



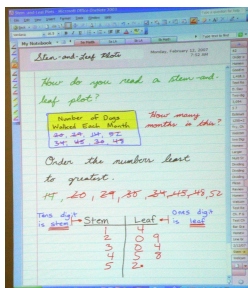
Effective Technology Integration in Instruction: Five Years of Tablet Computing

Technology integration has been a featured professional development topic in Bath County Public Schools since the advent of the personal computer, but it wasn't until fall of 2006 that teachers were finally given a technology tool that enabled them to move freely around the classroom with a powerful pen or touch-activated computer while keeping student attention focused on instruction at the front of the room. Since that time over eighty percent of the division's faculty have participated in a forty-five hour professional development program that encourages daily use of tablet PC technology, wireless projectors and other technology tools.



Technology integration program participants in Bath are assigned a convertible tablet PC (a notebook computer with a single-hinged display that folds down flat as a tablet computer) and a wireless LCD projector. These teachers attend thirty hours of class sessions to learn and share 21st Century teaching strategies that effectively integrate technology into daily instruction. Teachers learn how to use technology tools, including document cameras, scanners, digital cameras, Flip video camcorders, voice recorders and more. In addition to large group class sessions, participants meet with their school Instructional Technology Resource Teacher throughout the year for another 15 hours of individual or small group assistance. Forty-five license renewal points are awarded to participants after completion of this professional development program.

Both technology competence and integration into classroom instruction is expected of all teachers in Bath County Public Schools; all teachers have one or more classroom desktop computers and have access to other technology integration tools. Teachers that volunteer for the tablet PC technology integration program receive higher quality equipment and extensive professional development in exchange for their commitment to teaching strategies that most effectively use technology to enhance instruction. A departure from earlier initiatives, the voluntary nature of the technology integration program helps to ensure commitment from involved staff, reduces annual expenditures for necessary hardware and provides for smaller, more manageable groups in class sessions and ITRT contacts.



Microsoft OneNote software is a powerful presentation and organizational tool that is key to successful tablet PC integration. Teachers are trained in its use and are expected to share their "notebook" at each class session. OneNote allows a teacher to use the tablet as he/she would use a whiteboard and much more. Teachers are able to digitize paper documents via a scanner or document camera and import it into OneNote, allowing for annotations to be made on the tablet and projected for the class. The software also saves everything automatically and backs up data to the school server so the teacher has a record of everything done

with OneNote. Teachers are encouraged to use the tablet stylus whenever they might otherwise use a piece of chalk or a marker.

Technology integration project participants are taught integration strategies to make their instruction more engaging and to promote higher level thinking skills. The division has subscriptions to several online resources such as United Streaming and BrainPop, and teachers are shown how to integrate them into their classroom instruction. The tablet PC can also be passed to a student to use to complete a math problem, fill in blanks on worksheets, make screencasts, and much more. Teachers also learn about website development on the division's Sharepoint server, and how to create and best use web 2.0 services like blogs and wikis.



One of the central premises of the Bath technology integration program is that we are all learners. While the experienced technology staff have much to offer class participants, the strength of the program is how participants share their ideas and learning with each other—including technology staff members. Emergent technologies, new websites and specialized software are shared with the group as they become available.

iPads and other similar tablet devices are making their mark in public education—they do many wonderful things. For classroom teachers, however, the convertible tablet computer combines the touch/stylus features of the tablet with OneNote and other pen-based tools, but also the many advantages of a fully equipped notebook computer.

Bath County Public Schools uses interactive whiteboards in only a few specialized classrooms such as preschool and with our lowest functioning students with disabilities who may benefit from more gross motor manipulation of instructional materials. Students in Kindergarten through seniors are successful interacting with the tablet stylus. While the tablet computers can connect to interactive whiteboards and their associated software programs for untethered classroom instruction, the stylus and touch screens of the convertible tablet PC render the interactive whiteboard somewhat redundant.

School network infrastructure has played an invisible but important background role in the successful implementation of the technology integration program through the years. Tablet computers would lose much of their unique capability if they were tethered by a data cable, so numerous Cisco wireless access points have been strategically placed throughout school buildings to support technology integration. In addition to classroom use of tablet computers and projectors, mobile computer labs are used in classrooms and require the same wireless technology to connect them to the network and internet.



2010-11 Project Participants were issued either 12 inch or 13 inch Fujitsu Lifebook T4410 or T1010 convertible tablet computers running Windows 7 Pro, with Office 2007 and OneNote 2007 installed (in addition to a number of useful programs to assist with technology integration). Epson 826W 2500 lumen wide screen LCD projectors were mounted in classroom ceilings.

For further information about Bath County Public Schools' Tablet PC Technology Integration program, contact Paul Lancaster, Director of Technology & Administrative Services, 540-839-2722, pauill@bath.k12.va.us.