

## **Factors to Consider in Implementing a Student Tech Support Team**

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Providing an adequate level of technical support for meeting staff technology needs can be challenging as well as expensive. While the industry standard for tech support is ten full-time technicians for every 1000 computers, schools in California have less than six full time technicians for the same number of computers, according to the 2005-2006 California School Technology Survey. Combined with shrinking budgets and increased time between equipment upgrades, it's no wonder that California schools report average turn-around times of between 2 and 5 days for resolving technical issues. With many schools expanding classroom technology integration, supporting these technologies becomes increasingly important. One means of support that schools across the country are investigating is the implementation of student tech support teams.

### **What is a student tech support team?**

Student tech support teams are groups of students that take time out of their schedules, typically during school hours, to aid other students and staff members with diagnosing, fixing, and troubleshooting technology-related issues. Student responsibilities differ depending on the structure of the program, but range from simple equipment setup, such as connecting cables and power cords, to configuring and maintaining entire networks.

Most student technology teams have close staff support and supervision. Teams are usually comprised of students who are in 6th grade and older. There are a variety of models and curricula for the training of student tech support teams, which are supplemented by the incidental training that participating students provide to one another during their team interactions. In addition to direct instruction from teachers, learning from peers, or completing formal training modules, students also learn to seek out solutions to problems using methods that are not typically used in a traditional K-12 setting, such as using threaded discussion boards, wikis, blogs, and other Web 2.0 tools.

### **Is a student tech support team right for your school?**

The thought of students having administrator privileges for a school network is enough to keep many IT professionals awake at night. The decision to implement a student tech support team has several facets that should be addressed and several stakeholders that need to be part of the decision-making process. Security concerns, quality of services provided and educational value-added are just a few areas to consider.

First on the list of factors to consider for forming a student tech support team should be the students themselves. Will they benefit from this opportunity by receiving technical training and the opportunity to increase both the depth and breadth of their skills, or will they simply be given monotonous tasks and "busy work"? The first priority in implementing a student tech team should ideally be to expand the competence and confidence of the participating students. Service to a school site, financial savings in technical support costs, and other benefits should be secondary to meeting student needs.

Placing students in a position that may potentially be interpreted as one of authority is

not without risk, specifically in regards to system security and exposure to sensitive information. These types of situations can be proactively addressed using a two-pronged approach of: 1) building student buy-in and respect for their position, and 2) limiting student access to sensitive information. These strategies are discussed in more detail below.

Determining how much and what type of technology support a school staff requires is a significant consideration. In a school where most technology support requests involve low-level fixes, such as updating software, replacing worn or damaged cables, or refilling printer supplies, a student tech team could be a valuable addition. In a school where technology support requests involve more complex issues, such as intermittent email service or recurring problems with the online grading system, a student tech team could help in troubleshooting lower-level problems, thus freeing the adult IT staff to focus on the more complicated technical issues.

As mentioned earlier, the industry standard for technology support is approximately ten full-time technicians for every 1000 computers, or 1 support staff member for every 100 computers. Since schools tend to average fewer than six support staff members for every 1000 computers, student tech support teams can help to alleviate workloads for existing technology staff, especially in the areas of updates and maintenance.

### **Benefits of student tech support teams**

While it is hoped that the participating students are the primary beneficiaries of implementing a student tech support team, schools and other learning institutions can benefit as well. Some institutional benefits include reduced tech support costs, opportunities for staff to get to know students outside of the traditional teacher-student paradigm, and improved turn-around time for resolving simple technical issues.

Students working on a tech support team have a unique opportunity to shift their learning environment. This shift occurs as the students acquire specific knowledge and skills, and then applying those skills in a meaningful way. The logical and sequential process of technology troubleshooting reinforces specific analytical and critical thinking skills that are often difficult to engage in during instruction for core content areas. Essentially, student tech team members get to explore a new area of potential success for acquiring thinking skills.

According to author James Paul Gee, a frequent phenomenon of today's generation of middle school to high school students is a large knowledge gap in domain-specific areas. For example, a student may have a significant knowledge about navigating the Internet, but know very little about connecting a printer or projector to a laptop. Not only are students likely to have these knowledge gaps, but they are also likely to carry on as though the knowledge gap does not exist, and then apply solutions they may have picked up during other novel situations without fully understanding what it is they are actually doing. Tech teams provide these students with opportunities to probe their own depth of knowledge and understanding, in order to identify and fill these gaps using their own cognitive abilities.

In addition to mental skill development, tech team work gives students the ability to learn in a less formal, on-the-job environment. According to Bob Hoffman, author of *Informal Learning*, "more than 98% of learning in the workplace takes place in an

informal setting." By engaging students in the learning process outside of the formal learning environment, they are more likely to become life-long learners and to develop an appreciation for acquiring new knowledge.

While the cognitive benefits of student tech support teams are in line with the goals and values educators seek to instill in their students, vocational benefits are also included. Students working on tech teams have the opportunity to explore a genuine potential career path. As anyone working with computers can tell you, providing technical support for computers is a thriving and necessary profession that does not appear to be diminishing in demand. Student tech team members will gain experience in resolving issues that are similar, if not identical, to those occurring in industry. These experiences and lessons learned can lead directly to private sector and industry employment, outside of the educational setting. Many student tech support teams are managed using a trouble ticket system. Most trouble ticket systems produce printable reports that summarize the nature and specific details regarding a specific service request. These reports can be compiled into student portfolios as authentic work samples demonstrating specific areas of expertise.

### **Forming a student tech support team**

If, after careful consideration, it is determined that a student tech support team can be created and deployed at a school site in a way that is both meaningful and beneficial for students and staff, then it may be time to start planning what your student tech team will look like. There are several factors to consider when identifying potential student tech team members.

Ideally, participation should be voluntary, although staff members should keep in mind that some students may need encouragement to participate. Participating in a student tech support team should be considered a privilege and not a requirement. Some schools allow students to perform their duties during a set time of the day and arrange for the students to be excused from class during that time.

Other schools ask that student techs accomplish their duties before or after school. Either way, students selected for a tech team should be aware of the time requirements before applying. Selecting students that can be trusted to carry out their duties in a timely and responsible manner should be a process that involves staff members who are knowledgeable about individual student performance, attitude, and behavior.

Another factor that can have a significant impact on the success of a student tech team is the level of student buy-in. If students feel as though their work is important and necessary, then they are more likely to do quality work. When students have high levels of involvement, schools are also more likely to see improvement in areas outside of test scores, such as attendance, behavior, class participation, and motivation.

Once participating students have been identified, a thoughtful strategy for breaking them into effective teams should be considered. Carefully selected teams provide opportunities for students to work collaboratively, in addition to helping build teamwork and communication skills. Tech team involvement can be viewed as an opportunity to mix personalities that might not otherwise have met, as well as an opportunity to assemble teams of students who have diverse skill sets, thus creating more rounded bodies of technical knowledge and specialization to aid in troubleshooting.

## **Training**

There are a variety of training models and materials available to assist student tech team members in acquiring knowledge, building technical skills, and gaining practical problem-solving experience. In addition, participating students will hopefully collaborate in sharing their expertise with each other. Staff members should facilitate good pedagogical and classroom teaching practices, to assure that students are able to retain and use what they learn in the course of their trainings; however, ultimately students that show a desire to learn are the ones that are most successful at technical support work. A large portion of tech support work is on-the-job training in an informal learning environment; therefore, students should be prepared to learn in this manner.

Many student tech support programs provide in-house training in a variety of ways. Typically, students start by learning the "nuts and bolts" aspects of how computers work. This phase of training involves learning the names of specific computer parts, how they function, where they are located, and how their function affects the computer's operation. After learning the basic hardware of a computer, students proceed to peripherals, and then later to software and network troubleshooting. Service providers, such as Generation YES (<http://genyes.com>), offer turnkey solutions for training both students and teachers in how to establish and manage a student tech support team.

Evaluating student readiness for tech team participation can occur in a variety of ways. Ideally, students should be evaluated for both knowledge and troubleshooting skills, as well as for reliability and interpersonal skills. Role playing has been found to be an effective assessment technique for determining student readiness. In a role-playing assessment, a staff tech team manager assumes the role of a prospective client who has a specific technical service request. The student interacts with the staff member as though it were an actual tech team assignment, which allows for the staff member to assess the student's performance in both job knowledge and troubleshooting skills.

## **Team Management**

Managing a student tech support team is just as important as selecting and training the participants. Many tech teams have found it beneficial to utilize a trouble ticket management system to help monitor and track student assignments and accomplishments. Trouble ticket systems are a formal way of categorizing and recording end-user technical service request (using an online database system) and then assigning tasks to specific students or teams of students. The TechSETS MyTechDesk site (<http://www.techsets.org/mytechdesk>) is an excellent example of a trouble ticket management system. Using MyTechDesk, a tech team manager can field trouble tickets, assign them to specific students, track the ticket's progress, and print out reports to document the services provided. Students can also use the reports to document their experience and expertise in providing technical support.

In addition to effective workflow management, student tech teams require top-down support in order to succeed. It is recommended that schools with student tech teams in place should advise all staff members of the students who are authorized to assist in providing technical support. A popular strategy is to identify the students in an easy-to-recognize way, such as with name badges, vests, or T-shirts. Schools need to facilitate the implementation of the tech team by taking the system-wide steps, such as providing proprietary tech team logins that allowing students appropriate access for completing

their technical assignments. Schools need to also take the steps necessary to offer training to students that wish to be members of tech teams. This may be as simple as scheduling time with a teacher qualified to deliver the instruction, but may also involve allocating funds to pay for instruction and support, as needed to accommodate the program.

Staff members who supervise student tech teams are encouraged to utilize management strategies that will help ensure student success, such as working closely with the people in charge of day-to-day tech support at the school site. The tech team manager should also have a moderate to high level of technical support knowledge. While there are many resources available for use, every network tends to have its own unique issues that may require a level of expertise and experience beyond what is available from a reference manual. In addition, it is recommended that tech team managers be knowledgeable about Acceptable Use Policies, as well as software licensing specifics. Managers should also be familiar with project-based learning environments, as students engaged in well-designed tech team activities will tend to learn more during the activity itself than during formal instruction time.

### **Addressing risks associated with student tech support teams**

As with most decisions, the benefits of implementing a student tech team must be weighed against the costs and risks. As previously mentioned, there could be some measure of risk related to system security and exposure to sensitive information. One means of proactively addressing this risk is to limit student access to sensitive information. This can be accomplished in a number of ways. One way to limit access is to limit it physically by identifying areas where students do not belong, such as a server room, and then making it clear that students are not allowed there. Exercising this option may take some creativity on the part of staff, but is a worthwhile step in making expectations clear. For example, some small schools house all of their computers in one area that serves as a computer lab. These labs also house network servers in the same room. For this situation, a physical demarcation such as placing the computers behind a partition in the corner of a room, or even taping a perimeter on the floor around the off-limits machines, can serve as an effective solution. Such a strategy will provide for a layer of physical protection to school equipment. While this measure arguably provides little more than a superficial barrier, most modern equipment, especially networked equipment, can still be protected by restricting network access.

Limiting access to sensitive information can also be accomplished by establishing different passwords within a system, with various levels of permissions. Many operating systems allow administrators to create logins that allow various levels of user access. A system administrator can create a login that will allow a tech team member to install hardware, run updates, and make minor changes to a computer, while restricting other actions. Different logins can be created for other staff members, according to their needs. A student tech team login may be all a team member needs to accomplish assigned duties, while preventing access to sensitive information or equipment.

While there are risks inherent whenever students are given control of computers and/or networks, the risks associated with student tech teams can be significantly diminished through adequate planning and supervision. As with any other school activity, expectations and limits should be thoroughly defined. A clear system of benefits and consequences for choices students make during tech team activities should be aligned

with school-wide policies and understood by all involved.

In summary, student tech support teams provide an excellent opportunity for real-world experience within a traditional education setting. While some proponents of student tech teams may focus on the potential for cost savings in technical support, the greatest benefit is realized in preparing today's youth for tomorrow's challenges.