Since 2008, the Friday Institute for Educational Innovation in the College of Education at NC State University has conducted several evaluations for the North Carolina Department of Public Instruction on federal, state, and locally funded school-level technology immersion projects in K-12 settings. The following is a summary of research highlights from those evaluation studies.

Critical Components
Although technology is a critical component, successful projects focus on educational goals supported by technology, rather than being primarily about the technology. These projects also address:

- Effective leadership and community support
- High quality professional development to update the education workforce
- Alignment of standards, curriculum, instruction, and assessment
- 21st century skills and content integrated into the curriculum
- Digital content and tools appropriate for students
- Local instructional technology facilitators and technical support staff
- Appropriate digital devices to meet staff and student needs
- Broadband connectivity and wireless access throughout the school
- Supporting technology infrastructure and resources
- Policies to support future-ready teaching and learning
- Sustainable funding via public-private partnerships

Findings
Skilled Technology Facilitators played a significant role in the success of technology integration into classroom practices. The technology facilitators were almost universally described as an integral part of the changing instructional practice and critical to the success of the technology immersion project.

Ongoing professional development was imperative. Participating teachers described the highest quality professional development as continuous, directly applicable to their content area, and customized to their level of technology expertise/experience.

Consistent, supportive, distributed leadership promoted adoption and buy-in from teachers and students for the technology immersion initiative. Data revealed that school leaders should support teacher professional growth, set reasonable expectations for effective technology integration, model technology use, readily address instructional and technical needs, and communicate commitment to the purpose of the technology learning initiative.

Ready Internet access increased the frequency, reliability, and quality of communication across the school. Teachers and students reported that having technology has increased communication between teachers, staff, administrators, students and parents.

Instructional Practice
Teachers increased use of technology for both planning and instruction. Many schools reported that collaboration across subjects, grade levels, and even schools had increased. Teachers reported using technology daily for creating instructional materials and managing student information, and that they have better organized lesson plans as a result. Teachers reported using technology most often during class for presenting content, providing directions, and accessing online textbook resources.
Teachers moved from assigning independent work to collaborative, project-based lessons. Students, teachers, and administrators all commented during focus groups that technology enabled different modes of student collaboration. Data indicated that as teachers became more comfortable with using the technology in class they moved from requiring independent work from students to more collaborative, project-based activities.

Teachers shifted to technology-enhanced modes of assessment. Technology has helped teachers embed ongoing assessments into instruction to monitor student learning and adjust instruction effectively and efficiently.

Decrease in teacher turnover. Teachers/administrators reported teachers were more inclined to remain at their school, or delay retirement, due to enthusiasm over availability of technological tools. In 27 of the 31 schools, teacher turnover rates decreased since the baseline year of the technology innovation project.

Student Performance

Dropout and graduate rates slightly improved. Dropout rates across participating high schools decreased, on average, between 1% and 2%. Similarly, graduation rates for most of the participating high schools increased, on average, between 1% and 2%. Graduation rates for minorities increased slightly over time.

Student engagement increased. Survey results indicated that staff at the participating schools generally agreed that the use of technology for teaching and learning increased student engagement. Student surveys revealed that students agreed that the more teachers used technology in class, the more they are interested in and enjoy school. There was an increase in the number of observations in which all the students in the classroom showed a positive indicator of engagement such as sustained behavioral involvement, positive emotional tone, and exertion of effort and concentration.

Students’ 21st century learning skills increased. Teachers in the participating schools indicated that their students used technology at least weekly to complete tasks related to 21st century skills. More than half of all students surveyed indicated agreement or strong agreement that use of technology at their school helps them develop key 21st century skills.

Student standardized test scores show growth over time.

- **EOG Scores.** Students in grades 3-8 in participating technology immersion schools showed significantly stronger growth in Math scores than students in matched comparison schools. Students were more likely than students in comparison schools to improve their status from not passing to passing; and this growth was even more pronounced for economically disadvantaged students in technology immersion schools. Technology immersion middle schools showed especially strong growth in Reading, over and above what was observed in comparison middle schools.

- **EOC Scores.** The percent of economically disadvantaged students passing the English I EOC in some technology immersion high schools increased significantly from 2007 to 2009, where a similar increase was not observed in comparison high schools. Additionally SAS EVAAS analysis revealed that the technology immersion schools had more positive influence on students’ academic progress (e.g. high value-added effects) for the English I EOC in 2009 than the comparison schools. Aside from the gains observed in the English I EOC, students were not significantly more likely to pass the other EOCs than their counterparts in matched comparison schools during the first two years of the technology immersion projects. However, many of the technology immersion high schools had a slight increase in the percentage of students passing EOCs, when comparing their 2008 test results to 2009. In 2011, IMPACT III high schools showed significantly more growth in EOC scale scores than comparison school overall and students at IMPACT IV high schools were 26% more likely to pass the Algebra I EOC test than students at comparison schools.

Detailed evaluation reports are available from the Friday Institute Website at [http://www.fi.ncsu.edu/](http://www.fi.ncsu.edu/).