FREEDOM TO LEARN RESEARCH RESULTS
The University of Memphis
Center for Research in Education Policy (CREP)
2005

Freedom to Learn (FTL) emerged as Michigan's one to one teaching and learning education initiative utilizing Title II and state education funds. The main goal was to outfit every Michigan 6th grader with a laptop to create personal, portable teaching and learning capacity. Other program goals include: decreasing the digital divide, increasing student achievement, creating the home/school technology and education connection, transforming teaching through enabled technology environments.

Freedom to Learn was implemented as a pilot in 2002-03. Lessons learned were determined and incorporated in reconstituted legislation for 2003-2004. Subsequently, state funds for the initiative lapsed leaving federal dollars to back the efforts. High priority/need schools were invited to apply for the five grant cycles that ensued. Schools provided $40 per device for which they applied and then received. The project originally used a lease approach. However, since private schools were not able to access that avenue the program changed to a purchase plan.

Hewlett Packard was the successful vendor to become FTL's single solution partner. HP's package provided hardware and software packages to meet the goals of the legislation. The legislation provided for 10% of the award to go to another provider. Apple has been FTL's other source of an education technology package.

A comprehensive professional development component accompanied this legislation. The past four years, teachers, administrators and technology personnel have engaged in a multitude of differentiated professional learning opportunities. All professional learning has been open to all Michigan educators. A coaching/mentoring model provides the framework for the professional development resulting in statewide digital coaches, supercoaches, lead teachers and a cadre of effective principals.

The University of Memphis' Center for Education Research and Policy (CREP) is our overall program evaluator. Following are their findings regarding the efficacy of the program and related goals.

Key Findings Summarized

Detailed results available at www.ftlwireless.org, www.one-to-oneinstitute.org, www.k12one2one.org

1. **Student Achievement & Engagement**

A. Baseline year data indicate evidence of FTL students achieving at higher rates than non-FTL students using MEAP as the measure

B. Willow Run Middle School who had not met AYP for 6 years had the following MEAP results after implementing FTL:

1. 6th grade Math MEAP 2005 – 37%; 2006 – 51%
2. 7th grade Math MEAP 2005 -37%; 2006 – 64%
3. 8th grade Math MEAP 2005 – 46%; 2006 – 45%
4. 8th grade English Language Arts 2005 – 67%; 2006 – 66%
5. 8th grade Reading 2005 – 68%; 2006- 70%

C. The following schools report their action research data regarding FTL students enhanced MEAP achievement over non-FTL students:

1. Bendle – 9th grade gpa went from 42% below 2.0 in 2003/04 to 23% below in 2004/05; summer school enrollment went from 23 to 141 in one year; 20% fewer students had more than 20 absences per year from 04 to 05 school years
   i. 7th grade MEAP reading proficiency went from 29% in 2003 – 04 to 41% in 2004 – 05.
   ii. Eighth grade MEAP math went from 31% in 2003 – 04 to 63% in 2004 – 05.

2. Bear Lake School
   i. 5th graders in 2002 went from 33.3% proficient in MEAP writing to 76% in 2004 as 7th graders.

3. All Eastern Upper Peninsula ISD FTL schools – EUPISD has participated in FTL since 2002 – 03
   i. In science, MEAP achievement went from 68% proficient in 2002 - 03 to 80% in 2003 – 04.
   ii. In math, MEAP achievement went from 57% in 2002 - 03 to 67% in 2003 – 04.

D. There is clear data demonstrating that FTL students have developed key skills, knowledge and tools needed for the 21st century workforce.

"Our research shows that there is a high level of proficiency in which MI students, at all socioeconomic levels, were using state of the art technology to solve meaningful and authentic learning tasks which are essential for today's workforce and economic development."
(Dr. Steven Ross, principal researcher, University of Memphis, CREP)

E. FTL students exhibited the highest ability in demonstrating understanding of the problem and identifying what needed to
be known to solve the problem (compared to Michigan control group).

F. FTL students showed significant advantages overall with regard to completing presentation and internet tasks (compared to Michigan control group).

Compared to National Norms

G. FTL students engage significantly more in the following activities which are directly correlated to student achievement and preparedness for the contemporary workforce:

1. Project-based and problem-based learning
2. Student to student collaboration
3. Independent inquiry
4. Seamlessly use technology as a tool

H. 89% report that they are more engaged in learning

I. 89% believe they are better prepared for higher education and the workforce

J. 89% say they learn more than in non-FTL classrooms

K. 79% report they look forward to school in the enabled classroom

2. <u>Systematic Professional Learning for Teachers, Administrators and Technology Staff</u>

Compared to National Norms

K. FTL teachers indicate greater confidence in their ability to effectively integrate technology into their instruction

L. FTL teachers indicate greater belief that instruction and student learning are improved in the one to one teaching and learning classrooms

M. FTL teachers implemented lessons that were significantly more meaningful than those implemented in classes not one to one environments

N. FTL teachers create more student-centered learning activities and more seamlessly integrate technology and instruction, establishing more interactive and dynamic lessons

O. FTL teachers provide for more meaningful enabled/integrated lessons as opposed to low level meaning activities

P. FTL teachers believe this environment has caused them to retool and effectively use technology tools in their practice

Q. Over 2000 teachers and administrators evaluated FTL professional development as effective and worthwhile (one a 1 (low) and 5 (high) scale, respondents' average response was 4.5).

3. Parents/caregivers Tools to Become More Involved with Child's Education

R. There are two FTL tools that provide home/school communication connections.

S. All FTL schools held parent/caregiver orientations to educate and provide training for the home/school connection.

T. There are several FTL models of home/school ongoing activities that engage parents/caregivers in student school life

U. Several FTL schools host student-led parent/teacher conferences where students guide parents/caregivers through their school progress

Michigan's Digitally-Enabled Education Expansion

Education Committee Hearing
February 20, 2007

Presenters:

Leslie Wilson
Freedom to Learn
One-to-One Institute

David Seitz
Apple Computers

Howard Hardesty
Hewlett Packard Co.

Groundbreaking Results Lead to Imperative

As a result of Michigan legislators' vision and leadership in the area of technology-enabled, curriculum and instruction, students have made strides in achievement and development of 21st century worker skills in the Freedom to Learn (FTL) schools. Classrooms have become transformed teaching and learning environments-eliminating the four walls that surrounded students' learning opportunities. This is about educational reform not technology acquisition.

Evidenced by the Freedom to Learn research results. we witness in these schools, the essential qualities for school reform through technology–enabled education environments. We have scientific research, lessons learned and best practices in the following areas: policy development, program design, management and evaluation, implementation and sustainability. Now recognized a national leader, Michigan's Freedom to Learn program is regularly contacted to share what is known in each of those areas.

We found that in these enabled classrooms teaching and learning is transformed to engage Michigan's standards seamlessly using technology in student self-directed ways. Technology tools are used to target instructional goals through learning activities and ongoing assessments. Instruction is individualized since students' progress is regularly assessed and addressed. Learning has become student-focused using high and varied levels of problem solving skills. Students have learned to work in teams, collaborating solutions and synthesizing data from their own discovery activities. These classrooms have no walls.

Learning activities are personalized and individualized for the students in these settings. Because teachers can regularly design and provide assessments to students, they are able to know students' strengths and limitations in order to personalize instruction.

Parents and caregivers are more closely engaged in the students' education world. Utilizing internet options and technology enabled systems, parents/caregivers are able to communicate directly with their students' schools. They collaborate goals and learning activities with teachers. Most of all, they can be consistently informed regarding their students' progress.

Today's learners are 'one' with the digital world. Born at a time when technological advances are a daily occurrence, these students engage all kinds of technology in their world outside the classroom. School is the one place, in many districts, not yet in sync with the students' natural habitat. Adults, in education for many years, have had to retool to be able to effectively bridge the school world to the students' world outside the classroom. Michigan's Freedom to Learn, Maine's, Henrico County's,

and Texas' program schools, as evidenced by current research, demonstrate all the qualities needed to ensure student achievement. They are: increased student motivation and engagement, decreased drop out rates, increased attendance-(leading in Michigan, to increased numbers for student count days), decreased disciplinary referrals, increased student directed learning, increased student collaboration, meaningful use of technology-enabled instruction and increased parent/caregiver involvement.

Freedom to Learn and other technology-enhanced learning projects across the state have been catalysts for these results. These enabled teaching and learning environments have given schools the ability to fulfill the needs of 21st century learners while developing skills necessary for Michigan's economically-changed work place.

The four-year FTL grant program reaches its sunset in 2008. It is critical that Michigan build upon this successful education project and sustain what has been created. This is important from two standpoints: first the imperative of educating for a workforce capable for the 21st century and second to responsibly capitalize on the prior $37M Freedom to Learn investment.

Taking It to Scale

Research and experience informs us that in order to take enabled education-technology environments to scale in Michigan's schools, we need to build upon successful best practice and lessons learned, create a system that includes supports for sustaining and adapting for the long term and ensuring ownership by the educational system. Further, the current economic landscape makes clear that in order to 'fund' enabled education technology, we need to marry resources at the school/district/ISD level with those available from federal and state sources.

Governor Granholm's expectation of district/regional collaborating and consolidating applies to the issues of resources and practices for systemic education and technology capacity. The matter of Michigan having robust and meaningful technology-enabled schools is non negotiable. Creating systemic ways to provide this guarantee to our students is an imperative. This can be accomplished by utilizing the FTL (and other best practices sites) foundation and taking it to a greater scale through a full-bodied approach.

We know the results and the imperative for expanding upon the above. How do we get there?

First, we need a single voice. We need the engagement and unification of purpose from the following:

- Those with hands on/field and practical experience with conceiving, designing and implementing digital learning environments that accelerate achievement; those whose focus and functionality have been serving students and the education community *without profit or lobbyists, or serving organizational interests outside this mission*
- The Michigan Department of Education and Department of Education Technology
- Statewide stakeholders such as ISDs, MACUL, REMCs, etc
- Vendors with successful track records of implementation and understanding this goal as one focused on **education** not one of buying/purchasing 'the stuff'

This partnership will help build and sustain the notion that teaching and learning breaks down the silo approach to affecting student achievement. Academic and technology need to be one voice and a unified energy toward the right goals and the right work. This partnership of one voice will become apparent in its actions. It will trickle to schools/districts where we can no longer afford silo departments working toward the mission of enhanced student achievement and rigorous standards.

Second, we need a plan.

Blueprint for Action

Year I – Innovations Stations:
Utilizing advancements created in FTL, Detroit Digital Learning Community classrooms and other innovation leaders, develop a statewide "lighthouse" site collection of schools. Use these settings as building blocks to create pillars, statewide, that support the structure. Qualities that will be evident in these settings:

- Some will be located in at-risk, urban and rural and outlying settings
- Quality and resourceful leadership
- Meaningful education and technology-enabled teacher practices
- Sustainability models that support system-wide technology capacity
- Parent/caregiver engagement
- Community/business/industry engagement and partnerships
- ISD involvement
- Consistent, ongoing and differentiated professional learning programs

Year I funds would come from Title II, some state investment and a local commitment (as described above). (The USDOE has found that allocations of Title II funds for this kind of project has been more effective than assigning grants.) In concert w/ the governor's proposal to encourage and provide incentive for districts to collaborate and consolidate resources, the Year I Innovation Stations will be asked to adopt a 'buddy' district to provide digital coaching for teachers, administrators and technology staff. This will begin the 'scale up' of digitally enhanced learning environments in Michigan.

Each site, to be funded, will identify at least one other district with which they will partner to expand their best practices. Expansion expectations will be identified. Lighthouse and partner sites will be accountable for outcomes. Both sites, using a zero based budgeting approach, will develop internal means of cost avoidance, reallocation of current resources, collaboration/consolidation practices and/or outside funding sources to move toward systemic and long range approach for funding district-wide enabled education technology.

In Year I, interested districts would be invited to commit to 'get ready' to become a technology enabled learning environment. A process will be in place for them to benefit from the Innovation Stations schools'/districts' digital coaching.

Year II and Beyond

In Year II and beyond, the expansion to more districts will occur following a similar format outlined in Year I. Keeping in concept that leaving no student behind, we need also to leave no district behind. To ensure the capacity to expand the Innovations Stations to a greater number of districts, there will be in place a means for those districts not involved in the 'buddy' system of the prior year(s) to become involved. We need to incorporate all those who want to be involved.

Education Policy

We have much in place upon which to build. Based on Michigan's research and lessons learned, there are key ways to facilitate the goals of enabled education technology schools through Michigan's education policy approach. They are:

- Expect school leaders (superintendents, central office business, curriculum/instruction and technology staff) to develop the skills and tools to build systemic, district technology capacity (not necessarily through additional funding but through matching expenditures with actual student and instructional results).
    - Provide opportunities for leaders to develop this capacity; there are various tools/approaches for this purpose

- Provide incentives for districts who have wrap-around involvement and partnerships with parents/caregivers, community, business, industry and institutions of higher education
    - Develop models of effective systems and/or identify those already established

- Provide incentives for those schools (at all levels) already showing progress through robust technology integration on the following fronts: systemic funding for technology, student and teacher results, leadership that is focused, effective and engaged, a guaranteed curriculum tied to state standards and expectations, a proven commitment to implementing the Michigan Merit Curriculum.

- Provide incentives for those districts who demonstrate consolidation/collaboration of processes and resources to build capacity for systemic technology in line with Governor Granholm's request to do the same regarding other procurements/processes.

- Provide incentives for school districts (for hardware/software/PD) that demonstrate, through a systemic process, that they have built a long term plan for technology integration that includes a strong parent/caregiver component. Funds will provide % of cost for first, second and third year of their long term plan. Each year's progress will be evaluated by statewide digital coaches to ensure accountability of funding for ensuing years. The district's systemic, long term approach and guaranteed connection between student and home will invite their participation in this plan.

    - Districts must show concrete plans for engaging parents/caregivers through orientation and ongoing communications and support
    - Districts must show knowledge of % of homes w/ and w/out internet access and present potential solutions for internet access for those without

    - Districts must demonstrate substantive partnerships with community (ie. higher ed institution, business, industry, city government, etc.) for implementing and sustaining robust technology integration

- Provide incentives for districts that consolidate, reallocate current resources to fund their technology in the present and as projected for their future.

- Give districts a year lead time to 'get ready' for these upcoming incentives. Provide them support through a statewide coaching model that will facilitate their discovery of current, untapped or new resources upon which they can build their long term plan.

    - Provide interested districts with skill development to achieve this goal...

- Provide incentives for state math and science centers (two of which are already engaged) to facilitate specific skill development in the areas of enabled education technology

    - Ensure that content area skills in these disciplines are closely aligned with the 21st century workforce goals.

Michigan Department of Education
& Ferris State University

Freedom to Learn 2004-2005 Evaluation Summary

Dr. Steven Ross
Dr. Deborah Lowther

Center for Research in Educational Policy
The University of Memphis

FTL Program

2004-2005

- Equipped 199 schools with approximately 19,000 laptop computers primarily for use by middle school students
- Provided extensive professional development opportunities for FTL teachers, Lead Teachers, Super Coaches and administrators.
- Conducted a rigorous and comprehensive evaluation study designed to gauge the impacts of the program relative to its primary goals.

Research Questions

To what degree did FTL:

- Enhance student learning and achievement in core academic subjects?
- Develop students' 21st century workforce knowledge and skills?
- Increase equal educational opportunities through ubiquitous access to technology?
- Foster effective use of the wireless technology through systematic professional development?

Evaluation Design

Global: Yr 1 & 2 (All FTL Schools)

- Direct Classroom Observations
- Surveys
- Student Achievement
  - *Michigan Educational Assessment Program (MEAP) scores*

Matched-Control: Yr 2 (5 FTL – 5 Control)

- Surveys &Interviews
- Student Performance Assessment
  - Technology Skills
  - Problem-Solving

Analysis

Comparative analyses

- Classroom Practices
- Teacher Attitudes
- Student Achievement
- Student Performance
- Teacher Attitudes

Descriptive analyses

Reactions to FTL

- Students
- Lead Teachers
- Super Coach

Data Sources

Direct Classroom Observations

Whole Grade & Targeted

- School Observation Measure (SOM©)
  - Use/non-use of 24 instructional strategies
- Survey of Computer Use (SCU©)
  - Context of computer use
  - Type of software used by students
  - Overall meaningfulness of computer activities

Data Sources

Teacher Surveys

- Teacher Technology Questionnaire (FTL-TTQ©).
  - impact of laptop use on students and instruction, teacher readiness to integrate student use of laptops, support for the laptop program, and Lead Teacher effectiveness.
- Lead Teacher Survey (FTL-LT)
  - perceptions of administrator support and participation, parent support, teacher collaboration and acceptance, and overall impact of FTL on student ability, motivation and achievement.
- Super Coach Survey (FTL-SC).
  - impressions concerning FTL implementation and effectiveness at their assigned schools.

Data Sources

FTL Student Survey

- impressions regarding impact of laptop use on learning, enjoyment of using the laptops, subject areas of laptop work, and most commonly used software.

Final Data

Direct classroom observations

- 76 FTL 6th grade classrooms; 34 hours of observation
  - 60 during random whole grade observations
  - 16 during planned targeted observations

Evaluation Surveys

Students	4,245
FTL Teacher	279
Lead Teachers & Super Coaches	79
Professional Development	1,330
TOTAL	5,933

Whole Grade Results

School Observation Measure (SOM)

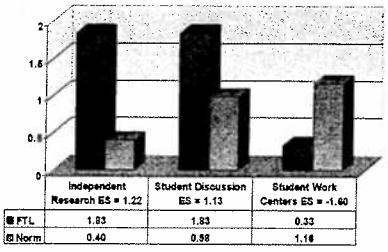
	FTL $N = 60$		Nat'l Norm $N = 5{,}520$	
Positive Trends	*M*	*SD*	*M*	*SD*
Direct instruction	2.00	1.27	2.85	0.98
Independent seatwork	1.27	1.33	2.50	0.98
Cooperative learning	1.17	0.75	0.90	0.87
Integration of subject areas	1.00	1.27	0.52	0.82
Experiential, hands-on learning	1.50	1.05	1.09	0.97
Technology as a learning tool	1.17	0.75	0.89	1.06

Scale: 0 = Not Observed; 4 = Extensively Observed

Whole Grade Results

School Observation Measure (SOM)

Significant FTL vs. Nat'l Norm Differences



Scale: 0 = Not Observed; 4 = Extensively Observed

Whole Grade Results

Survey of Computer Use (SCU):

- Student computer literacy skills ranged from moderate (50.0%) to very good (50%)
- Internet was the most commonly used tool, as it was frequently to extensively observed during 33.3% of the visits.
- Software observed less frequently included research/communications tools, word processing, educational software and testing software
- Computer activities were distributed across the core curriculum areas, while Internet activities were primarily focused on language arts and mathematics.
- Meaningful (50.0%) as opposed to low-level (33.4%) use of computers was observed more frequently.

Computer as a Tool*

Meaningful Computer Activities

- Computer activities were problem-based, required some critical thinking skills, and some use of computer applications to locate and/or process information or some manipulation of educational software variables to reach solutions.

Low Level Use of Computers

- Computer activities in general required no critical thinking, e.g., used computer applications for copying text or free-time drawing, or used educational software for drill & practice, tutorials, or games.

*Based in ISTE*S

Lowther & Ross, 2000 (p. 37)

Target Results

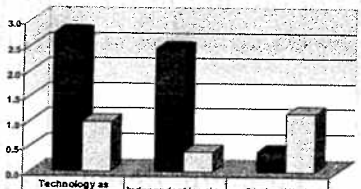
School Observation Measure (SOM)

Positive Trends	FTL N = 16 M	FTL N = 16 SD	Nat'l Norm N = 5,520 M	Nat'l Norm N = 5,520 SD
Direct instruction	2.40	0.90	2.85	0.98
Independent seatwork	2.06	1.65	2.50	0.98
Cooperative learning	1.13	1.54	0.90	0.87
Project-Based Learning	1.06	1.69	0.42	0.68
Teacher as a coach	2.69	1.20	2.19	1.20
Student discussion	1.50	1.32	0.98	1.08
Computer for Delivery	1.30	1.59	0.89	1.06

Target Results

School Observation Measure (SOM)

Significant FTL vs. Nat'l Norm Differences



	Technology as learning tool ES = 1.15	Independent inquiry-research ES = 1.38	Student Work Centers ES = -.84
FTL	2.75	2.44	0.4
Nat'l Norm	0.99	0.4	1.16

Scale: 0 = Not Observed; 4 = Extensively Observed

Target Results

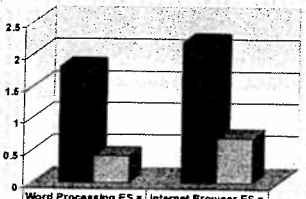
Survey of Computer Use (SCU):

- Students used laptops during all targeted visits.
- One-to-one use was observed 75% and pairs or small groups were observed 25% of the visits.
- Most (87.5%) students exhibited moderate computer skills
- The Internet (50%) and word processing (33%) were the most commonly observed software in use.
- Software seen less often included: testing (25%), presentation (12.5%), drill and practice (12.5%), and other production tools (12.5%), e.g., MS Publisher®.
- Most production and Internet/research activities focused on language arts.

Target Results

Survey of Computer Use (SCU)

Significant FTL vs. Nat'l Norm Differences



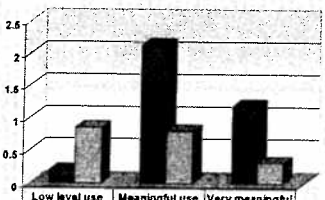
	Word Processing ES = 0.79	Internet Browser ES = 0.85
FTL N = 16	1.81	2.19
Norms N = 5,630	0.42	0.7

Scale: 0 = Not Observed; 4 = Extensively Observed

Target Results

Survey of Computer Use (SCU)

Significant FTL vs. Nat'l Norm Differences

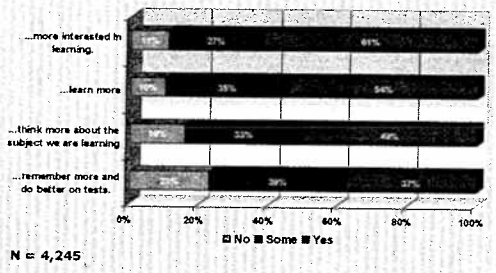


	Low level use ES = -0.88	Meaningful use ES = 0.75	Very meaningful use ES = 0.57
FTL N=16	0.19	2.13	1.19
Norm N=5,630	0.88	0.8	0.32

Scale: 0 = Not Observed; 4 = Extensively Observed

Student Survey Results

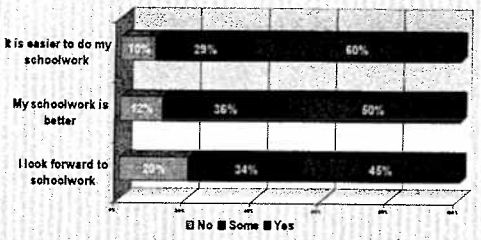
Perceived Impact of Laptops on LEARNING



N = 4,245

Student Survey Results

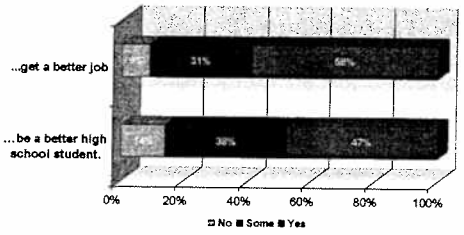
Perceived Impact of Laptops on SCHOOLWORK



N = 4,245

Student Survey Results

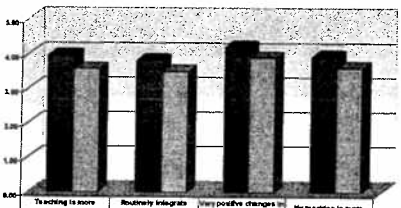
Perceived Impact of Laptops on FUTURE OPPORTUNITIES



N = 4,245

Teacher Survey Results

TTQ: Impact of Laptops on Learning
Significant FTL vs. Nat'l Norm Differences

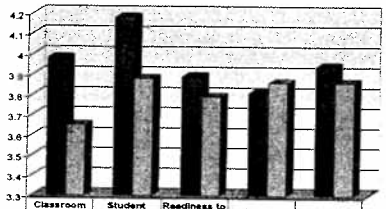


	Teaching is more student-centered ES = 0.31	Routinely integrate laptops into instruction ES=0.30	Very positive changes in learning activities ES=0.34	My teaching is more interactive ES=0.36
FTL N=279	3.98	3.91	4.20	3.83
Norm N=5,542	3.57	3.50	3.86	3.61

Scale: 1 = Strongly Disagree, 5 = Strongly Agree

Teacher Survey Results

TTQ: Overall
Significant FTL vs. Nat'l Norm Differences

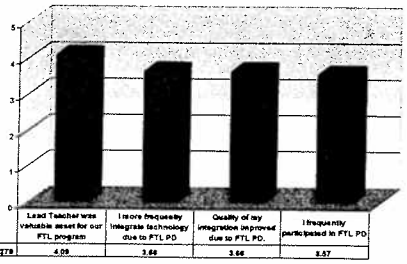


	Classroom Instruction ES=0.41	Student Learning ES=0.42	Readiness to Integrate ES=0.31	Overall Support NS	Technical Support NS
FTL N=279	3.98	4.18	3.89	3.81	3.94
Norm N=5,542	3.85	3.88	3.79	3.86	3.86

Scale: 1 = Strongly Disagree, 5 = Strongly Agree

Teacher Survey Results

Teacher Impressions of Lead Teacher Effectiveness



	Lead Teacher was valuable asset for our FTL program	I more frequently integrate technology due to FTL PD	Quality of my integration improved due to FTL PD.	I frequently participated in FTL PD
FTL Teachers N=278	4.09	3.88	3.66	3.57

Scale: 1 = Strongly Disagree, 5 = Strongly Agree

Professional Development

Evaluation Results

- N = 1,330
- FTL Professional Development:
  - Technology Integration & FTL Orientation
    - N = 889
    - M = 4.31 (5 = Strongly Agree)
- Technical Training
  - ClassServer & Connected Tech
    - N = 441
    - M = 3.28 (4 = Excellent)

District FTL Audits

- The Michigan DOE conducted seven district audits
  - Collectively 98.7% (7,590) of the laptops were in classrooms
  - All grant regulations were met except
    - two were missing acquisition inventories for review
    - three lacked evidence that the laptops supported the district technology plan.
  - All professional development activities were documented, related to the project acquisitions, and relevant to the project goals.
- Overall, the FTL program was rated as "substantially implemented" in each of the seven districts.

CONCLUSIONS

To what degree did FTL:

- ***Enhance student learning and achievement in core academic subjects?***
  - An analysis of the student achievement data is underway.
- ***Develop students' 21st century workforce knowledge and skills?***
  - Observations showed that FTL students had moderate to good computer skills and the ability to engage in meaningful computer learning activities
  - FTL students believed that use of the laptops better prepared them with the knowledge and skills needed for tomorrow's careers.
  - FTL teachers had a significantly higher agreement than teachers represented by the national norms that their students were capable users of technology.

CONCLUSIONS

To what degree did FTL:

- ***Increase equal educational opportunities through ubiquitous access to technology?***
  - Over 19,000 student laptops were placed in FTL classrooms
  - Observed FTL lessons as compared to national norms were significantly more meaningful
  - Students more frequently used laptops as learning tools.
  - MI DOE audits suggest that the FTL program is well-implemented

CONCLUSIONS

To what degree did FTL:

- ***Foster effective use of the wireless technology through systematic professional development (PD)?***
  - The FTL PD efforts were extensive (N = 1,330) and participants were in general agreement that the sessions were effectively implemented and worthwhile.
  - FTL teachers as compared to national norms:
    - indicated greater confidence in their ability to effectively integrate FTL laptops into their instruction
    - believed that instruction and student learning are improved when students engage in 1:1 computing.
    - implemented lessons that were significantly more meaningful than those implemented in classes represented by CREP's national norms.
  - However, the data also indicate that PD efforts need to be expanded and continued at the same level of quality

Year 2 Evaluation

Direct Classroom Observations

- Over 1,000 randomly visited classrooms
- Over 800 targeted observations

Student Performance

- Problem-Solving Test (250 students)
- Technology Application Task (250 students)

Parent Surveys

- Paper-based surveys distributed to 5,000 parents

Thank you

Michigan Department of Education
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Freedom to Learn 2005-2006

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Classroom Observations

Observation Measures

- **School Observation Measure** (SOM©)
  - Use/non-use of 24 instructional strategies
- **Survey of Computer Use** (SCU©)
  - Context of computer use
  - Type of software used by students
  - Overall meaningfulness of computer activities

Final Data

Direct classroom observations

- 535 hours of direct classroom observation
- 1,087 FTL 6th grade classrooms observed
  - 860 during random whole grade observations
  - 277 during planned targeted observations

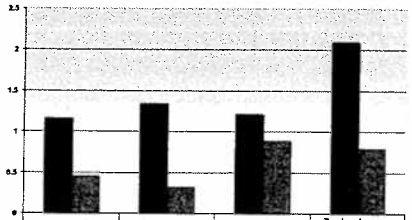
Whole Grade SOM Results

- The most frequently observed student activity was use of laptops as a learning tool, which was occasionally to extensively observed in 66.3% of the visits.
- Students were observed using their laptops as a delivery tool less frequently (35% of the visits).
- A high level of academic focus (97.7%) and a high level of student attention (89.6%) were occasionally to extensively observed during nearly all of the visits.

Scale: 0 = Not Observed; 4 = Extensively Observed

Whole Grade SOM Results

Significant FTL Vs. National Norm Differences



	Project based learning ES = +0.72	Independent inquiry ES = +1.18	Student discussion ES = +0.29	Technology as learning tool ES = +1.18
FTL	1.16	1.34	1.21	2.09
Nat'l Norm	0.45	0.32	0.89	0.8

Scale: 0 = Not Observed; 4 = Extensively Observed

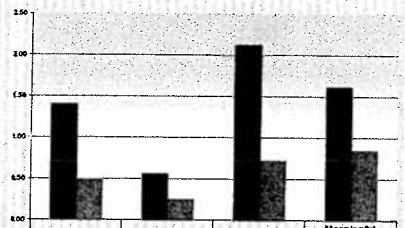
Whole Grade SCU Results

- During unannounced visits to 599 FTL classrooms, FTL teachers were observed using a wide variety of the SCU computer applications (18 of 20) .
- Students were observed using the Internet during 65.1% of the visits.
- Other computer uses included
  - Word processing (45.4%),
  - Research tools (16.7%),
  - Presentation software (15.1%)

Scale: 0 = Not Observed; 4 = Extensively Observed

Whole Grade SCU Results

Significant FTL Vs. National Norm Differences



	Word Processor ES = +0.86	Presentation ES = +0.38	Internet Browser ES = +1.12	Meaningful computer use ES = +0.62
FTL	1.41	0.58	2.13	1.62
Nat'l Norms	0.50	0.26	0.73	0.86

Scale: 0 = Not Observed; 4 = Extensively Observed

Whole Grade SCU Results

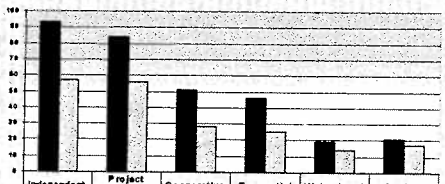
Meaningfulness of Computer Activities

- Of all the computer activities observed during random visits to 599 classes:
  - 72.3% were rated as being "Meaningful"
  - 28.0% were rated as being "Very Meaningful" use of the laptops.

Scale: 0 = Not Observed; 4 = Extensively Observed

RSCA: FTL vs. National Norm

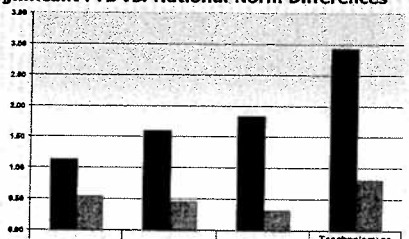
Percent of Observations with Student Use of Technology for Student Centered Learning



	Independent Inquiry	Project Based Learning	Cooperative Learning	Experential Hands On	Higher Level Questions	Student Discussion
FTL	93	84	51	46	19	21
Norm	57	56	28	25	14	17

Target SOM Results

Significant FTL Vs. National Norm Differences

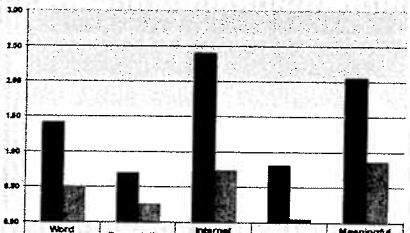


	Integration of subjects ES = +0.49	Project based learning ES = +0.84	Independent inquiry ES = +1.19	Technology as learning tool ES = +1.88
FTL	1.13	1.60	1.83	2.93
Nat'l Norm	0.54	0.45	0.32	0.80

Scale: 0 = Not Observed; 4 = Extensively Observed

Target SCU Results

Significant FTL Vs. National Norm Differences

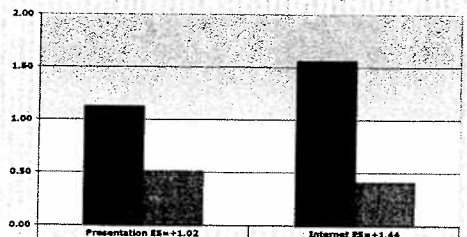


	Word processor ES = +0.69	Presentation ES = +0.39	Internet browser ES = +1.16	CD Reference ES = +0.76	Meaningful computer use ES = +0.85
FTL	1.41	0.69	2.40	0.80	2.05
Nat'l Norm	0.50	0.26	0.73	0.05	0.86

Scale: 0 = Not Observed; 4 = Extensively Observed

Technology Skills Results

Technology Tasks: Significant FTL vs. Control Differences

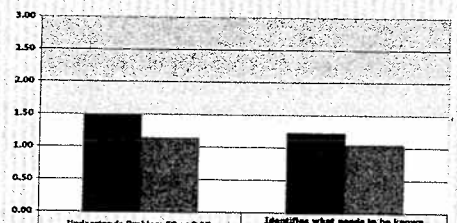


	Presentation ES = +1.02	Internet ES = +1.44
FTL	1.13	1.86
Control	0.52	0.42

Scale: 1= Did not complete task; 2 = Completed Task as Described

Problem-Solving Skills Results

Problem-Solving: Significant FTL vs. Control Differences



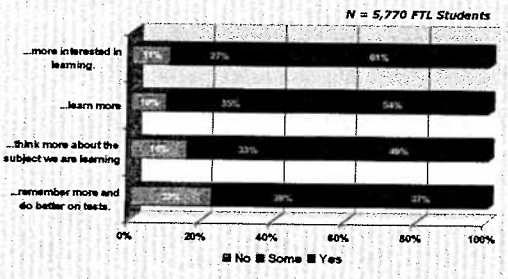
	Understands Problem ES=+0.97	Identifies what needs to be known ES=+0.77
FTL	1.50	1.23
Control	1.14	1.05

Scale: 1= Did not complete task; 2 = Completed Task as Described

Student Survey Results

Perceived Impact of Laptops on LEARNING

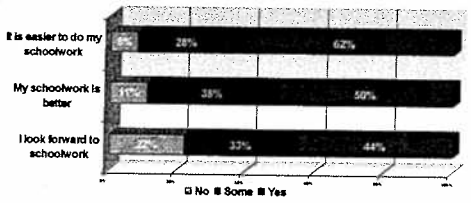
N = 5,770 FTL Students



Student Survey Results

Perceived Impact of Laptops on SCHOOLWORK

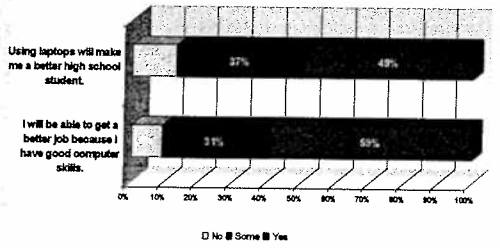
N = 5,770 FTL Students



Student Survey Results

Perceived Impact of Laptops on Future Opportunities

N = 5,770 FTL Students



Thank you