

GENERATION YES

Generation YES (Youth and Educators Succeeding) students provide technical support, peer mentoring, leadership and support for technology professional development in thousands of schools across the U.S. and around the world.



Student Support for Laptop Programs

Success and Student Ownership

By Sylvia Martinez, M.A.

Schools around the world are looking to put the power of technology into student hands by providing laptop computers for every student. These initiatives seek to equip every student with the personal technology needed to learn and communicate in the 21st century.

Empowering students to be leaders, and valued partners in a school laptop implementation can lead to:

- Increased classroom technology integration
- Greater support for classroom teachers using new technology in lessons
- Greater student understanding and support for laptop program goals
- Greater parent understanding and support for laptop program goals
- Student empowerment, leadership, and ownership

Research shows that these programs can be very effective, and yet place a burden on already overworked technology staff and teachers. Fortunately, there are research-based solutions to this challenge that have the added benefit of increasing support for teachers, empowering students, and teaching them 21st century skills.

Using this guide

This guide is intended to provide teachers, technology coordinators, technology support staff and administrators with practical tips on including students in every aspect of a school's laptop initiative, from planning to long term sustainability. In it you will find many proven ways that schools can tap into the power of students in the effort to integrate laptops into a school.

Why Include Students in Laptop Initiatives?

research and common sense

It's about change, not technology

In any new laptop program, hardware purchasing decisions often consume a lot of planning time. However, most laptop programs are not about hardware. Most schools hope for changes in student achievement, teaching styles, learning opportunities, and much more. These changes cannot be purchased, but must be nurtured with strong leadership and vision.

Successful change requires ownership

For humans involved in any change process, having control and choices are imperative for a successful transition. Yet rarely are students informed of these laptop initiatives or asked to help. Students are viewed as the objects of change, rather than the agents of change.

Even professional development for teachers related to laptops tends to focus on the logistics of using laptops and learning new features. This leaves the most important and most difficult changes to chance, such as expectations that learning will become more student-centered, teaching will be more collaborative and project-based, and students will become more self-directed learners. Both teachers and students need to be included in all aspects of the planning and implementation of a program that is expected to have such a profound impact on teaching and learning.

The importance of meeting basic human needs for control, competence, and belonging is confirmed by research on motivation, learning, and development¹. Research also reveals another payoff by reducing feelings of alienation that commonly occur under conditions that do not allow student choice, do not respect students' feelings or interests, and do not consider students' perspectives.²



McCombs³ states, "...many researchers now argue that it is amazing and, for some, unconscionable that the primary persons served by the educational system are rarely if ever asked how they think the system should be designed and implemented."

Include students from the start

Schools provide a powerful context for youth to become engaged in meaningful and relevant decision-making. To be most effective, however, Calvert⁴ maintains that they also must be infused into ongoing planning and implementation. Youth can work with adults in partnerships that benefit both, and share roles as learners and mentors. When this equitable collaboration occurs, youth bring a sense of mission that positively affects everyone involved, both youth and adults.

There is evidence from many diverse schools that students can participate meaningfully as agents of positive change at both the classroom and school levels. Calvert maintains that this fits the current trend in educational research focusing on school climate, social conditions, and school culture. These are important factors for positive student learning environments and good working conditions for teachers. These trends also support research from educational psychology⁵ that increasing student autonomy, membership, and agency leads to higher engagement and academic achievement.

Planning and implementing a laptop program brings fresh opportunities to reinvent the learning community and refresh school policies. Including students in this challenge can result in benefits for all.

Students as evangelists and allies

Even students not directly involved in planning a laptop initiative should be considered an important audience. As a school prepares for laptops, even in the early stages, there are announcements and information that is shared with school personnel, parents, and the community. Consider adding the entire student body to this list.

Students not only have the knowledge and position to shape what counts in education, but they also can help change power dynamics and create new forums for change⁶. When the laptop initiative becomes something that students understand and can speak passionately about, they will!

Students attitudes towards the laptops will influence their peers, parents, and the community at large. By including

students as a primary audience for news about the planning process and how they will benefit, they can become evangelists for the program. Parents who are being asked to pay for laptops, either directly or through taxes, need to know that these computers aren't just some high-tech whim. Hearing about the expected changes from their own children can convince parents that computers are not just for chatting and games, but a vital part of 21st century education.



Net generation

Students are part of a digital generation -- they have grown up with computers and technology in their lives and need to be prepared for a digital world. However, schools are often not meeting students needs when it comes to use of technology.⁷ Students are asking their schools to provide more opportunities to use technology to learn, and their voices need to be heard. In turn, adults need to teach appropriate use of these new tools.

By asking students to participate in meaningful dialog about technology use, we not only gain their insight and experience, but we show students how their education is relevant for the world today.

21st century skills

Students in today's schools enter a different world than that of their parents. "21st century skills" are skills beyond traditional core subject areas including:

- Learning and thinking skills such as problem solving, creativity, and collaboration
- Civic, cultural and global awareness
- Life skills such as ethics and leadership
- Technology, information and media literacy

By participating in a laptop implementation, students learn skills that will last a lifetime. Technology by its nature tends to include problems that don't have answers

in the back of the book. Learning to solve authentic problems when people are really depending on you is a true 21st century skill.

Back in the classroom, this experience can empower students to reach beyond the walls of their school and think beyond the next test. Reinforcing the belief that their voice and their actions are important, necessary, and valued creates students who will go beyond a class assignment and become empowered, global citizens of the 21st century.

"By listening to students' voices, educators can learn how schools and classrooms can be more relevant." - Dennis Harper

Long-term student involvement

Current research increasingly supports the educational and social benefits of not only listening to youth, but also engaging them in authentic adult partnerships that address key issues of relevance to their lives such as education.

This guide offers a number of ideas to involve students in a laptop program. The goal is not that a school should attempt all of them, but should pick the ideas that make the most sense. For some schools, implementing a student tech crew will be the right answer. Another school may find that partnering teachers and students on classroom projects that increase laptop use is more effective. Explore the successful student support of laptop programs in this guide and then design a program that best satisfies the needs of your school.

Whatever path you choose, success in a student tech team initiative will hinge on creating a long-term, sustainable vision that provides benefits to both students and staff.

1 Deci, E. L., & Ryan, R. M. (1991). A motivational approach to self: Integration in personality. In R. Dienstbier (Ed.), *Nebraska symposium on motivation*. Vol. 38. Perspectives on motivation. Lincoln, NE: University of Nebraska Press.

2 (McCombs, B. L., & Whisler, J. S. (1997). *The learner-centered classroom and school: Strategies for increasing student motivation and achievement*. San Francisco: Jossey-Bass.

3 McCombs, B. L. (2003). "A Framework for the Redesign of K-12 Education in the Context of Current Educational Reform," The Ohio State University, College of Education, Gale Group.

4 Calvert, M. (2002, April). Raising voices in school: The impact of young decision-makers on schools and youth organizations. Paper presented at the annual meeting of the American Educational Research Association, New Orleans.

5 Larson, R. W. (2000). Toward a psychology of positive youth development. *American Psychologist*, 55(1), 170-183.

6 Cook-Sather, A. (2002). Authorizing students' perspectives: Toward trust, dialogue, and change in education. *Educational Researcher*, 31(4), 3-14.

7 Pew Internet & American Life Project (2002). *The Digital Disconnect: The widening gap between Internet-savvy students and their schools*. American Institutes for Research

Preparing for student involvement including all stakeholders

Students as stakeholders

Planning a laptop implementation often involves months or even years of planning. Stakeholder groups are convened, committees are formed, and meetings held to discuss the initiative. Yet the most important stakeholder group is often not included. Students are 92% of the population of most schools. Leaving this stakeholder group out of the planning and implementation process means that their voices will not be heard, their potential contributions will be lost, and they will not have full ownership of the program once it is a reality.

Many adults will claim that including students is too time consuming and risky to consider. They will cite logistics concerns, privacy, lack of maturity, lack of knowledge and other factors.

However, there will be necessary accommodations made for all kinds of adult stakeholders. They may or may not know anything about technology. They will have jobs and other commitments, and some will not have been in a classroom for years, if not decades. Surely these accommodations are not any greater than making it possible for students to participate in the process.

Laying the groundwork for student involvement

There are two major ways that students can participate in a laptop implementation.

- **Committees.** These could be technology planning committees, school site councils, technology security review committees, or peer review committees.
- **Day to day activities related to laptop support.** This may be traditional tech support, instructional support, or helping new users learn about their laptops.

Committee work

There are numerous benefits to including students on committees dealing with your laptop implementation.

- Student point of view
- Technology expertise
- Time and enthusiasm for research into technology

However, simply asking students to show up is not enough. Although there may be a rare student who knows how to participate in the often boring process of committee work, many students are not ready for this commitment. However, with focused adult guidance,

students of all sorts can successfully participate with adults on committees. Without guidance, most students will find the process to be slow and painful, and will likely drop out.

Allowing this to happen simply reinforces the image that youth are disengaged and cannot be trusted with responsibility and big decisions.

Prepare and support students for committee work by meeting with them regularly to talk about progress and get feedback. Role-playing can be an effective way to work out the unwritten rules of behavior before meetings.

Have students practice collaboration activities such as brainstorming and using positive

consensus language. It can also be useful to have an adult liaison who is NOT on the committee teach students how to navigate this new experience.



Internet safety and AUPs

School acceptable use policies (AUPs) should be reviewed before a laptop implementation. Including students in the process can be very helpful. Not only can students bring a new point of view to the conversation, but the participating students will be better able to articulate the new rules to their peers.

Security

Every school doing a laptop program will have new security issues to deal with. If you are planning to have students help with teacher support or do tech support, these plans should be addressed early.

One solution may be to offer trained students an access level between normal student and teacher levels. As students show their responsibility, you can gradually increase their access. Reward excellent work and good behavior with increased responsibility and increased leadership opportunities.

For the student's sake, do not give students, even trained students access they don't need. There is no reason to put students into a position where they will become suspects if something goes wrong.

Student support for laptop rollout

do it right from the start

Considerations

As you get closer to the implementation stage of your laptop program, consider what kinds of student involvement will work in your school. The transition from planning to implementation is a crucial stage for any laptop program. If students have been involved in the planning stages, or if you already have a student tech team, these students can form the core of a student laptop support team.

Laptops will suddenly increase the amount of hardware and software that will need support. Yet response times need to be reduced to ensure teachers feel fully comfortable counting on the technology. In addition, the support needed for instructional integration will increase. These new support needs can overwhelm even the most prepared tech support and instructional technology staff. Adding students and preparing them to take an important role in the laptop program can increase response time for teacher and student issues, and also free up professional staff for bigger problems.

Students can provide invaluable assistance at this stage. They can participate in the logistics of preparing new laptops for distribution, train teachers, students and staff, support new users, assist with parent workshops, and much more.

Preparation

Your laptop program rollout is key to setting the tone of your program. With extra help from students, you can make the logistics smoother and decrease new user anxiety. You also send a clear message that laptops are student-owned and student managed. Self-reliance for all students will be enhanced by the example your student team sets.

Prepare for this by assembling a student team ahead of time, training them on the new hardware and software, and getting to know them. Teach your student tech team not just about the hardware, but your expectations for student use and policies. Once the rollout day comes, you will have a team you know and trust to help.

Issues to consider:

- Will student help be a one-time thing or the core of an ongoing student tech team?
- The better you know your students, the easier it will be to manage them. Trust and responsibility go

hand in hand. You will need time before student helpers interact with real users, so start with a small group of students, assign small jobs and monitor their work closely.

- Will these student leaders need special passwords or administrative privileges to help with the rollout?
- Don't be afraid of strong student opinions. Students who are very adept at technology may have strong opinions about the merits of different hardware, a favorite operating system, or may be strong proponents of open source software. These student team members may be annoyingly argumentative just when you don't need it, but with time will be your best allies. Be honest with them about tradeoffs and include them in decision-making. They will reward you with undying loyalty.

Setup and rollout

Bring students in to help with the laptop delivery, unboxing, and initial setup. These students should be trained, of course, and can become the core of your student tech team once school starts.

When laptops are first unboxed, there are many tasks that students can help with, including:

- Tagging and inventory cataloging
- Install or update OS and other software
- Configure for the school's email, network, printers, and Internet access
- Setting up carts and recharging stations

When it comes time to distribute the laptops, students can help with configuring new users, email and server settings, and other tasks. They can collect required paperwork and do instant tech support. In a large rollout, simply having extra hands and eyes will help things go smoothly.

Be aware that if you give students administrative access to do these jobs, you will need to decide if the student helpers will retain these privileges once school starts. If you decide to take privileges away, some students may feel that they earned your trust and changing their status is unfair. Even if you explain it to them, there may be unresolved feelings of confusion or resentment. Get these out in the open and be honest about it.

New user training

Students should be responsible for helping new users (both students and teachers) get their new computers up

and running. Get student and teacher input on what needs to be prepared for all your new users.

Students can:

- Prepare and deliver short introduction lessons for students (and teachers). These can be videotaped presentations or screencasts with voice over. Publish them on the school website or network.
- Allow students to choose training topics and prepare lessons. Students will listen to other students more than adults.
- Hold group practice sessions for sending and receiving email, groupware, or using classroom management systems.
- Create a website or wiki with information for new laptop users.
- Offer small classes or one-on-one help for anyone needing assistance. These can be informal lunchtime or after-school sessions in the library or tutoring center.
- Allow some students to be on-call during class time to attend classes where students are using laptops for the first time.
- Have students present a “laptop minute” at staff meetings. Let them create the content.
- Have students attend teacher professional development workshops. Students will be able to help teachers after the workshop is over. With some training, students will be able to help lead teacher workshops.

Parent workshops

Students can give workshops to parents about the new laptops. Many laptop rollouts require parental involvement so that parents understand their role and responsibilities. Involving students in the parent presentations reinforces the message that the students are responsible for their own laptops.

Parents will also see that students are interested in technology for academic uses, not just for music, games and socializing.

Internet safety and AUPs

Consider having students make presentations in classrooms about the new policies and hold discussions about policies and practices.

One way to involve students over the long-term is to have a student-run “court” that deals with minor student infractions of the rules. Allowing students to

have a say in making and enforcing rules demonstrates that the school values students as full members of the learning community.

Student Training Topics

Students can plan and deliver training on many topics that new laptop users will find invaluable. You can have students do some teacher training as well. Teachers will see that students have skills and passion about the laptops and you may find that they actually respond better to students as technology mentors than traditional professional development.

- OS basics
- Printer setup and queues
- How to use shared server space
- How to manage student access to subscription services (video, library, hosted software)
- How to organize folders
- How to backup data
- Acceptable use policies and school rules
- Internet security
- Cyberbullying
- Netiquette
- Effective Internet searching and research
- Copyright and plagiarism
- Where to find school-appropriate images, music, and software
- How to use applications
- Self-help tech support tips

Initial in-class support

Teachers often cite lack of in-classroom support as a reason not to integrate technology into classroom lessons. Even with the best intentions, this happens in laptop schools as well. Teachers can’t stop teaching to fix hardware and software issues, since even simple problems are multiplied by 20 or 30. Gradually, if problems are not solved, laptops will end up being used less and less often. Students, however, can help prevent this problem.

If you have a student tech team, teachers can request that one of your trained students be present when using new software in the classroom. Professional tech support staff can’t afford to sit in a classroom in case something goes wrong, but a student can. Even if the student simply helps their peers with tips and hints as the teacher is managing the lesson, this extra support can ease teacher fears. Sometimes, just getting teachers past the first few weeks of laptop classes without major problems can make all the difference.

High impact student support for laptops

leadership and learning

Models for high impact student support

There are two basic models for student participation in laptop programs that really have the potential for changing the learning landscape.

- Students supporting teachers with curriculum integration and training
- Student tech support teams

These models involve a long-term commitment to the student role, but have proven benefits. Most schools combine these models, or create pathways for students to progress through. Students can first work with teachers, and then after they prove their dedication and technical prowess, move on to technical support tasks. Either of these can be implemented to varying degrees in elementary, middle, and high school.

Student support for teachers

Laptop programs are much more than simply adding technology to the existing curriculum. As teachers learn to integrate the new technology and use more collaborative teaching techniques with students, they need time and support to evolve their curriculum to be more collaborative and student centered.

Students can work one-on-one with teachers to help integrate technology into planned lessons. These projects could be very simple—or take weeks of work and collaboration. When the lesson is presented, the student could help provide floating classroom support, or even present the lesson themselves.

To support teachers effectively, students need to know more than just how the laptops work, they also need collaboration and project-planning skills. It is also very helpful to teach students about lesson planning and assessment, so they understand what teachers need to create lessons.

GenYES provides curriculum that teaches students all these skills and guides them through the process of planning technology projects with teachers. There are many more examples of this type of student support of real laptop programs later on in this guide.

Student tech support teams

Fixing broken hardware and software is what most people think of first when hearing about student support of technology. However, it must be carefully planned and managed to provide secure, successful, useful support. It involves trusting students with new responsibilities,

careful management of students, constant review, and integration with IT staff.

- Students must be trained, not only in the technical aspects of tech support, but also customer service and follow up.
- Put one teacher or staff person in charge of the student program. It is imperative that strong relationships develop between students and that adult.
- Have veteran students recruit and mentor incoming students. Returning students are the lifeblood of a student tech team as they gain experience and skill. Encourage peer mentoring to develop a culture of student leadership.
- If students are prohibited from accessing computers, there are still many problems to fix. Students can answer selected help desk requests and often provide support for simple problems.
- The best way to learn tech support is to do it and work with others doing it. Model “out loud” problem solving as you fix problems yourself.
- For best results, professional IT staff should be involved in decisions about the boundaries of what students can do and have access to. However, professional IT staff should not have to monitor student work if they don’t want to.
- Security and other issues should be discussed with administration and IT staff ahead of time. It is important that everyone agree on expectations for student behavior, escalation procedures, and the role of adult mentors before the program starts.
- Student tech support should be tracked and monitored just like professional IT staff track and monitor their work. GenYES provides an online tool specifically for this purpose. An additional benefit of tracking student support is to show measurable results of the student tech team’s work.
- Students can earn certifications from your laptop manufacturer. Some schools have created a certified help desk that generates rebates from the manufacturer for doing their own repairs.
- In elementary and middle school, it is less useful to have students participate in formal tech support. Focus on teacher classroom support and there will be plenty of opportunities to fix small issues as they arise.



Integrating with professional tech support

Some schools are willing to treat students as part of the broader tech support staff solution. In this case, student participation often leads to a formal or paid internship.

However, some IT staff will not want to deal with students. In these cases, student tech support should focus on support for teachers using classroom technology.

GenYES offers an online help desk that is designed for student tech support work. With tools such as this, student work can be kept separate from IT staff, but still be tracked and reported.

Essential elements

Most schools combine both hardware and instructional support models when they develop a student tech team. No matter how you blend them, here are several essential elements that successful programs share.

- **School acknowledgement.** The student tech team should be a recognized part of the school. Funding, resources, a place to meet, and acknowledgment in school events, websites, and newsletters.
- **Identity.** The student team should have a name, shirts, hats, lanyards, a logo, and other standard items that school clubs have. Create recognition for student leadership with certificates, banquets, and awards.
- **The primary student benefit is academic.** This should never be about using kids for free labor. Programs must include training for the students, constant monitoring, and new learning opportunities. Emphasize academic skills such as technical writing, collaboration, programming, and troubleshooting.
- **Increasing leadership challenges.** Find ways to constantly add new student roles. Your students will get bored and leave if they are only allowed to do routine tasks. Reward hard work with recognition and additional responsibility. Challenge your students to push for excellence in all areas.
- **Encourage student voice.** Invite student feedback and act on it. Create opportunities for student-led initiatives, let students speak at board meetings and conferences, and allow them to initiate new ideas. Find ways for students to own this program, from naming and decorating laptop carts to putting students on the technology committee.
- **Maintain strong relationships.** An adult mentor with a strong personal relationship with students will have a more successful, secure program.



- **Focus on learning.** Work with teachers to find ways to support classroom curriculum with new technology. Technical support that fixes broken hardware is only half the problem. Students can help teachers find ways to use technology in lessons and student assignments. This support reduces teachers feeling overwhelmed by so much change in the first years of a laptop program.

Logistics

Most often, a student tech team is set up as an extracurricular activity. If students meet outside of class hours, they typically don't respond to help desk requests, but might focus on working on laptops that have been dropped off for repair, or meeting with teachers after school to plan for future lessons.

A few schools have a technology, video production, or multimedia class that doubles as a tech support class. In some schools, students take the tech team as an independent study class. Each period, a few students sign in with a teacher or advisor and answer help desk requests or work on projects as required.

In elementary schools, a student tech team can meet before or after school to learn about technology. These students typically support teachers with planning technology infused lessons.

Selecting students

Don't assume that only "techies" can participate. There can be roles for artists and animators to create user friendly help guides for the laptops. Students interested in acting and video production can create video tutorials. Outgoing, gregarious students may be perfect trainers and workshop leaders. Students often become interested in teaching as a profession when they find out how rewarding it is to teach others.

Support your team by acknowledging all kinds of abilities and supporting team bonding. Social activities offer other ways for teamwork and collaboration skills to flourish. Invite non-techies and girls into the group by being extra aware of non-verbal messages that say, "Stay away". If you have a space for your tech team, ask some girls if it feels welcoming -- and be prepared to make changes.

The effort spent blending these students into a single team shows them that their individual contributions are valuable. Teams that learn to value each other learn important lessons in collaboration and teamwork that go far beyond technology skills.





“The GenYES Student Technology Support Team is a great learning experience for these students because they are gaining knowledge about how the tablet PC is built, as well as basic PC maintenance skills and teamwork. They worked as vital parts of a team that included five adults and the fourteen students.

Several of these students do not have a talent or area where they feel special or unique. The Student Technology Support Team is providing that niche.”

Cherilyn Ziemer - Technology Director, Northland Christian School, Houston, Texas



Sharing stories about student support in laptop schools

In laptop schools across the country, students are providing support for teachers, peers, and administrators. Generation YES provides two programs that focus on creating groups of students who learn how to use technical AND people skills to make sure that technology is being integrated into classes, projects, and more.

GenYES is a curriculum and set of online tools that creates a student tech team. These students work on Teacher Assistance Projects (TAPs) using the TAP management system found in the GenYES online tools. By using these tracking and reporting tools, GenYES students and their GenYES Advisor can help teachers with classroom technology projects and technical

support. GenYES has been implemented in thousands of schools around the world in grades 4-12.

TechYES is a student technology literacy certification program for grades 6-9 where students complete authentic projects to show their technology skills. As part of TechYES, student mentors learn how to help their peers with technology literacy projects.

The following pages contain stories in the teacher's own words from GenYES and TechYES laptop schools. They show how empowering students can enhance laptop programs and make the goals of student empowerment and building a collaborative learning community come true.

Tongue River Middle School - Ranchester, WY

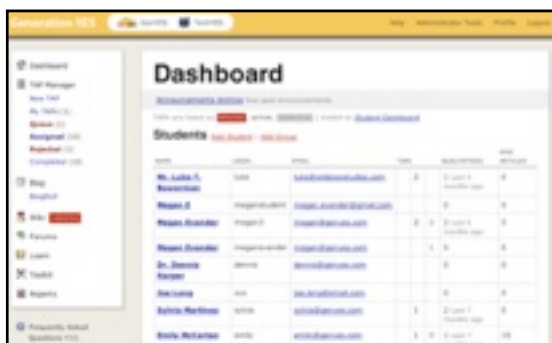
Ann Powers teaches the GenYES class at Tongue River Middle school. The school has one-on-one laptops in the sixth and seventh grades and two-on-one laptops in the eighth grade.

“Our GenYES students provide technical support to keep things running smoothly. The GenYES students have done everything from setting up printers and IP addresses to constructing the laptop carts. We're using a Google Site page to create and post step-by-step directions and screen captures to help students troubleshoot common problems with their new laptops.

This year, our district moved from Eudora to Google Mail. To help with this transition, the GenYES students become experts in its features and are helping the teachers figure out how to add contacts and organize their mail in folders.”

Ann shares another example of how GenYES students extend her own expertise and create more resources for students and teachers to tap into -- “Austen, a sixth grader, brought his laptop over to me and wanted to know how to get his screen back right side up. He said he had been typing randomly on his keyboard and all of a sudden, his screen was upside down. In GenYES class the next day, I handed the computer over to Kiersten, one of my eighth graders, and explained how it happened. I just said, “Kiersten, Google upside-down screen and Vista or HP and see what you get.” It was only a matter of minutes before I heard her shout, “I found it. It's right here, Mrs. Powers.” She was amazed at her own success and eager to share her new-found knowledge. Now she's making directions and posting them to the Google Site. The next time a student finds themselves in the same predicament, she'll be able to point out the website and let them solve it for themselves.

The GenYES Dashboard has been a great organizer for us. Using the TAP feature, teachers have contacted us to help them set up blogs, input student information for online textbooks, create their own Google Sites, and install specific software for their reading classes.”



GenYES Dashboard for Teacher Assistance Projects (TAPs)

Shadow Mountain High School, Paradise Valley, AZ

Shadow Mountain HS is one of 20 schools, elementary, middle, and high school in the Paradise Valley School District to adopt GenYES as a way to empower students to use technology in learning

At Shadow Mountain HS, GenYES students have created a webpage on their school website that lists their capabilities and allows teachers at the school to request a GenYES Teacher Assistance Project (TAP) with a simple click.

GenYES teacher Debbie Kosvedy talks about a recent teacher workshop given by the students, “Shadow Mountain GenYES students were there in full force helping teachers learn to use PVLEARNERS, our district portal for email, shared lesson plans, student lists and more. During a recent inservice, they helped teachers set up student lists and supported instruction on using Google Docs. The teachers learned how to create online assignments, share lessons and navigate in PVLEARNERS more effectively. GenYES students are campus leaders in technology and are committed to continually enhancing their expertise.”



Mt. Ararat Middle School - Topsham, ME

Mt. Ararat is using the TechYES student technology literacy certification program. As part of the program, student mentors are trained to help other students with technology projects. These students, called the “iTeam” recently had to debug an issue with the touch-sensitive Teamboard active whiteboards.

Their TechYES Advisor Steve Spaeth explains, “Middle school iTeam members are meeting regularly and developing small-group projects as part of their efforts to earn TechYES certification. They tried to use the touch-

sensitive Teamboard in the Media Center to share progress on their projects.

When they connected one of their laptops to the board, they discovered an applied math problem. The cursor normally should follow where you draw; this cursor moved away from their fingers in the vertical direction. The problem prompted discussions of x- and y-axes and ways to understand the movement of the cursor. They are helping staff in the Tech Department to get the Teamboard working properly with their machines and will help peers and teachers to learn how to use it when they find a solution to the challenge.”



Derrick, Eric and Ian discuss x- and y-axes of the Teamboard.

Parkview Elementary, Chico, CA

At Parkview Elementary, teacher Don Kinslow has a group of 4th, 5th and 6th grade GenYES students who meet after school twice a week. The students use the GenYES Teacher Assistance Project (TAP) online tool to track teacher requests for assistance and record progress.

Mr. Kinslow relates three ways that GenYES students have enhanced Parkview's laptop program:

1. GenYES students working with small student groups on the laptops
2. GenYES students supporting school-wide use of one application, Microsoft PhotoStory3
3. GenYES students responding to TAP requests for specific teacher project assistance.

Small Group Laptop Work

The GenYES students check out 5 to 7 laptops at a time and take small groups of third grade students out of class to work on technology projects. The first groups of students in turn serve as mentors back in the third grade classrooms.

“Two GenYES students, Cristina and Melissa, worked directly with their partner teacher, Mrs. Sarcona, to take small groups of her third graders and integrate the use of laptops with an animal adaptation unit. The girls and Mrs. Sarcona coordinated this unit beautifully. I almost felt left out, they were so efficient! Cristina and Melissa met with Mrs. Sarcona from time to time; they used Gaggie e-mail to stay in touch too. The laptop cart is kept in my classroom, so the girls managed the laptop sign-out calendar on the cart as a way to keep me informed. If my room was ever locked, the GenYES students had permission to get a key to my classroom from the secretary in the office. (Liz, our principal, approved the idea of having a spare key to my classroom available to GenYES students only.)

To start, Cristina and Melissa made PowerPoint presentations to show the third graders the fun they would be having with technology while learning about animal adaptations. The girls also showed their students the proper care and handling of the laptops. Motivation to work in this group setting was very high!

I loved to see Cristina and Melissa with their third graders show up at my classroom door to pick up a set of laptops from the cart. Once, I followed them outside and found that they were tapping into the school's wireless access points. The group was sitting on the grass with laptops on their laps working away. Cristina and Melissa were great facilitators.

Three other GenYES students, Rebeca, Berenice and Monique, worked directly with their partner-teacher, Mr. Woodward, to teach small groups of his 3rd graders how to use Microsoft Word through an integrated science lesson focusing on animal adaptations. Mr. Woodward chose to use the regular GenYES meeting times to sit with Rebeca, Berenice and Monique and go over the unit with them. The girls took advantage of these meetings to



teach Mr. Woodward the same Microsoft Word formatting techniques that they were teaching his students. Mr. Woodward had been Rebeca, Berenice and Monique's teacher when they were in 3rd grade, so working together on this project created a very dear synergy.



During the unit the girls also communicated with Mr. Woodward via Goggle e-mail, the GenYES laptop cart's check-out calendar and informally at recess. It was easy for them to coordinate a consistent time to go to Mr. Woodward's room and work with small groups. They would grab a handful of laptops from the cart and set off to teach the eager 3rd graders.

This school year I teach 4th grade. Many of my students came from Mr. Woodward's class. The work that Rebeca, Berenice, and Monique did with those students has helped me integrate higher level technology into my classroom curriculum. The students came to me already knowing the proper care of the laptops, basic Microsoft Word formatting skills, and some PowerPoint concepts too. I have been able to quickly build on their 3rd grade experience and teach them PhotoStory, SmartBoard software, and do video work.

Guest Students

During the first trimester of this school year we tried a new approach at teaching one application to all the 5th, and 6th grade teachers and students. The application was Microsoft PhotoStory3, a free tool used to create multimedia presentations.

Step 1: I invited Mr. Lauterio, a 4th grade GenYES partner teacher, to attend a free Butte County Office of Education workshop about Microsoft PhotoStory3. He loved the workshop and immediately began brainstorming ideas with me how to integrate this wonderful software into the classroom curriculum.

Step 2: I taught PhotoStory3 to my GenYES students. Well, actually, I all I had to do was show them the basics of PhotoStory3 and they took off exploring all the 'cool' features, showing one another their discoveries of what PhotoStory3 could do.

Step 3: At a staff meeting, Mr. Lauterio and I gave a quick summary of the workshop and the power of using the laptops in the classroom with PhotoStory3. The staff was wowed! This was followed by an open invitation to all the staff, not just 5th and 6th grade GenYES partner-teachers, to attend a training session run by the GenYES students.

Step 4: On the afternoon of the training the GenYES students formed teams of two, had laptops out on their desks and were prepared to meet with a teacher. A variety of teachers eagerly entered the room. After introductions, everyone went to work.

Mrs. Kraatz, a kindergarten teacher who is interested in learning about technology, but who has little experience with computers attended the training and brought her 8th grade daughter along to learn too. By the end of the training session, Mrs. Kraatz was feeling empowered and asking for more. She signed-up to become a GenYES partner-teacher after this positive experience.

Step 5: The 5th and 6th grade GenYES partner-teachers, now familiar with PhotoStory3 invited small groups of their students to attend after-school GenYES meetings for training in Photostory3.



Step 6: Over the course of a couple months, at our regular GenYES meeting times, these invited students learned how to use PhotoStory3. Sahibjit, a 6th grade GenYES student, became the manager for these workshops. He would move about the classroom helping GenYES students make sure they covered all the important elements of PhotoStory3.

Soon, we had non-invited students standing at the doorway asking to be part of the workshops. The excitement of technology was spilling over to the whole school.

Step 7: PhotoStory3 is used regularly on laptops now by students to show their research of specific topics, by teachers to introduce topics and lessons, and by GenYES students completing TAP requests.



GenYES Students Help with Teacher Projects

Using the GenYES Teacher Assistance Project (TAP) online tools, a teacher sent a TAP requesting a PhotoStory3 about Beaver homes and habitat to show to his class. GenYES students Joy, Lulu, Rosa, and Ariel collaborated on the creation of a PhotoStory3 project for him. The girls used laptops to find photos online. They saved the photos in a shared folder on the server. Then they selected from those photos the ones that they felt would best work for the project. They added text, transitions, and narration. Finally, they saved the project to one of the laptops. Then the partner teacher took the laptop, connected it to an LCD projector and kicked-off his theme.

During one of our GenYES meetings after school, Mrs. Nilsson, a 6th grade GenYES partner-teacher, walked in and asked if she could get training on how to use PhotoStory3. Maikao, Chia, and Sahjib, three GenYES students from her homeroom class, took her to the side and started a training session. About 10 minutes into the session she was so excited about the possibilities of integrating this technology tool into her classroom curriculum that she quickly

requested a TAP. I assigned Aaron and Rebeca to the TAP. The TAP was a request to create a PhotoStory3 project about 'Día de Los Muertos'. They searched the Internet for photos and used the school file server to store them. Then they created two projects that Mrs. Nilsson presented to her class to start her theme. Mrs. Nilsson's class checked out the laptops on several days during that theme of study."

Northland Christian School, Houston, Texas

Northland Christian School (NCS) is a K-12 independent school with a progressive philosophy. The school went 1:1 in grades 9-12 in 2006, and launched a student-led technical support team. Under the direction of Cherilyn Ziemer, Director of Instructional Technology, they adopted the GenYES curriculum and online tools as the basis for the student tech team. GenYES students are enrolled in a two-semester class and earn credit for their work.

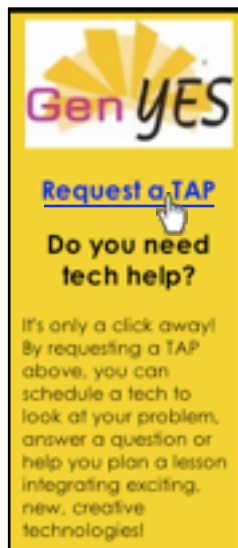
Cherilyn recently completed her masters degree and the focus of her thesis was the impact of the student tech team on the school technology use.

Cherilyn says, "As we introduced the one-to-one program, we also had to ensure that we had adequate technical support for the 225 student tablet PCs, 50 teacher/staff tablet PCs and 200 desktop computers on both campuses. The GenYES student team was created to assist the Staff Technical Support Team in supporting our growing community of users. GenYES students are not required to possess specific skills to enroll, but they must have an enthusiasm for technology and a genuine desire to learn. This year, our ten GenYES interns work as vital parts of a team that includes five adults and ten students. These students are gaining a vast amount of technical skill and knowledge from their internships. They are also developing the interpersonal support skills and self-confidence that empower them to daily provide technical support to teachers on both the elementary and secondary campuses.

The GenYES team has proven itself to be reliable, technically competent, and enthusiastic in performing this vital function.

Putting Integrated Student Skills to Work

Hands-on student-led processes include re-imaging computers; performing basic maintenance of tablet PCs; and assisting in the installation of upgraded equipment to the networks on both campuses. When performing such tasks, the Student Technology Support Team is focused on fully understanding the process; completing the work in an excellent manner; accepting responsibility for their assigned task; and learning more about the equipment and overall NCS technology environment. The Student Technology Support Team is a great learning experience



for these students because not only are they gaining knowledge about the computers themselves, but they are also internalizing the need for ongoing maintenance responsibilities and purposeful teamwork.

Thus, Northland's Student Technology Support Team is providing a special niche for students with an interest in technology. In this important role, they can serve as leaders among their peers and teachers, and also experience a different kind of learning opportunity that expands beyond the typical classroom.

Getting the Student Tech Team Started

During the first nine weeks, we worked with the students on their communication skills using the GenYES curriculum. This involved communicating with others; communicating and learning; organizing information; teamwork; and listening and note-taking skills. They were also involved in imaging the hard drives on 38 of the new tablet PCs for the one-to-one program. The week that the tablets PCs were distributed, the Student Technical Support team issued the tablets, logged the serial numbers and ensured that each student submitted their signed Acceptable User Policy.

With the addition of 300 computers on our campus, there was a need for more access to the campus wireless network, which meant we needed to install more routers. The Network Administrator instructed the Student Technical Support team on programming and installing routers for the wireless network. Each student programmed, tested and installed a wireless router in an assigned classroom. After the installation, they were responsible for monitoring the routers to determine that they were functioning properly and that they were giving students reliable access to the network.

The second nine-week period was devoted to hands-on experience with hardware. The class installed 30 printers in classrooms and installed the drivers on all teacher desktop and tablet PCs. During the installation, they also had to set up printers to be shared by all teacher computers on campus.

After installation of the printers, we were responsible for cleaning and re-imaging the tablet PCs that were being repurposed for use by



the middle school. Those tablets are stored in carts called 'COWS' (computers on wheels). There are five COWS with 24 tablets each. Each class period, the students had to remove the hard drive, connect it to the drive that we were ghosting the image from, reinstall the hard drive, then verify that it had a clean image. Once verified, the computer had to be named and set up on the network. Following this procedure, we could complete approximately twelve to fourteen tablets per 90-minute class period.



After the completion of the COWS, the students worked in teams of four to dismantle several computers that were not working, and then reassemble the computers with spare parts to make useable PCs. Once the team had a functioning PC, they worked in DOS to create directories, install Windows ME, then verify that everything on the machine was functioning properly. As a result of this project, ten workable rebuilt desktop PCs were placed in elementary classrooms for immediate use by the students and teachers.

Second Semester - Whole School Impact

At the beginning of the second semester, the students received an overview that outlined their first project assignment for the term. To help them determine the format that they would use to present their project, they completed: an evaluation to determine their strongest intelligence of Gardner's eight multiple intelligences; two online learning style tests; and a test that analyzed their global/analytical style. Those tests were used to reinforce the guideline that called for them to consider the eight multiple intelligences, and their own learning styles as they developed their project and its presentation format.

The parameters for their project were first, that it should focus on a current event in which they had a keen interest; and second, that they use a presentation format that was new to them. Some of the options for the format of their projects would require them to learn new skills (e.g., podcasting, web design, videos and editing).

The students worked in teams of two during several class periods to focus on the development and production of their projects. As the projects were presented to the class, we had two partnerships that had developed pod casts, one that produced a video, two that developed Flash projects, one that developed a PhotoShop presentation and one that had a Flash project with a video embedded into it. The projects demonstrated that the students could take their knowledge and understanding of a particular subject to a higher level when given the freedom to develop their topic in a method of their own choosing. As they presented their projects they were required to complete a self-evaluation, as well as peer evaluations, and to reflect on their experience in the GenYES blog.

The next step for the Student Technology Support Team was to demonstrate leadership by actually getting into classrooms and teaching their peers, so that the faculty could more easily integrate different technology media in class projects. The teacher of the 11th grade Academic English class agreed to assign a project to her students which focused on *The Adventures of Huckleberry Finn* and Flash software. I took several of my students from the Student Technology Support Team to the English class so they could teach their peers. They patiently taught the other students Flash for two class periods, and then assisted them as they developed their own projects.



The teacher was excited about the high level of student focus, and the thought processes the students were achieving as they completed their projects. One girl told us, “I felt totally free to express myself as I designed the project in Flash. I have never felt like this before.”

For a final assessment of their understanding of *The Adventures of Huckleberry Finn*, the students were given a written examination. We were amazed at the higher-order thinking that students demonstrated, as well as the outstanding grades the students earned on their tests. It



was their best performance as a class. The teacher was delighted with the success of her students.

The GenYES Student Technology Support Team also assisted the Staff Technology Support Team as we collected all 285 tablet PCs on campus and re-imaged their hard drives. In this process, the students on the Technology Support Team removed, re-imaged, and reinstalled all the hard drives and then handed the PCs over to the Staff Technology Support Team, who re-entered passwords and re-initialized the PCs. Students also completed minor repairs on the computers, such as tightening loose monitors and replacing missing keys. This process was completed in only three and one-half days because of the competent assistance of the Student Technology Support Team.

As the second semester came to a close, GenYES students were required to teach other classes various technology media. Several students worked with English teachers to teach students to develop podcasts on transcendentalism. One student taught a Middle School Life Skills teacher and her students how to use Inspiration to develop family trees. Other students developed videos for a math class bridge project and Flash projects for anatomy instead of writing a term paper.

Teacher Feedback

Teacher feedback about students teaching their peers included:

- Great to receive digital projects
- Impressed with students teaching each other
- Observed students using variety of technology to produce projects and learn subjects in various ways
- Recognition of variety of different students as leaders
- Improved communication between teachers and students

Two of the students on the GenYES Student Technology Support team took the opportunity to teach their peers in their 9th grade English class about the use of video during an Apprentice *Julius Caesar* project. The teacher said, “The kids blew me away with the information they compiled and the quality in which it was presented. I could have given the information as notes that they could have used their tablets as very expensive pens and paper to take down; however, this project serves as a model for how I will present information from now on.” The teacher's enthusiasm was shared by the students as they told about things they learned, to which they would never have been exposed if their only approach was to read the material and then take a test about Julius Caesar. Teachers who are willing to try a learning activity that allows the students to ‘get outside of their box’ are truly encouraging them toward higher order thinking.



My involvement in the Technology Support Class focused on using Action Research to understand the power that student and teacher collaboration could bring to the process of changing the pedagogical methodology to the classrooms of the NCS Secondary campus.

Action Research is a recognized form of experimental research that focuses on the effects of the researcher's direct actions of practice within a participatory community with the goal of improving the performance quality of the community or an area of concern.

The students gained a vast amount of technical skill and knowledge from the class projects that they accomplished during the first cycle of my Action Research. They developed technology support skills and self-confidence that empowered them to provide technical support to teachers on a routine basis. The work they did was

valuable and substantial, and would otherwise have had to be performed by a network administrator. Since the Student Technology Support Team performed all of this work, our network administrator was able to focus on completing their own professional training and certification process, which will place a certified Gateway tablet PC repair associate on our campus. Throughout the semester, the student technical support teams' high productivity also afforded our network administrator additional time to provide high level technical support for tablet PCs and the wireless network.

During the hands-on process of re-imaging the computers and performing basic maintenance, the Student Technology Support Team was focused on being involved in the process; completing the work in an excellent manner; accepting responsibility for their assigned task; and learning about the tablet PCs as they completed their tasks. The GenYES Student Technology Support Team is a great learning experience for these students because they are gaining knowledge about how the tablet PC is built, as well as basic PC maintenance skills and teamwork. They worked as vital parts of a team that included five adults and the fourteen students. Several of these students do not have a talent or area where they feel special or unique. The GenYES Student Technology Support Team is providing that niche.”

About Generation YES

Generation YES supports schools as they empower students to use technology to improve teaching and learning in their own schools. Our research-based resources provide implementation support and long-term sustainability.



GenYES - Student-Supported Professional

Development. Students in grades 4-12 provide tech support and partner with classroom teachers to build technology-infused lessons. GenYES offers curriculum and tracking tools to foster best practice student support of technology in every classroom.

TechYES and TechYES Science - Student

Technology Literacy Certification. Students in grades 6-9 learn technology by creating authentic projects with help from peer mentors who are trained to assist students and assess projects. Reporting tools show numbers of students meeting NCLB requirements for 8th grade tech literacy. Curriculum and online resources help teachers teach technology through hands-on projects, culminating in a TechYES Certificate.

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