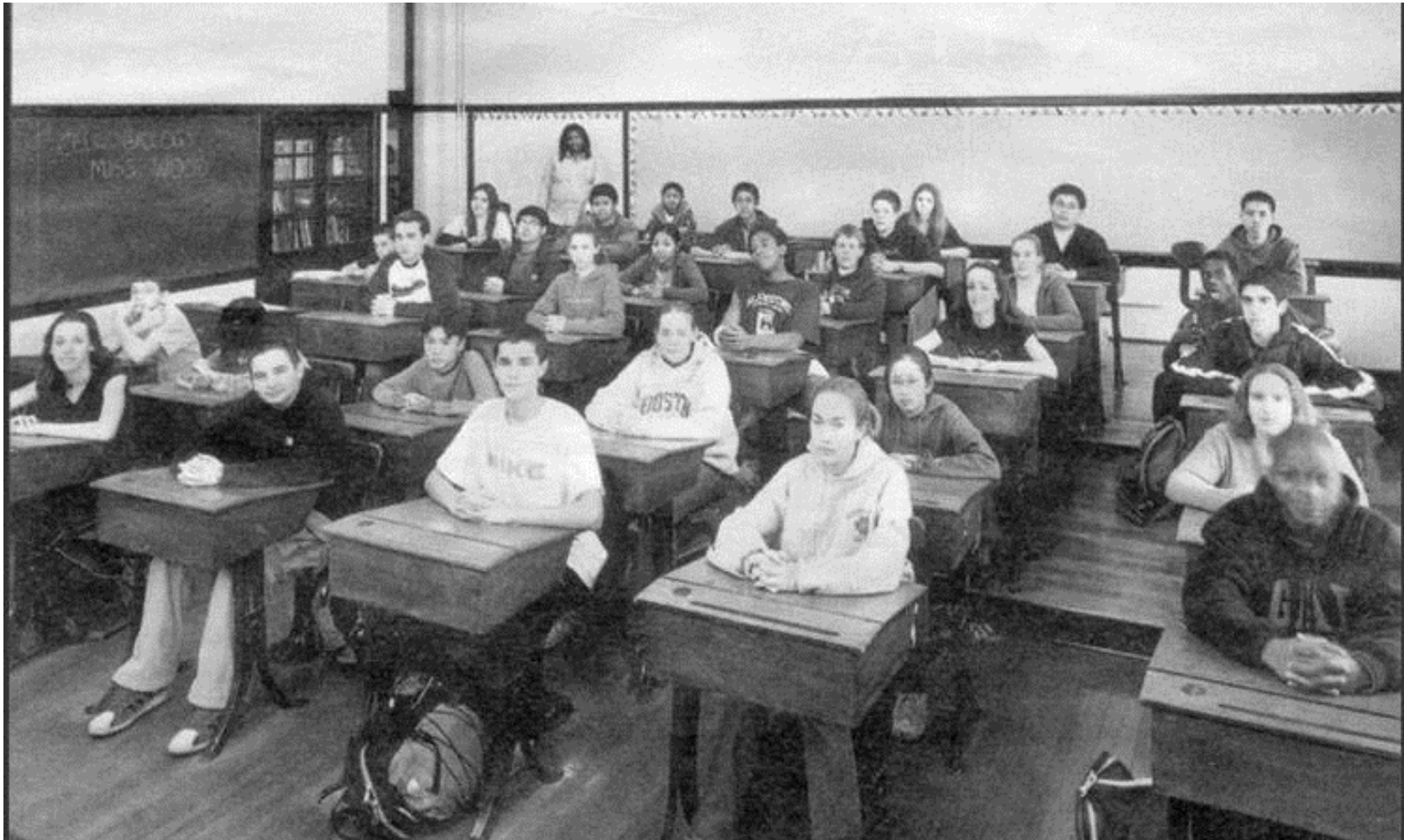


## Industrial Age Classroom (1907)





## Digital Age Classroom?



## 21<sup>st</sup> Century Learning

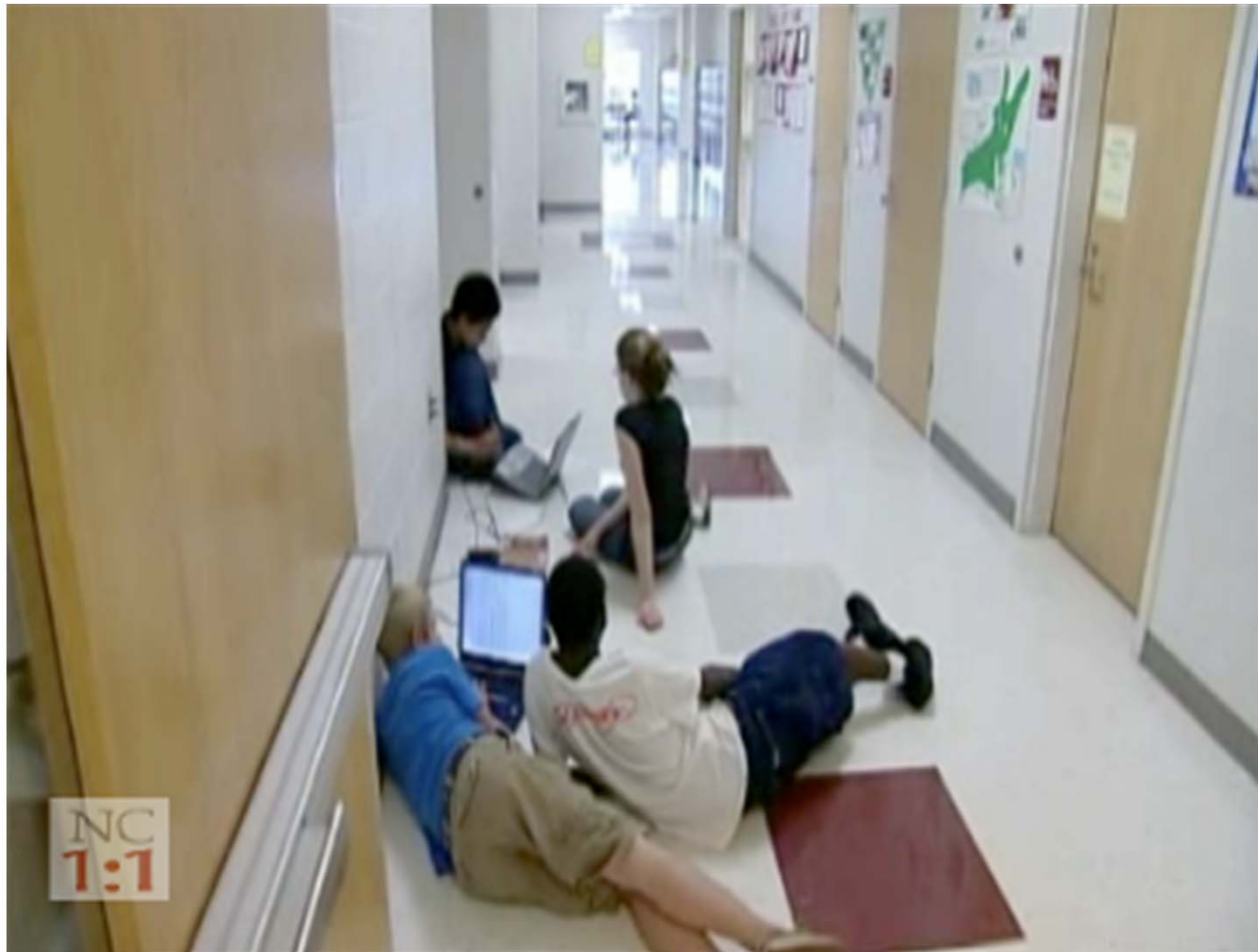
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## 21<sup>st</sup> Century Learning

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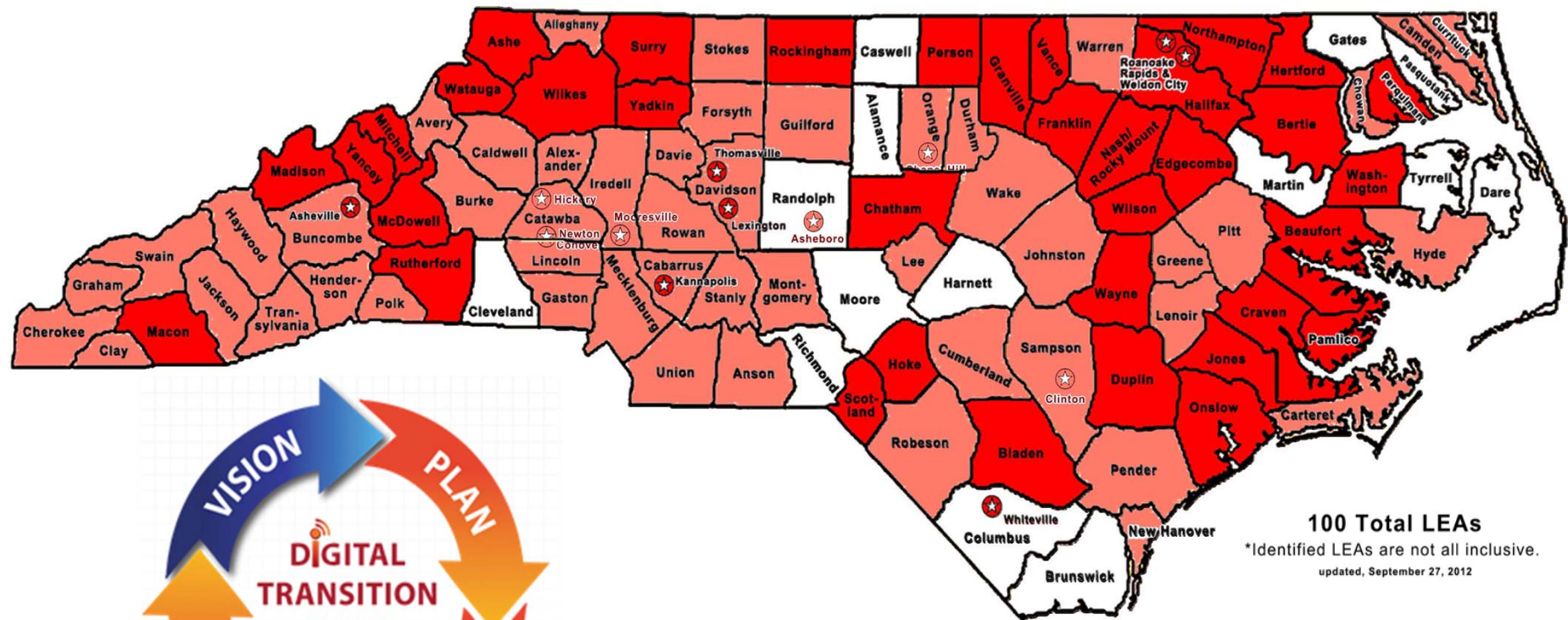
## From Industrial Age to Digital Age Education

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Industrial Age Education System	Digital Age Education System
Common pace and type of instruction	Individualized, variable pace learning
Time is constant; achievement variable	Achievement is constant; time variable
End of course or year assessments	Ongoing assessments embedded in learning
Teacher centered	Student centered
School based, fixed place and time	Anywhere, anytime
Printed static text as main resources	Digital, interacted, up-to-date resources
Informal learning disconnected	Informal learning integrated
3 R's focused	3 R's, New Literacies and 4 C's focused

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# The Digital Transformation of Education is Underway in NC



Districts Supported by FI-NCLTI:

43 Total LEAs

## NCLTI Rubric with Four Major Categories

INDICATORS					
CURRICULUM & INSTRUCTION					
<b>CI1</b> Classroom Use	<b>CI2</b> Access to Digital Content	<b>CI3</b> Content Area Connections	<b>CI4</b> Technology Applications	<b>CI5</b> Mastery of Technology Applications	<b>CI6</b> Web-Based Lessons
Score:	Score:	Score:	Score:	Score:	Score:
PROFESSIONAL DEVELOPMENT					
<b>PD1</b> Professional Development Experiences	<b>PD2</b> Models of Professional Development	<b>PD3</b> Educator Capability	<b>PD4</b> Participation in Instructional Technology-Driven Professional Development	<b>PD5</b> Levels of Understanding	<b>PD6</b> Student Training
Score:	Score:	Score:	Score:	Score:	Score:
LEADERSHIP, ADMINISTRATION & INSTRUCTIONAL SUPPORT					
<b>LAI1</b> Leadership & Vision	<b>LAI2</b> Planning	<b>LAI3</b> Instructional Support	<b>LAI4</b> Communication & Collaboration	<b>LAI5</b> Sustainability	<b>LAI6</b> Policy
Score:	Score:	Score:	Score:	Score:	Score:
INFRASTRUCTURE & TECHNICAL SUPPORT					
<b>ITS1</b> Student:Device	<b>ITS2</b> Access & Connectivity	<b>ITS3</b> Classroom Technology	<b>ITS4</b> Technical Support	<b>ITS5</b> LAN/WAN	<b>ITS6</b> Student Access to Distance Learning

## Slide 17

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J8

Seems to much in the weeds for this audience. maybe go a level up with NCLTI Framework...e.g. it's about working with LEAs to develop a Vision, Implementation Plan, Implement, Assess using these tools we've developed...

JeniCorn, 10/01/2012



## Some Example LEAs

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- **Mooreville Graded School District**
- **Asheboro High School**
- **Kannapolis Middle School**
- **Cumberland County Schools**
- **Surry County Schools**
- **Granville County Schools**
- **Onslow County Schools**

## Presentations to Follow

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- Dr. Jeni Corn, Friday Institute, *Lessons from Research and Evaluation*
- Dr. Angela Quick, NCDPI, *State Progress and Plans*
- Dr. Tracy Weeks, NCVPS, *Virtual School Update*
- Dr. Glenn Kleiman, Friday Institute, *Policy Considerations*



# Lessons from Research and Evaluation

**Dr. Jeni Corn**  
**Director of Evaluation Programs**  
**Friday Institute for Educational Innovation**  
**NC State University College of Education**

## Evaluation Studies of NC Technology Initiatives

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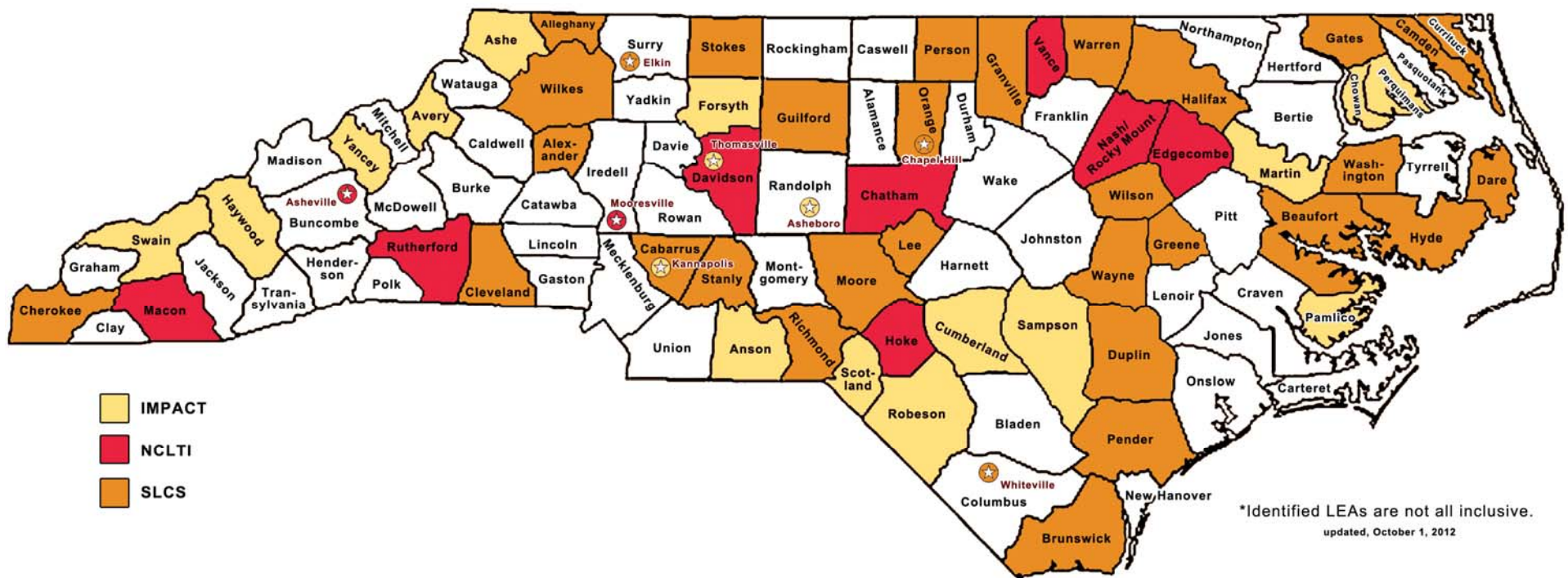
### Major Evaluation Projects

- IMPACT Model (NCDPI Instructional Technology Initiatives)
- NC 1:1 Learning Technology Initiative
- NC Virtual Public School
- School Connectivity Evaluation/Student Learning Conditions Survey

### Evaluation Participants

- 63,368 NC Students
- 2,854 NC Teachers
- 164 NC Schools
- 61 NC LEAs

# Evaluation Studies of NC Technology Initiatives





## Focus of the Evaluations

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- School infrastructures and support systems
- Staff attitudes and skills
- Teachers' instructional practices
- Student learning and achievement

## Evaluation Findings

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### Findings about Teaching

1. Teachers increased *use of technology* for both planning and instruction.
2. Teachers and students reported ready Internet access increased the frequency, reliability, and quality of *communication across the school*.
3. Teachers moved from assigning independent work to *collaborative, project-based lessons*.
4. Teachers shifted to *technology-enhanced modes of assessment*.
5. Decrease in teacher turnover.

Findings consistent with results from other states: Maine, Texas, Pennsylvania, Michigan, Florida, Virginia

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## Evaluation Findings

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### Findings about Student Learning

1. Student standardized test scores showed growth over time.
2. Online course enrollments increased.
3. Graduation rates slightly improved.
4. Student engagement increased.
5. Students developed 21<sup>st</sup> century learning skills (e.g. life and career skills; learning and innovation skills; information, media, and technology skills).

Findings consistent with results from other states: Maine, Texas, Pennsylvania, Michigan, Florida, Virginia

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## Current Relevant Evaluation Studies

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- **NC's Race to the Top Initiative**
  - Online Professional Development
  - Technology to Support Instruction and Data-Based Decision Making
  - Instructional Improvement System
- **IMPACT V**
  - Distributed model for staffing Instructional Technology Facilitator in 12 middle and high schools
- **Golden Leaf Foundation STEM Initiative**
  - STEM initiatives in 225 schools, 1,190 teachers, and 31,890 students in 43 public school districts in North Carolina.

## Evaluation Questions and Data Sources

Evaluation Questions	Examples of Data Sources
1. How have school infrastructures and support systems evolved to meet staff and students' 21 <sup>st</sup> century needs?	<ul style="list-style-type: none"> <li>*School Archival Data</li> <li>*Student and Teacher Surveys</li> <li>*Focus Group/Interviews</li> <li>*Site Visit Checklist</li> <li>*Laptop Repair Checklist</li> <li>*PD Inventory/Quality</li> </ul>
2. How have staff attitudes and skills changed over time?	<ul style="list-style-type: none"> <li>*Classroom Observations</li> <li>*Student and Teacher Surveys</li> <li>*Focus Group/Interviews</li> </ul>
3. How have teachers' instructional practices changed over time?	<ul style="list-style-type: none"> <li>*Classroom Observations</li> <li>*Student and Teacher Surveys</li> <li>*Exemplary Lesson Plans</li> <li>*Focus Group/Interviews</li> </ul>
4a. How have students' 21 <sup>st</sup> Century Skills changed over time?	<ul style="list-style-type: none"> <li>*Classroom Observations</li> <li>*Student and Teacher Surveys</li> <li>*EOG, EOC Data</li> </ul>
4b. How have student learning and achievement in core academic subjects changed over time?	<ul style="list-style-type: none"> <li>*Attendance, Discipline, Graduation Rate, Dropout Rate</li> </ul>



## Slide 27

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J9

backup slide in case they ask questions about methods or data sources

JeniCorn, 10/01/2012

## Consistent findings in other states

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Results from 1:1 programs in Maine, Texas, Pennsylvania, Michigan, Florida, Virginia

- Student engagement
  - Increased engagement according to both student and teacher reports
- Classroom activities
  - More active, reflective, collaborative, and project based learning
- Student achievement *over time*
  - Substantial increases in writing scores
  - Increases in content areas related to teacher preparation and classroom uses of technology
  - Improved test scores for disadvantaged students

## Slide 28

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J10

backup slide in case they ask for more details on other states

JeniCorn, 10/01/2012



# Statewide Programs and Progress

Dr. Angela Quick  
Deputy Chief Academic Officer  
NCDPI

# Instructional Improvement System



## Why an Instructional Improvement System?

Improve and personalize student learning

### How?

Facilitate the teaching and learning process through

- Increased access to high quality resources ***for all***
- Provision of timely and relevant ***information and data***



# Instructional Improvement System

Why – How – **What** -- When



## What tools and resources will be available?

<b>Learner Profiles</b>	Clear picture of your students and their needs
<b>Instructional Resources</b>	Tools for you such as unit plans, online learning objects and media-enriched tasks
<b>Assessment Tools, Items and Strategies</b>	Interim and diagnostic assessment items for use in your classrooms; formative best-practices
<b>PD Resources and Management</b>	Resources to improve and reflect on your practice and tools to manage your professional development
<b>Dashboards and Analytics</b>	Tools to display, understand and use data to drive instruction and professional development choices

# Technology

3 Key Categories



## Instruction

Application • Support

Ensuring  
pressing  
**Enter**  
helps  
students  
learn

## Interconnections

Services • Infrastructure

Making  
sure that  
pressing  
**Enter**  
always  
works

## Things

Digital Devices • Tools

Something  
on which  
to press  
**Enter**

# Technology Platform



# Guiding Principles

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## One Technology Platform

- **Consolidated**  
All operations/data collections will be incorporated into PowerSchool
- **Flexible**  
Maximize flexibility for LEAs and charter schools
- **Improving Data Quality**  
Improve Data Accuracy and Completeness
- **Simplifying Reporting**  
Make reporting easier
- **Secure**  
Maintain security and privacy of information

# Statewide Longitudinal Data System (SLDS)

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- June 8, 2011 – NCDPI received a \$3.8 million SLDS grant award “to develop and link postsecondary and workforce data to the State’s PK-12 data system” called P-20W initiative

# NC P-20W Partners



- NC Department of Public Instruction (NCDPI)
- University of North Carolina General Administration (UNCGA)
- NC Community College System (NCCCS)
- NC Independent Colleges and Universities (NCICU)
- Labor and Economic Analysis Division (LEAD) of NC Department of Commerce
- NC Department of Health and Human Services (NC DHHS)



# Benefits



- The P-20W system will enable the state of North Carolina to
  - Track student performance across years and sectors
  - Help evaluate institutions and program performance
  - Analyze data in more detail to validate or improve performance

# SL 2012-133 (HB 964)

## Education Longitudinal Data System

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- Law passed June 29, 2012
- Expands the partners from the P-20W grant
- Establishes a North Carolina Longitudinal Data System Board of 18 members
- Board members currently being named by legislated individuals



# **North Carolina Virtual Public School**

**Dr. Tracy Weeks,  
Chief Academic Officer and Interim Executive Director,  
North Carolina Virtual Public Schools**

# Who does NCVPS serve?

Public Schools

Charter  
Schools

Special  
Schools

Department  
of Defense  
Schools

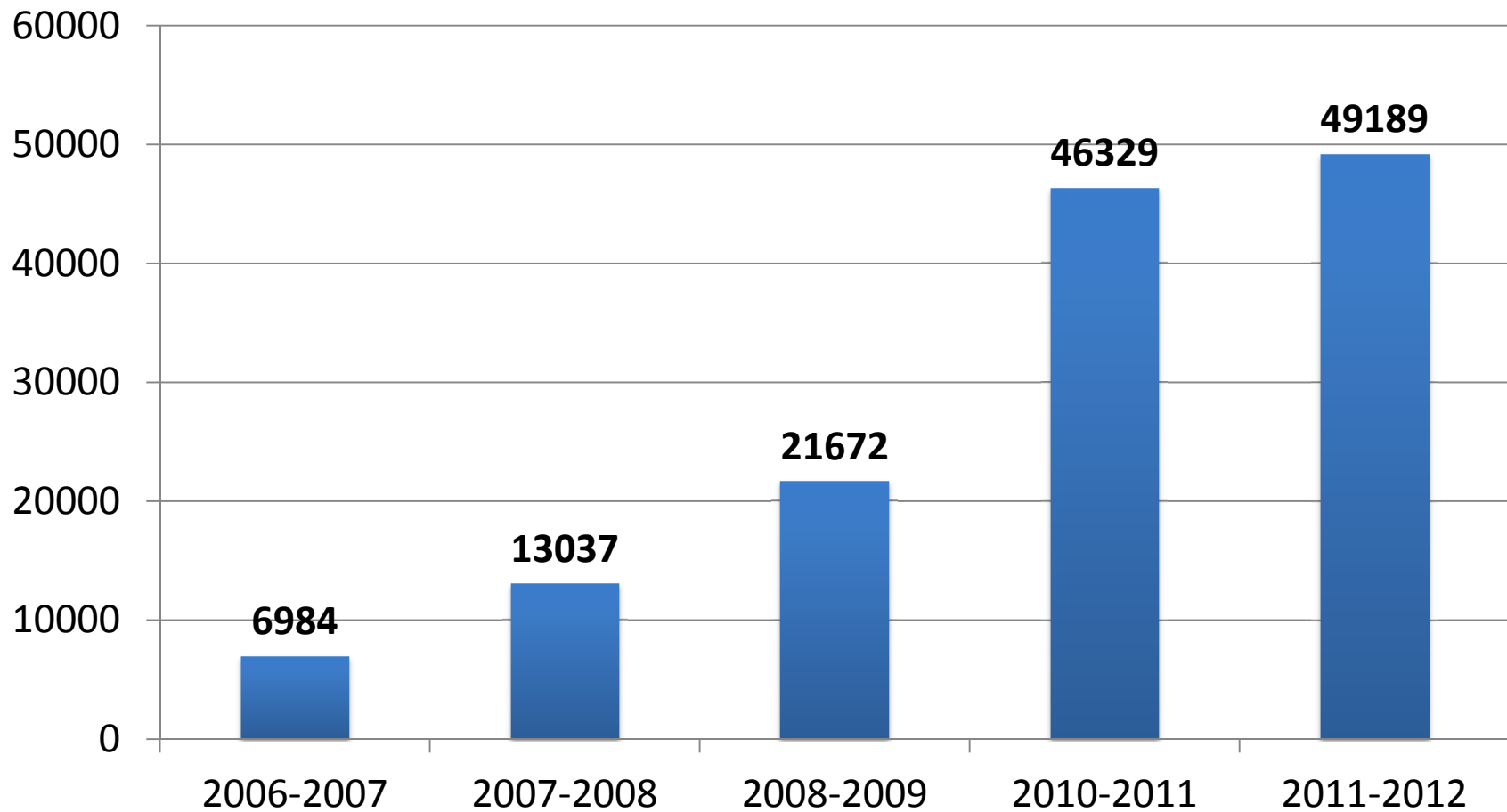
Bureau of  
Indian Affairs  
Schools

Home Schools

Private  
Schools

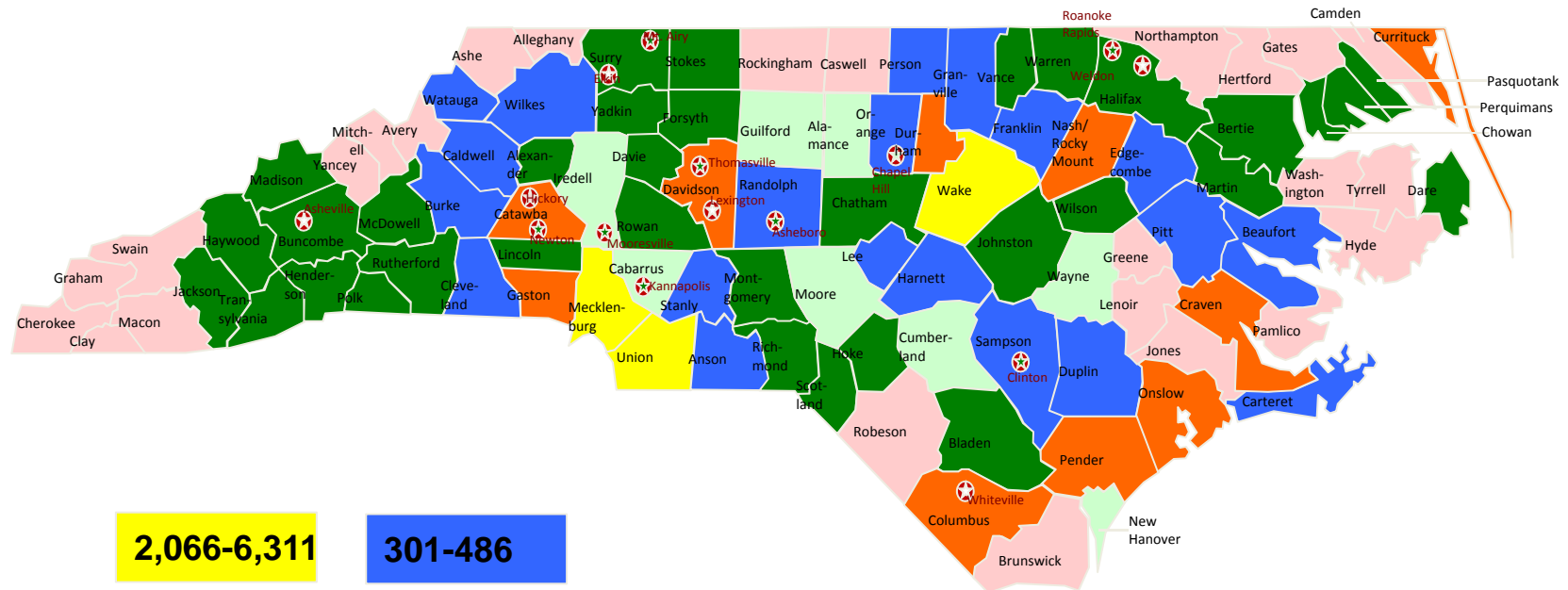


# Enrollment





# 2011-12 Enrollment Distribution



2,066-6,311

301-486

1,000-1,678

105-297

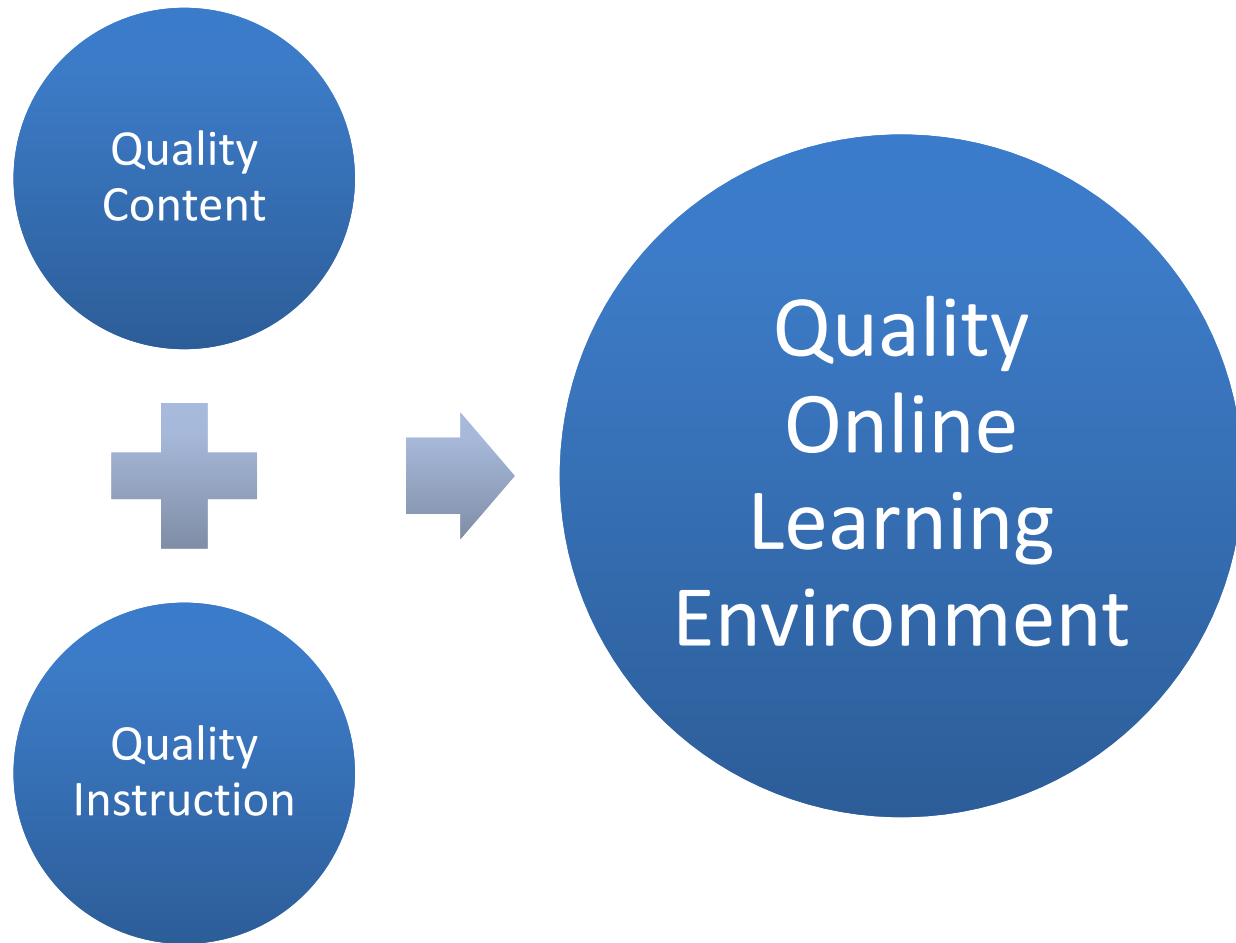
507-982

12-89



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# Online Learning Environment



# NCVPS Courses

Core Courses  
(33)

World  
Languages  
(25)

Test  
Preparation  
(1)

Arts &  
Electives (11)

Advanced  
Placement  
(19)

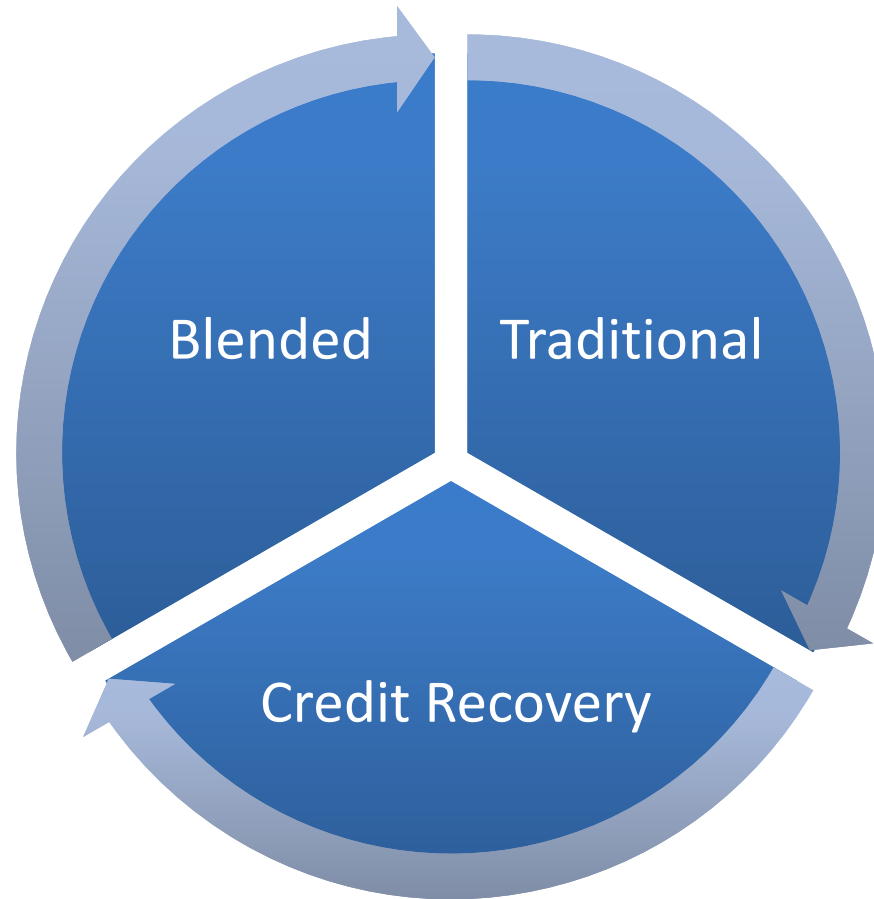
Career &  
Technical  
Education (7)

Credit  
Recovery (10)

Occupational  
Course of  
Study (6)



# NCVPS Instructional Models



# Quality Instruction



- 525 Instructors
- 60.2% in NC LEAs
- NC License
- Highly Qualified





# Cost

- Funding for NCVPS is generated by the legislatively mandated funding formula (Session Law 2011-145, Section 7.22)
- Total budget for 2011-12: \$18,616,464
  - Instruction: \$15,750,042
  - Operations: \$2,866,923

# Obstacles

- Rising costs of technology infrastructure
- Finding and training qualified teachers to teach online
- LEA policies may limit access to NCVPS courses

# Role in Digital Learning

- Expand course offerings
- Digital content for face to face classrooms
- Professional Development



# Requirements for Success and Policy Considerations

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**Executive Director**

**Friday Institute for Educational Innovation**  
**NC State University College of Education**

## Curriculum & Instruction

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- Updated curriculum and teaching methods that incorporate both rigorous content standards and 21<sup>st</sup> century skills.
- Digital resources and tools to support teaching and learning.
- New types of formative and diagnostic assessments to inform teachers' instructional decisions.
- Virtual learning to expand curriculum opportunities for students.

# Professional Development

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- Programs to update the education workforce, both teachers and administrators.
- Instructional technology facilitators -- school-based staff who support teachers use of technology to enhance learning.
- Programs to recruit, prepare and retain highly qualified teachers and administrators who are able to further the digital transformation of K-12 schools.



## Infrastructure

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- High bandwidth connectivity to the school and sufficient wireless connectivity throughout the school.
- A networked, portable, digital device for each student, teacher, and administrator.
- Additional technology tools (interactive white boards, cameras, printers, etc.) in each classroom.
- Local, readily available technical support.

## Leadership and System Supports

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- Effective school and district leadership teams made up of instructional, technology, administrative and financial leaders.
- Policies for ensuring student safety and appropriate use of computers, while enabling teachers and students access to a wide range of digital resources.
- Support from parents and the community.
- Sustainable funding, which will require new models for state and local funding and new public-private partnerships.

## Considerations for the Committee

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If the NC General Assembly sets a priority on moving NC forward on the digital transformation of K-12 education, we recommend the following:

1. Provide support and flexibility for local initiatives.
2. Sustain the work that is well underway and supported by Race to the Top funding on:
  - new curriculum standards;
  - new online formative and summative assessments;
  - instructional improvement tools;
  - teacher and administrator evaluation systems; and
  - K-12 cloud technology infrastructure;
  - evaluations to inform future decisions.

## Considerations for the Committee

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3. **Work with the State Board of Education, NCDPI and NCVPS to implement the recommendations from Governor Perdue and the eLearning Commission:**
  - NCVPS;
  - NCREN statewide infrastructure;
  - K-12 Cloud;
  - The transition to digital resources;
  - Quality assurance processes for virtual and blended learning;
4. **Support initiatives to update and improve the education workforce, both teachers and administrators.**

## Winston Churchill on Education

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- “Personally, I’m always ready to learn, although I do not always like being taught.”