Basics of Laptop Management

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In 2001, Rockdale ISD became the first district in Texas to purchase wireless laptops for every high school student on a large scale. Smaller, single campus districts had previously purchased laptops, and some districts had implemented laptops for all students at a particular grade level. Rockdale had about 500 students in the high school and through a TIF grant purchased laptops for everyone on campus, letting students take them home and carry them throughout the school day. The project became one of the most highly visible TIF grants at the time, and the district received visitors from across the state as well as positive press coverage.

I was as an educational technology consultant at the time. The district brought me in to coordinate the laptop program and provide hands-on training for teachers at Rockdale High School. The lessons we learned are especially valuable as the state moves toward wider adoption of student laptops through the Technology Immersion Pilot (TIP). This article will focus on the basics of laptop management in a school setting, with an eye toward fulltime student use.

Laptop management falls into two general areas: classroom and administrative. From an administrative standpoint, working with laptops will primarily involve inventory management and repair protocols. This article will therefore fall into three broad categories: rollout, repair issues, and classroom management.

Rollout

If the district desires to hand over the laptops to students fulltime (in other words, let the students take the laptops home as well as use in class), a variety of issues must be dealt with ahead of the program's rollout. Many of these issues are applicable to any laptops the district purchases, whether for teacher or student use, as well as other portable devices.

Protect from theft
The laptops must be clearly marked as belonging to the district, in multiple areas that are difficult to obscure. Rockdale used electric engravers to record district identifiers in the battery compartment. This enabled a permanent identification area not readily apparent to thieves. Permanent markers were also used to make large, highly visible identifiers. This trick makes a laptop less desirable for thieves since showing it in public will advertise it as belonging to the district.

On the hard drive, in a hidden and read only folder at the top of the directory, districts can insert an ownership statement in a small text file. If stolen, this hidden file provides additional proof of ownership, and is difficult to detect by non-savvy users. Additionally, in a text file *not* hidden and left in the My Documents folder, an additional contact information file may be left behind to help point the way home for wayward laptops.

Some districts in Texas have installed “phone home” products from companies such as Absolute Software. These programs are difficult to detect by users or thieves, and will contact their home server at regularly scheduled intervals giving away their location on the Internet. Laptops stolen from Texas districts have been recovered from time to time on both coasts and points in between.

Note that in order for a theft to be considered a state jail felony offense in Texas, the value of the stolen merchandise must be at least $1500. Since district laptops are usually bought in bulk, individual laptops often do not crest this valuation mark. If additional items were taken with the laptop (batteries, case, etc.), consider adding their valuations to the theft report as well.

Software
Identical software loads will be needed on each laptop. Software will no doubt vary among districts, but one thing to note is that identical software needs to be made available to the teachers as well as the students. Having different software on the student laptops than what the teachers have may result in faculty discontent and a lack of use since teachers may be unable or unwilling to incorporate the additional software in their classrooms. For instance, if students are given the full Microsoft Office Professional™ load and teachers are given only a partial Office load, teachers will not be happy.

Delivery and retrieval
Once the laptops have been inventoried, marked as belonging to the district, and loaded with appropriate software, they need to be delivered to the students. Rockdale handled this by inviting students along with at least one parent or guardian to an after school meeting, during which time the protocols for repairing and handling the laptops were discussed, insurance paperwork was completed, acceptable use policies were discussed and signed, and the students and parents got a chance to look at the programs installed on the machines. When parents and students signed all the appropriate forms, they left with the laptops.

At the end of the school year, the students went to the auditorium during home period where the laptops were given a final inspection and signed back in to the district. Throughout the school year, the laptops were checked for damage by homeroom teachers every six weeks at the same time textbooks were checked.

Repair Issues

Repairs to both hardware and software will be an ongoing endeavor for schools choosing to deliver laptops to every student. With proper planning and good protocol in place, however, it may be possible to minimize classroom disruptions when laptops become obstreperous.

Student laptops will inevitably appear to have their most difficulties in the middle of classroom assignments in which teachers are fully integrating the laptops. In theory, when a student experiences difficulties with either hardware or software, they will visit the technology department before or after class, drop off their laptop and pick it up after school when it is

repaired. In reality, students desire their laptops to get help immediately and pester teachers to leave class so they can rush the stricken machine straight to the technology department.

Being aware of the possibility of students roaming the halls with broken laptops, technology administrators should consider budgeting an additional spare, at least one per classroom, that can be used when a student's machine develops difficulties. In this way, traffic to the repair department can hopefully be limited to between classes and students can continue assignments using the spare machines.

In Rockdale, students who delivered stricken machines to the technology department filled out a form detailing the problems experienced, name of student and their homeroom, and the laptop's inventory number. Students were given a receipt for the laptop. When the problem was fixed, an office aide was sent with a notification letter.

Losses

Based on experiences of other districts which had allowed students to take full possession, Rockdale figured an attrition rate of ten percent. By the end of the first complete year we had indeed lost 49 machines. Nine were stolen and had not been retrieved by the end of the school year; 40 were damaged beyond the level of the insurance deductible. The insurance company strongly suggested padded cases be used that would stay wrapped around the laptops at all times. This "clamshell covering" indeed provided a sort of cushioning for the laptops, but was insufficient in preventing most of the damages that occurred.

Anything not firmly attached to the case tended to pop off and disappear. These included keyboard keys, hinge covers, and port covers. These were relatively minor losses. More extreme damage resulted from fried motherboards and cracked LCD monitors. Motherboard damage occurred when the electric plugs became worn. This resulted from students leaving the power pack plugged into the laptop. Jostling the power cord sometimes created enough wear around the plug that electricity arced and shorted the motherboard.

Monitor damage was the most costly and common form of severe damage. Several students closed their laptops with pens or pencils left on the keyboards. Other damages were incurred by knocking cases against walls and lockers, books and other heavy items piled on top the laptops on bus trips, and dropping the laptops during horseplay. The most heavily damaged laptop we saw occurred when a student accidentally ran over it in the parking lot.

Software problems

Tech administrators should create backup images for the laptops with all the software and configurations properly installed. Norton Ghost™ is a particularly useful tool when treating software problems. There are two basic philosophies regarding software settings when giving students laptops. One is to try and lock down the software so that major changes become difficult. The other is to give students free reign over their computers, and simply reset them when things mess up. Since Rockdale followed the latter philosophy, Norton Ghost was helpful in resetting system problems, especially since the laptops were loaded with Windows 98. When students came in with missing system files, corrupted registries, or a host of other software issues, a

simple “re-Ghosting” of their hard drives made things literally good as new. With XP or the Apple OS, operating system problems will hopefully be less severe.

Battery life

Larry Cuban relates an interesting anecdote in his book, *Teachers and Machines: The Classroom Use of Technology Since 1920* (Teachers College Press, 1986). In 1926, schools in Atlanta, Georgia received brand new radio sets for classroom instructional use. These state-of-the-art technological wonders were highly praised as useful in opening up schools to the world. They were used in the classrooms to listen to instructional programming provided by local radio stations. Within three years’ time, however, radio instruction ground to a halt in Atlanta schools. The sets were battery-powered and the batteries required attention and maintenance, both of which suffered over the summer months. The radios were quite useless without their batteries. When radios were re-introduced into the Atlanta school system a few years later, the new models were corded sets.

Batteries continue to be an issue for school technology today, only laptops now are the technological wonders relying so heavily on their use. Certain laptops are on the market carrying extra large batteries. These jumbo batteries might go five or six hours without a recharge. A typical school day will last around seven hours. Students might be able to go the whole day without recharging on a five to six hour battery provided they shut the machine down during lunch and other times the laptop is not used. Unfortunately, at this time the expense required to purchase a laptop and battery combination that will go five to six hours tends to knock the price up out of consideration for many districts.

Most laptops in the price range school districts look for have a one and a half to two hour battery life. Rockdale addressed the short battery life issue by purchasing multiple spares. Several were placed in each teacher’s room to recharge throughout the school day. In theory, students could swap out their spent batteries with a fresh one as needed. In reality, by third period each day there were no more fresh batteries in the school. We often found in rooms with heavy laptop use that they needed to be plugged into the wall.

With this in mind, schools wishing to see heavy student use of laptops should ensure the classrooms are equipped with multiple outlets that do not pose tripping or fire hazards. The best examples I’ve seen have center post conduits that bring outlets down from the ceiling throughout the room.

Classroom management

Ultimately, for students to get the most out of their laptops, they should be used as an additional tool in the classroom with full support and direction from the teacher. Integrating the laptops into the classroom requires teachers adjusting their management style in certain areas, and coming to view laptops as useful for facilitating certain higher order thinking activities as well as a way to get students to read and write more.

Lids down, eyes on me

Working with laptops involves an additional measure of classroom management on the teacher's part. One adjustment is deciding when to divide the class into times during which laptops use is acceptable or encouraged, and other times when the teacher wishes to use direct instruction. One way to do this is by requesting students lower the lids when the teacher needs the class's full attention. Other teachers give strict instructions concerning when laptops may be brought out and turned on, preferring to teach and involve the students in a lesson without laptops in the first half of the class, then letting them work on the laptops in the second half to complete the assignment.

Games and bad sites

A consistent frustration of teachers working with laptops is their perception the students consider the laptops toys rather than tools. Online gaming and leisure sites seem to be constant distractions to students who use their laptops throughout the day. On the other hand, traditional distractions students have enjoyed down through the years seem to pale in comparison. The reality of the situation is that students are continuing a long and cherished tradition of staying off task, only now they are using technology to assist in their pursuits.

Teachers need to remain diligent to prevent students from accessing games, leisure sites, and adult sites (although filtering helps with this last issue, instances of bypassing the filters inevitably will occur). These issues are handled best by teachers giving upfront expectations concerning use of the laptops, and checking to make sure work is performed with formative and summative evaluations. Some teachers find they can easily keep tabs on students' screens by placing their desks in the back of the room. Teachers then have a view of the screens while the students have to turn around to see if they are being monitored.

Integrating

Laptops are an excellent tool for completing written assignments. Students can complete and submit assignments, teachers can grade and send the assignments back—all without printing. Laptops are also beneficial for complex science and math assignments, including graphing and advanced calculations. Teachers must keep an eye on the progress of the assignments in order to prevent off-task behavior.

A word of caution regarding typed assignments or note taking is in order. Many students are unable to type fast enough to take effective notes during lectures. Likewise, if students are going to be required to turn in typed assignments, additional time might be needed for completion.

PowerPoint presentations need to be dealt with carefully. Many students have a tendency to spend more time spicing up the presentations than actually delivering content. Teachers should illustrate to the students ahead of time what is not acceptable and what is expected. Fancy animated graphics and sound files will distract from presentations rather than add to them. Most of the time, teachers will want PowerPoint presentations to provide a minimal visual element for an oral report rather than becoming the report's primary focus.

A common occurrence with both PowerPoint presentations and word processed assignments is direct copying and pasting of content from Web sites. Plagiarism needs to be explained to the students and stressed that it is unacceptable. To prevent plagiarism, teachers should request

copies of all source material used to complete assignments, insist on traditional print material for some sources, and run suspect phrases in a search engine to determine if the student lifted the verbiage from the Web.

Conclusion

Laptops are highly beneficial tools for student learning. Unfortunately, they remain stubbornly expensive and require additional maintenance and management by administrators and teachers. Provided technology personnel approach the issues with good planning, and instructional technology personnel prepare and assist their teachers well, positive experiences can outweigh the negative.

Exposing students to laptops, whether in one-to-one placement programs or through mobile cart labs, will assist in preparing students for current and future skill acquisition. The text-intensive environments of word processing, e-mail, presentations, and the Web also expose students to considerable levels of reading and writing, which ultimately help test scores.

For additional information concerning the Rockdale Laptop Program, including various forms used, TIF reports, and evaluation documents, visit http://www.rockdaletexas.org/risd/technology/laptopgrant.htm

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