School Modernization Initiative

2011-2012 Survey Results

Organization: Digital Wish
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About the Survey

If you would like to cite data from these surveys, please credit:

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Digital Wish runs the *School Modernization Initiative*, putting one-computer-per-child programs into 28 schools, in order to study the process of technology integration and craft strategies that will allow other schools to replicate success. Every student and teacher in the survey received a dedicated computer for use in a 1:1 computing classroom with take-home rights, and a technology training class each week for 4-6 months.

Data is self-reported by 30 teachers and 465 students participating in the replication phase of the *School Modernization Initiative* from September 2011 to May 2012. The data was collected through anonymous surveys conducted on www.surveymonkey.com.

The same questions were asked in both the pre-initiative and post-initiative surveys. Both students and teachers reported increases in computer literacy, rising comfort levels with technology, and overall increases in engagement. The data reflects the difference in the responses given between the pre- and post-survey data. Different surveys were given to students versus teachers.

Please be aware that the data collected shows anecdotal trends, self-reported by the teachers and students participating in the initiative. Digital Wish does not conduct formal research, nor do they make any conclusive research-based claims.

Sample Size:
Replication Phase

30 Teachers surveyed
465 Students surveyed
Pre-survey administered Sept 2011
Post-survey administered May 2012
Curriculum taught to grades 4-6.

Overview of Reported Gains

Listed here are some interesting reported gains:

- **Workforce Prep -** Over 90% of students say having technology in school is important in preparing them for the future.

- **Importance -** 83% of students say that it is important to their education to have their own netbook/computer during the school year.

- **Skill -** Teachers say that only 11% of their students are considered beginners with computers, a decrease from 30% pre-initiative. They consider approximately 50% of their students to be advanced/expert computer users, a value that has more than doubled since the 20% pre-deployment.

- **Access to Technology** - 100% of teachers now have a school laptop, up from 80% before the initiative.

- **Frequency** - The number of students who use a computer every day in the classroom more than tripled the pre-initiative levels, increasing from 20% to 65%.

- **Students Becoming Tech "Experts"** - The majority of students say they are experts at digital media, word processing, making presentations, safely and responsibly using the internet, solving problems using technology, and researching a topic on the Internet. At the beginning of the initiative, almost 50% of students said they didn't know how to do these things.

- **Problem solving** - Students who say they can "figure out just about anything on their own" increased from 38% to 51%, a 134% increase. The number of students who say they have participated in 10 or more technology projects that required them to solve a problem, gather information, or draw a conclusion, has nearly doubled, from 23% to 42%.

- **Internet Safety** - After completing the Initiative, 93% of teachers now say they are "comfortable" with Internet safety, with 67% of them saying they are "very comfortable".

- **Student Engagement** - Student engagement increased 140% in word processing and writing, creating presentations, and video production. 52% of teachers now feel that the majority of their students are highly engaged as opposed to only 37% pre-initiative.

- **Creativity** - Teachers now say that 46% of their students are experts or peer coaches in creating a new idea or original project using technology, a value that almost quadrupled the pre-initiative's mere 12% levels.

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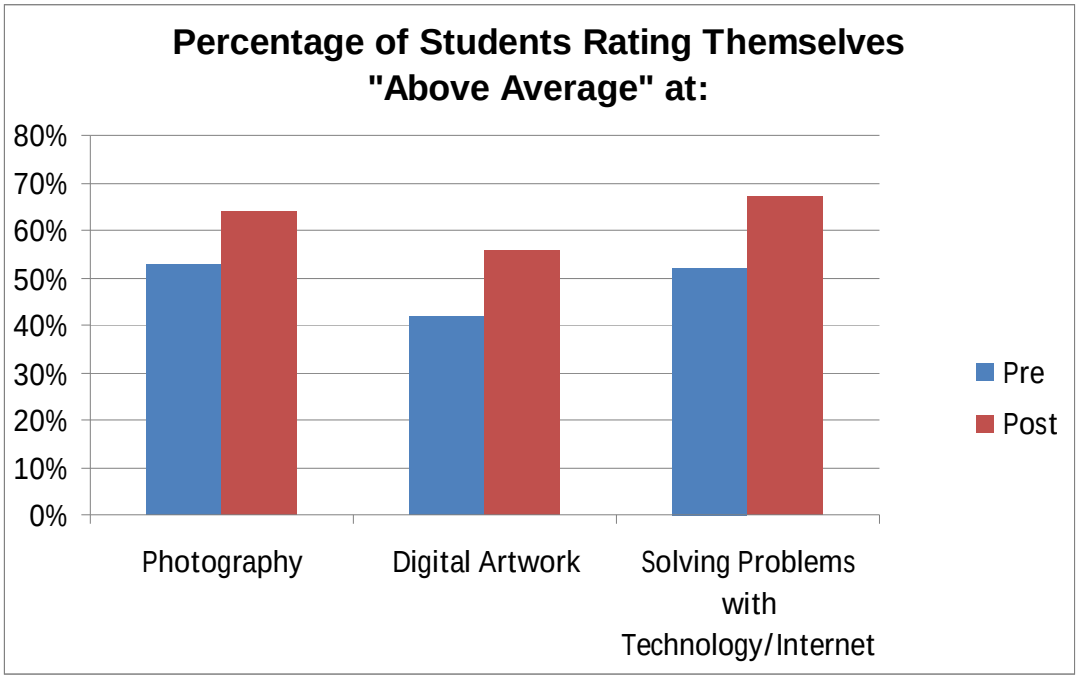
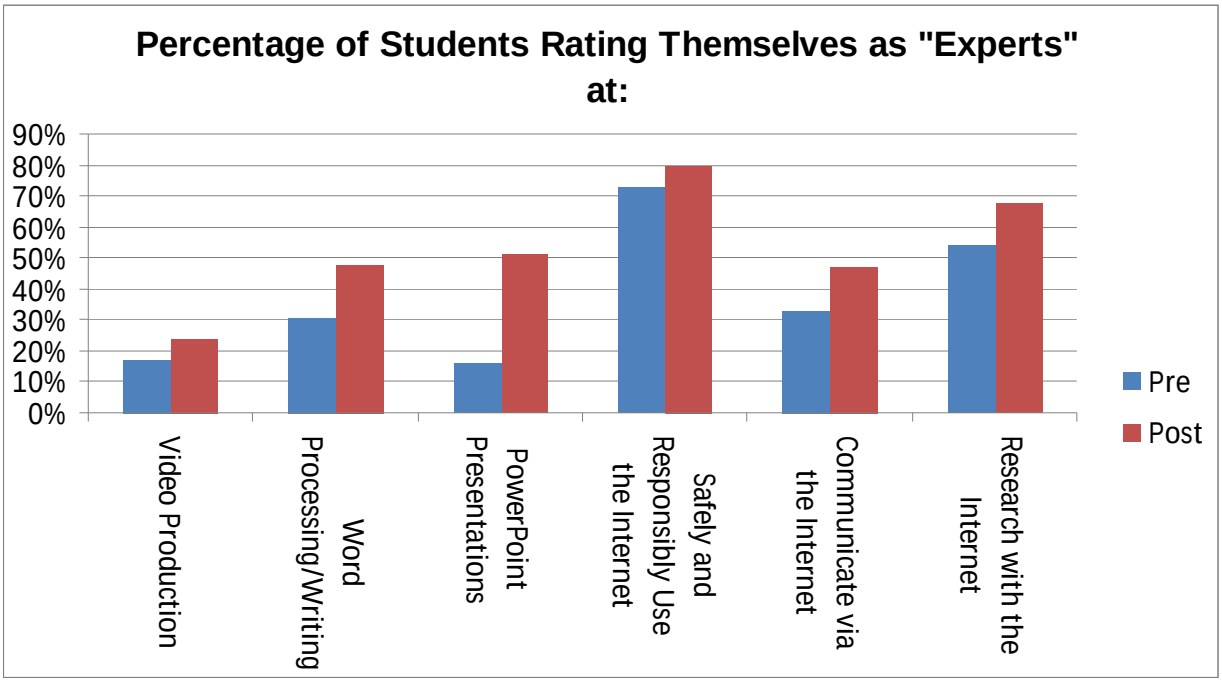
Student Research Data

Student Skills

21st Century Skill Levels Increased:





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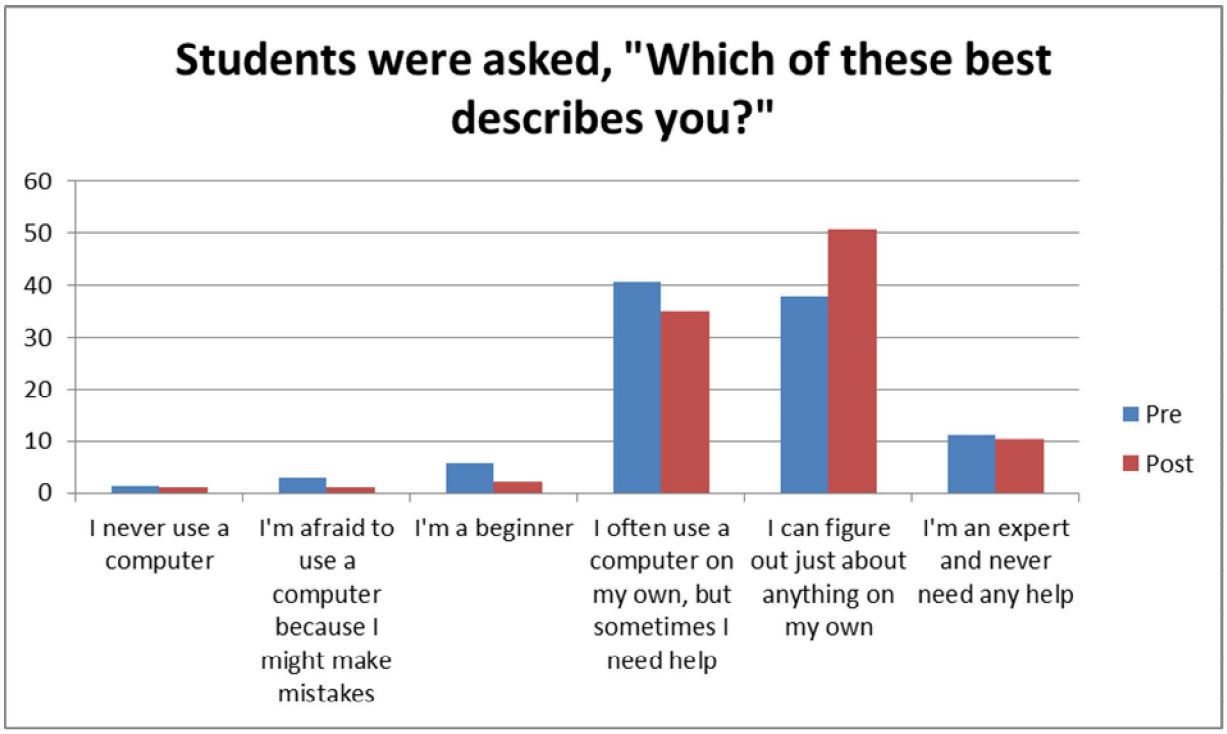
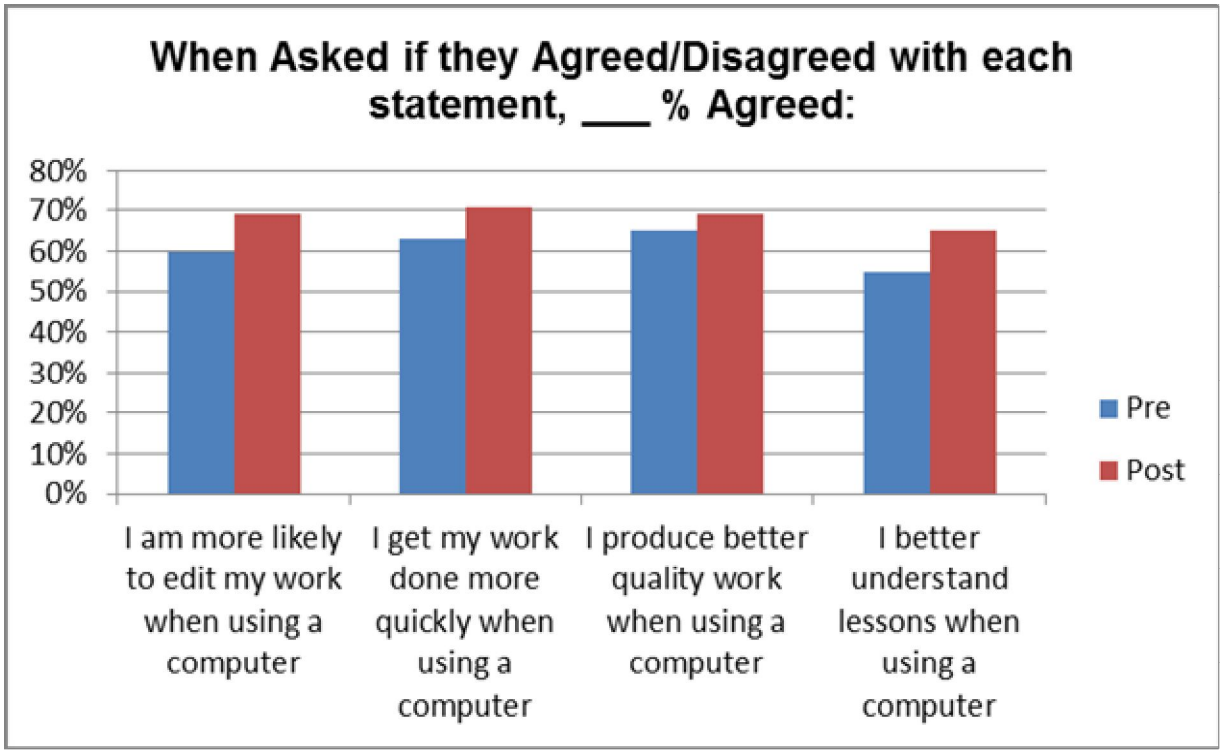


Work Improvements

Students Reported Computers Improved Schoolwork:



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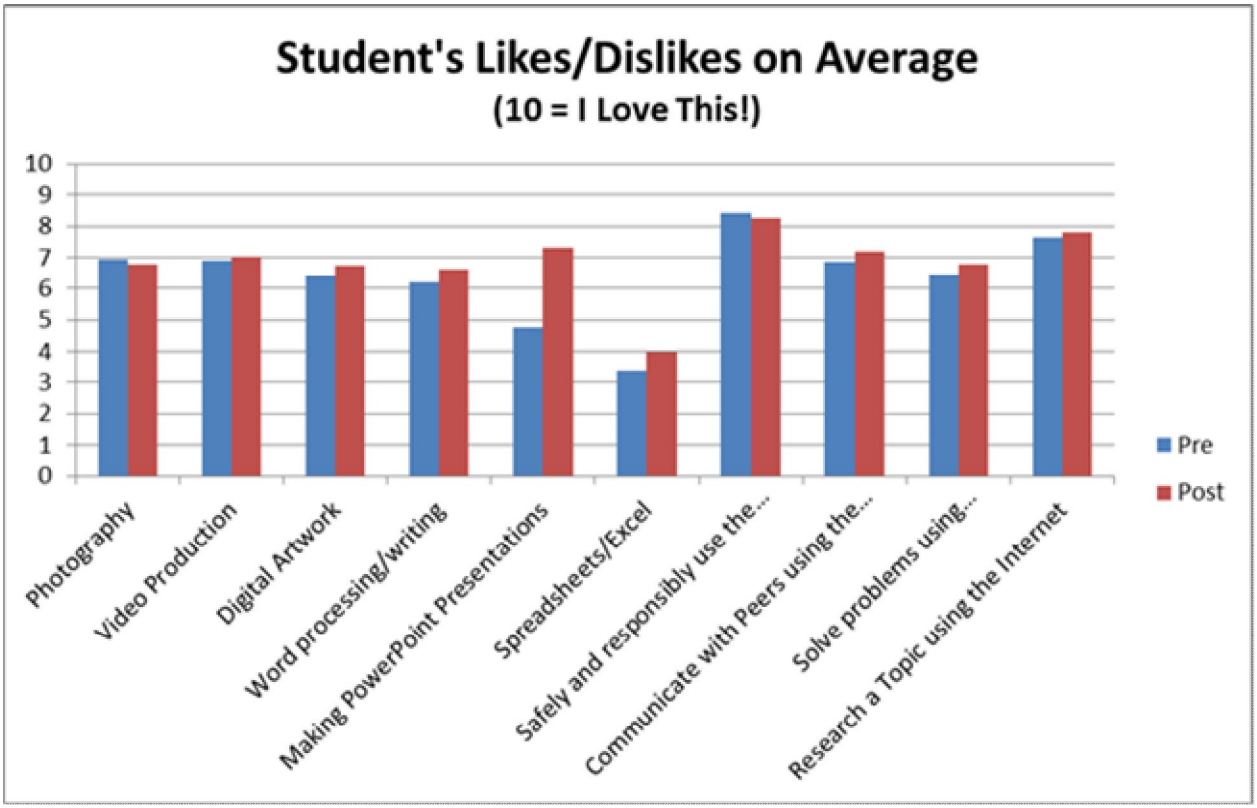
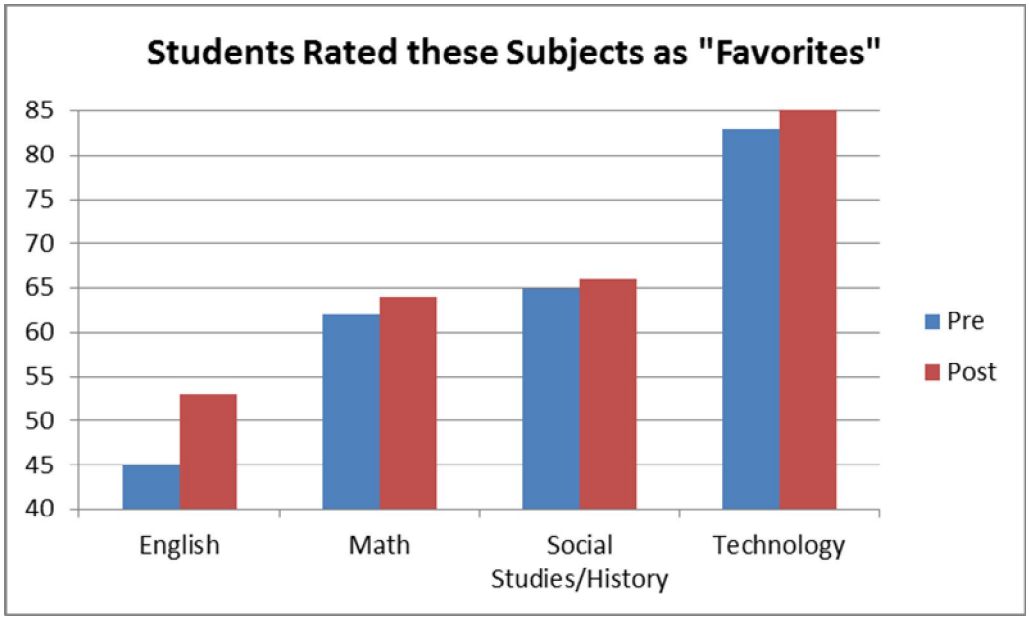
Student Likes / Dislikes

Students Liked Technology More:

Students were asked to rate how much they liked a certain tasks on a 1 to 10 scale, with 1 being “Not at all”, and 10 being “I love this!” Nearly every 21st century skill increased:





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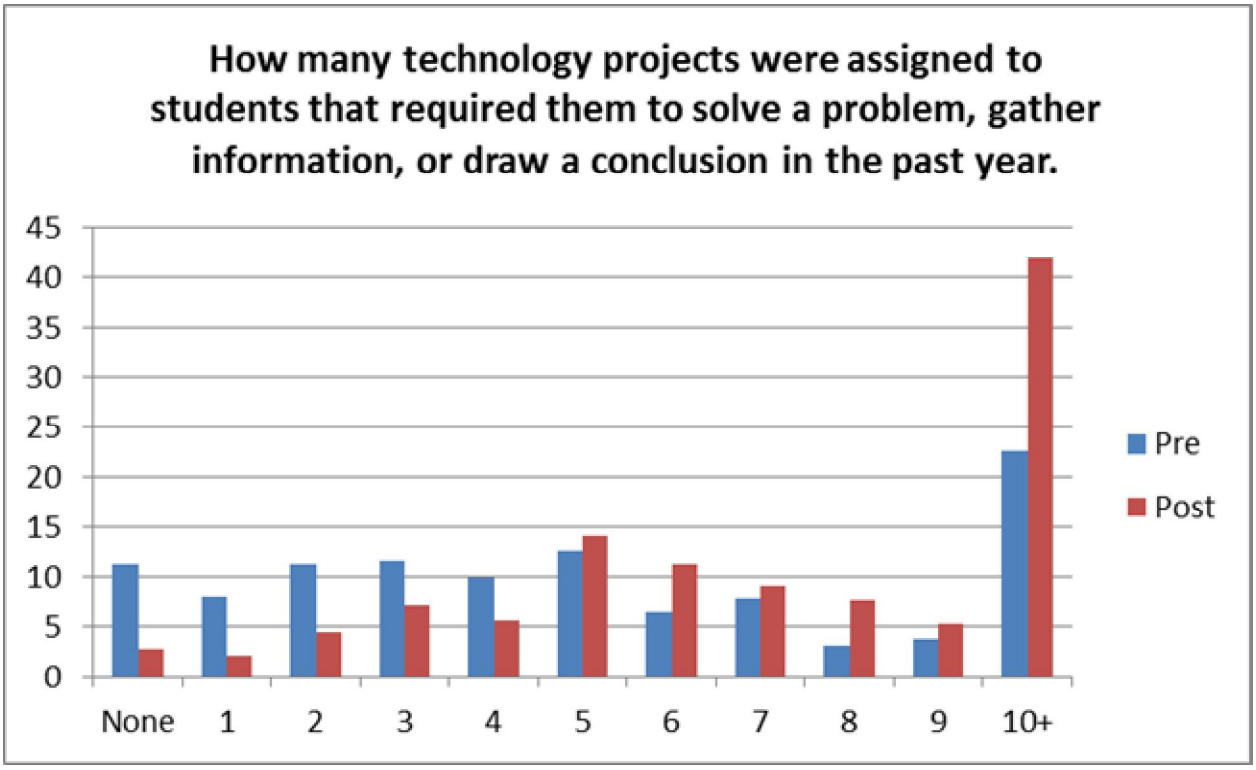
Students Enjoyed School More With Technology:
Students agreed/disagreed w/ following statements:

- I prefer to use a computer to do my schoolwork - 88% to 91% agree
- Computers make schoolwork easier - 38% - 42% strongly agree
- I enjoy school more when teacher uses tech to teach lessons - 83% to 85% agree

Frequency
Students Participated in More Technology Projects:



Workforce Development
Interest in Technology Careers Increased:
The percentage of students who said they'd like to have a career in Technology / Computers increased from 13% to 16%.

Student Anecdotes

When asked "**How important is having technology in school for preparing you for the future?**" students responded with:

- Technology is very important to have because you can have a bigger selection of job options if you know how to use the Internet.
- I think the future will be based on technology so we should get ahead while we can.

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- It makes learning like 20 times easier!
- I LOVE using technology in school, it makes me a little bit more happy to go to school now.

When asked "**What did you enjoy doing this year as part of the Digital Wish program?**" students responded with:

- Everything, and I hope for Digital Wish to expand to more than just Vermont, kids around the world should have a chance like I did. It is a wonderful program you have got here and I hope it continues.
- I enjoyed making projects and learning how to fix any problems all by myself.
- Learning how to type faster and learning not to believe everything on the internet and not to believe that all web sites are real.
- Learning about new programs because sometimes I could teach my mom about them.
- I enjoyed the stop motion films that we made. I made more when I went home that day.
- Digital Wish is very fun but my favorite was business because I loved using Windows Publisher and creating business cards.
- Now I know how to do about a thousand more things on the web.

When asked "**What is the most exciting thing you've ever done with a computer?**" students responded with:

- I made a 57 page power point on Autism and special education!!!!:)
- I taught my whole family how to use it.
- I taught my aunt how to make a Prezi and she took me to a convention in Chicago where she used her new skills!

Teacher Research Data

Collaborative Learning

More Collaborative Projects - 24% of teachers now assign collaborative technology projects either weekly or daily. Pre-initiative, *no teachers did this.*

Increased Teacher Technology Usage

More Projects Assigned - 80% of teachers said they assigned 3+ major technology projects in the past school year that required problem solving, critical thinking, or analysis of information (only 30% pre-initiative). 7% of teachers assigned 10 or more projects.

Increased Home Usage - Post-initiative, 39% of teachers send the computers home with students 5 times a week and 39% send them home 7 days a week.

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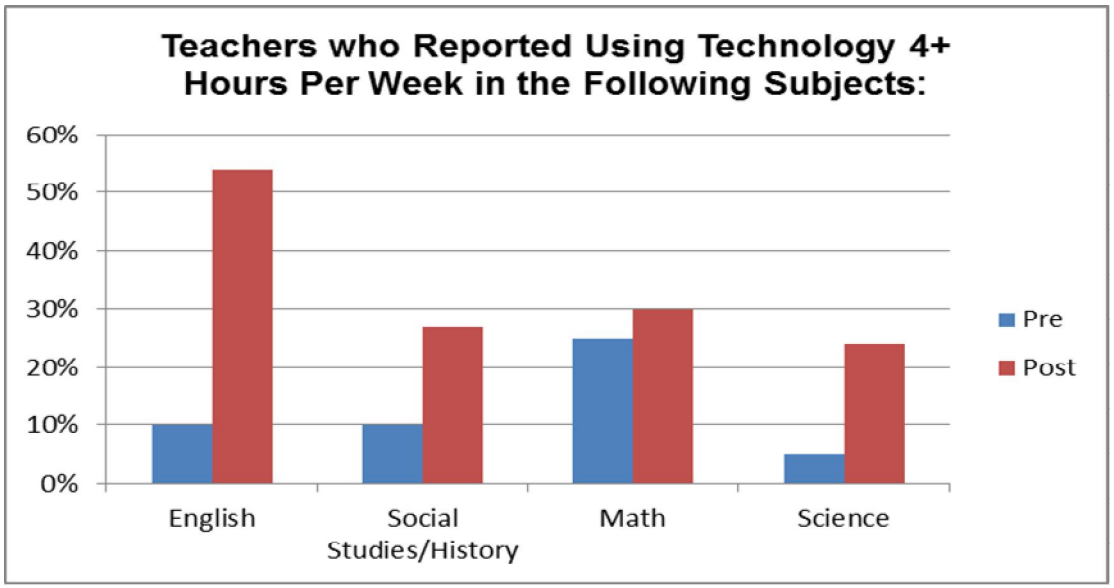
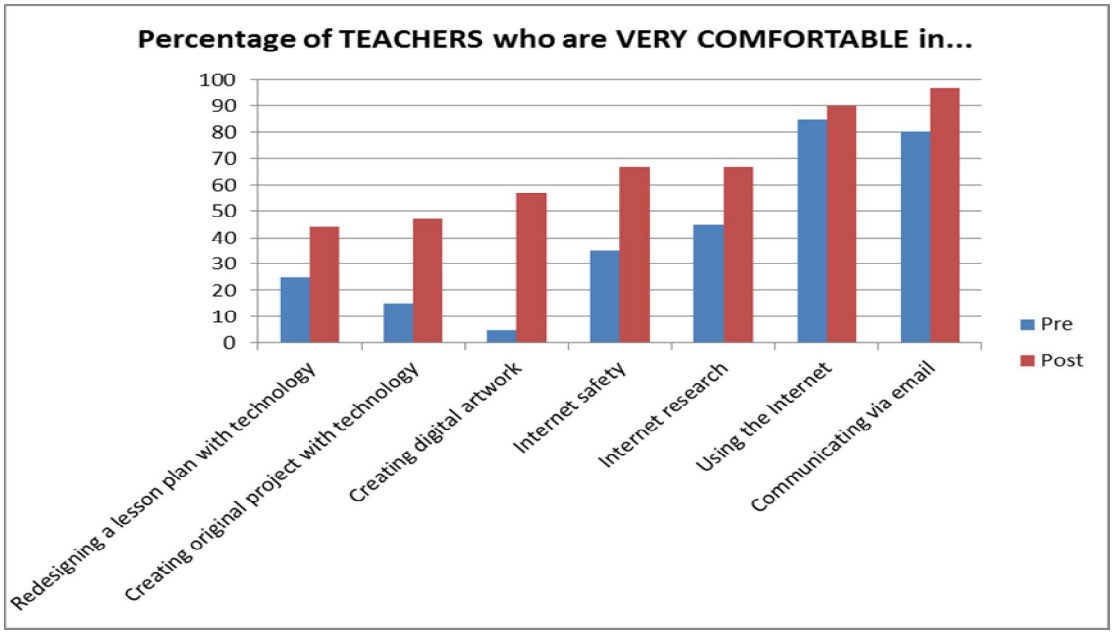
Increased Frequency of Technology Usage - The percentage of teachers who use technology in English, Science, or Social Studies/History four times a week or more, increased to 3 to 5 times that of pre-initiative levels.

Increased Time Using Technology



Teacher Comfort Levels With Technology

Teachers Rating Themselves "**Very Comfortable**"



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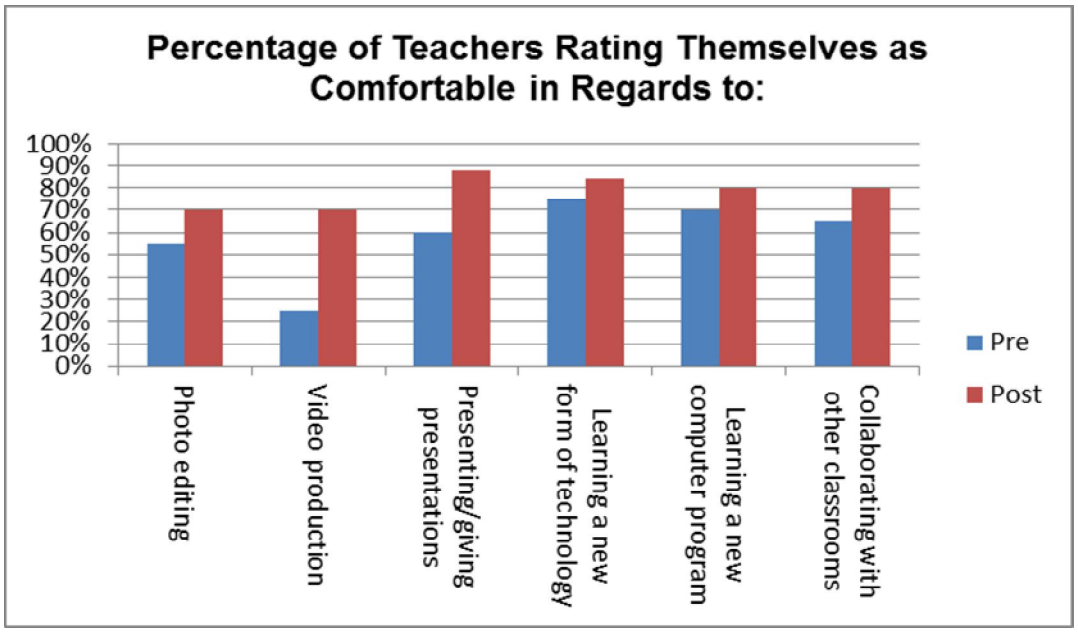
Teachers Rating Themselves "**Comfortable**"



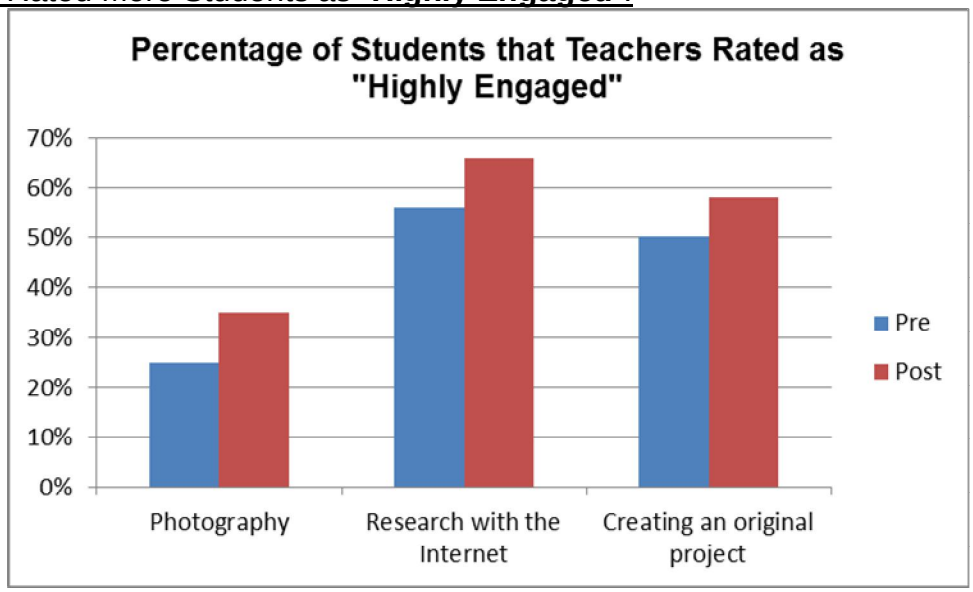
Community Support

Increased Community Support - Level of community support that teachers said they received regularly, increased from 17% to 31% of teachers reporting they were fully supported by the community.

Teachers Rate Student Engagement in Learning

Increased Student Excitement – Teachers rated 85% of their students as "very excited" about technology, an increase of 10% over pre-initiative levels of 75%.

Teachers Rated More Students as "**Highly Engaged**":



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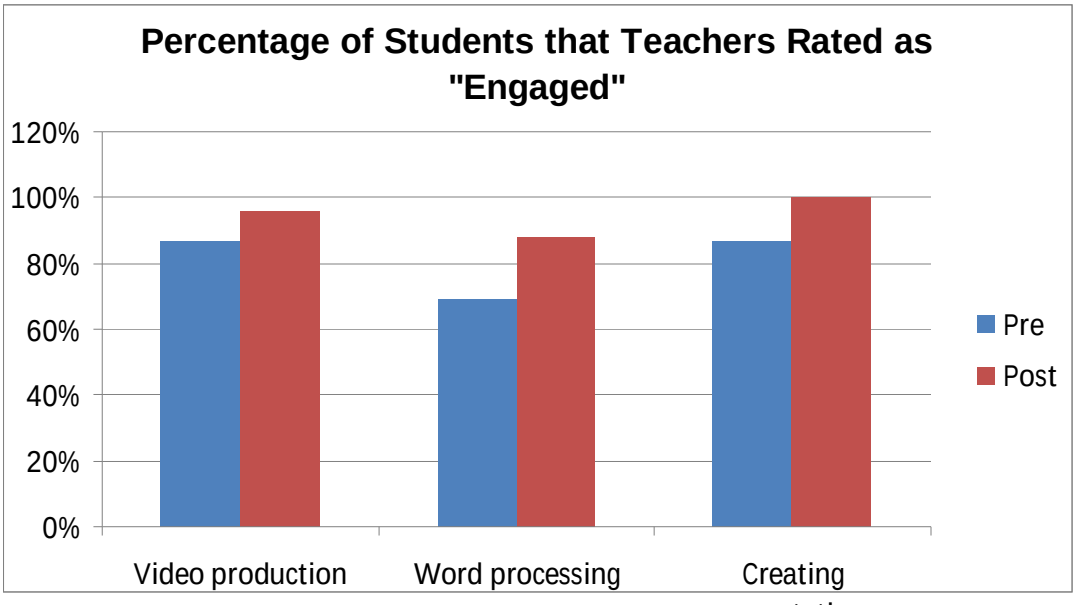
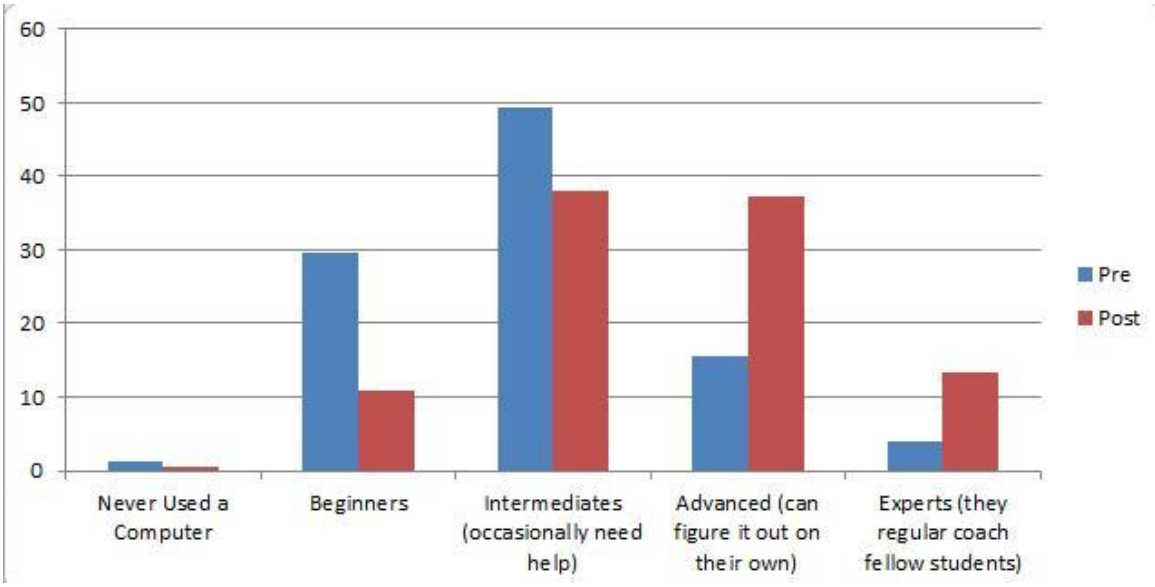
Teachers Rated More Students as "**Engaged**":



Student Skill Levels:

Teachers Rated Overall Student Skill Levels with Technology:



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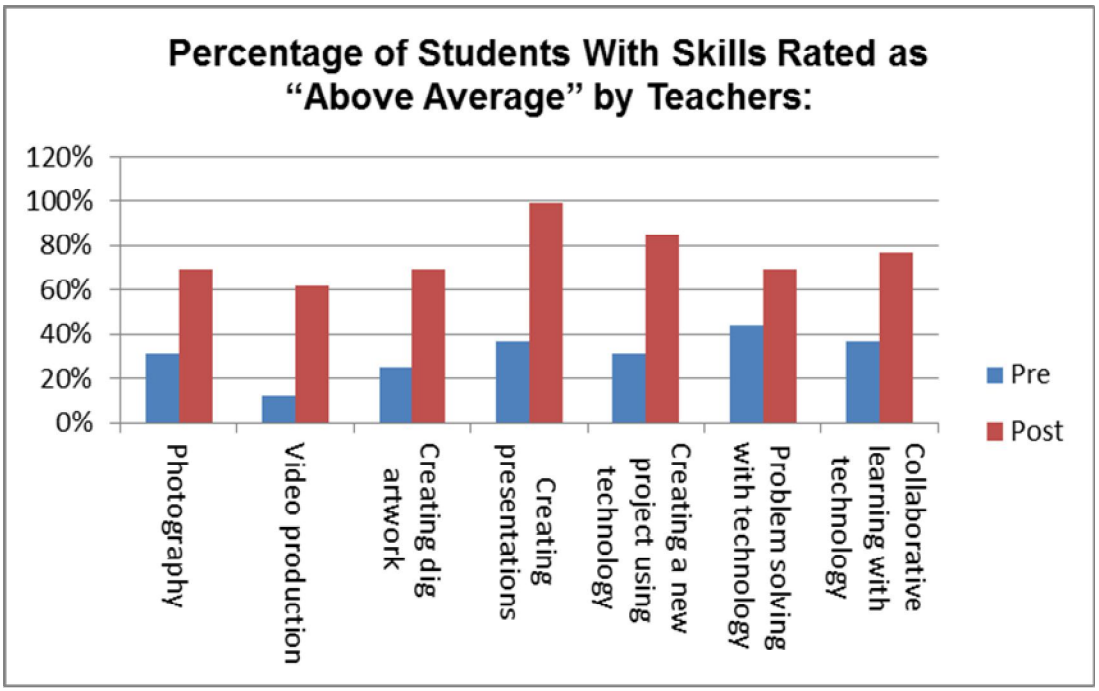
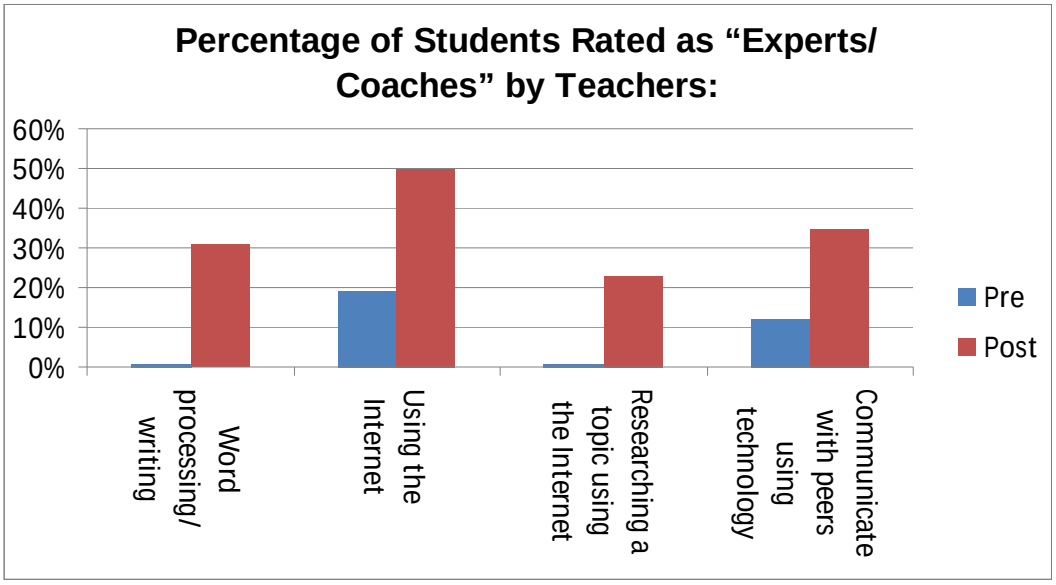
Teachers Reported Increasing Percentage of Students With Skills Rated as "**Above Average**":



Teachers Reported Increasing Percentage of Students Rated as "**Experts/ Coaches**":



Hurdles With Technology

Biggest Hurdles Encountered by Teachers:

1) Students forgetting to charge computers
2) Technical trouble

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3) Students playing video games when not directly supervised

3) Student/Parent irresponsibility

4) Teachers having limited knowledge

5) Inappropriate sites/use of computers

5) Fluctuating Internet access

5) Software problems and application

6) Time management with transitioning to/from computers

7) Time commitment is required

Teacher Anecdotes

On **student gains** as a result of the Digital Wish program...

- I have noticed much more student confidence on the use of technology. Motivation to do the work has been invaluable. Overall, students' attitudes have been that of wanting to know more.
- Students are very confident when given an assignment that incorporates the laptop. They are very good at listening to a computer-related lesson once, then working with each other to understand it better and putting it to practical use.
- Students are more fluent with technology. They are able to select their form of expression using any of the programs we learned.

On the 1:1 initiative's success in **preparing students** for the future...

- It is nice to see the students coming to class these days, computers in hand. It's become second nature to them to immediately turn on their netbooks upon entering class and connect to my blog where most of my lessons are located. The work they do has improved in quality and quantity as a result of the repertoire of technology tools available to them--and the skills they have acquired through Digital Wish has resulted in more creativity and polish in their projects and presentations. I feel our students are better prepared for the demands of Middle School as a result of their experiences with Digital Wish. On behalf of our small school, thank you for contributing to the academic success of our students.

On the netbooks **inspiring interest in learning outside of school**...

- We started our Newton Law study in science and decided to incorporate the stop motion videos into our science study. Students selected one of the laws and then were given backdrop materials and clay. They needed to bring the LAWS to life. The kids were very excited about this. Many of the students went home and created their own videos at home. It was wonderful.

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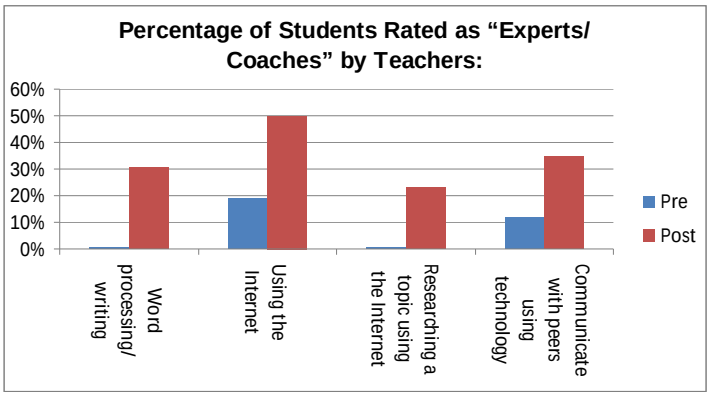
Digital Wish 1:1 School Modernization Computing Initiative Spans 28 Schools - Research Data Shows Improvements in Student Engagement

Manchester Center, VT – July 23, 2012 - For the past three years, Digital Wish has been studying the process of implementing one-computer-per-child programs in 28 schools. Digital Wish is an educational non-profit on a mission to bring technology to American classrooms in order to prepare students to thrive in the global economy. The team just completed a $1.125M Federal ARRA stimulus grant, delivering computers, weekly educator trainings, a complete IT curriculum, and support to the 28 schools. Their trainers modeled the entire process of technology adoption and progressively reduced the initiative planning time from 18 months to just 6 weeks, saving schools tremendous amounts of time and money. Both teachers and students are reporting a wide range of gains including increased engagement in learning, technological proficiency, and dramatic improvements in the understanding of internet safety issues. The 2011-2012 data report is attached.



The 3-year research project yielded a complete IT Curriculum based on ISTE's NETS standards, that easily meshes together with the core topics. Eric Bird, Lead Trainer said, "In order for a technology curriculum to be successful, it has to be non-invasive. Teachers can't just drop their core subjects and teach technology as a separate subject. Technology has to work together with their regular lesson plan regimen." Based on 28 site deployments, Digital Wish's trainers packaged all the presentations, worksheets, videos, and lesson plans – so that other schools could easily replicate the program.

History

Starting in 2008, Digital Wish spent over a year researching successful and failed 1:1 computing initiatives. This intensive research period resulted in the identification of eight essential components which must be addressed in order to build a sustainable 21st century learning program, including leadership, investment, hardware, connectivity, training, curriculum, IT support, and community engagement. The absence of even one component creates a much higher risk of new initiatives failing further along in the process.

Pilot Phase - 2009-2010

With endorsements from major educational associations of principals, school boards, superintendents, IT coordinators, NEA teachers union, and training centers, Digital Wish raised $152,000 from private foundations like the A.D. Henderson Foundation to fund four pilot sites in the 2009-2010 school year. Across the pilot classrooms, trainers experimented with sharing computers between students, employing mobile labs and computer carts, and creating comprehensive 1:1 computing environments. Because the Digital Wish team found that learning gains were so much greater in schools using one-

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computer-per-child, they abandoned shared computing and mobile computer lab models altogether, and pledged to only support 1:1 initiatives at scale.

Pilot Data

Early results gathered through simple student surveys from the pilot participants showed impressive statistics that support the importance of making one-device-per-child strategies a top priority for schools nationwide. Data from the pilot surveys showed:

- 73% of students agree that schoolwork is more enjoyable when using a computer.
- 85% of students report that they produce better work and pay closer attention to lessons when they use a computer.
- 95% of students report that it is important to have their own computer at school.
- Technology utilization doubled and even tripled across subjects for students and teachers, with the largest utilization increases in English and research.
- Within 3 months, comfort levels with computing increased in every classroom.
- 86% of students say they get work done more quickly when using a computer.
- 85% of students report that having technology in school is important to their future.

Through these early stages, Digital Wish gathered the resources and support necessary to scale the initiative. According to Heather Chirtea, Digital Wish's Executive Director, "It's extraordinarily difficult to develop a successful initiative from scratch because there are just so many decision points. Every school we entered in the pilot phase was facing the same issues, making the same kinds of decisions, and making the same mistakes in isolation. It was an incredible waste of time and resources. We've implemented so many sites now, that we can explain the downstream ramifications of nearly every decision and prevent schools from taking a wrong turn very early on in the process. These lessons learned can be *easily* scaled across the state and the country."

Implementation Phase, 2010-2012

In partnership with the Vermont Council on Rural Development, Microsoft, Dell, and many others, Digital Wish was awarded $1.125 million in stimulus funding to implement their *School Modernization Initiative* across 24 more schools, as the education component of the e-Vermont Community Broadband Project. The trainers constructed six curriculum units based on the National Educational Technology Standards for Education (NETS.) Digital Wish teachers then went into classrooms in 24 schools to teach both educators and students how to safely and efficiently use current technologies to learn and demonstrate their knowledge. "The first site took eighteen months of planning from our first contact with the school, to passing out computers in the classroom," said Heather Chirtea, Executive Director of Digital Wish, "Our 28th deployment reduced the entire planning process down to just six weeks! We have systematized everything possible from press releases, parent letters, and policy

documents to curriculum." These curriculum units are now available nationally as individual units, or as part of the Digital Wish's IT Curriculum Series.

Implementation Data

During the Implementation Phase, survey data was collected from 719 teachers and students from 24 schools. The bulk of the data reflects the differences in responses between the pre- and post- initiative surveys. Listed here are some interesting gains reported during the implementation phase:

- **Workforce Prep -** 93.1% of students say having technology in school is important in preparing them for the future.
- **Importance -** 90.2% of students say that it is important to their education to have their own netbook/computer during the school year.
- **Internet Safety** - Over 50% more teachers reported they are now very comfortable with Internet research and safety, increasing from 40% to 63%.
- **Skills -** Teachers say that less than half as many students are considered beginners with computers, a decrease of 13 percentage points from 23%. They consider approximately 1/3 more students to be advanced computer users, a 10 percentage point increase from 25% pre-deployment, to 35% post-deployment.
- **College -** Students who plan to go to college increased from 89.1% to 90.7%, a 1.6 percentage point increase.
- **Frequency** - The number of students who use a computer every day in the classroom more than doubled the pre-initiative levels, increasing from 24% to 52%.
- **Collaboration** - The number of teachers who are now comfortable with collaborating with peers, parents, and/or students using digital tools increased from 83% to 93%, a 10 percentage point increase.

Not all gains were measurable though, and teachers commonly reported a wide array of anecdotal gains:

- Students are fully engaged.
- In one-computer-per-child classrooms, students view the computers as "their own" and therefore take better care of them.
- Computer breakage rates are lower and behavioral infractions have been significantly reduced.
- Students are becoming technologically fluent 2-3 times faster.
- Socio-economic barriers are no longer relevant as students from different socio-economic classes who would have never previously worked together, are suddenly collaborating on classroom projects.
- A peer-coaching dynamic has emerged.
- New student leaders have begun to develop from all levels of the social strata.
- Some of the largest gains have been made by low-achieving students and students with educational disabilities who tend to be more visual learners.

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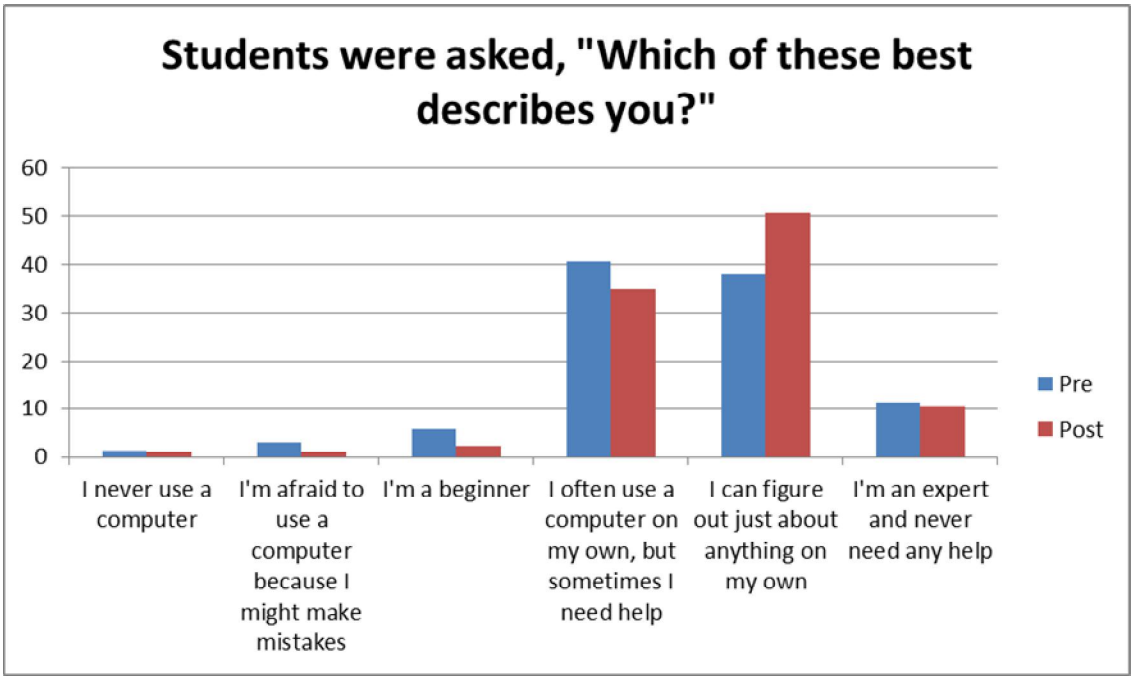
"It was a real treat to see the changes in these classrooms firsthand," said Eric Bird, lead classroom trainer for the Digital Wish *School Modernization Initiative*, "When we began, most classrooms had only a few outdated computers. I've seen enormous gains in student engagement. You really don't understand how important this is until you find out that the decision to drop out of school is made at the middle school level. We're raising engagement levels with students in grades 4-6, hopefully *before* the decision to drop out ever gets a chance to take root."

Bird continued, "Students *and* teachers have become technologically fluent, very rapidly; learning independently and solving real world issues. We implemented a unit where students studied local businesses before being challenged to create their own business ideas. For many students, this was the first time that they had ever envisioned themselves as entrepreneurs. It's a real game changer as students plan their future."

Replication Phase, 2011-2012
The replication phase included 12 schools from the implementation phase as well as one new school in an urban environment in Nashua, NH funded by a grant from Dell Powering the Possible. The same resources that were developed during the implementation phase were then used to replicate the program the following year.

"It's amazing how rapidly we've worked through the planning process," said Sheila Marcoux, Digital Wish's technology integrator for Nashua. "All of the planning, documentation, usage guidelines, permission forms, and tough decisions were already mapped out."

Replication Phase Data
Survey data was collected from 30 teachers and 487 students during the replication phase. Both groups reported tremendous gains in a variety of areas:



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- **Student Engagement** - Student engagement increased 140% in word processing and writing, creating presentations, and video production. 52% of teachers now feel that the majority of their students are highly engaged as opposed to only 37% pre-initiative.
- **Internet Safety** - After completing the Initiative, 93% of teachers now say that they are comfortable with Internet safety, with 67% of them saying they are very comfortable.
- **Problem Solving** - Students who say they can "figure out just about anything on their own" increased from 38% to 51%, a 134% increase. The number of students who say they have participated in ten or more technology projects that required them to solve a problem, gather information, or draw a conclusion, has nearly doubled, from 23% to 42%.
- **Creativity** - Teachers now say that 46% of their students are experts or peer coaches in creating a new idea or original project using technology, a value that almost quadrupled the pre-initiative's mere 12%.
- **Skill** - Teachers reported that only 11% of their students are considered beginners with computers, a decrease from 30% pre-initiative. They consider approximately 50% of their students to be advanced/expert computer users, a value that has more than doubled since the 20% pre-deployment.
- **Students becoming Tech "Experts"** - The majority of students say they are experts at digital media, word processing, making presentations, safely and responsibly using the internet, solving problems using technology, and researching a topic on the Internet. At the beginning of the initiative, almost 50% of students said they didn't know how to do these things.

In addition to the measurable improvements above, teachers and students provided anecdotes on their experiences:

When asked "**How important is having technology in school for preparing you for the future?**" students responded…

- Technology is very important to have because you can have a bigger selection of job options if you know how to use the Internet.
- I think the future will be based on technology so we should get ahead while we can.
- It makes learning like 20 times easier!

On **student gains** as a result of the Digital Wish program teachers responded...

- I have noticed much more student confidence on the use of technology. Motivation to do the work has been invaluable.
- Students are more fluent with technology. They are able to select their form of expression using any of the programs we learned.

After School Programs

In addition to classroom training during the school day, 196 students from 11 of the 13 replication schools participated in after school programs created by Digital Wish trainers with software donations sponsored by Microsoft. High school students and even Dell

employees acted as mentors to elementary school students to help them create video games using Microsoft Kodu gaming and websites using Expression Web.

Sky Kocheneur, an after-school trainer said, “I taught the students the basics of computer game programming, and by the end of the first sessions students were teaching me new skills! We just get them started and they naturally build upon the basic skills. Many of the kids surpassed our expectations.” Sheila Marcoux added, “Going into the classroom each week and seeing the students produce these complex games was really a joy. You could see their critical thinking and problem solving skills advance with each session.”

Community Impact

With one-computer-per-child initiatives implemented across 28 sites in 2 states the trainers began noticing a cultural shift taking place in the schools. Staff, administrators, and community members were rapidly shifting their assumptions about the need for technology in classrooms. Computers were no longer something that “someone else” had to deal with. Instead, they became an assumed part of every learning experience. Executive Director Heather Chirtea said, “My favorite moment in the initiative was when a student exclaimed, ‘I wish I could stay in 5th grade for the rest of my life!’”

In a post-mortem evaluation of the four 2009-2010 pilot schools, each one scaled up their technology programs within 12 months of Digital Wish’s arrival. One town voted to increase their school’s technology budget from $5,000 to $50,000 in the following school year – ten times the amount originally allotted for educational technology.

The Future – “Bring Your Own Device” for Mobile

Chirtea went on to say, “Students were truly engaged with their learning as soon as the computers entered the classroom. Digital Wish envisions a day when every student in America will have access to their own mobile computing device for learning.”

Teachers are already requesting support as a wide array of devices find their way into the classroom through the students’ backpacks. Digital Wish is seeking funding to continue the research, translating their successful computer curriculum to work with student-owned mobile devices.

About Digital Wish

Digital Wish is a nonprofit bringing technology to American classrooms in order to prepare students to thrive in the global economy. At www.digitalwish.org, teachers make technology wishes, and donors make those wishes come true with contributions. Since August 2009, Digital Wish has granted over 29,000 classroom technology wishes through its online network of over 56,000 teachers, and delivered over $12 million in technology products to American classrooms directly impacting over 500,000 students in all 50 states.

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