



Results from North Carolina's 1:1 Learning Initiative Pilot: The First Year of Implementation

Friday Institute for Educational Innovation
NC State University College of Education

www.fi.ncsu.edu

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The Friday Institute for Educational Innovation

Mission:

The Friday Institute advances education through innovation in teaching, learning, and leadership. By bringing together students, teachers, researchers, policy-makers, educational professionals, and other community members, the Friday Institute serves as a center for fostering collaboration to improve education.

The Friday Institute for Educational Innovation

- The research arm of the College of Education at NC State University.
- Focused on five main areas
 - 21st Century Teaching and Learning
 - Professional and Leadership Development
 - Technology Infrastructure
 - Evaluation of Educational Innovations
 - Educational Policy

FI 1:1 Evaluation Team

- FI Staff: Jeni Corn, Elizabeth Halstead, Jessica Huff, Rodolfo Argueta
- CED Faculty: Jason Osborne, Kevin Oliver
- GAs: Danny Stanhope, Jennifer Tingen, Ruchi Patel, Clara Hess

Overview: Some of the challenges for K-12 education

- Maintain the traditional strengths and cultural roles of our schools
- Engage all students and reduce the dropout rate
- Enable our students to compete successfully internationally
- Provide 21st century leadership and management for all schools
- Update curriculum content, teaching methods, and assessments
- Recruit, support, and retain qualified teachers
- Put the potential of ICT to full use to enhance teaching and learning, communications, and decision-making
- Create *future-ready schools* that prepare *future-ready students*

Overview: What is the NC 1:1 Learning Technology Initiative?

- A strategic approach to creating future-ready high schools
 - A laptop computer for every student and teacher
 - Broadband connectivity and wireless access
 - Other technology resources
 - Teachers prepared to use technology to enhance teaching and learning
 - 21st century skills integrated into the curriculum
- Addresses equity, engagement, and economic opportunity issues
- To prepare future-ready students, we must provide future-ready environments in our schools.

Overview: The 1:1 Initiative builds on and extends other NC technology initiatives

- School Connectivity Initiative
- NC IMPACT Model
- NC Virtual Public School/Learn and Earn Online
- New Schools Project/Learn and Earn Early College Schools
- Center for 21st Century Skills
- Learn NC Online Professional Development Programs
- High School Graduation Project Requirement
- New writing assessments being developed at DPI
- Online student assessments

Overview: Student results from other states

- Programs in Maine, Texas, Pennsylvania, Michigan, Alabama, etc.
- Student engagement
 - Increased engagement according to both student and teacher reports
 - Increased attendance rates (7.7% in Maine)
 - Decreased behavior problems (54% drop in Maine)
- Classroom activities
 - More active and reflective
 - More collaborative and project-based learning
- Student achievement
 - Substantial increases in writing scores
 - When combined with teacher professional development, increases in math scores

Overview: Teacher results from other states

- Increased technology proficiency
- Use for lesson planning, curriculum resources, formative assessments, increased communication
- Changes in instructional practices over time
- Positive impact on teacher recruitment and retention

Overview: Requirements for Success

1. Committed school and district leadership teams made up of instructional, curriculum, technology, and administrative leaders;
2. Updated curriculum, teaching methods, and assessments that incorporate 21st century skills as central goals;
3. Professional development and ongoing support for teachers as they reshape and update teaching practices and curriculum content;
4. School-based staff who provide instructional support for the use of technology to enhance learning and technical support to ensure that the technology is reliable and up-to-date;

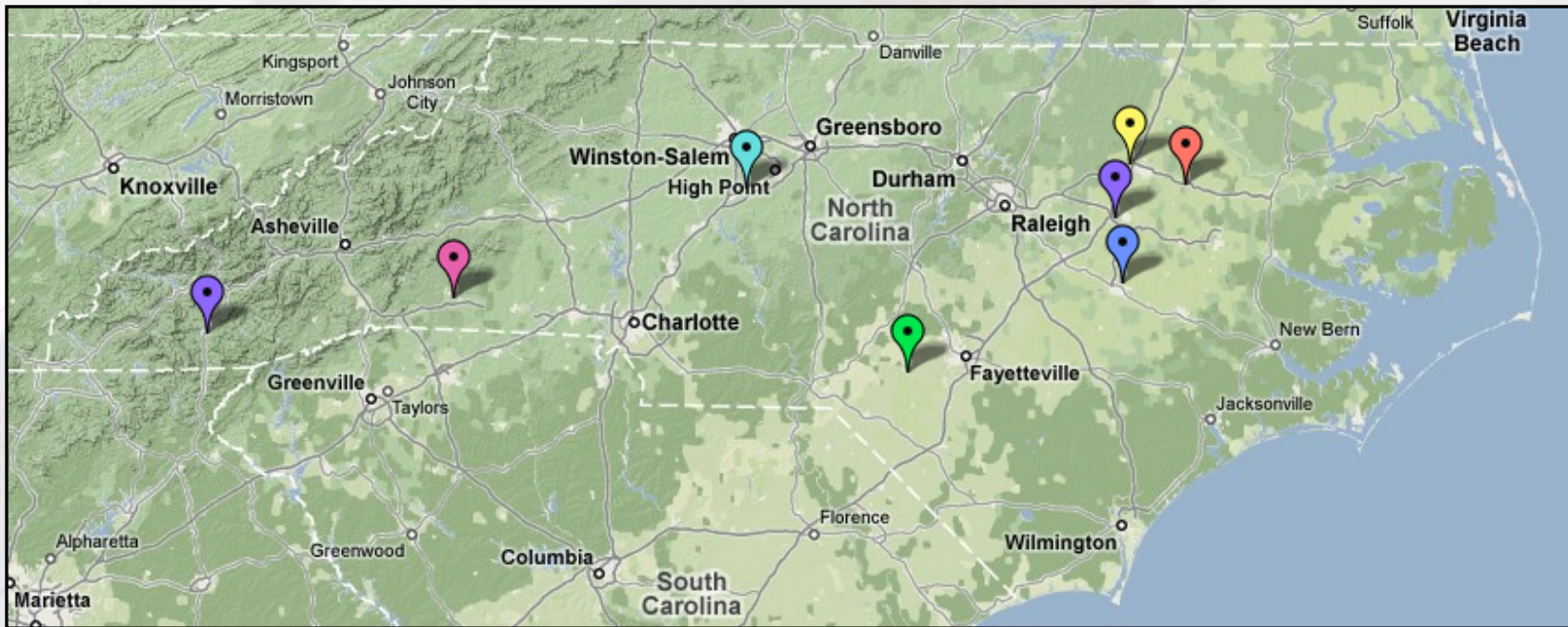
Overview: Requirements for Success

5. High bandwidth connectivity to the school and sufficient wireless connectivity throughout the school;
6. A laptop computer for each student, teacher, and administrator;
7. Technology tools in each classroom, such as productivity software, printers, projectors, digital white boards, document cameras, digital cameras, and curriculum specific resources;
8. Strategies for ensuring student safety and appropriate use of computers in accord with the Children's Internet Protection Act (CIPA), while still enabling teacher and student access to a wide range of information and communication resources.

Evaluation: The 1:1 Pilot Schools

- Hunt High School in Wilson
 - About 1,200 students, 86 teachers
- Learn and Earn Early College High Schools
 - New schools, average 100 students and 8 teachers
 1. Davidson ECHS in Lexington
 2. Edgecombe ECHS in Tarboro
 3. Macon ECHS in Franklin
 4. Nash-Rocky Mount ECHS in Rocky Mount
 5. Rutherford ECHS in Spindale
 6. SandHoke ECHS in Raeford
 7. Wayne ECHS in Goldsboro

Evaluation: Distribution of Pilot Schools



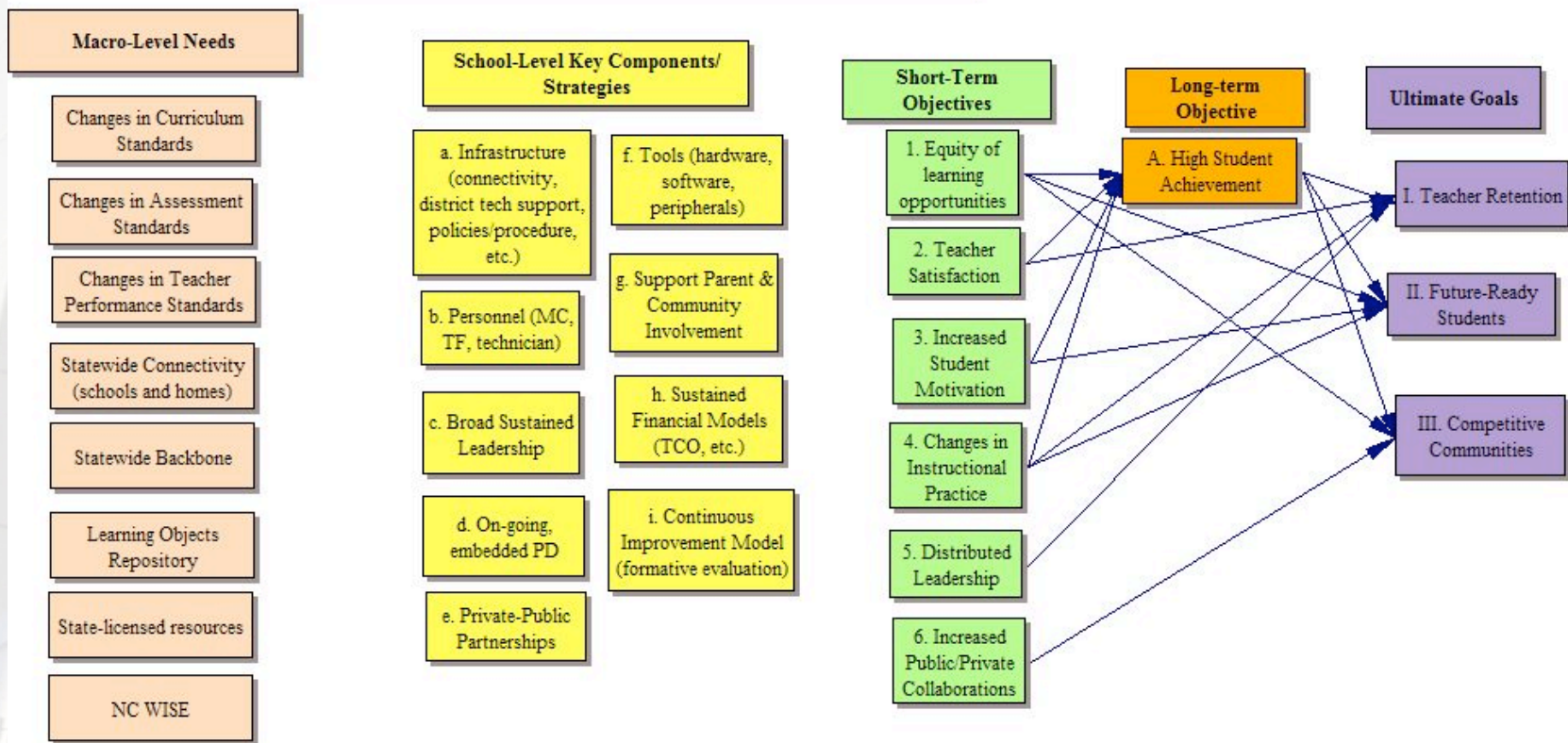
Evaluation: 1:1 Pilot Schools Funding

- GoldenLEAF Foundation: student computers
- SAS: teacher computers
- NC General Assembly through DPI: infrastructure, professional development, school staffing, evaluation
- Local school districts, communities, and foundations
- Others, such as the Mebane Foundation, Lowes

Evaluation: 1:1 Pilot Steering Committee

- Rob Hines: DPI
- Frances Bradburn: New Schools Project
- Caroline McCullen: SAS
- Mark Sorrells: GoldenLEAF Foundation
- Phil Emer, Glenn Kleiman, Verna Lalbeharie:
Friday Institute
- Fay Agar: Nash-Rocky Mount ECHS
- Wynn Smith: Wilson County Schools

Evaluation: School Level 1:1 Learning Initiative



Evaluation: Research Design

- Matched Group Design
 - Comparisons of the 1:1 pilot schools to comparable, non-1:1 schools.

Intervention Groups	Comparison Groups
1:1 ECHS (n=7)	Non-1:1 ECHS (n=7)
1:1 Traditional (n=1)	Non-1:1 Traditional (n=1)

Evaluation: Research Design

- Comparison schools matched on prior-year English I and Algebra I EOC tests and on student demographic patterns
- Comparison schools have student-computer ratios ranging from 1.2 to 5.6

Evaluation: Research Design

Project Goals	Evaluation Questions	Data Sources
1. Improve school infrastructure and support systems to meet 21 st century needs. (school-level)	How have school infrastructures and support systems evolved to meet staff and students' 21 st century needs?	Policies/Procedures 1:1 Online Survey Focus Group/Interviews Site Visit Checklist
2. Improve staff attitudes and skills related to technology. (teacher-level)	How have staff attitudes and skills changed over time?	Classroom Observations 1:1 Online Survey Focus Group/Interviews
3. Enhance instructional practices by facilitating teachers' ability to infuse instructional technology into routine classroom pedagogy. (classroom-level)	How have teachers' instructional practices changed over time?	Classroom Observations 1:1 Online Survey Exemplary Lesson Plans Focus Group/Interviews
4. Improve student learning. (student-level)	How have students' 21 st Century Skills changed over time? How have student learning and achievement in core academic subjects changed over time?	Classroom Observations 1:1 Online Survey EOCs Attendance, Discipline

Evaluation: Timeline

Year One:
Process
Evaluation

Year Two:
Effects on Classroom
and School

Year Three:
Outcomes

1

2

3

Throughout the School Year: FI Evaluation Team works with the school's Technology Facilitator to collect data

Internal Professional
Development

Teacher/Student
Technology Use

Infrastructure

Y1 Evaluation Results: Good progress on implementation of infrastructure

- Connectivity to the school
- Wireless network within the school
- Hiring technology support staff
- Hardware and software resources
- School policies and procedures
- Software images
- Parent information sessions
- Professional Development

Y2 Evaluation Results: Good progress on professional development

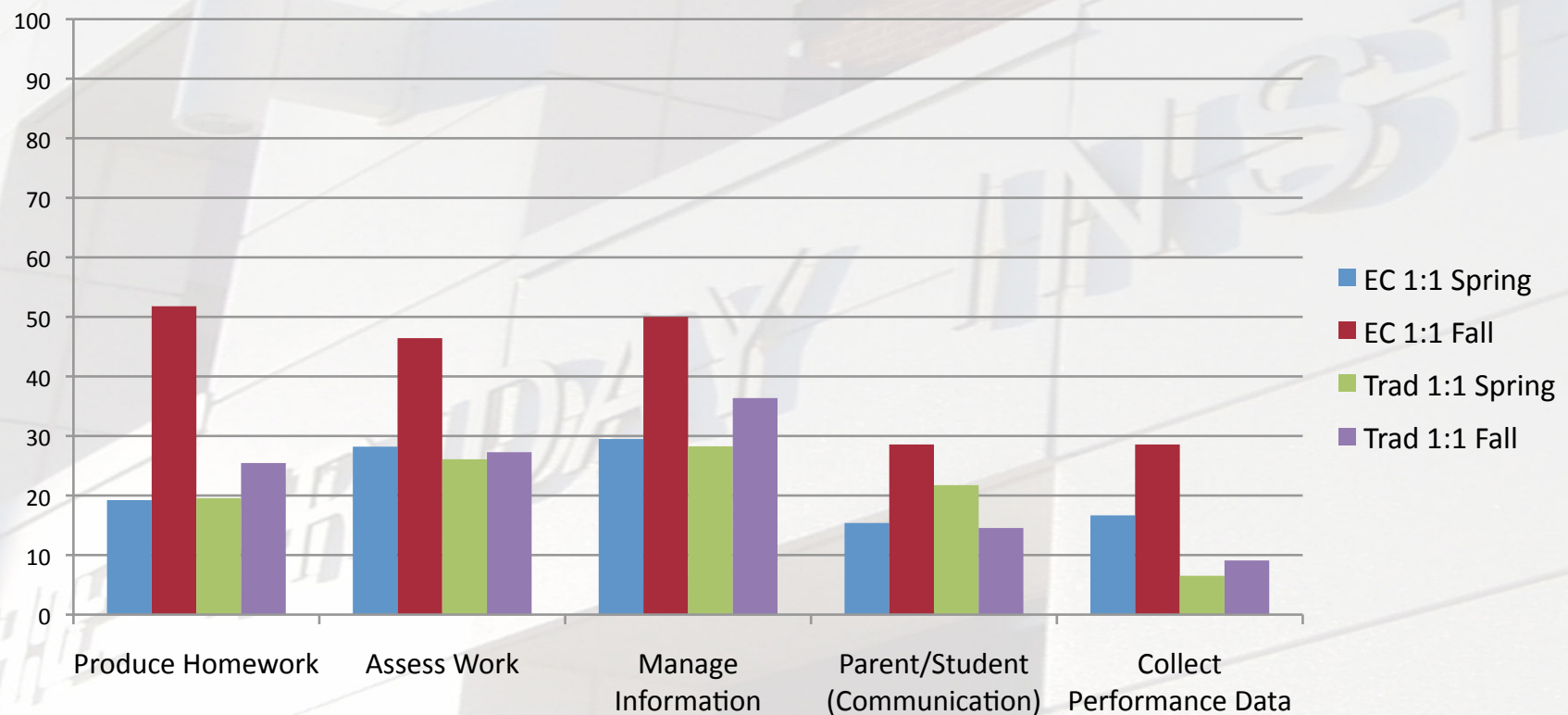
- National and State Education Technology Conferences
- Face-to-Face Friday Institute Professional Development
- Friday Institute Online Workshops
- Locally –Supported Professional Development

Y2 Evaluation Results: Teacher use of technology has increased

- Planning and Managing Instruction
- Innovative Instructional Strategies
- Across all Major Core Content Areas

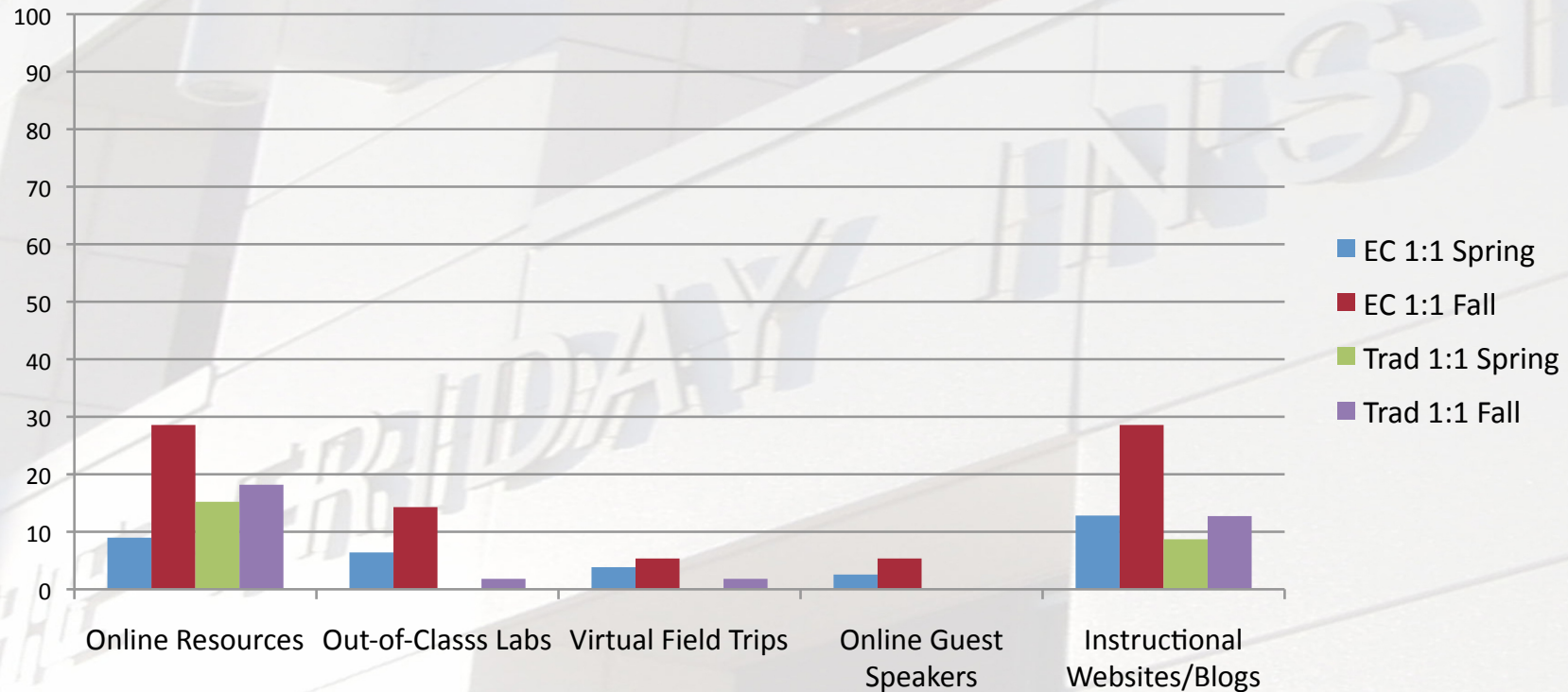
Using Technology for Planning and Managing Instruction

Percent of 1:1 teachers indicating daily use of technology for various planning activities in April 2008 (T1, $n = 78$; 46) and September 2008 (T2, $n = 56$; 55).



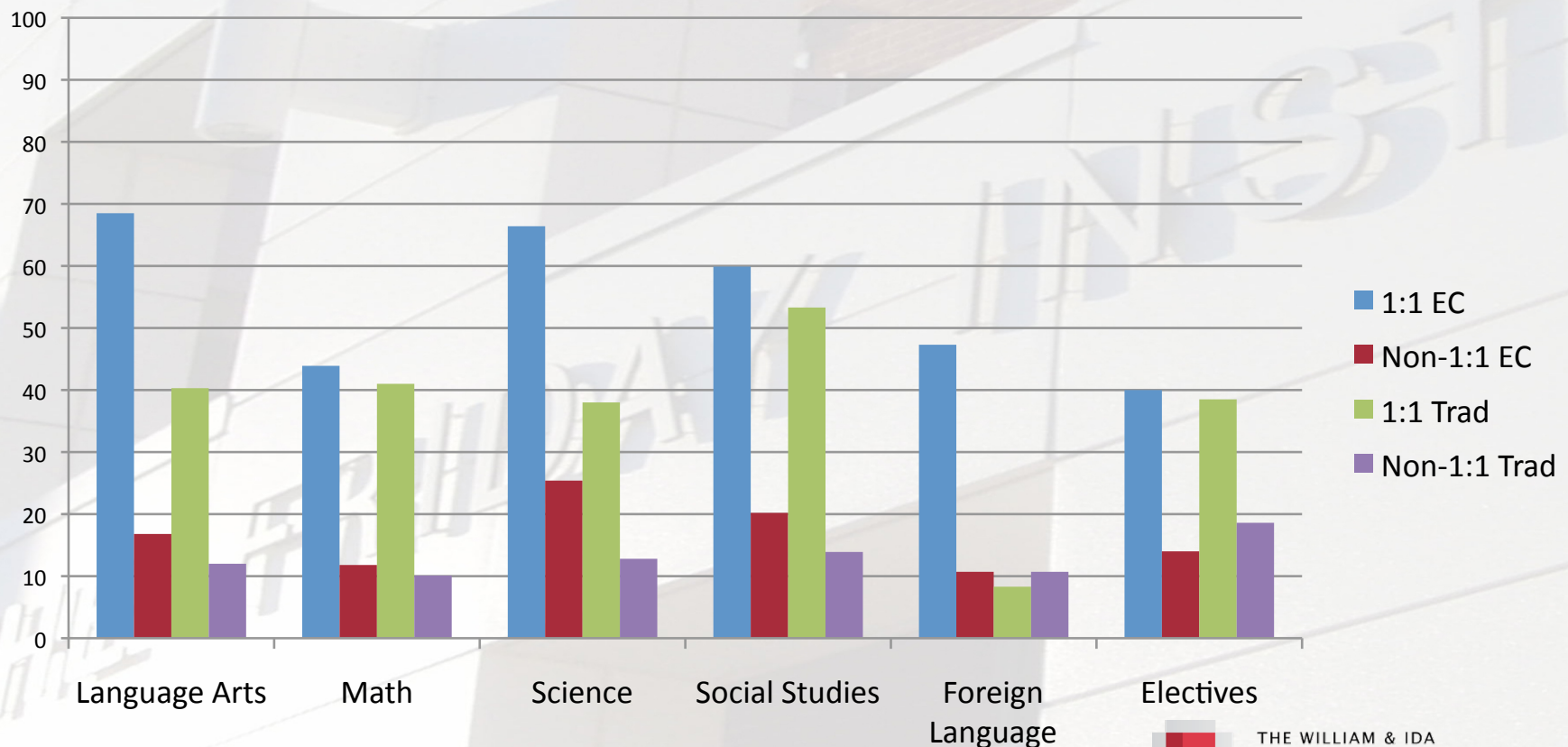
Using Technology for Innovative Instructional Strategies

Percent of 1:1 teachers indicating daily use of technology for various instructional activities in April 2008 (T1, $n = 78; 46$) and September 2008 (T2, $n = 56; 55$).



Using Technology Across all Major Core Content Areas

Percent of 1:1 ($n = 611; 550$) and Non-1:1 ($n = 448; 695$) students reporting daily use of laptops/computers in various classes.

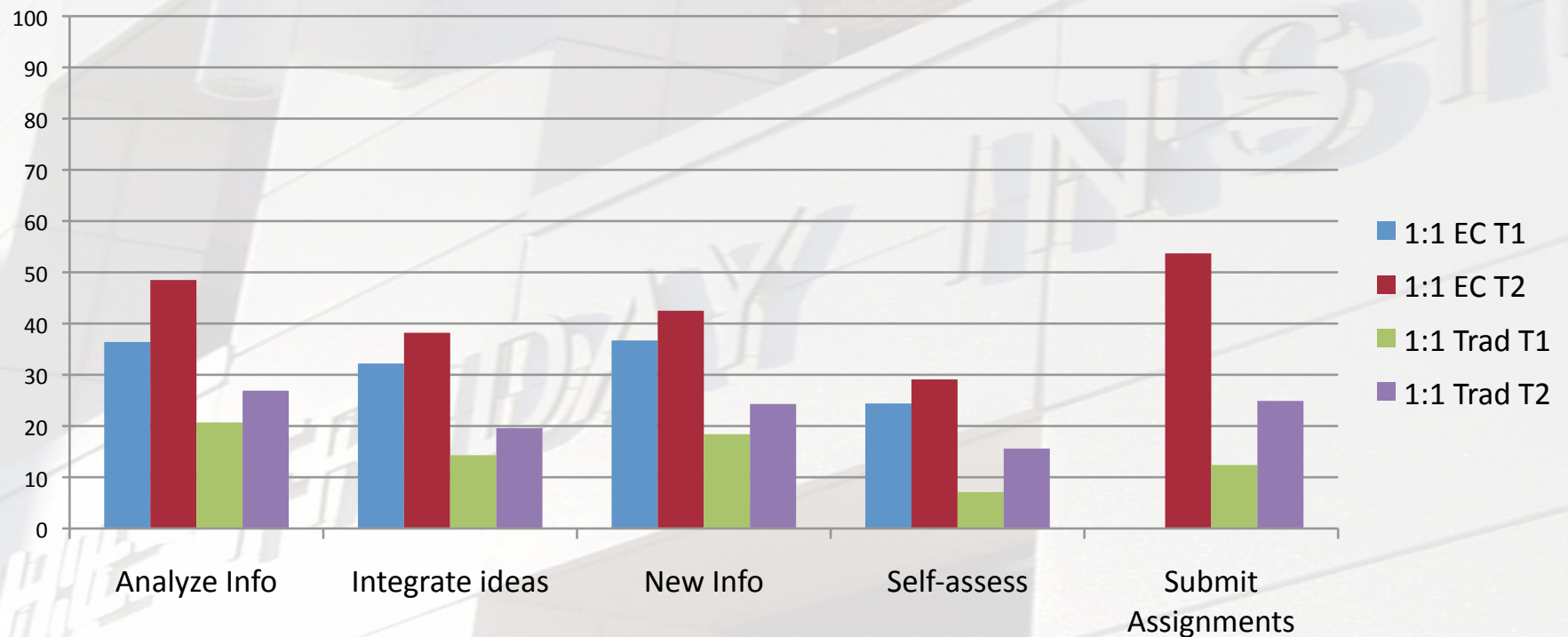


Evaluation Results: Student use of technology has increased

- Innovative Learning Activities
- Development of 21st Century Skills
- Student Engagement
- Student Retention

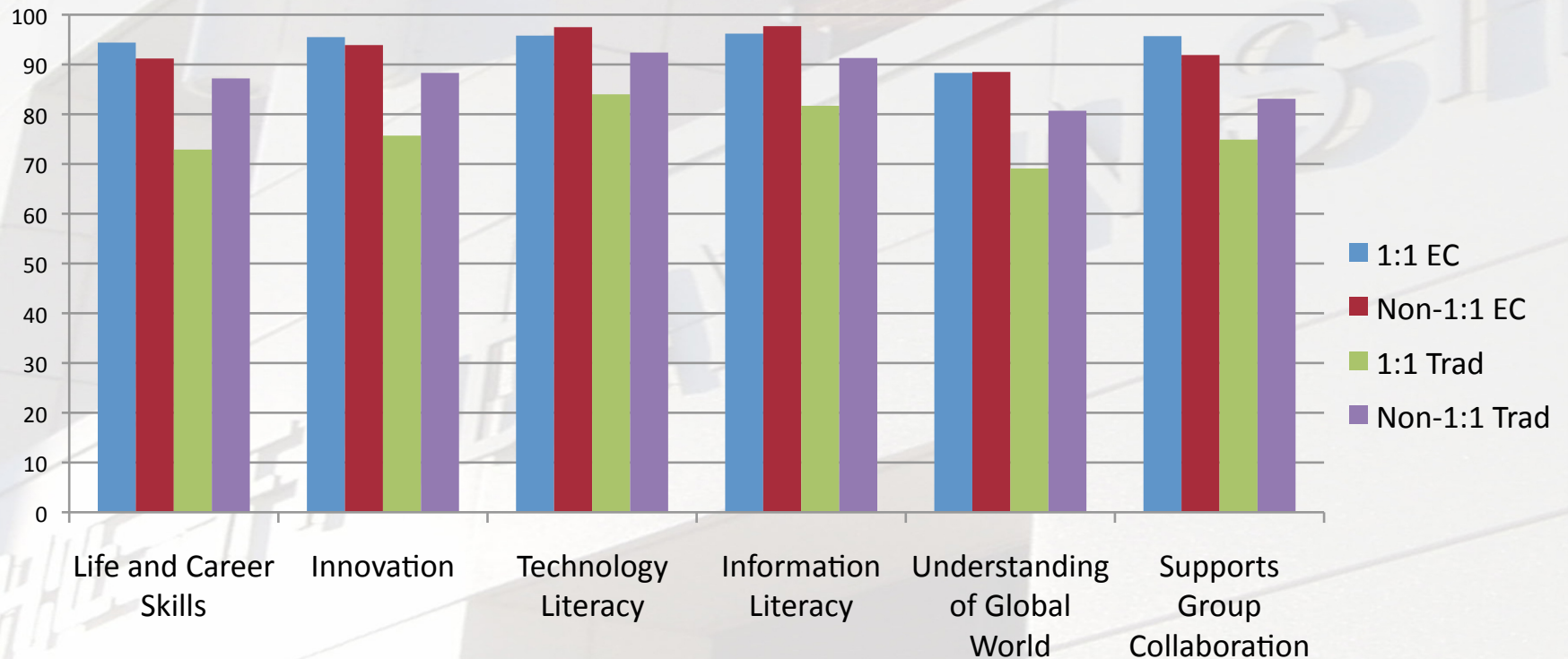
Using Technology for Innovative Learning Activities

Percent of 1:1 students reporting daily use of laptops/computers in various learning activities in April 2008 (T1, $n = 544$; 451) and September 2008 (T2, $n = 703$; 675)



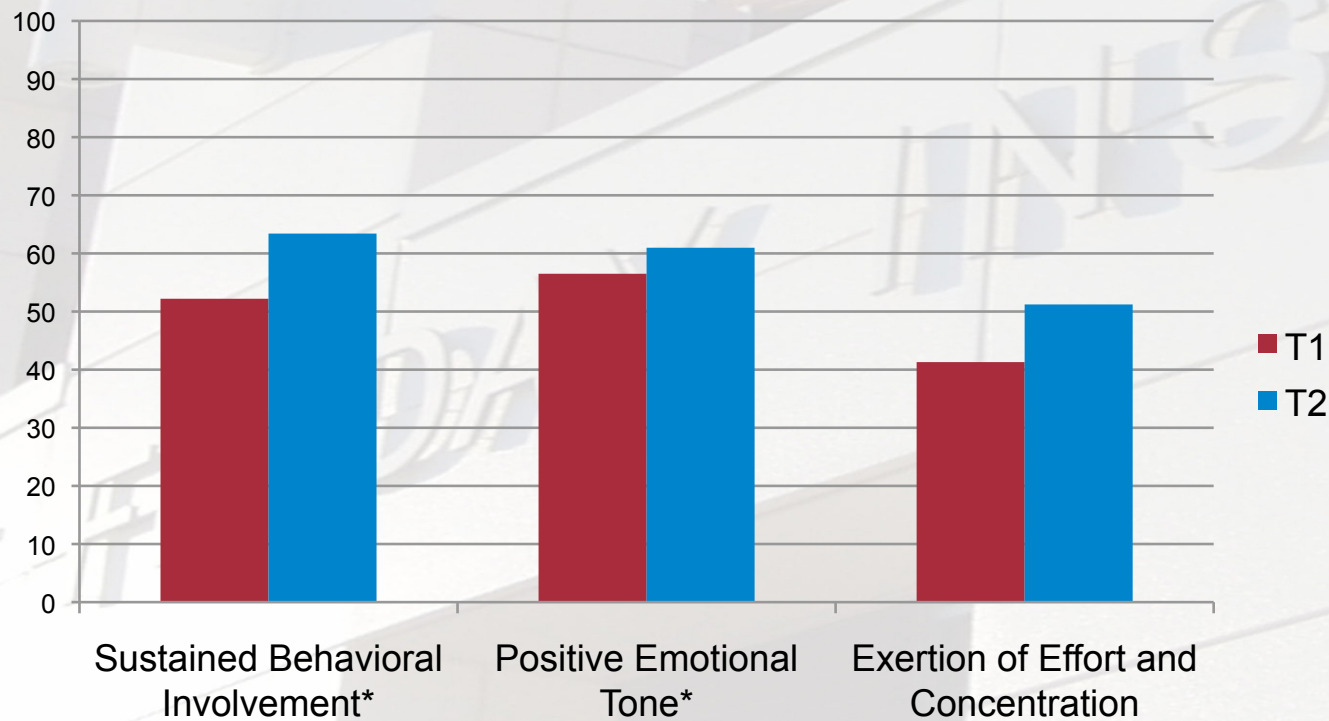
Using Technology for Development of 21st Century Skills

Percent of 1:1 ($n = 760$; 607) and Non-1:1 ($n = 576$; 741) students reporting agreement with various statements about their development of 21st century skills.

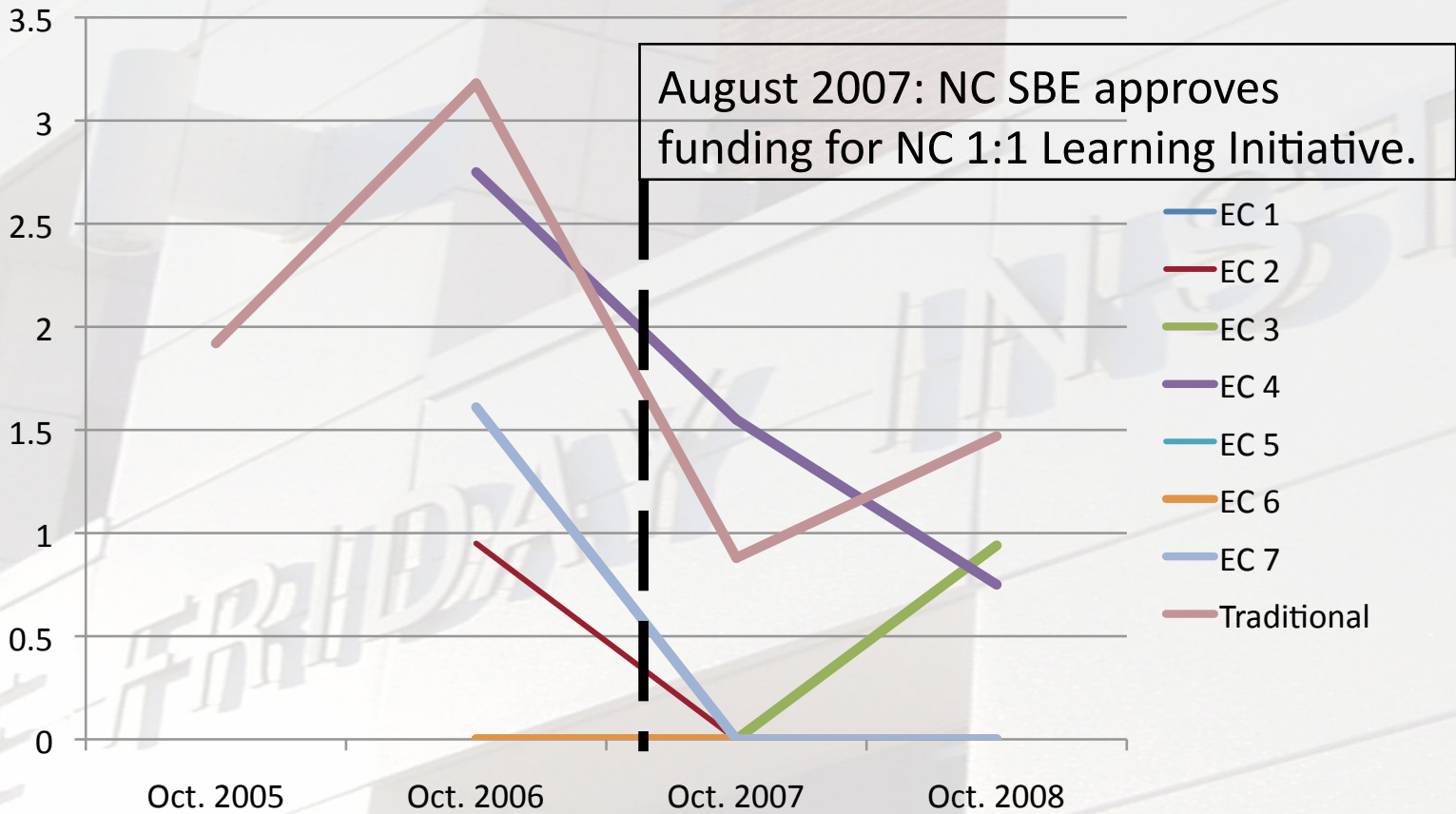


Using of Technology for Student Engagement

Percent of 1:1 high school courses observed in which 100% of students showed positive student engagement in April 2008 (T1, $n = 46$) and September 2008 (T2, $n = 41$).



Student Retention



Evaluation Results: Lessons Learned

- Building the Wireless Network
- Selecting Machines
- Attending to the Details
- Committing to New Policies
- Providing Professional Development
- Managing a Classroom Full of Laptops
- Staffing Instructional Support Personnel
- Staffing Technical Support Personnel
- Promoting Innovative Leadership

1:1 Learning Collaborative

Provides:

- Professional development, web-based resources, and support to teachers, instructional technology facilitators, and administrators in 1:1 environments
- For Teachers: A focus on instructional strategies, technology tools for 21st century content, classroom management approaches, and assessment
- For School/District Leaders: Focus on planning and successful implementation by addressing attributes of successful leadership, program planning, evaluation, reporting, technology infrastructure, 21st century content and skills, and instructional technology.

<http://www.fi.ncsu.edu/1to1/>

Discussion Questions

- What types of future-ready activities do you practice in your schools without a 1:1 environment?
- What challenges and/or advantages do you foresee 1:1 computing having in your classroom?
- What kind of professional development have you experienced (or would you like to experience) to enhance students' 21st century skills?

Presenter Contact Information

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- 1:1 Evaluation Report will be available from the FI website – <http://www.fi.ncsu.edu>